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PERI CENTRE FOR INNOVATION

1.Patent Title : **Intelligent Non-Lethal Elephant Deterrence System Using Dynamic LED Forest-Fire Simulation**

Application Number : 202641126439 **Published on** : 06/11/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(21) Application No.202641126439 A
(43) Publication Date : 06/11/2026

(54) Title of the invention : INTELLIGENT NON-LETHAL ELEPHANT DETERRENCE SYSTEM USING DYNAMIC LED FOREST-FIRE SIMULATION

(51) International classification	:G06K 9/00, A01M 29/16, G08B 17/00, G08B 17/12, G08B 17/10
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(32) Priority Date	:NA
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(57) Abstract :
The present invention relates to an intelligent, non-lethal system for reducing elephant intrusion into residential areas, agricultural lands, plantations, resorts and other human-use locations situated near forests, wildlife corridors and hill stations. The proposed system combines animal detection, image-based or thermal identification, movement-direction analysis, adaptive control and a dynamic LED-based simulated forest-fire display. When an elephant approaches a predetermined protected zone, one or more sensors detect its presence and transmit the detected information to a processing unit. The processing unit analyses the movement, approximate distance and direction of the elephant and determines an appropriate deterrence response. A programmable LED display then generates a dynamic visual representation of a forest fire through controlled variations in brightness, colour, flickering and flame-like movement, without producing actual flames, smoke or harmful heat. The system may further include interconnected LED units, solar power, rechargeable energy storage, a camera, communication modules and an event-recording system. Based on the movement of the elephant, different display units may be activated sequentially to create a directional visual boundary. The system can automatically reduce or terminate the visual stimulus when the elephant moves away from the protected zone. The invention provides an environmentally safer, automated and potentially scalable approach to human-elephant conflict management.

No. of Pages : 11 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

2. Patent Title : A CLOUD -BASED MODEL FOR DIABETES MONITORING AND HEALTH -MEDICAL SERVICE INTEGRATION

Application Number : 202441066145 **Published Date:** 13/09/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/09/2024

(21) Application No.202441066145 A
(43) Publication Date : 13/09/2024

(54) Title of the invention : A CLOUD -BASED MODEL FOR DIABETES MONITORING AND HEALTH -MEDICAL SERVICE INTEGRATION

(51) International classification	:C12N0007000000, A61P0009060000, C07C0233780000, A61P0035000000, A61P0007020000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract Diabetes is a prevalent chronic condition characterized by insufficient blood sugar levels. Early detection is crucial to mitigate serious health risks. In recent times, cloud environments powered by machine learning have become essential in diagnosing diseases. However, people in rural areas often lack adequate healthcare access. This invention introduces an automated eHealth cloud system· designed to detect diabetes at an early stage, thereby reducing mortality rates and improving healthcare services for rural populations. The system utilizes an Extreme Learning Machine (ELM), a type of Artificial Neural Network (ANN) known for its effectiveness in handling classification tasks. The research involves activities such as feature normalization, feature selection, and classification. Principal Component Analysis (PCA) is employed for feature selection, and the classification is carried out using ELM. The system operates within a cloud computing environment utilizing three virtual machines for diabetes detection.

No. of Pages : 9 No. of Claims : 7

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PERI CENTRE FOR INNOVATION

3.Patent Title : A NOVEL DENSENET BASED DEEP NEURAL NETWORK FOR ENHANCED TUBERCULOSIS DETECTION USING CHEST X RAY IMAGE

Application Number : 202441066144 **Published Date:** 20/09/2024

Type of Patent : With Collaboration **Funded By** : Self

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(19) INDIA
(22) Date of filing of Application :02/09/2024

(21) Application No.202441066144 A
(43) Publication Date : 20/09/2024

(54) Title of the invention : A NOVEL DENSENET BASED DEEP NEURAL NETWORK FOR ENHANCED TUBERCULOSIS DETECTION USING CHEST X-RAY IMA

(51) International classification	:A61K0039000000, B01D0053840000, A61P0033000000, A61P0011000000, H04W0024020000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
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(57) Abstract :
The present invention discloses a novel convolutional neural network (CNN) architecture named CBAMWDNet, specifically engineered for the automated classification o f medical images, with an emphasis , on detecting tuberculosis in chest X-rays. The architecture integrates a Convolutional Block Attention Module (CBAM) to enhance the network's focus on critical regions o f the input images, thereby improving feature extraction and overall classification accuracy. The deep learning network is composed o f multiple densely connected blocks, each designed to maximize information flow and mitigate common issues such as the vanishing gradient problem. The final classification is achieved through global average pooling followed by a fully connected- layer, providing a binary output indicative o f the presence or absence o f tuberculosis. The CBAMWDNet architecture offers a scalable and efficient solution for automated medical diagnostics, suitable for deployment in both advanced medical–facilities and resource-limited environments. This invention represents a significant advancement in the field o f medical image processing, contributing to faster and more accurate disease detection.

No. of Pages : 8 No. of Claims : 5

PERI CENTRE FOR INNOVATION

4.Patent Title : INNOVATIVE FAULT DETECTION FOR ELEVATOR ROPES USING MACHINE & NBSP; LEARNING ALGORITHM

Application Number : 202441068657 **Published Date:** 04/10/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :11/09/2024

(21) Application No.202441068657 A
(43) Publication Date : 04/10/2024

(54) Title of the invention : INNOVATIVE FAULT DETECTION FOR ELEVATOR ROPES USING MACHINE LEARNING ALGOROTHM

(51) International classification	:G06N0003080000, G06N0003045000, B66B0007060000, G06T0007000000, G06V0010820000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Elevators have become a ubiquitous mode of transportation, especially with the rise of high-rise buildings in recent decades. Ensuring the safety and reliability of elevator systems is critical, necessitating early detection of potential issues, particularly with elevator ropes. This research proposes a method to identify faults in elevator ropes using Convolutional Neural Network (CNN) algorithms to enhance traditional image processing techniques. Images are sourced from online repositories, and categorized based on the condition of the ropes. After preprocessing, a CNN algorithm is developed to test its detection and prediction capabilities, evaluating its computational efficiency. The proposed defect detection method, leveraging signal processing principles, promises rapid and accurate identification of elevator rope faults.

No. of Pages : 9 No. of Claims : 5

PERI CENTRE FOR INNOVATION

5.Patent Title : SECURE ENCRYPTED DATA DEDUPLICATION AND RECOVERY USING PROXY RE-ENCRYPTION AND KEYWORD SEARCH

Application Number : 202441071621 **Published Date:** 04/10/2024

Type of Patent : With Collaboration **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/09/2024

(21) Application No.202441071621 A
(43) Publication Date : 04/10/2024

(54) Title of the invention : SECURE ENCRYPTED DATA DEDUPLICATION AND RECOVERY USING PROXY RE-ENCRYPTION AND KEYWORD SEARCH

(51) International classification	:H04L0009400000, G06F0021620000, H04L0009080000, G06F0003060000, G06F0021600000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Cloud storage has become the preferred option for data storage due to its cost- effectiveness and convenience, especially in the current era characterized by an explosion of information. However, when multiple users store duplicate data, the storage efficiency of cloud servers is significantly reduced. While deduplicating plaintext data is straightforward, dealing with encrypted data poses challenges due to privacy concerns. To address this, the paper proposes a novel scheme that combines Proxy Re-Encryption (PRE) with Public Key Encryption with Keyword Search (PEKS) to achieve secure deduplication and data recovery for encrypted data among multiple users. This method ensures secure deduplication of identical files without compromising user privacy. The proposed scheme's efficacy and robustness have been validated through security analyses and experimental simulations, making it a promising solution for secure and efficient cloud storage management

No. of Pages : 13 No. of Claims : 10

PERI CENTRE FOR INNOVATION

6.Patent Title : DEVELOPMENT OF AN AUTOMATIC HYDRAULIC JACK FOR LIGHT VEHICLES

Application Number : 202441071634 **Published Date:** 04/10/2024

Type of Patent : With Collaboration **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/09/2024

(21) Application No.202441071634 A
(43) Publication Date : 04/10/2024

(54) Title of the invention : DEVELOPMENT OF AN AUTOMATIC HYDRAULIC JACK FOR LIGHT VEHICLES

(51) International classification	:B66F0007280000, H04L0067120000, B66F0007060000, B66F0003080000, B66F0007080000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention seeks to alleviate the difficulties often encountered in lifting different kinds of light vehicles, particularly in garages that are neither too big or too small. Methods for raising vehicles that have been around for a while sometimes involve a lot of manual labor and expertise. We have developed a novel automatic hydraulic jack system to address these concerns; it allows for the effortless lifting of automobiles from the ground at the touch of a button. A hydraulic cylinder receives fluid from the system when a solenoid valve is activated. The ram of the hydraulic cylinder serves as the mechanism for raising the object. All lifting actions are powered by the system's ability to generate and store hydraulic pressure, which is coupled to the vehicle's engine by a hydraulic pump. By eliminating the need for external power sources or manual pumping, this design guarantees that the lifting mechanism is always available for use. As an effective and user-friendly substitute for conventional screw jacks, our hydraulic jack system is designed to cater to the demands of small and medium- sized garages. Any anyone may use this automated device to safely and easily raise a vehicle, making maintenance a breeze.

No. of Pages : 11 No. of Claims : 6

PERI CENTRE FOR INNOVATION

7.Patent Title : HYPER SPECTRAL SENSING-BASED SYSTEM FOR SALAD LEAF DISEASE DETECTION AND PREDICTION USING MACHINE LEARNING ALGORITHMS

Application Number : 202441074598 **Published Date:** 11/10/2024

Type of Patent : With Collaboration **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/10/2024

(21) Application No.202441074598 A
(43) Publication Date : 11/10/2024

(54) Title of the invention : HYPER SPECTRAL SENSING-BASED SYSTEM FOR SALAD LEAF DISEASE DETECTION AND PREDICTION USING MACHINE LE

(51) International classification :A61B0005000000, G06N0020000000, G06N0003044000, A61B0005080000, G01N0033500000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
The present invention relates to a hyper spectral sensing-based system for real-time detection and prediction of diseases in salad leaves using machine learning algorithms. The system integrates a high-resolution hyper spectral imaging sensor that captures detailed spectral reflectance data from salad leaves, coupled with an AI board that processes the data using advanced machine learning techniques such as Principal Component Analysis (PCA), Multi-Statistics Feature Ranking, and Linear Discriminant Analysis (LDA). This allows for the accurate classification of healthy and diseased leaves, achieving an 84% classification accuracy. The system is designed for in-field use, providing immediate feedback via an LCD display and enabling remote monitoring through IoT connectivity. It represents a novel solution for rapid, non-invasive disease detection, significantly improving the efficiency of agricultural disease management.

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

8.Patent Title : INTEGRATED DOMESTIC IN HOUSE WASTE TREATMENT AND WATER RECYCLING SYSTEM FOR SUSTAINABLE LIVING

Application Number : 202441074600 **Published Date:** 11/10/2024

Type of Patent :All the Inventors with PERI **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/10/2024

(21) Application No.202441074600 A
(43) Publication Date : 11/10/2024

(54) Title of the invention : INTEGRATED DOMESTIC IN HOUSE WASTE TREATMENT AND WATER RECYCLING SYSTEM FOR SUSTAINABLE LIVING

(51) International classification	:G06Q0050260000, B09B0003000000, B09B0001000000, B65F0001140000, G06Q0010300000
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract The proposed system attempts to address a variety of household waste management, environmental pollution, reduction of man power usage to handling the waste by creating a small, home-based waste treatment and water extraction system. Numerous houses generate enormous volumes of waste on a daily basis,. which is frequently delivered by municipal workers to designated waste collecting places before ending up in landfills. During transportation, the production of leachate liquid that drains from waste poses major health risks because it can enhance mosquito breeding and other negative environmental effects. This leads to pollution, unclean conditions, and greater demand on landfills and more man power usage. Furthermore, the existing garbage disposal method is labour-intensive, requiring significant manpower and spending heavy expenses to transporting this waste. To solve these issues, the proposal suggests creating a treatment setup for home-based treatment facility. This device will be intended to process regular home waste using crushing and compression processes. The crushing mechanism breaks down the trash, while the fine compression process extracts water from it. The extracted water will be purified and made safe for use in,non-potable applications such as garden watering and toilet flushing. This strategy not only conserves water but also greatly reduces the volume of solid trash, making it easier to dispose of while minimizing environmental damage. The technology provides a sustainable solution by integrating waste management and water recycling at the household level. It contributes to a healthier environment by eliminating the need for trash transportation to distant landfills while also lowering the associated health hazards and pollution levels. This development aim is to reduce landfill waste , reduce the man power and conserve water resources, resulting in a cleaner and more sustainable urban living environment.

No. of Pages : 14 No. of Claims : 10

PERI CENTRE FOR INNOVATION

9.Patent Title : SOLAR POWER GENERATION FORECASTING SYSTEM USING RANDOM FOREST REGRESSION

Application Number : 202441076069 **Published Date:** 18/10/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :08/10/2024

(21) Application No.202441076069 A
(43) Publication Date : 18/10/2024

(54) Title of the invention : SOLAR POWER GENERATION FORECASTING SYSTEM USING RANDOM FOREST REGRESSION

(51) International classification	:G06F0018243000, G06N0005010000, G06N0020000000, G06N0020200000, G06N0007010000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Abstract The present invention relates to a method and system for forecasting solar power generation using a random· forest regression model. The system collects meteorological data such as irradiance, temperature, wind· speed, and humidity, preprocesses the data, and applies a machine learning model to predict solar power output. The random forest model provides high accuracy by averaging predictions from multiple decision trees, reducing the risk of overfitting and handling nonlinear relationships between variables. The system outputs real-time solar power forecasts and performance metrics, enhancing the integration of solar energy into electrical grids.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

10.Patent Title : DEVELOPMENT AND IMPLEMENTATION OF SOLAR WINDOW SYSTEM FOR RESIDENTIAL AND COMMERCIAL BUILDINGS

Application Number : 202441076090 **Published Date:** 18/10/2024

Type of Patent : Institute **Funded By** : Management (Cash)

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :08/10/2024

(21) Application No.202441076090 A
(43) Publication Date : 18/10/2024

(54) Title of the invention : DEVELOPMENT AND IMPLEMENTATION OF SOLAR WINDOW SYSTEM FOR RESIDENTIAL AND COMMERCIAL BUILDINGS

(51) International classification	:H02S0020230000, G06Q00050160000, F24S0020660000, F24S0020670000, E06B0009240000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT In contemporary society, energy is an essential requirement, and there is an increasing demand for alternate, unconventional power producing technologies. Governments have been promoting solar energy installation in all the residential and commercial buildings and homes, but the adoption rate is slow due to concerns about space consumption and installation costs, particularly when solar panels are placed on roofs. To address these difficulties, we suggest an innovative solution: solar windows for home and commercial buildings. A basic 2BHK house generally comprises 4 to 5 windows. We propose the integration of solar technology into these windows, enabling them to generate electricity and store it immediately in a battery for utilization. This method can mitigate electricity shortages by utilizing solar energy without requiring extra room or substantial expenses, given that windows are an essential feature of all structures. The solar windows are engineered to produce energy in both open and closed positio.ns, featuring solar materials affixed to both sides of the window. This advanced solar window system is appropriate for both singlefamily homes and multi-story structures, providing a compact and economical means to enhance electricity production. Also, this system just replace existing windows in to solar window without spent any additional cost and works.

No. of Pages : 17 No. of Claims : 5

PERI CENTRE FOR INNOVATION

11.Patent Title : DEEP-LEARNING BASED CYBER-ATTACK DETECTION FRAMEWORK FOR IOT NETWORKS

Application Number : 202441081303 **Published Date:** 01/11/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/10/2024
(21) Application No.202441081303 A
(43) Publication Date : 01/11/2024

(54) Title of the invention : DEEP-LEARNING BASED CYBER-ATTACK DETECTION FRAMEWORK FOR IOT NETWORKS

(51) International classification	:H04L0009400000, G06N0003080000, G06N0003044000, H04L0067120000, G06N0003045000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
A distributed deep-learning framework for detecting and classifying cyberattacks in IoT networks. The system utilizes Feed Forward Neural Network (FFNN) and Long Short-Term Memory (LSTM) models deployed on fog nodes to process network traffic data in real-time. It adopts a distributed learning mechanism where fog nodes collaborate with a centralized cloud node for continuous model optimization. The framework detects a wide range of attacks while minimizing latency and computational demands on IoT devices.

No. of Pages : 13 No. of Claims : 3

PERI CENTRE FOR INNOVATION

12.Patent Title : SPEECH STAMMER DETECTION SYSTEM USING SPECTRAL FEATURES AND ARTIFICIAL NEURAL NETWORKS

Application Number : 202441081304 **Published Date:** 01/11/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/10/2024

(21) Application No.202441081304 A
(43) Publication Date : 01/11/2024

(54) Title of the invention : SPEECH STAMMER DETECTION SYSTEM USING SPECTRAL FEATURES AND ARTIFICIAL NEURAL NETWORKS

(51) International classification	:G10L0025240000, G10L0025300000, G10L0015020000, G10L0025180000, G06N0003080000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
SPEECH STAMMER DETECTION BY SPECTRAL FEATURES BASED ARTIFICIAL NEURAL NETWORK Abstract The present invention provides a system and method for detecting stammering in speech signals using spectral feature extraction and a machine learning-based neural network classifier. Spectral features, including Mel Frequency Cepstral Coefficients (MFCC), Delta Delta MFCC, Pitch, Spectral Flux, and Spectral Centroid, are extracted from preprocessed speech signals. These features are fused into a feature vector and input into a Multilayer Perceptron Neural Network (MLP- NN) trained using Bayesian Regularization. The system achieves a classification accuracy of 99.2% in detecting stammered speech, making it a valuable tool for integration into speech recognition systems and assistive devices.

No. of Pages : 12 No. of Claims : 5

PERI CENTRE FOR INNOVATION

13.Patent Title : AUTONOMOUS ROAD MAINTENANCE VEHICLE FOR AUTOMATED ROAD REPAIR

Application Number : 202441085782 **Published Date:** 15/11/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :08/11/2024

(21) Application No.202441085782 A
(43) Publication Date : 15/11/2024

(54) Title of the invention : AUTONOMOUS ROAD MAINTENANCE VEHICLE FOR AUTOMATED ROAD REPAIR

(51) International classification	:G05D0001000000, E01C0023090000, G06Q0010087000, B25J0009160000, G06K0019070000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
This proposal outlines the design and development of an Autonomous Road Maintenance Vehicle (ARMV) aimed at automating the process of road repair. Utilizing advanced design software such as Catia, the project includes the procurement of necessary components for fabrication, assembly, and testing. The ARMV will be equipped with DC motor-powered wheels for mobility, a concrete tank for dispensing repair materials, and sensors to detect road defects like pits and obstacles. Upon detecting a pit, the vehicle will halt, dispense the required material, level the surface with an integrated roller, and resume its course. When encountering obstacles, the vehicle will autonomously navigate around them to continue its operation, ensuring efficient and continuous road maintenance.

No. of Pages : 12 No. of Claims : 7

PERI CENTRE FOR INNOVATION

14.Patent Title : REAL-TIME SOLAR RADIATION MONITORING SYSTEM USING DEEP LEARNING AND IMAGE PROCESSING

Application Number : 202441085787 **Published Date:** 15/11/2024

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :08/11/2024

(21) Application No.202441085787 A
(43) Publication Date : 15/11/2024

(54) Title of the invention : REAL-TIME SOLAR RADIATION MONITORING SYSTEM USING DEEP LEARNING AND IMAGE PROCESSING

(51) International classification	:G06N0003080000, G06N0003045000, C12M0001000000, G01T0007000000, G06V0010820000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
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(57) Abstract :
This invention introduces a solar radiation monitoring system that utilizes deep learning and image processing to estimate solar radiation levels in real time using satellite or sky images. The system leverages convolutional neural networks (CNN) to analyze atmospheric features, providing a scalable and accurate solution for wide-area solar radiation monitoring without the need for ground-based measurement devices. This system is particularly suitable for remote and underresourced regions, offering an efficient, cost-effective approach to solar radiation prediction. By integrating this monitoring system with solar energy plants and power grids, operators can dynamically adjust energy generation based on accurate radiation forecasts, improving grid management and reducing operational costs.

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

15.Patent Title : ENERGY-HARVESTING COMMUNICATION MODULES FOR IOT DEVICES

Application Number : 202441089472 **Published Date:** 29/11/2024

Type of Patent : Institute **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :19/11/2024

(21) Application No.202441089472 A
(43) Publication Date : 29/11/2024

(54) Title of the invention : ENERGY-HARVESTING COMMUNICATION MODULES FOR IOT DEVICES

(51) International classification	:H02N0002180000, H01M0010540000, B60H0001000000, H04W0052020000, H02J00073200000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
In modern applications, IoT devices are everywhere, with their functionality frequently constrained by battery power requirements. This dependence on batteries not only enlarges device dimensions and restricts deployment alternatives but also complicates environmental waste. To tackle these difficulties, we deliver a novel low-power communication module engineered to utilize ambient energy sources, including RF energy, vibrations, and solar radiation. This system autonomously generates electricity by merging RF energy harvesting, piezoelectric chips, and vibration energy capture techniques, thereby providing IoT devices with a sustainable power supply. The proposed module would allow IoT devices to function perpetually without requiring battery changes, thereby substantially prolonging their operational lifespan, particularly in remote or hard-to-reach areas. This technology has the potential to significantly diminish the environmental effect linked to battery disposal and enhance the sustainability of IoT solutions. The technology prolongs the operating lifespan of IoT devices, improves deployment flexibility, and significantly reduces environmental consequences from battery waste, rendering it especially beneficial for applications in detached or inaccessible regions.

No. of Pages : 16 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

16.Patent Title : DEVELOPMENT OF ELECTRICAL POWER GENERATION ON RAILWAY TRACKS

Application Number : 202441089473 **Published Date:** 29/11/2024

Type of Patent : Institute **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :19/11/2024

(21) Application No.202441089473 A
(43) Publication Date : 29/11/2024

(54) Title of the invention : DEVELOPMENT OF ELECTRICAL POWER GENERATION ON RAILWAY TRACKS

(51) International classification :F03G7/08, B61D43/00
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
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(57) Abstract :
The suggested technology aims to capture mechanical energy produced by trains on railway rails and transform it into electrical energy. When a train traverses the track, considerable mechanical energy is dissipated. This concept aims to harness energy through spring actuators located below the train track. The mechanical action of the spring actuators . converts linear motion into rotating motion via a rack and pinion gear. The rotary action is subsequently amplified using a gear mechanism linked to a shaft, which propels a spur gear arrangement to increase the rotational speeds. The rotational motion is transmitted to a DC generator, which generates electrical energy. The produced energy is then stored in a battery. This technology is specifically designed for the Indian railway network and may be readily implemented at essential railway stations, enabling uncomplicated maintenance and effective power transmission to the grid. The simplicity of deplo0nent and upkeep at essential railway hubs guarantees stable and dependable energy production, offering a sustainable resolution to power generation issues.

No. of Pages : 13 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
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PERI CENTRE FOR INNOVATION

17.Patent Title : AUTOMATIC GLUCOSE LEVEL IDENTIFICATION AND ALERT SYSTEM FOR PREVENTING BLOOD CLOTS IN PATIENTS

Application Number : 202441096342 **Published Date:** 13/12/2024

Type of Patent : Institute **Funded By** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/12/2024

(21) Application No.202441096342 A
(43) Publication Date : 13/12/2024

(54) Title of the invention : AUTOMATIC GLUCOSE LEVEL IDENTIFICATION AND ALERT SYSTEM FOR PREVENTING BLOOD CLOTS IN PATIENTS

(51) International classification	:A61B0005145000, G16H0020170000, H01M0010052500, A61M0005168000, C12Q0001000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
ABSTRACT The invention provides an automated system for monitoring glucose levels during intravenous therapy. This system addresses a critical issue in intravenous (IV) therapy caused by the depletion of glucose in IV containers. When medical staff or caregivers fail to stop the IV flow before the glucose is entirely consumed, it can lead to blood clots in the vein, causing significant pain and complications in locating alternative veins for future treatments. The proposed solution utilizes load cell sensors strategically positioned at the base of the IV stand to continuously monitor the glucose levels in the bottle. When the glucose concentration falls below a predefined threshold, an alarm system activates a buzzer, alerting both the patient and caregivers to shut off the IV valve promptly. This timely intervention prevents the fonnation of blood clots, enhances patient safety, and ensures smoother IV therapy administration. By offering a simple yet effective alert mechanism, this innovation significantly improves the reliability and safety ofiV therapy procedures.

No. of Pages : 16 No. of Claims : 6

PERI CENTRE FOR INNOVATION

18.Patent Title : DEVELOPMENT OF SMART HEADLIGHT INTENSITY MANAGER FOR AUTOMOTIVE VEHICLES TO PREVENT ACCIDENTS

Application Number : 202441096350 **Published Date:** 13/12/2024

Type of Patent : Institute **Funded By** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/12/2024

(21) Application No.202441096350 A
(43) Publication Date : 13/12/2024

(54) Title of the invention : DEVELOPMENT OF SMART HEADLIGHT INTENSITY MANAGER FOR AUTOMOTIVE VEHICLES TO PREVENT ACCIDENTS

(51) International classification	:B60Q0001140000, B60R0001080000, B60Q0001080000, B60J0003020000, A61B0017020000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Highway accidents are frequently caused by drivers failing to dim their vehicle headlights after utilizing the high beam, resulting in glare that distracts drivers of incoming vehicles, such as cars and motorbikes. This distraction can dramatically increase the likelihood of an accident. To remedy this issue, this invention presents a Smart Headlight Intensity Manager for automobile vehicles that incorporates an LDR (Light Dependent Resistor) sensor and a microcontroller. The system works automatically, when an oncoming car is detected, the LDR sensor detects the light generated by the headlights and sends a signal to the microcontroller. The microprocessor interprets this signal and operates a relay, which switches the vehicle's headlights from high to low beam. When the oncoming vehicle passes and no lights are detected of the opposite side, the system returns to high beam. This automated adjustment ensures that headlights are dimmed adequately without driver engagement, considerably decreasing glare and improving road safety. The planned system applies to all types of vehicles, including cars, buses, and trucks. Its installation is projected to reduce accidents caused by headlamp glare, resulting in safer highways and better driving experiences.

No. of Pages : 20 No. of Claims : 8

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PERI CENTRE FOR INNOVATION

19.Patent Title : NANOMATERIAL-BASED ENERGY STORAGE DEVICE WITH ENHANCED CAPACITY AND PERFORMANCE

Application Number : 202441100784 **Published Date:** 27/12/2024

Type of Patent : With Collaboration **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :19/12/2024

(21) Application No.202441100784 A
(43) Publication Date : 27/12/2024

(54) Title of the invention : NANOMATERIAL-BASED ENERGY STORAGE DEVICE WITH ENHANCED CAPACITY AND PERFORMANCE

(51) International classification	:H01M0010052500, H01G0011360000, H01G0011860000, B82Y0030000000, H01G0011260000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract Current energy storage technologies, such as lithium-ion batteries and supercapacitors, have intrinsic limitations in energy density, charging speed, cycle life, and environmental sustainability. Although lithium-ion batteries are commonly utilized, they have inefficiencies in terms of charging times and environmental impact. Supercapacitors excel at rapid energy discharge but lack the energy density required for long-term energy storage . This invention descibes a novel type of energy storage device that incorporates sophisticated nanomaterials like carbon nanotubes, graphene, and tailored nanostructures. By combining the advantages The suggested breakthrough IS a gamechanging approach to energy storage, with applications including electric vehicles, renewable energy

No. of Pages : 9 No. of Claims : 10

PERI CENTRE FOR INNOVATION

20.Patent Title : DEVELOPMENT OF FIRE-FREE BIO BRICK WITH WATER `HYACINTH AND INDUSTRIAL WASTE

Application Number : 202441100856 **Published Date:** 27/12/2024

Type of Patent :All the Inventors with PERI **Funded By** : Self

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(21) Application No.202441100856 A
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(54) Title of the invention : DEVELOPMENT OF FIRE-FREE BIO BRICK WITH WATER HYACINTH AND INDUSTRIAL WASTE

(51) International classification	:C02F0003320000, C04B0022060000, C04B0018080000, C04B0033320000, C04B0014040000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
DEVELOPMENT OF FIRE-FREE BIO BRICK WITH WATER HYACINTH AND INDUSTRIAL WASTE Abstract This invention focuses on the creation of an eco-friendly and sustainable bio brick, providing a novel solution to the environmental issues connected with typical burnt brick manufacturing. The bio brick is made from a new composition that combines 15% water hyacinth, 40% fly ash, 20% lime, 5% gypsum, and 20% M-sand, thereby eliminating the need for traditional clay and sand. Unlike regular bricks, which require high-temperature firing and result in considerable carbon emissions and resource depletion, this bio brick is made using a fireless process, making it a cleaner and more sustainable option. The use of water hyacinth, an invasive aquatic plant, tackles two key environmental issues: controlling water hyacinth infestations, which threaten aquatic ecosystems, and developing sustainable building materials. The use of fly ash, a by-product of coal combustion, in conjunction with gypsum and M-sand encourages the recycling of industrial waste, lessening the strain on landfills and the demand for natural resources. The resulting bio brick has equal strength, durability, and performance'to ordinary bricks, making it an attractive option for modern building. This idea promotes a circular economy strategy in the building sector by incorporating waste materials and limiting environmental impact, addressing worldwide concerns about pollution, resource scarcity, and sustainable development. This fire-free bio brick represents a significant advancement in green construction technology, paving the path for more environmentally responsible building methods.

No. of Pages : 10 No. of Claims : 8

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

21.Patent Title : A DYNAMIC PCM-BASED SMART SYSTEM FOR THERMAL INSULATION

Application Number : 202441100857 **Published Date:** 27/12/2024

Type of Patent : With Collaboration **Funded By** : Self

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(19) INDIA
(22) Date of filing of Application :19/12/2024

(21) Application No.202441100857 A
(43) Publication Date : 27/12/2024

(54) Title of the invention : A DYNAMIC PCM-BASED SMART SYSTEM FOR THERMAL INSULATION

(51) International classification	:C09K0005060000, F28D0020020000, G06N0020000000, H04W0072120000, G11C0013000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
A DYNAMIC PCM-BASED SMART SYSTEM FOR THERMAL INSULATION Abstract This Patent focuses on advancing thermal insulation technology through the use of dynamic phase change materials (PCMs). By leveraging the inherent ability of PCMs to absorb and release thermal energy during phase transitions (e.g., from solid to liquid or liquid to gas), this system offers a highly adaptable solution for diverse applications such as buildings, vehicles, and industrial equipment. Traditional PCMs are limited by fixed phase transition temperatures, but this innovative approach allows for the dynamic adjustment of the phase change point in response to environmental factors like temperature, humidity, and time of day.

No. of Pages : 9 No. of Claims : 10

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

22.Patent Title : ADAPTIVE OPTICAL SYSTEM FOR PRECISION ENERGY TRANSMISSION AND CONVERSION

Application Number : 202441103640 **Published Date:** 03/01/2025

Type of Patent : With Collaboration **Funded By** : Self (Cash)

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/12/2024

(21) Application No.202441103640 A
(43) Publication Date : 03/01/2025

(54) Title of the invention : ADAPTIVE OPTICAL SYSTEM FOR PRECISON ENERGY TRANSMISSION AND CONVERSION

(51) International classification	:A61B0017000000, H02S0010300000, A61B0018200000, A61N0007020000, G02B0027090000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention introduces a cutting-edge dynamic optical system designed for the precise and efficient transmission of focused energy. Leveraging advanced technologies such as adaptive lenses, AI-based tracking, and energy-efficient conversion mechanisms, this system is versatile and capable of delivering high-precision energy to both static and mobile targets. The system is adaptable to· a variety of energy forms, including laser beams, infrared radiation, and concentrated sunlight, providing flexibility in its application across multiple fields, such as defense, telecommunications, and renewable energy. One of the primary innova!tons In this sy>tcm i3 the real-tim~ heam correction feature, achieved through the use of deformable optics. These optics are capable of dynamically adjusting the shape of the transmitted energy beam to compensate for atmospheric disturbances, target motion, or misalignment, thereby ensuring consistent and accurate energy delivery. This ability to dynamically adjust the beam shape also reduces energy Joss and improves the overall' system efficiency, even in challenging environments where typical static beam optics would fail. Another key advancement is wavelength multiplexing, a technique that enables the simultaneous transmission of multiple energy channels through a single optical pathway. By utilizing different wavelengths for different channels, tlie system can efficiently handle several data streams or energy transfers at once, making it particularly suitable for applications that require the transmission of both energy and information, such as in advanced communication systems or multi-target energy delivery systems. To further enhance the system's energy efficiency, the invention integrates thermophotovoltaic (TPV) cells. These cells convert thermal radiation into electricity with high conversion efficiency, allowing for the reuse of waste heat generated by the system or by external energy sources. This feature significantly improves the overall performance of the system by ensuring that minimal energy is lost during conversion and transmission.

No. of Pages : 18 No. of Claims : 10

PERI CENTRE FOR INNOVATION

23.Patent Title : PREPARATION AND USE OF CHITOSAN OLIGOSACCHARIDE-BASED HYBRID MATERIALS FOR REMOVAL OF HEAVY METAL (PB) FROM WASTEWATER

Application Number : 202441103661 **Published Date:** 03/01/2025

Type of Patent : With Collaboration **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/12/2024

(21) Application No.202441103661 A
(43) Publication Date : 03/01/2025

(54) Title of the invention : PREPARATION AND USE OF CHITOSAN OLIGOSACCHARIDE-BASED HYBRID MATERIALS FOR REMOVAL OF HEAVY METAL (PB) FROM WASTEWATER

(51) International classification	:C02F0101200000, C02F0001280000, B01J0020280000, B01J0020300000, B01J0020200000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Preparation and Use of Chitosan Oligosaccharide-Based Hybrid Materials for Removal of Heavy Metal (Pb) from Wastewater
Abstract The current invention pertains to an innovative method for rapidly and effectively removing heavy metals, particularly lead (Pb), from wastewater utilizing hybrid materials derived from chitosan oligosaccharide (COS). The invention applies to the formulation of COS-based binary and ternary blends that include carboxymethyl carbohydrates, kaolin clay, and starch (CMS) as primary constituents. These blends act as efficient adsorbents for heavy metal remediation and may be crosslinked with glutaraldehyde (Glu) to further improve their adsorption performance. Key parameters, including pH levels, adsorbent dosage, contact time, and initial metal concentrations, are systematically optimized to achieve maximurh heavy metal removal. The method provides a cost-effective, eco-friendly, and highly efficient solution for the purpose of wastewater treatment contaminated with heavy metals.

No. of Pages : 16 No. of Claims : 7

PERI CENTRE FOR INNOVATION

24.Patent Title : SMART FOOTWEAR FOR SCHOOL KIDS: IOT-DRIVEN GPS AND SELF-SUSTAINING ENERGY SYSTEM

Application Number : 202441103669 **Published Date:** 10/01/2025

Type of Patent :All the Inventors with PERI **Funded By** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/12/2024

(21) Application No.202441103669 A
(43) Publication Date : 10/01/2025

(54) Title of the invention : SMART FOOTWEAR FOR SCHOOL KIDS: IOT-DRIVEN GPS AND SELF-SUSTAINING ENERGY SYSTEM

(51) International classification	:G06Q0040080000, G10L0015260000, H04L0051020000, G06N0020000000, G16H0050200000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Smart Footwear for School Kids: IoT-Driven GPS and Self-Sustaining Energy System Abstract This invention relates to the creation of a smart foot wear for schoolchildren, which incorporates GPS monitoring, IoT, and Self-Sustained Power Generation technologies to ensure their safety and security. The device embeds GPS units in the children's foot wears, allowing real-time tracking of their movements and locations. This innovation is especially advantageous in today's society, when children's safety during school hours, extracurricular activities, and overall mobility are top priorities. To power the GPS and microcontroller system, piezoelectric chips are sandwiched between the foot wear's bottom mould and top platform. These chips create electricity from the mechanical energy provided by the child's walking or running, resulting in a sustainable and self-sufficient power source. This eliminates the need for external charging and ensures that the system continues to function properly. Furthermore, the IoT-enabled architecture allows for seamless connectivity and communication, which increases the device's utility for parents and guardians. This smart safety foot wear system is a practical and dependable answer to children's safety issues, giving parents and guardians peace of mind while leveraging society to give a comprehensive safety mechanism.

No. of Pages : 13 No. of Claims : 9

PERI CENTRE FOR INNOVATION

25.Patent Title : ON-THE-GO TECHNOLOGY FOR ELECTRIC VEHICLES TO MAINTAIN BATTERY RESERVE

Application Number : 202541009398 **Published Date:** 14/02/2025

Type of Patent : With Collaboration **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/02/2025

(21) Application No.202541009398 A
(43) Publication Date : 14/02/2025

(54) Title of the invention : ON-THE-GO TECHNOLOGY FOR ELECTRIC VEHICLES TO MAINTAIN BATTERY RESERVE

(51) International classification :H02J7/14, B60L50/60, B60L50/62
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
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(57) Abstract :
Abstract ·The fast adoption of electric vehicles (EVs), such as e-bikes and electric cars, . i ' -IS making a substantial contribution: to sustainable mobility and environmental conservation. However, the need fov external charging infrastructure remains a significant barrier, especially in isolated places or during long-distance trips. To remedy this issue, this innovation suggests a unique onboard electrical generation device that uses the vehicle's motion to generate power. The proposed system includes a dynamo setup or an axle-mounted generator, or an electromagnetic induction-based device that converts rotational energy from wheel hubs or powertrain components into electricity. When an external charging station is unavailable, this mechanism activates selectively, allowing for real-time l energy generation and storage within' the vehicle's battery. By utilizing this self- ' . g>c;... ___ sustaining-po:wer_source,-the-v.ehicl–s-operational-range-is-inereased,-minimizing—- – i Q) · charging reliance and improving overall efficiency. -1-- This technology is applicable to all kind of electric vehicles, providing a – _ realistic and scalable strategy to increasing EV autonomy. The invention not only iinprovescusen-onve·rrit:ncce-IJut also ailt!slotne growtlf ol enviroiunentallyfiienCIly -LL. CIO transportation technologies.

No. of Pages : 9 No. of Claims : 5

PERI CENTRE FOR INNOVATION

26.Patent Title : DEVELOPMENT OF A SMART ELECTRIC LINE DETECTION AND ALERT SYSTEM FOR ENHANCED SAFETY IN TIPPER VEHICLES

Application Number : 202541027617 **Published Date:** 11/04/2025

Type of Patent : Institute **Funded By** : Self

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/03/2025

(21) Application No.202541027617 A
(43) Publication Date : 11/04/2025

(54) Title of the invention : DEVELOPMENT OF A SMART ELECTRIC LINE DETECTION AND ALERT SYSTEM FOR ENHANCED SAFETY IN TIPPER VEHICLES

(51) International classification	:G08G0001160000, B60Q0005000000, B60Q0009000000, G08B0021180000, B60W0030090000
(86) International Application No	:NA
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
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(57) Abstract :
ABSTRACT The present invention relates to a Smart Electric Line Detection and Alert System designed to enhance the safety of tipper vehicles during unloading operations. Tipper vehicles, commonly used in industries such as construction, mining, and logistics, face significant risks when their trailer portion is hydraulically lifted near overhead electrical lines. Accidental contact with these lines can lead to severe accidents, including electrical shocks, fires, equipment damage, and fatalities. To address this issue, the proposed system integrates infrared (IR) sensors and electromagnetic field (EMF) detectors for real-time monitoring and detection of overhead power lines. The IR sensors are positioned on the upper edges of the trailer to detect physical proximity to obstacles, while the EMF detectors sense the presence of high-voltage electromagnetic fields. The system's control unit processes sensor inputs and activates an alert mechanism, which includes an audio buzzer and visual indicators, to warn the vehicle operator. This innovative solution is designed to reduce the risk of accidents, improve operational safety, and provide a cost-effective safeguard for industries where tipper vehicles are widely used

No. of Pages : 13 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

27.Patent Title : HYBRID WIND SOLAR ENERGY GENERATION SYSTEM UTILIZING INTEGRATED SOLAR PANELS ON WINDMILL BLADES

Application Number : 202541027618 **Published Date:** 11/04/2025

Type of Patent : Institute **Funded By** : Management

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(54) Title of the invention : HYBRID WIND SOLAR ENERGY GENERATION SYSTEM UTILIZING INTEGRATED SOLAR PANELS ON WINDMILL BLADES

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(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT The present invention relates to a hybrid wind-solar energy generation system aimed at enhancing the efficiency, sustainability, and reliability of renewable power generation. The system innovatively integrates lightweight, flexible, thin-film solar panels onto both the front and rear surfaces of windmill blades, allowing simultaneous harnessing of wind and solar energy. This dual-energy approach addresses the limitations of traditional wind turbines, which rely solely on wind availability, by supplementing power generation with solar energy during daylight hours. The solar panels are designed to be lightweight and aerodynamically compatible, ensuring that they do not compromise the performance or rotational efficiency of the windmill blades. The strategic placement of the solar panels maximizes exposure to sunlight, thereby optimizing solar power generation even when the windmill is in motion. By utilizing the existing wind turbine infrastructure, the invention eliminates the need for additional space, thus offering a cost-effective and space-efficient solution for increasing renewable energy output. The system also leverages advancements in thin-film solar technology to minimize additional load on the windmill blades and enhance durability. This hybrid wind-solar energy system significantly improves energy generation efficiency, especially during periods of low wind speeds or inconsistent wind availability, contributing to the sustainable and continuous generation of electricity in a variety of environmental conditions.

No. of Pages : 16 No. of Claims : 10

PERI CENTRE FOR INNOVATION

28.Patent Title : GEOTHERMAL-ASSISTED THERMAL CONTROL SYSTEM FOR SUSTAINABLE HEATING AND COOLING

Application Number : 202541035480 **Published Date:** 02/05/2025

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(54) Title of the invention : GEOTHERMAL-ASSISTED THERMAL CONTROL SYSTEM FOR SUSTAINABLE HEATING AND COOLING

(51) International classification	:F24F0011460000, F24F0011300000, G05D0023190000, G06Q0010040000, F24F0110100000
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Abstract The present invention relates to a geothermal-assisted thermal control system designed to optimize energy efficiency in heating and cooling applications. The system integrates ground source heat pumps (GSHPs), a geothermal heat exchanger, an intelligent control unit, and IoT-based remote monitoring to regulate indoor climate conditions dynamically. Environmental sensors, including temperature, humidity, and occupancy detectors, continuously collect data, which is processed by a machine learning algorithm to optimize thermal settings based on real-time conditions and predictive analytics. The system features adaptive feedback mechanisms, remote diagnostics, and predictive maintenance, ensuring efficient operation, reduced energy consumption, and extended system lifespan. The modular design enables seamless integration with existing HVAC infrastructures, while an energy storage mechanism allows for thermal energy redistribution during peak demand periods. By leveraging geothermal energy, smart automation, and AI-driven optimization, the invention provides a sustainable, cost-effective alternative to conventional heating and cooling systems, significantly reducing carbon emissions and operational costs.

No. of Pages : 15 No. of Claims : 10

PERI CENTRE FOR INNOVATION

29.Patent Title : GYROSCOPE BASED VEHICLE COLLISION DETECTION AND EMERGENCY NOTIFICATION SYSTEM WITH GSM/GPS AND IOT INTEGRATION

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(19) INDIA
(22) Date of filing of Application :17/04/2025

(21) Application No.202541037172 A
(43) Publication Date : 02/05/2025

(54) Title of the invention : GYROSCOPE BASED VEHICLE COLLISION DETECTION AND EMERGENCY NOTIFICATION SYSTEM WITH GSM/GPS AND IOT INTEGRATION

(51) International classification	:C08B0021040000, G08B0025010000, G08B0021020000, G08B0025100000, G01S0019170000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Abstract The increase in traffic accidents in recent years highlights the critical necessity for swift and automated emergency response systems, especially when victims become disabled and unable to request assistance. We suggest the creation of a Vehicle Accident Information System that incorporates Gyroscope, GSM, GPS, and IoT modules to tackle this essential issue. The technology is engineered to autonomously identify critical incidents and promptly alert emergency agencies, relatives, and nearby hospitals. The system's core includes a gyroscope sensor to constantly track the vehicle's velocity and collision intensity. In the case of a slight collision or impact, the system skillfully eliminates false alarms and abstains from issuing notifications. Upon detection of a significant impact, as determined by a pre-established threshold, the gyroscope activates an emergency response mechanism. The GSM module transmits automatic alarm messages, while the GPS module supplies real-time location coordinates. This information is concurrently relayed to the nearest hospital, police station, fire station, and a designated home contact using GSM and IoT technology. This integrated system guarantees prompt delivery of assistance, markedly decreasing reaction times and potentially preserving lives. The implementation of real-time connectivity and intelligent sensors renders the suggested system very efficient, dependable, and essential for contemporary road safety management for all the automotive vehicle's.

No. of Pages : 17 No. of Claims : 6

PERI CENTRE FOR INNOVATION

30.Patent Title : INTELLIGENT VEHICLE TO VEHICLE COMMUNICATION SYSTEM USING DEDICATED SHORT RANGE COMMUNICATION FOR NOISE FREE TRAFFIC MANAGEMENT

Application Number : 202541037178 **Published Date:** 02/05/2025

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(43) Publication Date : 02/05/2025

(54) Title of the invention : INTELLIGENT VEHICLE TO VEHICLE COMMUNICATION SYSTEM USING DEDICATED SHORT RANGE COMMUNICATION FOR NOISE FREE TRAFFIC MANAGEMENT

(51) International classification	:G08G0001160000, G08G0001096500, B60Q0005000000, G08G0001010000, G08G0001096700
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract This concept uses Dedicated Short-Range Communications (DSRC) technology to minimize noise pollution caused by excessive honking in transportation. The system is intended for incorporation into all vehicles, allowing them to establish smooth wireless communication with other vehicles within a preset proximity range. Each car has a DSRC communication module, sensors, a control unit, and a driver interface that includes a visual display and an audio alarm on the dashboard. When a vehicle detects another vehicle approaching from any direction-front, rear, left, or right-within the communication range, the system is instantly triggered. It broadcasts and receives location, speed, and direction data from surrounding vehicles, which it then processes to offer the driver with timely alerts. These signals are transmitted via dashboard indicators and alarm systems, removing the requirement for horn-based communication. This dramatically lowers noise pollution, particularly in heavily populated metropolitan areas. Furthermore, the technology improves road safety and situational awareness by actively alerting drivers to nearby vehicles, blind spot entrances, and potential crashes. It also promotes smoother traffic flow and more efficient traffic management by establishing a connected vehicle environment. The proposed technology provides a sustainable and intelligent alternative to traditional honking methods that benefits both the environment and traffic safety.

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

31.Patent Title : SMART SWIMMING SAFETY FOOTWEAR WITH INTEGRATED LIDAR BASED DEPTH MONITORING AND IOT ALERT SYSTEM

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(54) Title of the invention : SMART SWIMMING SAFETY FOOTWEAR WITH INTEGRATED LIDAR BASED DEPTH MONITORING AND IOT ALERT SYSTEM

(51) International classification	:G08B0021080000, G01S0017890000, G01S0007481000, E04H0004060000, A63B0071060000
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The invention relates to a smart footwear system including low-power LiDAR sensors for real-time depth detection in swimming activities. The intelligent footwear has been designed to continuously assess water depth and detect if the user approaches a potentially hazardous area outside of the secure boundaries of a swimming pooL The device is especially effective in avoiding mishaps involving children who may mistakenly explore into deeper areas of the pooL The integrated LiDAR sensors assess the depth below the user, and if the depth above a specified limit, an alert is triggered and transmitted wirelessly through an loT -enabled " Hmodule to a linked mobile device (e.g., caretaker or coach's smartphone). This timely alert t.\ facilitates quick intervention and evacuation, protecting the- swimmer's safety. The device is Uwaterproof, can be used when swimming, and is appropriate for individuals of all ages. This ioeaimproves water safety via automated surveillance and prompt notifications.

No. of Pages : 10 No. of Claims : 6

PERI CENTRE FOR INNOVATION

32.Patent Title : SMART MODULAR BIOFUEL GENERATION SYSTEM USING GARDEN WASTE

Application Number : 202541039915 **Published Date:** 16/05/2025

Type of Patent : Institute **Funded By** : Management

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(19) INDIA
(22) Date of filing of Application :25/04/2025

(21) Application No.202541039915 A
(43) Publication Date : 16/05/2025

(54) Title of the invention : SMART MODULAR BIOFUEL GENERATION SYSTEM USING GARDEN WASTE

(51) International classification	:C02F0011040000, G06Q0050200000, C12M0001000000, C12P0005020000, F02D0041220000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to a modular system designed for converting garden waste into biofuel, specifically tailored for college'campus applications. The system integrates a dual-mode process, utilizing anaerobic digestion for biogas production i and pyrolysis for bio-oil and biochar generation. An advanced control unit, equipped with sensors and machine learning algorithms, analyzes waste composition and. optimizes processing conditions for maximum fuel yield. The system operates on solar ! power, ensuring energy efficiency and sustainability. A companion mobile application , enables real-time monitoring, fuel yield predictions, and system diagnostics. This p invention provides an eco-friendly, scalable, and cost-effective solution for colleges j aiming to reduce organic waste and generate renewable energy on-site.

No. of Pages : 19 No. of Claims : 8

PERI CENTRE FOR INNOVATION

33.Patent Title : SMART AND REAL TIME SURVEILLANCE SYSTEM FOR CONSTRUCTION SITE SAFETY USING YOLO OBJECT DETECTION AND FLASK FRAMEWORK

Application Number : 202541039951 **Published Date:** 16/05/2025

Type of Patent : Institute **Funded by** : Management

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(54) Title of the invention : SMART AND REAL TIME SURVEILLANCE SYSTEM FOR CONSTRUCTION SITE SAFETY USING YOLO OBJECT DETECTION AND FLASK FRAMEWORK

(51) International classification	:G06Q0010063500, E04G0021320000, G08B0021020000, G06Q0050260000, G08B0007060000
(86) International Application No Filing Date	:NA :NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Abstract Because of falls, fire, trash, and other unanticipated events, construction sites are naturally dangerous places where workers often run across lifethreatening hazards. Workers failing to use required precautionary equipment such industrial helmets, safety jackets, gloves, and safety boots is one of the main causes of these accidents. Even with set safety procedures, worker carelessness and inadequate monitoring sometimes cause major injuries or deaths. The suggested system uses the YOLO. (You Only Look Once) object detection structure linked with a Flask-based web framework to show a real-time safety equipment identification and notification web application addressing this problem. Through camera feeds, the technology tracks the building site constantly and automatically finds whether workers have the appropriate protective clothing on. Should any employee come across CD □) ra D- lacking the required safety equipment, the system sets off an alert and notifies the assigned site supervisors or accountable individuals for quick response. By guaranteeing compliance with personal protective equipment (PPE), the suggested solution not only automates the detection process, therefore lowering the need for continuous human monitoring, but also improves general site safety. The solution greatly lowers the risk of accidents by offering real-time alarms and visual insights, therefore preserving workers' life and advancing a safety-first culture in the building sector. This creative use of real-time communication and AI-driven detection acts as a proactive way of implementing safety rules, reducing injuries, and improving operational effectiveness on building sites.

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

34.Patent Title : DEVELOPMENT OF SELF-HEALING CONCRETE UTILIZING BACILLUS SUBTILIS BACTERIA WITH THE DENSITY OF 10^6 CELLS/MI

Application Number : 202541040031 **Published Date:** 23/05/2025

Type of Patent : Institute **Funded by** : Management

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(22) Date of filing of Application :25/04/2025

(21) Application No.202541040031 A
(43) Publication Date : 23/05/2025

(54) Title of the invention : DEVELOPMENT OF SELF-HEALING CONCRETE UTILIZING BACILLUS SUBTILIS BACTERIA WITH THE DENSITY OF 10^6 CELLS/MI

(51) International classification	:A61K0035742000, C12R0001125000, G16B0020000000, G16B0020400000, C12N0001200000
(86) International Application No Filing Date	:NA :NA
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(57) Abstract :
This hypothesis was empirically investigated to examine the crack-healing capability of bacteria, analogous to the healing process of a minor cut in the human body with basic care. Fissures in concrete pose a significant issue within the building sector. Generally, rectifying these fissures necessitates human involvement, which is frequently expensive. and, in many instances, impractical. The integration of bacteria into concrete presents a viable solution, likely diminishing maintenance requirements and improving the longevity of concrete constructions. A specific group of alkali-resistant, spore-forming bacteria, Bacillus subtilis, was selected at a precise density of 1 0^6 cells/mi. The bacterial concentration was included into the concrete mixture during casting. The experimental investigation evaluated the flexural behavior of self-healing concrete by analyzing its load-carrying capacity, energy absorption, stiffness, and ductility. The findings indicated that the self-healing concrete beams displayed enhanced load-bearing capability, improved energy absorption, and heightened deflection relative to traditional concrete beams. Nevertheless, the self-healing concrete exhibited somewhat decreased stiffness and ductility. These results validate that bioconcrete integrated with Bacillus subtilis markedly enhances structural performance while providing a sustainable and self-repairing alternative for the construction sector.

No. of Pages : 13 No. of Claims : 6

PERI CENTRE FOR INNOVATION

35.Patent Title : HYBRID RENEWABLE ENERGY SYSTEM INTEGRATING WIND TURBINE, SOLAR PHOTOVOLTAIC AND COMPRESSED AIR

Application Number : 202541040032 **Published Date:** 23/05/2025

Type of Patent : Institute **Funded by** : Management

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(43) Publication Date : 23/05/2025

(54) Title of the invention : HYBRID RENEWABLE ENERGY SYSTEM INTEGRATING WIND TURBINE, SOLAR PHOTOVOLTAIC AND COMPRESSED AIR

(51) International classification :H02J3/38, H02J3/32, F03D9/28, H02S10/12, H02J15/00, F03D9/17
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(61) Patent of Addition to Application Number :NA
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(57) Abstract :
The present invention discloses. a novel and integrated hybrid renewable energy system that effectively combines wind turbines, solar photovoltaic (PV) panels, and an air compressorbased energy storage mechanism to create a multifunctional platform capable of delivering electrical and mechanical energy. This system is designed to harness renewable energy efficiently and sustainably, ensuring maximum utilization of available resources while addressing the limitations of intermittency and energy storage associated with conventional renewable setups. During periods of surplus energy generation from wind or solar sources, excess electrical energy is used to power an air compressor, which stores energy in the form of high-pressure compressed air within reinforced storage tanks. Tlie stored compressed air serves as a reliable and nexible energy reserve, which can be released on demand to drive pneumatic tools or mechanical actuators, or further expanded through a pneumatic turbine to regenerate electricity, feeding it back into the system when renewable input is low. An intelligent Energy Management Controller (EM C) governs the dynamic distribution of energy by prioritizing direct load supply, compressed air charging, and optional battery storage based on real-time demand and system status. This hybrid system enhances energy autono"my, efficiency, and sustainability, making it particularly well-suited for off-grid communities, rural electrification, industrial setups, and emergency backup power applications. Its modular and scalable design offers a promising solution for the future of resilient and multipurpose energy systems.

No. of Pages : 16 No. of Claims : 6

PERI CENTRE FOR INNOVATION

36.Patent Title :HANDS-FREE HOME APPLIANCE CONTROL SYSTEM USING EYE BLINK DETECTION

Application Number : 202541043337 **Published Date:** 30/05/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/05/2025

(21) Application No.202541043337 A
(43) Publication Date : 30/05/2025

(54) Title of the invention : HANDS-FREE HOME APPLIANCE CONTROL SYSTEM USING EYE BLINK DETECTION

(51) International classification	:G06F0003010000, A61B0005110000, A61F0004000000, G06Q00300282200, A61H0003000000
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :
This innovation is about a device that allows people with severe physical limitations, including paralysis, to manage household appliances using their eyes. Standard household appliances such as lights, fans, alarms, air conditioners, and water heaters are normally operated by hand switches, which can be difficult, if not impossible, for people with little or no motor control of their limbs to reach. To allow for the hands-free operation of necessary home appliances, the suggested solution incorporates eye blink recognition technology. Mounted on the control boards of the appliances are components such as a power supply module, an eye blink sensor, automatic relays, and microcontroller units. If you want to turn the device on, just blink your eye once; if you want to turn it off, blink twice in a row. For people with physical disabilities, this system provides an affordable, dependable, and easy way to live independently. It can improve accessibility and quality of life when -Q) installed in nursing homes, hospitals, and rehabilitation centers.

No. of Pages : 9 No. of Claims : 6

PERI CENTRE FOR INNOVATION

37.Patent Title :ELECTRICITY ACCESS CONTROL SYSTEM USING PASSCODE AND IOT TECHNOLOGY

Application Number : 202541043338 **Published Date:** 30/05/2025

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/05/2025
(21) Application No.202541043338 A
(43) Publication Date : 30/05/2025

(54) Title of the invention : ELECTRICITY ACCESS CONTROL SYSTEM USING PASSCODE AND IOT TECHNOLOGY

(51) International classification :G07C0009000000, H04L0009400000, B60R0025250000, G06F0021440000, G05D0009120000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
The present invention relates to an dectricity access control system designed to prevent unauthorized usage and theft of electric power .. An encrypted mechanism based on passcodes and connected to the Internet of Things (loT) powers the system. The system, which includes an Internet of Things (loT) module, a keypad, an automatic relay, a circuit breaker, and a microcontroller (like Arduino) is installed just after the energy meter. By inputting a secure passcode on the keypad or remotely using the loT interface, authorized users can turn on or off the power. To unlock and activate the energy flow to the premises, only users with proper credentials can do so. This technology helps conserve a lot of power, makes the power supply more secure, and stops unauthorized people from getting to the power. It provides a clever, tamper-proof way to control and keep tabs on electricity distribution, and it works for homes, businesses, and factories.

No. of Pages : 15 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

38.Patent Title : INTELLIGENT HAND'S DETECTION ON THE HANDLEBARS AND ALERT MECHANISM FOR MOTORCYCLE SAFETY

Application Number : 202541047145 **Published Date:** 13/06/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/05/2025

(21) Application No.202541047145 A
(43) Publication Date : 13/06/2025

(54) Title of the invention : INTELLIGENT HAND'S DETECTION ON THE HANDLEBARS AND ALERT MECHANISM FOR MOTORCYCLE SAFETY

(51) International classification	:G02B0006020000, B60W0050140000, G08B0021060000, B62K0021120000, G08B0025010000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
Motorcyclists are especially at risk for accidents. resulting from inattentive or negligent riding, such as operating the vehicle.with one or no hands on the handlebars .. This innovation presents a safety system aimed at enhancing rider safety and reducing accident risks by ensuring both hands remain on the handlebars throughout riding. The device utilizes touch sensors mounted to both handlebars to detect the existence of the rider's hands. A microcontroller, such as an Arduino, perpetually observes sensor input. If one or both hands are detached from the handlebars for over 5 seconds, the system initiates a hearing alert by engaging the vehicle's horn via a relay. The system incorporates a GSM module that transmits an alarm message to a pre-registered mobile number to notify relevant parties of the safety infraction. The comprehensive configuration includes a microprocessor, touch sensors, relays, a horn interface, and a GSM communication module, thereby providing an automated, real-time safety intervention system for two-wheeler users

No. of Pages : 12 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

39.Patent Title : AI-BASED SMART TRAFFIC MANAGEMENT SYSTEM USING YOLOCNN AND RNN-LSTM FOR EMERGENCY AND DENSITY-BASED SIGNAL CONTROL

Application Number : 202541047146 **Published Date:** 13/06/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/05/2025

(21) Application No.202541047146 A
(43) Publication Date : 13/06/2025

(54) Title of the invention : AI-BASED SMART TRAFFIC MANAGEMENT SYSTEM USING YOLO/CNN AND RNN-LSTM FOR EMERGENCY AND DENSITY BASED SIGNAL CONTROL

(51) International classification	:G06N0003044000, G08G0001010000, G06N0003080000, G08G0001080000, G08G0001000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention relates to an AI-driven intelligent traffic management system intended to dynamically control traffic flow and prioritize emergency responses. The system utilizes a dual-algorithm methodology: YOLO (You Only Look Once) and Convolutional Neural Network (CNN) algorithms are employed for the real-time identification and prioritization of emergency vehicles, including ambulances, fire engines, and VIP convoys. Upon identification, the system autonomously modifies traffic signals to ensure a clean and unimpeded. route. A Recurrent Neural Network (RNN) utilizing Long Short-Term Memory (LSTM) is employed for density-based traffic light regulation. This enables the system to assess real-time traffic data and forecast vehicular flow patterns to enhance signal timings. Significantly, if no vehicles are identified in a specific direction, the signal phase for that direction is omitted, thereby minimizing superfluous delays and enhancing overall traffic efficiency. The integration of emergency vehicle identification and adaptive density-based traffic management markedly improves urban traffic responsiveness and reduces delays. The method is especially advantageous for smart city infrastructure seeking to include AI for efficient transportation management

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

40.Patent Title : ECO-FRIENDLY CEMENT ALTERNATIVE USING INDUSTRIAL BYPRODUCTS AND NATURAL POLYMER BINDERS

Application Number : 202541047139 **Published Date:** 13/06/2025

Type of Patent : With Collaboration **Funded by** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/05/2025
(21) Application No.202541047139 A
(43) Publication Date : 13/06/2025

(54) Title of the invention : ECO-FRIENDLY CEMENT ALTERNATIVE USING INDUSTRIAL BYPRODUCTS AND NATURAL POLYMER BINDERS

(51) International classification	:C04B0111000000, C04B0018140000, C04B0028000000, C04B0028080000, C04B0007153000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ECO-FRIENDLY CEMENT ALTERNATIVE USING INDUSTRIAL BYP,RODUCTS AND NATURAL POLYMER BINDERS Abstract The present invention discloses an eco-friendly cementitious composition that replaces conventional Portland cement with a synergistic blend of industrial byproducts and natural polymer binders. The formulation primarily comprises fly ash, ground granulated blast furnace slag (GOBS), and silica fume as pozzolanic and hydraulic binders, combined with biodegradable, plant-based polymers such as guar gum and lignin to serve as the binding matrix. An optional alkaline activator such as lime or sodium sili,cate may be included to initiate setting. The composition is mixed with aggregates and water to produce a sustainable construction material that . demonstrates high compressive strength, excellent durability, low shrinkage, and enhanced resistance to chemical attack. This cement-free alternative significantly reduces carbon emissions, energy consumption, and reliance on non-renewable resources. The invention also includes a method for manufacturing and curing the material under ambient conditions without the need for high-temperature processing, making it, suitable for a wide range of civil engineering and building applications.

No. of Pages : 14 No. of Claims : 10

PERI CENTRE FOR INNOVATION

41.Patent Title : STAIRCASE-BASED COMPRESSED AIR GENERATION SYSTEM FOR POWER PRODUCTION

Application Number : 202541049688 **Published Date:** 20/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/05/2025

(21) Application No.202541049688 A
(43) Publication Date : 20/06/2025

(54) Title of the invention : STAIRCASE-BASED COMPRESSED AIR GENERATION SYSTEM FOR POWER PRODUCTION

(51) International classification	:H02J0007000000, F21Y0115100000, G06Q0050200000, H02J0007340000, F03B0013240000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
The present invention discloses a staircase-based pneumatic energy harvesting system designed to convert mechanical energy from human footsteps into electrical energy. Each stair step is equipped with a spring-loaded air pump that compresses air when a person steps up or down. The compressed air from each pump is transferred through a series of pneumatic pipes and directed via an Air Release Valve (ARV) into a central air tank. This compressed air is stored and subsequently released in a controlled manner to drive an air turbine. The air turbine, coupled with an alternator, converts the kinetic energy of air into electrical energy. The electrical output from the alternator is used to charge a battery, which in turn supplies power to low-voltage electrical loads such as LED lighting or USB charging ports. This system is modular and scalable, making it suitable for various applications including public infrastructure, educational institutions, and off-grid locations. The setup provides a low-maintenance, cost-effective, and environmentally friendly alternative for small-scale energy generation utilizing everyday human activity.

No. of Pages : 15 No. of Claims : 10

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
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PERI CENTRE FOR INNOVATION

42.Patent Title : INTELLIGENT PILLOW FOR REAL-TIME VITAL SIGN MONITORING WITH EMERGENCY ALERT SYSTEM

Application Number : 202541049689 **Published Date:** 20/06/2025

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :23/05/2025

(21) Application No.202541049689 A
(43) Publication Date : 20/06/2025

(54) Title of the invention : INTELLIGENT PILLOW FOR REAL-TIME VITAL SIGN MONITORING WITH EMERGENCY ALERT SYSTEM

(51) International classification	:A61B0005000000, A61B0005024000, A61B0005021000, A61B0005020500, A61B0005110000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
This invention pertains to an intelligent health-monitoring smart pillow system aimed at mitigating the risk of unattended. medical emergencies during sleep. A significant number of individuals, especially the elderly and those with pre-existing health disorders, are subject to life-threatening incidents such as heart attacks, strokes of the brain, and irregular blood pressure variations during night-time periods, frequently lacking prompt access to aid. This invention incorporates various biomedical sensors into a cushion to continuously monitor essential health metrics, including blood pressure, pulse rate, heart rate, and other vital symptoms. The system is driven by a microprocessor and incorporates GSM and loT modules. Upon identifYing any abnormal physiological condition, the system autonomously engages a relay that activates the GSM and loT modules to transmit alert signals to designated caretakers or emergency contacts. Furthermore, an integrated buzzer is engaged to notifY nearby people for prompt intervention. This intelligent pillow offers a proactive approach to real-time health monitoring, rendering it particularly advantageous for the elderly, sick, and anyone with chronic medical issues

No. of Pages : 15 No. of Claims : 6

PERI CENTRE FOR INNOVATION

43.Patent Title : ADVANCED AND INTELLIGENT PREDICTIVE FRAMEWORK UTILIZING MACHINE LEARNING FOR ENHANCED ENERGY EFFICIENCY IN SMART GRID SYSTEM

Application Number : 202541052395 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/05/2025

(21) Application No.202541052395 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : ADVANCED AND INTELLIGENT PREDICTIVE FRAMEWORK UTILIZING MACHINE LEARNING FOR ENHANCED ENERGY EFFICIENCY IN SMART GRID SYSTEMS

(51) International classification	:G06Q0050060000, G06N0003044000, G06Q0010040000, G06N0003080000, G06N0020200000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
The invention relates to an AT-driven forecasting system and methodology aimed at enhancing energy consumption estimates in smart grid settings. This system utilizes sophisticated machine learning and deep learning algorithms, such as recurrent neural networks (RNN), long short-term memory networks (LSTM), and gradient-boosted decision trees (GBDT), to examine historical energy consumption patterns, real-time sensor data, environmental factors, and socio-behavioral variables. The algorithm continuously adjusts to fluctuations in consumption patterns and grid load through ongoing teaming and self-calibration methods. The invention's distinctive characteristic is its hybrid predictive architecture, which combines temporal data analysis with spatial correlation mapping across grid nodes, hence improving forecasting accuracy at both macro (regional) and micro (individual family or unit) levels. The system includes anomaly detection modules to discover and rectify data Q) anomalies, potential energy theft, or defects in the grid network. C) – The proposed innovation additionally facilitates real-time visualization dashboards, API connections for utility providers, and automated demand-response recommendations, thereby promoting effective grid management, decreased operating costs, and enhanced sustainability outcomes. This invention offers a scalable, secure, and adaptive architecture that constitutes the foundation of advanced smart energy infrastructure

No. of Pages : 15 No. of Claims : 6

PERI CENTRE FOR INNOVATION

44.Patent Title : SUSTAINABLE HYDROGEN GENERATION FROM LEACHATE USING LINSEED ENHANCED TiO2 PHOTOCATALYSIS

Application Number : 202541052396 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/05/2025

(21) Application No.202541052396 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : SUSTAINABLE HYDROGEN GENERATION FROM LEACHATE USING LINSEED ENHANCED TIO2 PHOTOCATALYSIS

(51) International classification	:B01J0035390000, B01J0035230000, C25B0001040000, B01J0021060000, B01J0021180000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to a novel method for the concurrent treatment of leachate and the sustainable production of hydrogen gas using a photocatalytic process utilizing linseed-doped titanium dioxide (Ti02). With the growing global demand for alternative energy sources, driven by the exhaustion of fossil fuels and increased environmental concerns, hydrogen has surfaced as a clean and efficient fuel. This idea utilizes the plentiful municipal leachate-typically generated in urban solid waste landfills-as a substrate for hydrogen generation. The procedure entails the synthesis of a new linseed-doped Ti02 photocatalyst, demonstrating improved photocatalytic efficacy under sunlight or UV exposure. Upon exposure to light alongside leachate, the doped catalyst' triggers a sequence of photochemical reactions that decompose organic components in the leachate, concurrently producing hydrogen gas as a by-product. The doping of TiOz with linseed extract promotes electron-hole separation, increases surface activity, and improves light absorption capacity, consequently dramatically augmenting hydrogen output. This dual-purpose approach provides an eco-friendly option to alleviate the detrimental impacts of leachate while facilitating the production of green hydrogen. The idea possesses significant potential for future applications in hydrogen-powered engines and energy systems, in accordance with global sustainability objectives and facilitating cleaner urban waste management:

No. of Pages : 15 No. of Claims : 6

PERI CENTRE FOR INNOVATION

45.Patent Title : AI-POWERED NON-INVASIVE MULTISENSOR APPROACH FOR ADHD AND OCD DETECTION

Application Number : 202541052387 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/05/2025

(21) Application No.202541052387 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : AI-POWERED NON-INVASIVE MULTISENSOR APPROACH FOR ADHD AND OCD DETECTION

(51) International classification	:G06V0040160000, G16H0050300000, A61B0005160000, G16H0020700000, G16H0010200000
(86) International Application No Filing Date	:NA :NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
This invention pertains to a real-time emotion detection and intervention system intended to assist individuals with mental health. issues, including Distress Hyperactivity Disorder (DHD), obsessive-compulsive disorder (OCD), and various stress-related disorders. The method is especially advantageous for high-risk populations, such as train operators, trauma survivors, those with hormonal dysregulations (e.g., irregular menstrual cycles), smokers, and alcohol consumers. It combines multimodal data from facial recognition, temperature sensors, sweat sensors, and accelerometers to perpetually track emotional and physiological states. In reaction to identified distress, the system provides 'prompt, non-invasive therapeutic measures. A salierit characteristic is its capacity to sustain uninterrupted functioning despite the limitation or unavailability of facial recognition, thereby guaranteeing ongoing monitoring and assistance. This idea rectifies the weaknesses of current mental health solutions by facilitating proactive, real-time evaluation and intervention, therefore enhancing overall mental health outcomes

No. of Pages : 13 No. of Claims : 7

PERI CENTRE FOR INNOVATION

46.Patent Title : DETACHABLE ICE INSERT AIR COOLER WITH QUICK CHANGE COLD PACKS

Application Number : 202541052388 **Published Date:** 27/6/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/05/2025
(21) Application No.202541052388 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : DETACHABLE ICE INSERT AIR COOLER WITH QUICK CHANGE COLD PACKS

(51) International classification	:B65D0081380000, F02B0029040000, B01L0007000000, F25D0003080000, F28D0015020000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The invention discloses a Detachable Ice-Insert Air Cooler with Quick-Change Cold Packs, designed for enhanced cooling performance. It features a thermally insulated, quick-release chamber that holds frozen packs for chilling airflow directly before it exits the cooler. This detachable design allows rapid cold-pack replacement without shutting off the unit, thus enabling continuous operation, improved efficiency, and easy maintenance. The system includes meltwater collection and optional temperature indicators for user convenience. Date : 30 -- ..2..0'25" PI –lot ---=-=" .I I. --=--- . Dr. Rajagopal M Mr. Kesavan

No. of Pages : 12 No. of Claims : 6

PERI CENTRE FOR INNOVATION

47.Patent Title : ACCIDENT DETECTION AND EMERGENCY ALERT SYSTEM BETWEEN VEHICLE TO VEHICLE USING LORA COMMUNICATION IN

Application Number : 202541052400 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/05/2025

(21) Application No.202541052400 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : ACCIDENT DETECTION AND EMERGENCY ALERT SYSTEM BETWEEN VEHICLE TO VEHICLE USING LORA COMMUNICATION IN HILL AREAS

(51) International classification	:G08G0001000000, G08G0001160000, H04W0004029000, H04W0004020000, G08B0025010000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Navigating sharp curves in mountainous regions poses a considerable hazard of vehicular collisions due to restricted sight and delayed emergency response attributed to inadequate network connectivity. This invention introduces a real-time vehicle-to-vehicle accident detection and alert system utilizing LoRa (Long Range) communication technology to improve road safety in distant hilly areas. The system employs an ESP32 microcontroller combined with a gyroscope sensor, vibration sensor, GPS module, and LoRa transceiver. The gyroscope senses abrupt angular movements that signify turns, whereas the vibration sensor detects collisions or rapid impacts. Upon identifying an abnormal tilt or collision, the ESP32 analyzes the data and transmits an emergency notification via LoRa to nearby vehicles fitted with a compatible receiver module. The receiving ESP32 unit triggers an audible buzzer and presents the incident details on an OLED screen, incorporating exact position data acquired from the GPS module. This facilitates prompt notifications to oncoming vehicles, launches swift rescue operations, averts subsequent crashes, and markedly decreases response time in accident-prone hilly regions. LoRa technology facilitates dependable long-range communication, even in areas with restricted or absent cellular coverage.

No. of Pages : 14 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

48.Patent Title : GLOW GUARD: A NIGHTTIME SAFETY STICK FOR VISUALLY IMPAIRED PERSON

Application Number : 202541052401 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :30/05/2025

(21) Application No.202541052401 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : GLOW GUARD: A NIGHTTIME SAFETY STICK FOR VISUALLY IMPAIRED PERSON

(51) International classification	:H02J0007000000, F21Y0115100000, A61H0003060000, A61H0003020000, A45B0003000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
A smart, battery-powered walking stick, termed "Glow Guard", designed to enhance nighttime safety for visually impaired persons and other users. The stick comprises a lightweight shaft, an integrated spiral LED lighting system with motion and light sensors, a detachable rechargeable power bank with USB output, and a solar panel for auxiliary charging. The device is weather-resistant and ergonomically designed, providing visibility, emergency signaling, and device-charging capabilities for users navigating low-light environments.

No. of Pages : 13 No. of Claims : 4

PERI CENTRE FOR INNOVATION

49.Patent Title : DEEP LEARNING-BASED DETECTION OF ALZHEIMER'S DISEASE USING CNNS ON MRI SCANS

Application Number : 202541055331 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/06/2025
(21) Application No.202541055331 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : DEEP LEARNING BASED DETECTION OF ALZHEIMER'S DISEASE USING CNNS ON MRI SCANS

(51) International classification :G06N0003080000, G06N0003045000, A61B0005000000, G06T0007000000, G16H0050300000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
Abstract- This invention presents a novel system and method for the early detection and categorization of Alzheimer's Disease (AD) via deep learning techniques, notably Convolutional Neural Networks (CNNs), applied to Magnetic Resonance Imaging (MRI) brain images. The invention overcomes the constraints of conventional diagnostic techniques, which frequently exhibit protracted durations,_ subjectivity, and dependence on clinical proficiency. The proposed approach utilizes a trained CNN architecture to autonomously extract and learn hierarchical features from structural MRI data, enabling precise identification of various stages of Alzheimer's, including Mild Cognitive Impairment (MCI) and advanced Alzheimer's Disease (AD). The invention encompasses preprocessing methods including normalization, skull stripping, and data augmentation to improve the quality and resilience of input images. The CNN model is enhanced by transfer learning and fine-tuning methods to augment generalization and classification efficacy across multi-class datasets. The system offers automated diagnostic assistance by generating very accurate. predictions with limited human involvement, hence enabling early intervention and treatment planning. The system is designed for scalability and integration with clinical imaging infrastructure, facilitating real-time deployment in hospital and diagnostic environments. The performance evaluation indicates enhanced accuracy, sensitivity, and specificity relative to conventional machine learning models and manual diagnoses. The concept possesses considerable potential to transform neurological healthcare by facilitating ·economical, non-invasive, and swift evaluation of Alzheimer's disease via MRI imaging .and artificial intelligence.

No. of Pages : 18 No. of Claims : 6

PERI CENTRE FOR INNOVATION

50.Patent Title : GESTURE-CONTROLLED MOUSE INTERFACE FOR PHYSICALLY IMPAIRED USERS

Application Number : 202541055330 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/06/2025

(21) Application No.202541055330 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : GESTURE CONTROLLED MOUSE INTERFACE FOR PHYSICALLY IMPAIRED USERS

(51) International classification	:G06F0003010000, G06F0003035400, A61B0005000000, A61B0005110000, G06F0003048830
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract This invention relates to a gesl].lre-controlled mouse system intended to aid anyone, especially those with physical disabi.l ities like paralysis,. in using a computer without conventional hand movements. Traditipnal mouse devices necessitate precise motor skills, presenting difficulties for individuals w!th restricted mobility. The suggested system employs gesture recognition technology via w–.a.r able sensors attached to the user's hand or arm. These sensors identify particular hand or :·finger gestures and convert them into corresponding mouse movements and click comm11nds on a computer interface. The technology provides ' easy, real-time control, enabling users to maneuver the mouse, execute clicks, and carry out fundamental actions autonomously. T–is breakthrough greatly improves accessibility and usability, enabling differently-abled p–rsons to engage with digital devices independently, thus fostering enhanced digital inclusion..

No. of Pages : 15 No. of Claims : 6

PERI CENTRE FOR INNOVATION

51.Patent Title : WALKING STICK WITH ROTATIONALLY EXPANDABLE BASE GRIP FOR STAIR CLIMBING STABILITY

Application Number : 202541054639 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/06/2025

(21) Application No.202541054639 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : WALKING STICK WITH ROTATIONALLY EXPANDABLE BASE GRIP FOR STAIR CLIMBING STABILITY

(51) International classification	:A61H0003020000, E01C0023088000, G06F0030170000, A45B0009020000, B62D0057032000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
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(57) Abstract :
The present invention relates to a walking stick with a manually expandable base grip designed to improve stability and safety on stairs and inclined surfaces. The base grip is operated by rotating a lower portion of the stick, which causes high-friction flaps to expand radially through a screw or cam mechanism. The system includes a locking feature to hold the expanded or retracted position. This fully mechanical design eliminates the need for electronics, making it user-friendly, cost-effective, and reliable for everyday use.D

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

52.Patent Title : SOLAR-POWERED SEMI-AUTOMATIC HAND MOPPING STICK

Application Number : 202541055326 **Published Date:** 27/06/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/06/2025

(21) Application No.202541055326 A
(43) Publication Date : 27/06/2025

(54) Title of the invention : SOLAR POWERED SEMI AUTOMATIC HAND MOPPING STICK

(51) International classification	:A47L0011400000, A47L0013200000, A47L0009280000, A47L0013256000, A47L0013220000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
ABSTRACT The present invention discloses a solar-powered, semi-automatic mopping stick designed to reduce manual labor while enhancing the efficiency of floor cleaning. The device comprises a rechargeable battery that is charged using solar energy,. making it environmentally friendly and suitable for use in areas with limited access to electricity. A compact DC motor powered by the battery generates rotary motion, which is converted into reciprocating motion using a crank-slider mechanism. This mechanism automates the to-and-fro scrubbing action of the mop head. The mop stick is ergonomically designed to allow users to simply guide it across the floor while the device performs the cleaning motion. The invention also includes a manual override for traditional operation, a control switch for user convenience, and provisions for portable solar panel charging. Its eco-friendly design, combined with enhanced user comfort, makes it ideal for domestic as well as institutional cleaning purposes.

No. of Pages : 11 No. of Claims : 3

PERI CENTRE FOR INNOVATION

53.Patent Title : ENHANCEMENT OF DIESEL ENGINE PISTON PERFORMANCE THROUGH PLASMA SPRAY COATING OF FUSED ZIRCONIA-ALUMINA CERAMIC COMPOSITE

Application Number : 202541058402 **Published Date:** 04/07/202

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :18/06/2025

(21) Application No.202541058402 A
(43) Publication Date : 04/07/2025

(54) Title of the invention : ENHANCEMENT OF DIESEL ENGINE PISTON PERFORMANCE THROUGH PLASMA SPRAY COATING OF FUSED ZIRCONIA-ALUMINA CERAMIC COMPOSITE

(51) International classification	:F02B0003060000, F02F0003000000, C23C0004020000, F02B0075020000, F02B0033040000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
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(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract This invention relates to a revolutionary technique for extending the lifespan of diesel engine pistons, augmenting overall engine performance, and mitigating hazardous emissions by the application of a ceramic coating consisting of 60% fused. zirconia and 40% alumina. The coating is specifically applied to the crown region of aluminum pistons utilizing the plasma spray process. The fused ceramic composite markedly enhances wear resistance and diminishes heat losses during combustion. These enhancements facilitate a more efficient and thorough burning of the air-fuel mixture within the combustion chamber. Consequently, there is a significant improvement in thermal efficiency, a decrease in unburnt hydrocarbons and particle emissions,- and an extended service life of the piston in high-temperature working circumstances. This technology offers an economical and resilient solution for contemporary CII diesel engines aiming for enhanced efficiency and compliance with rigorous emission standards.

No. of Pages : 12 No. of Claims : 6

PERI CENTRE FOR INNOVATION

54.Patent Title : AI-BASED SYSTEM FOR PREDICTING INSURANCE CLAIMS FROM VEHICLE ACCIDENT DAMAGE

Application Number : 202541058403 **Published Date:** 04/07/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :18/06/2025

(21) Application No.202541058403 A
(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-BASED SYSTEM FOR PREDICTING INSURANCE CLAIMS FROM VEHICLE ACCIDENT DAMAGE

(51) International classification	:G06Q40/00, G06Q40/08, G06N20/00
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :
ABSTRACT The assessment process for automobile accident insurance claims is frequently intricate, - labor-intensive, and susceptible to errors or fraudulent activities owing to manual review techniques. This innovation presents an AT-driven system that employs deep learning techniques to autonomously evaluate the degree of vehicle damage after an accident. The technology utilizes image recognition and analysis to precisely assess damage seventy, which is subsequently employed to determine a fair and objective insurance claim value. A Genetic Algorithm (GA) is employed to optimize the prediction ·process and improve accuracy. This invention utilizes artificial intelligence and evolutionary computation to enidicate false claims, underclaims, and overclaims, so assuring a transparent, efficient, and reliable insurance assessment process.

No. of Pages : 12 No. of Claims : 6

PERI CENTRE FOR INNOVATION

55.Patent Title : REAL-TIME EARTHQUAKE EARLY WARNING AND AGRICULTURAL SAFETY SYSTEM USING RTOS AND NODEMCU WITH INTEGRATED LANDSLIDE RISK ASSESSMENT

Application Number : 202541058404 **Published Date:** 04/07/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
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(21) Application No.202541058404A
(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME EARTHQUAKE EARLY WARNING AND AGRICULTURAL SAFETY SYSTEM USING RTOS AND NODEMCU WITH INTEGRATED LANDSLIDE RISK ASSESSMENT

(51) International classification	:G08B0021100000, G01V0001010000, G01V0001220000, G01V0001180000, G01V0001280000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Abstract This innovation introduces a Real-Time Earthquake Early Warning System (EEWS) based on a Real-Time Operating System (RTOS) framework, intended to provide swift, accurate, and directional seismic detection. This system employs embedded technologies like NodeMCU with built-in Wi-Fi, enabling immediate data collecting, processing, and wireless alert transmission to pertinent stakeholders, including farmers, disaster response teams, and local authorities.This system, unlike traditional EEWS solutions that provide broad alerts, features directional seismic wave detection, allowing for the identification of both the epicenter's direction and intensity. This information facilitates dynamic risk mapping and prioritization of evacuation tactics according to the anticipated severity in designated zones. The system incorporates a landslide susceptibility assessment module alongside seismic detection, which evaluates topography parameters, soil moisture, and seismic activity to predict landslide likelihood in susceptible agricultural areas. This feature is especially beneficial in mountainous regions and areas with substantial precipitation, where landslides present considerable risks after earthquake occurrences.The system transmits real-time notifications via Wi-Fi using NodeMCU, ensuring that farmers and rural communitiestypically the most impacted and least connected-receive prompt warnings to safeguard their lives, livestock, and agricultural resources. The system prioritizes Health, Safety, and Environmental (HSE) protocols, incorporating alarms, evacuation instructions, and emergency power backup to ensure uninterrupted operation during power outages. The invention enhances the sustainability of agricultural practices by reducing disruptions from natural disasters and bolsters food security and economic stability by maintaining farmland productivity. This integrated system addresses seismic and geotechnical hazards in real-time, bridging a crucial gap in rural disaster preparedness and providing a scalable, cost-effective, and efficient solution for disaster-prone agricultural ..- areas.

No. of Pages : 14 No. of Claims : 6

PERI CENTRE FOR INNOVATION

56.Patent Title : IOT-ENABLED AUTOMATIC MOVABLE SMART DUSTBIN WITH 360° VACUUM SUCTION AND AUTONOMOUS WASTE DISPOSAL FOR EFFECTIVE URBAN STREET CLEANING

Application Number : 202541058405 **Published Date:** 04/07/2025

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :18/06/2025

(21) Application No.202541058405 A
(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-ENABLED AUTOMATIC MOVABLE SMART DUSTBIN WITH 360° VACUUM SUCTION AND AUTONOMOUS WASTE DISPOSAL FOR EFFECTIVE URBAN STREET CLEANING

(51) International classification	:B65F0001140000, B65F0001160000, G06Q0050260000, G06Q0010063100, B65F0001120000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
B_S_T_R_A_ C T_ _____– ------ Urban waste management is a complex and resource-demanding endeavor, particularly in heavily populated urban areas. This proposal proposes the creation of a Smart Automatic Movable Dustbin to resolve this issue and enhance garbage collecting efficiency. This advanced waste receptacle is engineered to navigate urban streets autonomo\)sly, utilizing a 360-degree vacuum suction system to gather dispersed refuse. The trashcan features motorized wheels and a tracking system that permits 360-degree movement, facilitating access to rubbish from all angles. The motion is regulated via intelligent sensors and energized by a rechargeable battery system, rendering it energy-efficient and appropriate for uninterrupted operation during designated hours. The dustbin functions from 12:00 AM to 5:00AM, a timeframe characterized by limited human and vehicular traffic, hence assuring optimal cleaning with diminished risk and interruption. An inbuilt infrared sensor assesses the interior fill level of the trashcan. Upon reaching about 70% capacity, the bin transmits an automatic notification to the waste collection personnel via a GSM module. Furthermore, IoT technology facilitates the transmission of this status to the centralized waste management system for real-time oversight. The dustbin may autonomously navigate to the nearest disposal location where a garbageman will ,unload the gathered waste, either according to a timetable or when it is full. This system integrates intelligent .mobility, vacuum-based garbage collection, real-time monitoring, and autonomous disposal, therefore substantially diminishing manual labor requirements, enhancing operational efficiency, and fostering a cleaner, more intelligent, and sustainable urban environment. Multiple smart trashcans will be deployed to ensure more effective results. The initial implementation will begin in a remote rural area, such as a village. Following successful outcomes, the project is expected to gain government interest, leading to wider recognition and potential global adoption

No. of Pages : 10 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

57.Patent Title : SOLAR POWERED GEAR PUMP-DRIVEN PAINT SUPPLY SYSTEM

Application Number : 202541058341 **Published Date :** 04/07/2025

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(22) Date of filing of Application :18/06/2025

(21) Application No.202541058341 A
(43) Publication Date : 04/07/2025

(54) Title of the invention : SOLAR POWERED GEAR PUMP DRIVEN PAINT SUPPLY SYSTEM

(51) International classification	:H02J0007000000, B05B0013020000, B05B0009040000, H02J0007350000, F04C0002180000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The invention discloses a solar-powered gear pump-driven paint supply system designed for continuous and uniform paint delivery in roller-based painting applications. The system comprises a solar panel, a rechargeable battery, a charge controller, a compact gear pump, a sealed paint reservoir, flexible tubing, and a roller handle with an integrated paint channel and micro-perforated sleeve. Upon user activation, the gear. pump draws paint from the reservoir and delivers it directly to the roller head, enabling efficient; mess-free painting without the need for · manual dipping. The invention is portable, eco-friendly, and suitable for both indoor and outdoor environments, particularly in off-grid or power-limited locations

No. of Pages : 15 No. of Claims : 10

PERI CENTRE FOR INNOVATION

58.Patent Title : PERSONAL PROTECTIVE FOOTWEAR WITH NON-CONTACT ELECTRIC FIELD DETECTION FOR ENHANCED SAFETY IN WET ENVIRONMENTS

Application Number : 202541063085 **Published Date:** 11/07/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/07/2025

(21) Application No.202541063085 A
(43) Publication Date : 11/07/2025

(54) Title of the invention : PERSONAL PROTECTIVE FOOTWEAR WITH NON-CONTACT ELECTRIC FIELD DETECTION FOR ENHANCED SAFETY IN WET EN

(51) International classification	:G08B0021020000, F16P0003140000, H02H0005120000, G01R0029080000, A41D0013010000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Flood-affected and water-logged areas provide significant hazards to electrical workers and the public, owing to the hidden threat of submerged live electrical cables and damaged power infrastructure. Conventional portable electric testers are insufficient in these situations since they necessitate manual operation, physical closeness, and direct user engagement, hence substantially elevating the risk of electric shock prior to the evaluation of electrical current presence. The current innovation presents Electric Safety Boots equipped with an Integrated Wireless Current Detection System to address these constraints and improve safety in perilous, high- moisture conditions. These intelligent safety boots are designed with a non-contact, wireless electromagnetic field (EMF) sensing unit integrated into the sole or structural body of the footwear. The device perpetually monitors the environment for electromagnetic fields linked to active electrical sources. Upon sensing a live current within a designated safety perimeter, the embedded system promptly engages a dual-alert mechanism comprising high-visibility LED indicators and an audible buzzer to advise the user of potential electrical hazards. This early-warning technology delivers real-time notifications prior to any physical contact, thus reducing the risk of electrocution and facilitating proactive decision-making in essential field operations. The invention is especially beneficial for emergency response teams, utility personnel, and anyone working in flood-impacted regions. This innovation enhances occupational safety and situational awareness in electrically hazardous areas by incorporating life-saving electrical hazard detection into personal protective equipment (PPE).

No. of Pages : 13 No. of Claims : 6

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

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PERI CENTRE FOR INNOVATION

59.Patent Title : INVERTER FREE SOLAR AIR CONDITIONER FOR SMART HOMES

Application Number : 202541063086 **Published Date:** 11/07/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/07/2025

(21) Application No.202541063086 A
(43) Publication Date : 11/07/2025

(54) Title of the invention : INVERTER FREE SOLAR AIR CONDITIONER FOR SMART HOMES

(51) International classification	:H02J0007350000, F25B0021020000, H02J0003380000, F25B0027000000, F24F0005000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention discloses pn inverter-free solar-powered air conditioning system designed for energy-efficient cooling in smart homes and off-grid environments. The system utilizes thermoelectric (Peltier) modules as the primary cooling mechanism, powered directly by direct current (DC) electricity generated from photovoltaic solar panels. A charge controller regulates the power flow, optionally supporting battery storage for uninterrupted operation during non-sunlight hours. Heat sinks, brushless DC fans, and an insulated chamber are integrated into the cooling unit to ensure optimal thermal exchange. By eliminating the need for AC inverters and compressor-based refrigeration, the system offers a compact, silent, low-maintenance, and eco-friendly solution ideally suited for small living spaces, portable shelters, and net-zero energy buildings.

No. of Pages : 15 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

60.Patent Title : SOLAR BLOOM TRIMMER: A SOLAR-POWERED DECORATIVE PLANT CUTTER

Application Number : 202541063088 **Published Date:** 11/07/2025

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(21) Application No.202541063088 A
(43) Publication Date : 11/07/2025

(54) Title of the invention : SOLAR BLOOM TRIMMER: A SOLAR-POWERED DECORATIVE PLANT CUTTER

(51) International classification	:A01G0003040000, G06Q0010200000, A01D0034416000, A01G0007060000, F21S0009030000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention discloses a solar-powered decorative plant trimming device, termed Solar Bloom Trimmer, designed for precision cutting and artistic shaping of plants such as bonsai; hedges, and ornamental foliage. The device comprises an ergonomically designed body integrated with flexible solar panels that charge a built-in rechargeable battery. It features interchangeable cutting heads for various trimming styles and attachable smart templates for guided shaping into predefined decorative patterns. The trimmer includes selectable power modes suitable for both delicate and dense plant structures. In certain embodiments, the device further incorporates a wireless connectivity module for integration with a mobile application; enabling trimming pattern selection, battery monitoring, and maintenance scheduling. The invention offers an eco-fricndly,' portable, and user-friendly solution for sustainable gardening and landscape artistry.

No. of Pages : 14 No. of Claims : 7

PERI CENTRE FOR INNOVATION

61.Patent Title : SMART COOLING COAT USING PELTIER BASED THERMOELECTRIC MODULES FOR OUTDOOR HEAT RELIEF

Application Number : 202541063095 **Published Date:** 11/07/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/07/2025

(21) Application No.202541063095 A
(43) Publication Date : 11/07/2025

(54) Title of the invention : SMART COOLING COAT USING PELTIER BASED THERMOELECTRIC MODULES FOR OUTDOOR HEAT RELIEF

(51) International classification	:A41D0013005000, A61F0007000000, A41D0013002000, A41D0013010000, F25B0021040000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Prolonged outdoor activities under excessive heat and solar radiation present considerable health and comfort issues, such as dehydration, heat exhaustion, and diminished productivity .. Current apparel does.not offer sufficient thermal regulation, frequently intensifying heat retention. The current innovation addresses this constraint by presenting the AC Coat-a portable, lightweight, and energy-efficient personal cooling device that incorporates thermoelectric technology directly into the fabric. The AC Coat employs Peltier thermoelectric modules, small heat sinks, micro-fans, and an integrated rechargeable battery system within its fabric to actively dissipate heat from the body .. The design is ergonomically developed for enhanced mobility, visual attractiveness, and usercontrolled cooling via a digital interface or switch, facilitating personalized temperature setting. The AC Coat is made from UV-resistant, breathable, and durable fabrics, providing protection against harmful ultraviolet radiation, hence increasing its functionality in tropical, desert, and metropolitan settings. It is specifically intended for persons subjected to outside heat, including traffic police, construction workers, delivery personnel, farmers, and motorcycle riders. This development signifies a notable progression in wearable temperature control technology, providing a proactive remedy to heat-related work risks and public health issues during global climate change. It enhances safety, productivity, and comfort for users functioning under adverse environmental circumstances.

No. of Pages : 15 No. of Claims : 6

PERI CENTRE FOR INNOVATION

62.Patent Title : **AUTOMATIC WESTERN TOILET SYSTEM FEATURING UV-C DISINFECTION,WATER-EFFICIENT FLUSHING, AND REAL-TIME AVAILABILITY MONITORING**

Application Number : 202541068220 **Published Date:** 25/07/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :17/07/2025

(21) Application No.202541068220 A
(43) Publication Date : 25/07/2025

(54) Title of the invention : AUTOMATIC WESTERN TOILET SYSTEM FEATURING UV-C DISINFECTION,WATER EFFICIENT FLUSHING,AND REAL-TIME AVAILABILITY MONITORING

(51) International classification	:A61L0002240000, A47K0013100000, E03D0005100000, A61L0002100000, B08B0009032000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The innovation pertains to the creation of an Automatic Self-Cleaning Western Toilet System that incorporates superior hygiene, water conservation, and smart connectivity elements to transform public and private sanitation facilities. This system aims to improve user convenience, minimize manual intervention, and foster sustainability. It utilizes load cell weight sensors. integrated into the seat lid to ascertain user presence, activating automated flushing through a servo motor mechanism. The operation of a touchless urinal is facilitated by infrared (IR) sensors, allowing for hands-free flushing and automatic toilet lid functionality, thus reducing contact and enhancing cleanliness. UV -C LED modules are utilized for disinfection, sanitizing the toilet bowl after each usage and successfully eradicating hazardous bacteria. A hot air blower incorporated into the seat lid offers hygienic drying for users. To enhance water efficiency, the flush tank is deliberately positioned at an elevation of 5 feet to utilize gravitational pressure, facilitating effective cleaning with reduced water usage. A water level monitoring sensor in the primary tank guarantees flushing occurs solely when sufficient water. is present, thereby preventing wastage during low-water condition's. The system includes a real-time tracking capability through a mobile application that informs users about nearby toilet availability, cleanliness state, and maintenance schedules, hence enhancing accessibility and management of sanitation infrastructure. This integration of automated functionality, intelligent disinfection, resource efficiency, and IoT-based monitoring creates an innovative, sustainable, and user-oriented toilet system appropriate for both urban and rural settings.

No. of Pages : 12 No. of Claims : 8

PERI CENTRE FOR INNOVATION

63.Patent Title : **INTELLIGENT BIDIRECTIONAL EV CHARGING SYSTEM WITH P&O ALGORITHM-BASED DYNAMIC ENERGY OPTIMIZATION**

Application Number : 202541077119 **Published Date:** 29/08/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :13/08/2025

(21) Application No.202541077119 A
(43) Publication Date : 29/08/2025

(54) Title of the invention : INTELLIGENT BIDIRECTIONAL EV CHARGING SYSTEM WITH P&O ALGORITHM BASED DYNAMIC ENERGY OPTIMIZATION

(51) International classification	:B60L0055000000, H02J0003380000, G06Q0050060000, H02J0003320000, H02J0007000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
iABSTRACT The current invention relates to an intelligent electric vehicle (EV) charging system that facilitates effective bidirectional power transfer between electric vehicles and the electrical grid, incorporating both Vehicle-to-Grid (V2G) and Grid-to-Vehicle (G2V) functionalities. The fundamental innovation resides in the incorporation of a Perturb and Observation (P&O) algorithm, conventionally utilized in Maximum Power Point Tracking (MPPT), which has been re-engineered and integrated into a dynamic logic control system. This enables real-time optimization of energy flow during charging and discharging cycles, enhancing the overall energy efficiency and responsiveness of the EV charger. In G2V mode, the system facilitates reliable charging of the electric vehicle battery via the utility grid by dynamically modulating voltage and current, while integrating safeguards against overcharging, thermal runaway, and voltage fluctuations. In V2G mode, the system allows stored energy in the EV battery to be returned to the grid during periods of peak demand or grid failures. This converts the electric vehicle into a mobile energy storage system that can actively enhance grid stability and resilience. The inbuilt P&O algorithm persistently observes control parameters, including the duty cycle and reference voltage, and strategically adjusts them to identifY optimal operational points. This guarantees that energy transfer-whether from grid to car or vehicle to grid---<>ccurs with optimal efficiency, reducing losses and promoting sustainability. The system architecture consists of: • Bidirectional DC-DC and DC-AC converters • Modules for real-time monitoring of voltage and current • A control unit utilizing a microcontroller or Digital Signal Processor (DSP) • Communication interfaces for smart grid demand response and tariff-based scheduling Modules for user interface control and monitoring The invention is compatible with smart. grids, facilitating flexible scheduling, optimization based on real-time energy pricing, and seamless integration with renewable ... energy sources. The technology improves grid reliability, facilitates distributed energy resource.(DER) management, and promotes the decentralized energy economy by utilizing electric vehicles as mobile, flexible energy.storage nodes. This method enhances energy efficiency and substantially aids in achieving decarbonization objectives and the advancement of smart energy networks.

No. of Pages : 14 No. of Claims : 8

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

64.Patent Title : **INTELLIGENT LANE DRIFT DETECTION AND DRIVER ALERT SYSTEM FOR ENHANCED ROAD SAFETY**

Application Number : 202541077120 **Published Date:** 29/08/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :13/08/2025

(21) Application No.202541077120 A
(43) Publication Date : 29/08/2025

(54) Title of the invention : INTELLIGENT LANE DRIFT DETECTION AND DRIVER ALERTS SYSTEM FOR ENHANCED ROAD SAFETY

(51) International classification	:G08G0001160000, G06V0020560000, B60W0030120000, B60W0050140000, B60Q0009000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT Unintentional lane departure is a primary contributor to vehicular accidents, especially during extended journeys, driver fatigue, or brief distractions. The suggested innovation presents an Intelligent Lane Departure Detection and Directional Alert System, which is integrated into the vehicle's dashboard and control system to reduce this safety risk. This technology continuously observes the vehicle's position in relation to road lane markings through the use of sensors and cameras. Upon detecting that the vehicle is unintentionally drifting out of its allotted lane without prior activation of a tum signal, the system promptly engages a directional alert mechanism. This features an audio warning to alert the driver and a visual indicator on the dashboard displaying the precise side of lane departure (left or right). This dual-mode alert enables the motorist to promptly react and safely re-enter the appropriate lane. The system is sufficiently smart to distinguish between deliberate lane changes with appropriate signs and unintentional drifts. When the driver activates the tum signal for a lane change, the device remains idle, permitting standard lane changes. In the absence of such a signal, each lane departure activates the warning system. This function guarantees improved safety while without disrupting normal driving practices. This idea can significantly reduce side-swipe collisions, road departure incidents, and enhance overall road safety, especially on highways and multilane tho"roughfares.

No. of Pages : 12 No. of Claims : 8

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

65.Patent Title : **SMART MIRROR WITH AI-BASED HEALTH DIAGNOSIS VIA FACIAL MICRO-EXPRESSIONS**

Application Number : 202541077121 **Published Date:** 29/08/2025

Type of Patent : **Institute** **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :13/08/2025

(21) Application No.202541077121 A
(43) Publication Date : 29/08/2025

(54) Title of the invention : SMART MIRROR WITH AI-BASED HEALTH DIAGNOSIS VIA FACIAL MICRO-EXPRESSIONS

(51) International classification	:A61B0005000000, G16H0050200000, G06N0020000000, G06V0040160000, A61B0005024000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to a smart mirror system integrated with artificial intelligence (AI) for non-invasive, real-time health diagnosis through the analysis of facial microexpressions. The system comprises a partially reflective digital display mirror embedded with high-resolution RGB and infrared cameras, environmental sensors, and a processing unit configured to execute machine learning algorithms. These algorithms are trained on datasets of facial action units and health indicators to detect subtle, involuntary muscular movements associated with emotional or physiological conditions such as stress, fatigue, depression, and early neurological disorders. The smart mirror continuously captures and processes facial data when a user interacts with it, providing personalized diagnostic insights and wellne~s recommendations via an intuitive display interface. The system also features secure connectivity to companion mobile applications and healthcare platfoims for longitudinal tracking and remote monitoring. The invention enables early health anomaly detection, passive wellness tracking, and enhanced user engagement in daily health management, making it a valuable addition to smart home and digital healthcare ecosystems.

No. of Pages : 24 No. of Claims : 10

PERI CENTRE FOR INNOVATION

66.Patent Title : **REAL-TIME TRAIN DETECTION AND AUDIBLE-VISUAL WARNING SYSTEM FOR ENHANCED TRAIN TRACK LEVELCROSSING SAFETY**

Application Number : 202541079269 **Published Date:** 12/09/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :21/08/2025

(21) Application No.202541079269 A
(43) Publication Date : 12/09/2025

(54) Title of the invention : REAL-TIME TRAIN DETECTION AND AUDIBLE-VISUAL WARNING SYSTEM FOR ENHANCED TRAIN TRACK LEVEL CROSSING SAFETY

(51) International classification	:B60Q0005000000, B61L0029240000, B61L0023040000, B61L0029300000, B61L0029000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Accidents at railway level crossings continue to be a substantial safety issue globally, frequently arising from gatekeepers failing to close gates promptly ur from pedestrians and vehicles attempting to cross the tracks without recognizing an oncoming train. This innovation offers an Automated Train Proximity Alert System for railway crossings to overcome these significant challenges. The system employs ultrasonic sensors positioned at specified intervals along the railway track before to a station or level crossing. These sensors identify the approach of a train and assess its distance from the crossing point in real-time: The measun::d distance is publicly displayed on electronic display boards at the level crossin'g, providing visibility .for approaching pedestrians and automobiles. A high-decibel horn or siren system is concurrently engaged to deliver audio alerts. This dual alarm system-visual and auditory--ensures individuals are notified well in advance of an oncoming train, thereby substantially minimizing the probability of accidents at level crossings. The technology functions autonomously, eliminating the need for human intervention, hence augmenting operational reliability and enhancing overall railway safety.W

No. of Pages : 10 No. of Claims : 8

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

67.Patent Title : **PROCESS AND SYSTEM FOR CONVERTING POSTHARVEST WASTE INTO BIOCHAR FOR SOIL HEALTH ENHANCEMENT AND CARBON SEQUESTRATION**

Application Number : 202541091766 **Published Date :** 17/10/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/09/2025

(21) Application No.202541091766 A
(43) Publication Date : 17/10/2025

(54) Title of the invention : PROCESS AND SYSTEM FOR CONVERTING POSTHARVEST WASTE INTO BIOCHAR FOR SOIL HEALTH ENHANCEMENT AND CAN

(51) International classification	:C05G0003800000, C05F0011080000, C10B0053020000, C05F0011000000, C05D0009020000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT This invention pertains to the creation of biochar from postharvest agricultural waste, aimed at improving soil health and facilitating long-term carbon.sequestration. This invention utilizes a controlled thermochemical conversion process designed for various postharvest residues, such as rice husk, maize stalks, sugarcane bagasse, and groundnut shells, in contrast to traditional biochar production methods that typically depend on high-value biomass or produce inconsistent material quality. The method employs optimized pyrolysis conditions that stabilize carbon and retain vital minerals and nutrients, resulting in a biochar with dual functionality: enhancing soil fertility via increased microbial activity, water retention, and nutrient availability, and sequestering atmospheric carbon in a stable, degradation-resistant form. The innovation of the invention is in its incorporation of residue-specific processing parameters, yielding adjustable biochar compositions for diverse soil types, with a scalable, low-emission manufacturing method that mitigates environmental pollution from postharvest trash incineration. This method addresses waste valorization and sustainable agriculture while also aiding in climate change mitigation through efficient carbon capture and storage on farms.

No. of Pages : 15 No. of Claims : 6

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

68.Patent Title : **DYNAMIC ACTUATED SPEED BREAKER SYSTEM FOR TIME-SENSITIVE SAFETY ZONES**

Application Number : 202541091767 **Published Date :** 17/10/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/09/2025

(21) Application No.202541091767 A
(43) Publication Date : 17/10/2025

(54) Title of the invention : DYNAMIC ACTUATED SPEED BREAKER SYSTEM FOR TIME-SENSITIVE SAFETY ZONES

(51) International classification	:G08G0001010000, G08G0001070000, G08G0001096700, E01F0009529000, B60W0030188000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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(57) Abstract :
ABSTRACT The invention relates to a dynamic speed breaker system designed for school zones and other designated regions requiring speed reduction during specific time intervals. Conventional permanent speed breaker induce superfluous vehicle deceleration, resulting in heightened fuel consumption, diminished performance, and motorist inconvenience during off-peak hours. The current invention presents a dynamic speed breaker that can be activated solely when necessary, such as during school opening and closing hours or other specified time intervals. The system functions by timing control, manual control, or automated actuation mechanisms. Actuation can be accomplished by pneumatic, hydraulic, or motorized systems, depending upon the installation environment. The speed breaker remains retracted or flush with the road surface when not in use, facilitating uninterrupted vehicle passing. This innovation improves road safety during peak hours while reducing unnecessary vehicle deceleration, thus maximizing fuel efficiency and vehicle performance, avoid unnecessary speed reduction and reduce the traffic.
No. of Pages : 13 No. of Claims : 6

PERI CENTRE FOR INNOVATION

69.Patent Title : **SYSTEM AND METHOD FOR REAL-TIME HOSPITAL ALLOCATION AND EMERGENCY NOTIFICATION USING DIJKSTRA'S ALGORITHM FOR OPTIMAL ROUTING AND CONSENSUS ALGORITHM FOR COMMUNICATION**

Application Number : 202541091768 **Published Date :** 17/10/2025

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/09/2025

(21) Application No.202541091768 A
(43) Publication Date : 17/10/2025

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME HOSPITAL ALLOCATION AND EMERGENCY NOTIFICATION USING DIJKSTRA'S ALGO

(51) International classification	:G16H0040200000, A61G0003000000, A61G0003080000, H04W0004900000, A61G0013100000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :
ABSTRACT The current invention exhibits an intelligent emergency response system that enables realtime communication between ambulances and hospitals to guarantee prompt patient care in the occurrence of an accident. The system allows the ambulance driver to locate and identify local hospitals, including the availability of physicians, beds, and operating theatres via a mobile application. Upon identification, the ambulance operator transmits an emergency alert to the hospital. In the hospital context, the request is either approved or redirected based on the real-time availability of medical resources, guaranteeing prompt patient admission. The system integrates GPS alongside Dijkstra's algorithm to determine the most efficient path to the chosen hospital and leverages a Consensus method to effectively manage emergency notifications and hospital confirmations. This invention eliminates unnecessary delays associated with the manual search for hospitals and the verification of doctors and operation theatre availability, thereby facilitating expedited admission and treatment of accident victims, substantially enhancing survival probabilities.
No. of Pages : 12 No. of Claims : 6

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

70.Patent Title : **SYMBOL-EMBEDDED ELECTRIC SWITCH FOR USER-FRIENDLY OPERATION**

Application Number : 202541105204 **Published Date:** 19/12/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :31/10/2025

(21) Application No.202541105204 A
(43) Publication Date : 19/12/2025

(54) Title of the invention : SYMBOL-EMBEDDED ELECTRIC SWITCH FOR USER-FRIENDLY OPERATION

(51) International classification	:H04M 11/06, H01H 9/16, H01H 9/18, H04M 11/00, H04L 12/28	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Suresh Kumar S** **2)Haridass S** **3)Thirisha S** **4)Anuraga Rajeswan B** **5)Monika V** **6)Tibill L** **7)Harshai M**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
Modern residences and workplaces typically feature electric switchboards with numerous switches regulating diverse electrical appliances, including lighting, fans, and plugs. Users frequently encounter misunderstanding when using these switches, resulting in the unexpected activation of the wrong device. To address this issue, the suggested invention includes electric switches integrated with relevant functional symbols on their upper surface. Each switch is produced with a distinct, robust, and easily recognizable sign . for instance, a light bulb for lighting, a fan icon for ceiling fans, or other representative icons for corresponding appliances. CD ��) (C Q. 0) P E o o CM in o Tf in CM o o CM o in CM o CM The incorporation of these symbols occurs during the manufacturing phase of the switches, rendering the process straightforward, economical, and consistent with current switch production techniques. This invention guarantees user-friendly operation, minimizes the likelihood of errors in switch usage, and improves convenience and safety in residential and commercial settings. The idea can be globally implemented across diverse switchboard kinds without necessitating supplementary wiring or electronic alterations. This symbol-embedded electric switch offers a practical, cost-effective, and efficient means to reduce user misunderstanding while enhancing the performance and aesthetics of electrical control systems.

No. of Pages : 13 No. of Claims : 4

PERI CENTRE FOR INNOVATION

71.Patent Title : SMART IOT-BASED ROAD SAFETY SYSTEM FOR OVER SPEED DETECTION AND AUTOMATIC INTIMATION

Application Number : 202541105205 **Published Date :** 19/12/2025

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :31/10/2025
(21) Application No.202541105205 A
(43) Publication Date : 19/12/2025

(54) Title of the invention : SMART IOT-BASED ROAD SAFETY SYSTEM FOR OVERSPEED DETECTION AND AUTOMATIC INTIMATION

(51) International classification	:G08G 1/052, G08G 1/01, G08G 1/0967, G08G 1/16, G08G 1/054
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
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(57) Abstract :
Vehicle overspeeding is a significant contributor to fatalities and property damage in road accidents. The proposed invention presents an Automatic Vehicle Overspeed Detection and Notification System utilizing GPS and IoT technology. The device perpetually tracks the vehicle's instantaneous speed with a GPS module combined with an Arduino microcontroller. When the vehicle surpasses the established speed restriction for a particular road segment, the system activates an auditory alarm within the vehicle to notify the driver. Should the driver neglect to decrease speed within a specified timeframe, the system autonomously relays the overspeed information comprising vehicle position and speed particulars to the nearest traffic control authority via an IoT-enabled communication network. The technology may connect with the central traffic database to automatically calculate and deduct the relevant fine from the registered C2ir owner's account. This sophisticated control system effectively encourages safe driving practices, reduces human involvement, and improves notification, and enforcement of speed regulations.

No. of Pages : 13 No. of Claims : 6

PERI CENTRE FOR INNOVATION

72.Patent Title **:DEVELOPMENT OF A GESTURE-CONTROLLED WHEELCHAIR FOR PATIENTS AND ELDERLY INDIVIDUALS**

Application Number **:** 202541105272 **Published Date :** 19/12/2025

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :31/10/2025
(21) Application No.202541105272 A
(43) Publication Date : 19/12/2025

(54) Title of the invention : DEVELOPMENT OF A GESTURE CONTROLLED WHEELCHAIR FOR PATIENTS AND ELDERLY INDIVIDUALS

(51) International classification	:A61G 5/10, A61G 5/04, G06F 3/01, A61G 5/12, A61G 5/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Basil Diecon Disilva

(57) Abstract :
The proposed innovation pertains to the creation of a gesture-controlled wheelchair intended to aid physically challenged patients and elderly folks who cannot operate conventional manually or joystick-controlled wheelchairs. Traditional wheelchairs necessitate significant hand movement and coordination, posing a constraint for individuals with paralysis, limb disabilities, or other motor impairments. This invention presents a gesture-based control system enabling users to maneuver the wheelchair through uncomplicated hand or head gestures. The system utilizes gesture sensors, including accelerometers and gyroscopic sensors, to identify certain human movements that correlate to directional commands: forward, backward, left, and right. The identified gestures are relayed as input signals to a microcontroller circuit, which processes the information and engages the corresponding control relays. The relays, consequently, control the power supply to the DC motors, propelling the wheelchair in the direction specified by the user&#65533;fs gesture. o &#65533;&#65533;) re 0. CD CM E o This gesture-control system obviates the necessity for manual exertion or joystick manipulation, rendering it easy, user-friendly, and exceptionally accessible for individuals with restricted mobility. The system's compact form and little power usage augment its utility for everyday use. The innovation can incorporate safety measures, such obstacle detection sensors and emergency stop capabilities, to ensure safe and reliable operation. CM CM in o Tf in CM o 5 co o The suggested gesture-controlled wheelchair signifies a significant leap in assistive mobility technology, providing increased independence, comfort, and dignity to patients and elderly individuals who struggle with conventional wheelchair control systems.
No. of Pages : 13 No. of Claims : 3

PERI CENTRE FOR INNOVATION

73.Patent Title **:SMART GAS STOVE TIMER SYSTEM WITH AUTOMATED SIM AND OFF CONTROL**

Application Number **:** 202541111336 **Published Date :** 09/01/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :14/11/2025

(21) Application No.202541111336 A
(43) Publication Date : 09/01/2026

(54) Title of the invention : SMART GAS STOVE TIMER SYSTEM WITH AUTOMATED SIM AND OFF CONTROL

(51) International classification	:F24C 3/12, F23N 5/24, F24C 3/10, F23N 5/20, F23N 5/10	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Pranit Asher Abihu A.K** **2)Thirumalaiselvan T** **3)Abdul Rahiman S** **4)Naveen Raj S** **5)Gokulnath M** **6)Joshua J**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
This invention is an Automatic Gas Stove Timer System that stops users from wasting gas, starting fires, or overcooking food because they forget to turn off the stove while cooking. Regular LPG stoves don't have smart timing or automatic flame-control systems, which makes them very unsafe and wastes a lot of fuel. To fix this issue, the current system includes a small, easy-to-use automation module that can be attached to the gas stove knob and controlled by an Arduino-based mechanism.
No. of Pages : 15 No. of Claims : 5

PERI CENTRE FOR INNOVATION

74.Patent Title **:ODOR-DRIVEN PREDICTIVE WASTE MANAGEMENT SYSTEM WITH EMBEDDED FILL-LEVEL MONITORING AND ADAPTIVE CONTROL**

Application Number **:** 202541111337 **Published Date:** 09/01/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :14/11/2025

(21) Application No.202541111337 A
(43) Publication Date : 09/01/2026

(54) Title of the invention : ODOR-DRIVEN PREDICTIVE WASTE MANAGEMENT SYSTEM WITH EMBEDDED FILL-LEVEL MONITORING AND ADAPTIVE CONTROL

(51) International classification	:G06N 20/00, G06Q 50/26, B65F 1/14, G06Q 10/06, B65F 1/16	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Rajagopal M** **2)Sharvin P** **3)Rithish P** **4)Santhakumar G** **5)Yuvakrishna** **6)Selvakumar S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention relates to an intelligent waste management system that combines gas-based odor sensing, fill-level detection, and an embedded machine learning model to proactively manage hygiene risks. The system forecasts odor escalation by analyzing real-time sensor data and triggers adaptive control responses such as automatic bin sealing, deodorization activation, or dynamic override of scheduled waste collection based on predicted odor severity rather than fill level alone. Designed for edge inference, the system operates autonomously without requiring continuous cloud connectivity and transmits actionable data via IoT networks to a centralized dashboard. The invention significantly improves sanitation efficiency, reduces odor- related complaints, and supports predictive waste handling in high-density or hygiene-sensitive environments.
No. of Pages : 19 No. of Claims : 10

PERI CENTRE FOR INNOVATION

75.Patent Title :**AI BASED INTELLIGENT ASSISTIVE VISION SYSTEM WITH TEXT CONVERSION AND OBSTACLE ALERT MECHANISM**

Application Number : 202541111338 **Published Date :** 09/01/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :14/11/2025

(21) Application No.202541111338 A
(43) Publication Date : 09/01/2026

(54) Title of the invention : AI BASED INTELLIGENT ASSISTIVE VISION SYSTEM WITH TEXT CONVERSION AND OBSTACLE ALERT MECHANISM

(51) International classification	:G09B 21/00, A61H 3/06, G06F 3/16, G09B 21/04, G06V 30/10
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Mohamed Mushthaq J

(57) Abstract :
This invention reveals an AI-powered wearable assistive technology that should help blind and visually disabled people in reading, navigation and managing everyday activities. The system consists of a tiny camera fitted into a spectacle mounted lens unit that picks up printed or digital text in real-time. The acquired text is translated into understandable speaker audio through machine learning and sophisticated optical character recognition (OCR) methods, where visually impaired users can engage in books, mobile phones, and documents without problems. The device has an intelligent voice-command interface which helps in the use of start, stop, repeat, undo and not understood functions, to ensure that there is godd hands free interaction

No. of Pages : 14 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

76.Patent Title **:COMPARATIVE ANALYSIS OF LSTM AND GRU MODELS FOR MULTIVARIATE WEATHER FORECASTING**

Application Number **:** 202541117879 **Published Date:** 23/01/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/11/2025

(21) Application No.202541117879 A
(43) Publication Date : 23/01/2026

(54) Title of the invention : COMPARATIVE ANALYSIS OF LSTM AND GRU MODELS FOR MULTIVARIATE WEATHER FORECASTING

(51) International classification	:G06N 3/04, G06N 3/08, G01W 1/10, G06Q 10/04, G06Q 50/02
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India
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(57) Abstract :
Precise short-term weather forecasting is crucial for multiple sectors, including agriculture, transportation, aviation, disaster management, and renewable energy grid planning. Traditional statistical forecasting models, including ARIMA, Holt-Winters, and regression-based methods, frequently inadequately represent the nonlinear dynamics and long-range temporal correlations inherent in weather systems. This innovation introduces a thorough deep learning framework that conducts a comparison analysis of Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) networks for multivariate weather forecasting. The system employs historical meteorological datasets that include temperature, humidity, wind speed, precipitation probability, and many environmental characteristics. 0) O) m Q. 0) CM E o O oo The invention encompasses a systematic pipeline that includes data collecting, preprocessing, multivariate sequence generation, model building, hyperparameter optimization, training, and performance evaluation. The LSTM and GRU models are meticulously assessed using metrics including Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and Coefficient of Determination (R^). Moreover, sophisticated data visualization instruments$such as correlation heatmaps, trend profiles, and prediction-versus-observation plots$are utilized to illustrate the interrelation between variables and model efficacy. The results determine the optimal model architecture for short-term forecasting and offer a scalable, data-driven framework appropriate for incorporation into weather monitoring systems, mobile applications, and loT-enabled climate stations.

No. of Pages : 15 No. of Claims : 5

PERI CENTRE FOR INNOVATION

77.Patent Title **:DYNAMIC ACTUATED SPEED BREAKER SYSTEM FOR TIME-SENSITIVE SAFETY ZONES**

Application Number **:** 202541117880 **Published Date :** 23/01/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/11/2025

(21) Application No.202541117880 A
(43) Publication Date : 23/01/2026

(54) Title of the invention : DYNAMIC ACTUATED SPEED BREAKER SYSTEM FOR TIME-SENSITIVE SAFETY ZONES

(51) International classification	:B60K 31/04, B60K 31/00, E01F 13/12, E01F 13/04, B60K 31/18	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Akilesh M** **2)Aswith M** **3)Arut Kumaran G** **4)Gokulsasitharan S** **5)Hariharan M** **6)Gowtham V**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The invention relates to a dynamic speed breaker system designed for school zones and other designated regions requiring speed reduction during specific time intervals. Conventional permanent speed breaker induce superfluous vehicle deceleration, resulting in heightened fuel consumption, diminished performance, and motorist inconvenience during off-peak hours. The current invention presents a dynamic speed breaker that can be activated solely when necessary, such as during school opening and closing hours or other specified time intervals. The system functions by timing control, manual control, or automated actuation mechanisms. Actuation can be accomplished by pneumatic, hydraulic, or motorized systems, depending upon the installation environment. The speed breaker remains retracted or flush with the road surface when not in use, facilitating uninterrupted vehicle passing. This innovation improves road safety during peak hours while reducing unnecessary vehicle deceleration, thus maximizing fuel efficiency and vehicle performance, avoid unnecessary speed reduction and reduce the traffic.Va
No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

78.Patent Title : **DEEP LEARNING TECHNIQUES FOR SATELLITE IMAGE CLASSIFICATION**

Application Number : 202541117881 **Published Date :** 23/01/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/11/2025

(21) Application No.202541117881 A
(43) Publication Date : 23/01/2026

(54) Title of the invention : DEEP LEARNING TECHNIQUES FOR SATELLITE IMAGE CLASSIFICATION

(51) International classification	:A61B 5/055, G06T 7/00, G06K 9/00, G01R 33/56, G01R 33/48	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dhanapal S** **2)Dhanush P** **3)Ajay G** **4)Akash M** **5)Chandramoulee S** **6)Ajaysharan S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
Brain tumors, such as gliomas, meningiomas, and pituitary tumors, pose significant diagnostic difficulties owing to their heterogeneous structural features, variations in anatomical localization, and diverse degrees of malignancy. Radiologists usually have to manually read MRI scans in order to get an accurate diagnosis and clinical assessment. This process takes a lot of time and is based on their own judgment. I This invention presents GliMenPit-YOLO, an advanced automated framework for detecting and assessing brain tumors, developed using a modified YOLOv10 object-detection architecture. The system automatically finds tumor areas in MRI images, sorts them into three main tumor types (glioma, meningioma, and pituitary), and estimates the size of the tumors based on spatial data from bounding boxes and MRI resolution settings. The system improves the accuracy of diagnoses, cuts down on the time it takes to assess a patient, and helps doctors make decisions by combining real-time detection, classification, and clinical measurement into a single deeplearning pipeline. The invention seeks to provide radiologists with an efficient, dependable, and high-performance automated system for the early detection and treatment planning of brain tumors.
No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

79.Patent Title : **AUTOMATIC KNOB-ACTUATING SAFETY DEVICE FOR LPG STOVES USING TIMER CONTROL**

Application Number : 202541121520 **Published Date :** 06/02/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :04/12/2025

(21) Application No.202541121520 A
(43) Publication Date : 06/02/2026

(54) Title of the invention : AUTOMATIC KNOB-ACTUATING SAFETY DEVICE FOR LPG STOVES USING TIMER CONTROL

(51) International classification	:F24C 3/12, F24C 3/10, F23N 5/24, F23N 5/20, F23N 5/10
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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5)Joshua J
6)Gokulnath M

(57) Abstract :
The invention is connected with the miniature clamp-based type of automatic gas stove knob control system that increases the level of cooking safety through the addition of a timer-based flame control and shutoff system. The system is based on Arduino microcontroller, touchscreen interface and a motor driven actuator that fits external to any standard LPG stove and that does not entail structural adjustments. The user turns the stove on by hand and uses the touchscreen display to select the required amount of time to cook. A geared DC motor with the help of rotary encoder feedback and limit switches accurately steps the knob in fixed steps ON, SIM, and OFF depending on programmed timing sequences. When the timer is about to finish a device changes the knob to SIM, then gives an audible signal by ringing a buzzer, and then switches the stove to OFF. To be on the safe side, an emergency stop button will allow manual intervention directly, and an acknowledgment button will give the user the ability to pause or interrupt the automated shutdown procedure. CD ��) re 0. CD CM E o o CM in CM in CM o cs s o o in CM The system is able to solve the common kitchen safety issues which include forgotten cooking, wasting of gas, overcooking and possible fire hazards that are brought about by manual control of the stoves. The current solutions are mostly devoted to gas-leakage detection or flame detection, whereas mechanical timers and IoT-based gas-appliances need to be changed in terms of installation or cannot be directly controlled by a knob. This gap is addressed by the design of the proposed device, which gives a portable, battery-powered, user-friendly and non-invasive knob actuator that can be used to automate the timed cooking process without modifying the design of the stove itself. The hardware is an Arduino controller, touchscreen display, geared DC motor, rotary encoder, limit switches, buzzer, manual push buttons, rechargeable power supply, and universal clamp system. Timing, motor actuation, encoder-based position tracking, safety logic, and power optimization are handled using complementary software algorithms. m CM o CM I - x: -r CD kA p. Sr- r * r T * �� V n �� * o I Tf o f. c ' ◆fl ' '-i- ri.r f 'ey ◆f V ◆◆ 1. ◆◆ T ◆◆ 1 ◆◆ t' -X This invention is a cost-effective and convenient automation option that can be applied to the home, hostels, and small commercial kitchens by offering high quality timed flame control, automatic shutoff, and increased user safety.

No. of Pages : 15 No. of Claims : 5

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

80.Patent Title : **IOT-INTEGRATED SMART HELMET SYSTEM FOR ACCIDENT DETECTION, EMERGENCY ALERTING, AND RIDER SAFETY ENFORCEMENT**

Application Number : 202541121521 **Published Date :** 06/02/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :04/12/2025

(21) Application No.202541121521 A
(43) Publication Date : 06/02/2026

(54) Title of the invention : IOT-INTEGRATED SMART HELMET SYSTEM FOR ACCIDENT DETECTION, EMERGENCY ALERTING, AND RIDER SAFETY ENFO

(51) International classification	:A42B 3/04, A42B 3/30, G08B 21/02, G08B 25/01, G08G 1/01
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Maniarasan J

(57) Abstract :
The current invention is connected with an intelligent, IoT-based Smart Helmet system, which is aimed at significantly decreasing the number of road accidents caused by the delays of the emergency maintenance and the safety compliance of the riders. The system combines an interconnection of sensors and communication units such as an MPU6050 accelerator-gyroscope, GPS, GSM, MQ-3 alcohol sensor, and IR helmet-wear detector to enable constant monitoring, real-time accident detection and automated safety enforcement. The Smart Helmet uses MPU6050 sensor to monitor the sudden hits, abnormal deceleration and angular changes. Upon detection of an accident, the embedded GPS module takes the exact geographical position, and the GSM module sends the automatic SOS alert to emergency contacts or emergency service providers. This is because this automated communication will significantly decrease the critical response window in the event of an accident, and it is more likely to receive prompt medical care. CD ��) re 0. CD CM E o CM in CM Pre-ride safety validation mechanisms are inbuilt into the system to avert accidents before they take place. The MQ-3 sensor will detect the alcohol level of the rider and the IR sensor will ensure the wearer wears a helmet. These safety measures are electronically checked to the ignition of the motorcycle using a special Bike Module. In case of drunkenness or in case of not wearing the helmet, the system will cut off the engine ignition through a relay module, thus presenting a mandatory nature to obey the safety of the rider. Tf in CM o 00 o o in CM in CM o CM I o d) /r o' I Tf o A Sense/Detect/ Confirm/ Notify approach controls system action. The sensor is continuously compared to calibrated safety limits and sensor data is collected and compared against safety thresholds, and a debounce-based confirmation algorithm is used to filter false positives due to potholes, vibrations, or sudden high intensity but non-hazardous movements. When an accident or (1.1 f. nJ nJ I't J ◆eIt -1__ ' t-n ◆e f ◆◆ ◆e1 'a. ,f .1 r/ ,f 'F.. .. ,ej. -s * -XiL, * -XL. ◆e f I I i i 'V a violation of safety is confirmed, relevant measures like ignition control or automatic notification of an emergency are carried out. Connectivity to cloud-based services and API (e.g., Twilio) guarantees the delivery of messages/voices alert. With active safety implementation, smart accident detection, and automated emergency communication, the proposed Smart Helmet System can establish a holistic safety ecosystem to keep the rider safe in advance, throughout, and after the accident occurs. This invention shows that the use of wearable technology with help of IoT can revolutionize the safety of two-wheelers using real-time monitoring, decision-making and life-saving intervention.

No. of Pages : 16 No. of Claims : 5

PERI CENTRE FOR INNOVATION

81.Patent Title : ENERGY-CONSTRAINED OPTIMIZED VEHICLE ROUTING SYSTEM USING GA, SA, ACO, AND PSO FOR URBAN EV LOGISTICS

Application Number : 202541121524 **Published Date :** 06/02/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :04/12/2025

(21) Application No.202541121524 A
(43) Publication Date : 06/02/2026

(54) Title of the invention : ENERGY-CONSTRAINED OPTIMIZED VEHICLE ROUTING SYSTEM USING GA, SA, ACO AND PSO FOR URBAN EV LOGISTICS

(51) International classification	:G06N 3/12, B60L 11/18, G01C 21/34, G06Q 10/08, G06N 3/006
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The significant issue with the urban logistics of Electric Vehicles (EVs) is the short range of electric vehicles, which restricts traveling long distances without the need to recharge the battery as often. This drawback renders the planning of efficient routes, the scheduling of deliveries, and energy-sensitive decision-making processes crucial to efficient fleet operation in the present day. To address these limitations, the invention proposes a smart optimization framework which is tailor-made with respect to the Electric Vehicle Constrained Delivery Routing Problem (EVCDRP). The proposed system is a combination of four highly developed metaheuristic algorithms, including Simulated Annealing (SA), Genetic Algorithm (GA), Ant Colony Optimization (ACO), and Particle Swarm Optimization (PSO) to produce optimized, battery-constrained delivery paths of EV fleet-based logistics. In contrast to traditional methods of Vehicle Routing Problem (VRP), the framework will make sure that all the calculated paths are feasible under battery capacity of each vehicle, to avoid failure in the middle of the route and unnecessary energy usage. The system also has a user-friendly visualization component that is designed specifically to serve large urban areas and allow the logistics operators to read and act on the results of tlie optimized routing. This boosts efficiency in delivery, minimizes downtimes in operations and helps to make the operations more sustainable and environmental friendly. Examining the four algorithms experimentally it was found that the Genetic Algorithm (GA) generated the most optimized output and this generated shorter routes and better battery performance. Through the use of the advantages of GA in the integrated system, the invention will greatly enhance the optimization of routes of EV fleets, which will, in the end, facilitate smarter decisions and encourage green urban logistics.
No. of Pages : 16 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
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PERI CENTRE FOR INNOVATION

82.Patent Title : PRECISION FARMING BASED ON GPS TO IMPROVE THE PRODUCTIVITY OF THE CROP AND RESOURCE OPTIMIZATION

Application Number : 202541128481 **Published Date :** 20/02/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :18/12/2025

(21) Application No.202541128481 A
(43) Publication Date : 20/02/2026

(54) Title of the invention : PRECISION FARMING BASED ON GPS TO IMPROVE THE PRODUCTIVITY OF THE CROP AND RESOURCE OPTIMIZATION

(51) International classification	:A01G 25/09, B64C 39/02, A01G 25/16, G01S 19/42, G01S 19/14
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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5)Kaviya R
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(57) Abstract :
The introduction of the Global Positioning System (GPS) technology in the contemporary agriculture has changed the traditional way of farming and has made it possible to develop a precision method of farming. GPS also offers real-time field data and the proper geolocation so that the farmers can easily traverse, survey and manage their agricultural value. Farmers can now carry out most critical tasks like planting, fertilizing, spraying, and harvesting with unprecedented accuracy by using GPS controlled tractors, drones, irrigation, and automated machinery. This plays a great role in minimizing the input wastage, reducing the overlaps and increasing the accuracy in operations resulting to an increased productivity and sustainability. Precision farming based on GPS allows site-specific control through the detailed data about the moisture of the soil, the temperature, and the health of crops and changes in the yields. Using such notions as Variable Rate Technology (VRT) and yield mapping, farmers would be able to apply the necessary amount of fertilizers, pesticides, and water to meet the requirements of their own field and reduce environmental impact and enhance crop performance. The technology also reduces labor dependency as it has autonomous steering and field guidance systems, thus time, effort and operational cost reduction. Unless there are GPS-enabled systems, farmers will experience decreased crop yields, and they will use resources inefficiently, as well as have to spend more on labor and be more exposed to soil degradation. On the contrary, the efficiency of farms, soil conservation, timely decision-making, and general competitiveness are the positive outcomes of the use of GPS technology. GPS also enhances the aspect of sustainable agriculture through realtime monitoring, data analytics, and computer management of farms. To conclude, GPS technology is significant in the development of agriculture to greater heights in terms of production, resource conservation as well as environmental sustainability. Despite the limitations of the technology, GPS presents an invaluable resource to both contemporary precision agriculture and future food security despite issues like signal interference, large upfront costs, and accuracy issues.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

83.Patent Title : AI-DRIVEN WEATHER AND PITCH PREDICTION SYSTEM USING INTEGRATED IOT SENSORS FOR CRICKET STADIUMS

Application Number : 202541128482 **Published Date :** 20/02/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :18/12/2025

(21) Application No.202541128482 A
(43) Publication Date : 20/02/2026

(54) Title of the invention : AI DRIVEN WEATHER AND PITCH PREDICTION SYSTEM USING INTEGRATED IOT SENSORS FOR CRICKET STADIUMS

(51) International classification	:G01W 1/10, G01W 1/00, G06N 20/00, G01W 1/02, G06N 3/08
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Cricket pitch management and weather evaluation predominantly depend on physical inspection, subjective assessment, and generalized regional weather forecasts that inadequately address stadium-specific microclimate differences. These constraints lead to erratic pitch performance, hazardous playing conditions, ineffective ground operations, and recurrent match interruptions. This innovation presents an integrated Weather and Pitch Prediction System that merges Internet of Things (IoT) sensing technologies with sophisticated Artificial Intelligence (AI) prediction models to resolve these enduring difficulties. The system integrates a network of IoT sensors within and surrounding the cricket field to perpetually monitor essential subsurface and surface characteristics, such as soil moisture, temperature gradients, hardness levels, grass vitality, atmospheric humidity, wind patterns, and dew formation indications. Real-time measurements are augmented by microclimate data obtained from localized weather nodes situated within the stadium area. All aggregated data streams are analyzed by an Al model trained on historical pitching behavior, turf science, meteorological records, and venue-specific environmental patterns.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

84.Patent Title : INFLATABLE AIR-BAG ASSISTED RESCUE DEVICE FOR BOREWELL EMERGENCIES

Application Number : 202541128484 **Published Date :** 20/02/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :18/12/2025

(21) Application No.202541128484 A
(43) Publication Date : 20/02/2026

(54) Title of the invention : INFLATABLE AIR-BAG ASSISTED RESCUE DEVICE FOR BOREWELL EMERGENCIES

(51) International classification	:A62B99/00, E21F11/00, A62B1/16, A62B35/00, A62B1/16
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention introduces a new set of balloon-based rescue equipment that will be used to recover children in small borewells in the safest way possible. The traditional methods of rescue, which include parallel pit dig, pulling by rope, heavy earth moving equipment is slow, dangerous and most times inappropriate because of the very small size of the borewell and the delicate posture of the child. In order to overcome these drawbacks, the proposed system employs a small, lightweight inflatable air-bag system that can be steered through the narrow cylindrical bore well shaft. The system involves a folded high strength balloon that is enclosed in a narrow rigid pipe which can be pushed to the depth needed. After the balloon has been correctly placed under the child trapped, the inflation of the balloon is achieved by restricted supply of compressed air. As the balloon is inflated, it is shaped against the inner wall of the borewell and creates a moulded cradle, which supports the child safely in a soft way, without putting pressure on it, which is * dangerous. This is a lifting technique where the bottom up method does not require any direct pulling or direct harnessing, which is unsafe in very narrow shafts. Once the system has been stabilized, the whole system consisting of balloon, child and support pipe is then slowly pushed up using ropes and pulleys and thus making the whole process of extracting the system a smooth and safe process. The mechanism saves a lot of time in rescue, eliminates extensive excavation and minimizes use of crane or heavy machinery. Being lightweight, portable, and easy to set up, this system is constructed to facilitate a quick response to an emergency, especially to the rural or remote area where a specific equipment is not available. In general, the invention is an effective, inexpensive, and kid friendly rescue method to the borewell accident cases.
No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

85.Patent Title : **INTELLIGENT ASSISTIVE COMMUNICATION SYSTEM OF SIGN LANGUAGE DETECTION AND SPEECH CONVERSION**

Application Number : 202641005525 **Published Date :** 20/03/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :20/01/2026

(21) Application No.202641005525 A
(43) Publication Date : 20/03/2026

(54) Title of the invention : INTELLIGENT ASSISTIVE COMMUNICATION SYSTEM OF SIGN LANGUAGE DETECTION AND SPEECH CONVERSION

(51) International classification	:G09B 21/00, G06F 17/28, G09B 21/04, G09B 19/06, G09B 21/02
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention has been associated with Intelligent Sign Language Detection System which is meant to address hearing and speech impaired persons who have communication barriers with people in the general population. The system deals with the shortage of trained sign language interpreters in educational institutions, medical facilities, workplaces; and public service settings * * and the weaknesses of the current solutions which are either costly dr cannot provide real-time accuracy. Moreover, the diversity of sign languages in various regions poses a problem to universal interpretation, and as such, a cost-effective, flexible, and smart system of translation is required.
No. of Pages : 13 No. of Claims : 3

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PERI CENTRE FOR INNOVATION

86.Patent Title : **SMART AND SUSTAINABLE WASTE MANAGEMENT FRAMEWORK USING CIRCULAR ECONOMY PRINCIPLES**

Application Number : 202641005526 **Published Date :** 20/03/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :20/01/2026

(21) Application No.202641005526 A
(43) Publication Date : 20/03/2026

(54) Title of the invention : SMART AND SUSTAINABLE WASTE MANAGEMENT FRAMEWORK USING CIRCULAR ECONOMY PRINCIPLES

(51) International classification	:B09B 1/00, G06Q 50/26, B09B 3/00, G06Q 10/00, G06Q 10/06
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The current invention is associated with Eco-Friendly Waste Management System that is developed to cope with the emerging issues of environmental degradation, inadequate waste disposal and poor use of resources. Due to the presence of rapid urbanization and population growth, the traditional waste management ways like landfills and open dumping are no longer sustainable methods which interact with the adverse environment pollution, greenhouse gas emission, and human health hazards. The proposed system is based on a holistic and sustainable i 1 waste management structure which focuses on the minimization of waste, source segregation, increased recycling and treatment of organic waste. The invention aims at minimizing the waste production by facilitating responsible consumption, environmentally friendly packaging, and reusing. This is done by requiring a compulsory source i segregation system to allow households and business facilities to segregate waste into biodegradable, recyclable and non-recyclable at the point of origin. Such separation enhances the efficiency and material recovery rates of collection. There are advanced Material Recovery Facilities (MRFs) that are built to maximize sorting, processing and recycling of recoverables. □) D. The recycling models and the policies of Extended Producer Responsibility (EPR) will be combined to promote the active involvement of manufacturers and consumers. In the case of organic waste management, the system will encourage decentralized domestic and communitylevel composting techniques and centralized anaerobic digestion facilities to treat bulk waste. The processes change organic waste to useful by-products like compost and biogas consequently eliminating the reliance on landfills and methane emissions. Another aspect that has been incorporated in the invention is smart scheduling of collections, better transportation routes, and monitoring systems to increase efficiency. .Also, the suggested framework includes programmes of public awareness, enforcement of policies, and digital presence to monitor the performance of the suggested policy and the appearance of transparency. The invention offers a cost-effective, scaled up and environmentally friendly waste management system in urban and rural areas. Changing the system to an integrated one means engaging a significant reduction of pollution, saving natural resources, facilitating the principles of the circular economy, and contributing to the long-term environmental sustainability. .

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

87.Patent Title : **SMART TASTE-BASED FOOD MONITORING AND DELIVERY SYSTEM USING MOBILE APPLICATION**

Application Number : 202641005527 **Published Date :** 20/03/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :20/01/2026

(21) Application No.202641005527 A
(43) Publication Date : 20/03/2026

(54) Title of the invention : SMART TASTE BASED FOOD MONITORING AND DELIVERY SYSTEM USING MOBILE APPLICATIONS

(51) International classification	:G16H 20/60, G06Q 50/22, G16H 40/20, G16H 10/60, G16H 40/67	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr.Sumithra Sofia D** **2)Dr. Mohamed Abbas S** **3)Tamizhselvan M** **4)Indhumathi P** **5)Srisainath P** **6)Vignesh B**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The current invention corresponds to the innovative mobile application on JavaScript that can monitor healthy food of its patients and deliver them to their place according to their own taste in hospitals and healthcare facilities. The suggested system will serve to improve patient satisfaction, adherence to the diet, and nutrition management because it will allow users to tailor food and beverages orders depending on personal taste preferences and nutritional needs. The mobile app will enable patients and regular users to add their desired taste intensity, including the level of sugar (none, light, medium, heavy), level of salt, level of spice, and level of bitterness, and other flavor parameters. As an example, one patient can order coffee without sugar or light sugar whereas another user can use medium or heavy sugar depending on his or her preferences. On the same note, the amount of spice and salt can be modified according to meals to make it appropriate to the individual with certain medical conditions, including diabetes, hypertension, and gastric disorders.
No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

88.Patent Title : **AN EDGE-INTELLIGENT BLOCKCHAIN FRAMEWORK FOR PRIVACY-PRESERVING FEDERATED MEDICAL DIAGNOSTICS**

Application Number : 202641012368 **Published Date :** 27/03/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/02/2026

(21) Application No.202641012368 A
(43) Publication Date : 27/03/2026

(54) Title of the invention : AN EDGE-INTELLIGENT BLOCKCHAIN FRAMEWORK FOR PRIVACY-PRESERVING FEDERATED MEDICAL DIAGNOSTICS

(51) International classification	:H04L 9/32, H04L 9/06, H04L 29/06, G16H 10/60, G06F 21/62
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention proposes an Edge-Intelligent Blockchain Framework (preserving, and low-latency medical diagnostics across distributed h(EIBF) for secure, privacy-jalthcare institutions. With the rapid adoption of Artificial Intelligence (Al) and the Internet ot Medical Things (loMT), conventional cloud-centric diagnostic systems face critical challenges including data privacy i risks, high communication latency, regulatory non-compliance, and lack of trust among collaborating institutions. Federated Learning (FL) addresses data sharing concerns but remains vulnerable to malicious updates, lack of auditability, and inefficient trust management. Blockchain enhances transparency and immutability, yet traditional consensus mechanisms are computationally expensive and unsuitable for real-time healthcare applications. 1 CD ◆◆) re 0. CD The proposed framework integrates edge computing, trust-aware federated learning, and a permissioned blockchain to overcome these limitations. In the system, healthcare institutions operate as edge nodes that locally train Al models using electronic! health records and loMT sensor data, ensuring that raw patient data never leaves institutional premises. Encrypted model updates are shared and aggregated using an adaptive trust-weighted mechanism that evaluates node reliability, accuracy, and historical behavior. All model updates and validation outcomes are recorded on a permissioned blockchain supported by smart contractSjand an Adaptive Practical Byzantine Fault Tolerance (A-PBFT) consensus mechanism, which dynamically adjusts validator i participation and quorum size to minimize energy consumption and latency. CM E o OO CD CO CM o 5 CD CM O in I t (D CM I CD The validated global model is redeployed at the edge for real-time clinical inference, including disease detection, anomaly monitoring, and predictive analytics, sovereignty, auditability, resilience against adversarial attacks, scalable deployment for multi-institutional healthcare ecosystems. The framework ensures data regulatory compliance, and

No. of Pages : 11 No. of Claims : 3

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PERI CENTRE FOR INNOVATION

89.Patent Title : **AN EMBEDDED C-BASED ADAPTIVE MAXIMUM POWER POINT TRACKING CONTROLLER WITH BOOST CONVERTER FOR HIGH-EFFICIENCY SOLAR-POWERED ELECTRIC VEHICLE CHARGING**

Application Number : 202641012344 **Published Date :** 03/04/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/02/2026
(21) Application No.202641012344 A
(43) Publication Date : 03/04/2026

(54) Title of the invention : AN EMBEDDED C-BASED ADAPTIVE MAXIMUM POWER POINT TRACKING CONTROLLER WITH BOOST CONVERTER FOR HIGH EFFICIENCY SOLAR POWERED ELECTRIC VEHICLE CHARGING

(51) International classification	:G05F1/67, B60L53/51, H02J7/35
(31) Priority Document No	:NA
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(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Mathankumar P

(57) Abstract :
The present invention relates to an embedded C-based adaptive Maximum Power Point Tracking (MPPT) controller integrated with a DC-DC boost converter for hig electric vehicle (EV) battery charging. With the rapid growth of electric vehicles, reliance on grid-based charging infrastructure increases peak load demand and carbon emissions. Solar-assisted i EV charging offers a sustainable alternative; however, the nonlinear characteristics of photovoltaic (PV) systems and rapid variations in irradiance and temperature significantly affect power extraction efficiency To address these challenges, the proposed invention implements a real-time adaptive Perturb and Observe (P&O) MPPT algorithm using embedded C programming. The controller continuously measures PV voltage and current, computes instantaneous power, arid dynamically adjusts the duty cycle of the boost converter through pulse-width modulation (P\^M) to ensure operation at the maximum power point (MPP). Unlike conventional fixed-step M?PT methods, the adaptive perturbation mechanism enables faster convergence, reduced steady-s ate oscillations, and lower current ripple The system achieves MPPT efficiency of up to 97% and boost convertdr efficiency of 96%, with a significant reduction in current ripple and settling time compared to classical techniques. The architecture is compatible with commonly used microcontrollers such as STM32, dsPIC, and Arduino, enabling flexible and cost-effective hardware implementation. The regulated DC output I ensures safe and stable charging of EV batteries, thereby improving battery life and overall system reliability. The invention is suitable for deployment in solar-powered EV charging stations, stand-alone I renewable charging systems, residential and commercial EV chargers, and hybrid PV-grid infrastructures. Its real-time adaptability, high efficiency, and scalabilit y make it highly applicable to sustainable and environmentally friendly transportation energy solut ons. In a particular aspect, this invention is a C-coded adaptive Maximum Power Point Tracking (MPPT) controller coupled with a DC-DC Boost converter specifically designed for real-time high-efficient solar-powered EV battery charging in varying environmc ntal conditions.

No. of Pages : 11 No. of Claims : 3

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PERI CENTRE FOR INNOVATION

90.Patent Title : **A TWO-STAGE PERTURB-AND-OBSERVE MPPT WITH CONSTANT-CURRENT/CONSTANT-VOLTAGE CONTROLLED BOOST CONVERTER FOR INTELLIGENT ELECTRIC VEHICLE BATTERY CHARGING**

Application Number : 202641012350 **Published Date :** 03/04/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/02/2026

(21) Application No.202641012350 A
(43) Publication Date : 03/04/2026

(54) Title of the invention : A TWO STAGE PERTURB AND OBSERVE MPPT WITH CONSTANT CURRENT CONSTANT VOLTAGE CONTROLLED BOOST CONVERT FOR INTELLIGENT ELECTRIC VEHICLE BATTERY CHARGING

(51) International classification	:H02J7/90, H02J7/94, H02J7/96, G05F1/67, H02J7/82
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(86) International Application No	:NA
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :
The present invention discloses a two-stage intelligent charging systei batteries powered by a photovoltaic (PV) source, integrating a perturb n for electric vehicle (EV) -and-observe (P&O) based maximum power point tracking (MPPT) algorithm with a constant-current/constant-voltage (CC/CV) controlled DC-DC boost converter. The proposed system addresses the nonlinear characteristics of PV arrays and their sensitivity to environmental variations such as irradiance and temperature, ensuring efficient and reliable energy extraction for EV charging applications. In the first stage, an adaptive P&O MPPT controller dynamically regulates the duty cycle of the boost converter to continuously operate the PV array at its maximum 'power point under varying operating conditions. This enables optimal utilization of solar energy and improves tracking accuracy when compared with conventional PI-controlled converters. The second stage incorporates an intelligent CC/CV battery charging control strategy. During the initial charging phase, the battery is charged in constant-current mode to enable rapid energy transfer. As the battery voltage approaches its rated value, the system automatically transitions to constant-voltage mode to prevent overcharging and enhance battery safety. A coordinated decision-making logic ensures smooth transitions between MPPT operation, CC mode, and CV mode based on real-time battery voltage and state-of-pharge (SOC). The system j . demonstrates improved dynamic response, reduced voltage ripple, minimized current stress, and enhanced battery lifespan. Experimental and simulation results indicate efficiencies exceeding 96%, a voltage ripple reduction of up to 42%, and faster settling time. Owing to its high efficiency, safety, and adaptability, the proposed invention is suitable for solar-powered EV charging stations, smart-grid integrated charging infrastructure, and; hybrid renewable energy systems

No. of Pages : 11 No. of Claims : 3

PERI CENTRE FOR INNOVATION

91.Patent Title : **A TWO-STAGE MAXIMUM POWER POINT TRACKING AND CONSTANT-CURRENT/CONSTANT-VOLTAGE CONTROL SYSTEM FOR SOLAR-POWERED ELECTRIC VEHICLE BATTERY CHARGING USING A BUCK CONVERTER**

Application Number : 202641014844 **Published Date :** 03/04/2026

Type of Patent : Institute **Funded by** : Management

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(22) Date of filing of Application :11/02/2026
(21) Application No.202641014844 A
(43) Publication Date : 03/04/2026

(54) Title of the invention : A TWO-STAGE MAXIMUM POWER POINT TRACKING AND CONSTANT-CURRENT/CONSTANT-VOLTAGE CONTROL SYSTEM FOR SOLAR - POWERED ELECTRIC VEHICLE BATTERY CHARGING USING A BUCK CONVERTOR

(51) International classification	:B60L 8/00, H02J 7/35, B60L 53/51, B60L 11/18, H02J 7/00
(31) Priority Document No	:NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to a solar-powered electric vehicle (EV) battery charging system employing a two-stage control strategy that integrates Maximum Power Point Tracking (MPPT) with Constant-Current/Constant-Voltage (CC-CV) regulation using a DC-DC buck converter. The system is designed to enhance renewable energy utilization while ensuring safe, efficient, and stable charging of EV batteries under varying environmental and load conditions. Conventional grid-based EV chargers increase grid stress and emissions, whereas existing photovoltaic (PV)based chargers suffer from poor coordination between energy harvesting and battery protection mechanisms. To address these limitations, the proposed system introduces a dual-stage architecture. In the first stage, an adaptive Perturb and Observe (P&O) MPPT algorithm dynamically adjusts the duty cycle of the buck converter to maintain PV operation at the maximum power point, even under fluctuating solar irradiance and temperature. This stage ensures high energy extraction efficiency with reduced oscillations and fast convergence. The second stage implements CC-CV charging control based on battery voltage and state-ofcharge. During the constant-current mode, the charging current is regulated within safe limits, while in constant-voltage mode the battery voltage is maintained at a predefined threshold with a gradual reduction in charging current. A supervisory control logic ensures seamless transition between MPPT, CC, and CV modes. The proposed system achieves MPPT efficiency up to 97%, converter efficiency of approximately 96%, and a reduction in current ripple by nearly 33%, with fast settling time. The invention is suitable for smart EV charging infrastructure, renewable energy integration, and scalable embedded or FPGA-based implementations. The current invention concerns the EV charger system on renewable energy. The popular embodiment relates to dual-stage regulation via MPPT and control by a DC-DC Buck converter for efficient, eco-friendly, and smart sun-power EV battery charging with CC-CV regulation.

No. of Pages : 11 No. of Claims : 3

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

92.Patent Title : **A SELF-ADAPTIVE FUZZY LOGIC CONTROLLED BUCK-BOOST CONVERTER FOR INTELLIGENT AND EFFICIENT ELECTRIC VEHICLE BATTERY CHARGING**

Application Number : 202641014845 **Published Date :** 03/04/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :11/02/2026

(21) Application No.202641014845 A
(43) Publication Date : 03/04/2026

(54) Title of the invention : A SELF-ADAPTIVE FUZZY LOGIC CONTROLLED BUCK-BOOST CONVERTER FOR INTELLIGENT AND EFFICIENT ELECTRIC VEHICLE BATTERY CHARGING

(51) International classification	:H02M 3/156, H02M 3/158, B60L 11/18, H02J 7/00, G05B 13/02
(31) Priority Document No	:NA
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Filing Date	:NA

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(57) Abstract :
This invention presents a Self-Adaptive Fuzzy Logic Controlled Buck-Boost Converter (SA-FLC BBC) for intelligent and efficient electric vehicle (EV) battery charging applications. The proposed system addresses the limitations of conventional proportional-integral (PI) and fixed fuzzy logic controllers used in DC-DC converters, particularly under nonlinear battery characteristics, variable input voltages, and dynamic load conditions. The buck-boost converter topology enables both step-up and step-down voltage regulation, making it suitable for modem EV charging systems. The core innovation lies in the incorporation of a self-adaptive fuzzy logic control mechanism using inference structure with dynamic gain tuning. The controller continuously adjusts its gain based on the instantaneous voltage error and the rate of change of error. During large transients, the control effort is increased to ensure rapid correction, while it is smoothly reduced as the system approaches steady state. This adaptive behavior significantly minimizes overshoot, output voltage ripple, and settling time, while improving overall converter efficiency. The controller generates an optimized PWM duty cycle to n:gulate a constant charging voltage over wide variations in source voltage and battery state-of-charge. Simulation results demonstrate a settling time of approximately 0.12 seconds, steady-state error below 1%, overshoot under 8%, and an efficiency improvement of nearly 4% compared to conventional PI-controlled systems. The proposed approach does not require an accurate mathematical model of the system and is computationally efficient, making it suitable for implementation on low-cost microcontrollers . The invention is applicable to onboard and off-board EV chargers, renewable-integrated charging systems, and smart grid-enabled charging infrastructures.sidered

No. of Pages : 11 No. of Claims : 3

PERI CENTRE FOR INNOVATION

93.Patent Title : **AN AI-POWERED PORTABLE DIAGNOSTIC KIT FOR EARLY DETECTION OF LUNG AND CHEST DISEASES IN RESOURCE-CONSTRAINED ENVIRONMENTS**

Application Number : 202641018124 **Published Date :** 10/04/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(43) Publication Date : 10/04/2026

(54) Title of the invention : AN AI POWERED PORTABLE DIAGNOSTIC KIT FOR EARLY DETECTION OF LUNG AND CHEST DISEASES IN RESOURCE CONSTRAINED EMVIRONMENTS

(51) International classification	:G16H 50/20, A61B 6/00, G06N 3/04, G06N 3/08, G16H 30/40	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI , TAMIL NADU , INDIA -600048 Tamil Nadu India (72)**Name of Inventor :** **1)Ms. Aiswarya R** **2)Dr. Tamilamuthan R** **3)Ms. Sridevi T** **4)Ms. Anitha R** **5)Mr. Balaji R** **6)Mr. Vishnu R**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention discloses an Al-powered portable diagnostic kit designed for the early detection of lung and chest diseases in resource-constrained and remote environnients, The system specifically targets pulmonary conditions such as tuberculosis, pneumonia, chronic obstructive pulmonary disease (COPD), and lung carcinoma, where access to advanced diagnostic infrastructure is limited. The proposed kit integrates a low-radiation imaging sensor, an embedded edge-computing unit, and a mobile application interface to enable rapid, offline medical diagnosis. I The core diagnostic engine employs a hybrid deep-learning architecture combining Convolutional Neural Networks (CNN) and Vision Transformer (ViT) models optimized for embedded execution. Chest images captured by the imaging sensor undergo local preprocessing, lung region segmentation, and Al-based classification without reliance on cloud connectivity. This offline capability ensures uninterrupted operation in rural and forested regions while preserving patient data privacy, A lightweight Grad-CAM visualization module highlights suspected regions of abnormality, enabling community health workers and non-expert operators to interpret results with confidence. CD ��} re Q. CD CM E o The system securely stores patient data locally and, when network access is available, synchronizes encrypted records through blockchain-based mechanisms to ensure data integrity, traceability, and privacy. Field-level evaluations demonstrate diagnostic accuracy exceeding 91- 93%, inference time under two seconds per image, and total power consumption below 8 watts, supporting extended battery-operated and solar-assisted use. CM OO o 5 CD CM O CM This invention offers a scalable, rugged, and energy-efficient diagnostic solution suitable for rural clinics, mobile health units, disaster-relief operations, and large-scale public health screening programs, thereby significantly improving early disease detection and healthcare accessibility in underserved populations.ii�

No. of Pages : 11 No. of Claims : 3

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PERI CENTRE FOR INNOVATION

94.Patent Title : **AN ENHANCED MPPT TECHNIQUE OF SOLAR PV SYSTEM UTILIZING NEGATIVE CURRENT CORRECTION CONTROL" FOR STEADY POWER OUTPUT UNDER DYNAMIC SOLAR IRRADIANCE**

Application Number : 202641022235 **Published Date :** 17/04/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/02/2026
(21) Application No.202641022235 A
(43) Publication Date : 17/04/2026

(54) Title of the invention : AN ENHANCED MPPT TECHNIQUE OF SOLAR PV SYSTEM UTILIZING NEGATIVE CURRENT CORRECTION CONTROL" FOR STEADY POWER OUTPUT UNDER DYNAMIC SOLAR IRRADINACE

(51) International classification	:G05F 1/67, H02J 3/38, H02J 7/35, H02J 1/10, H02J 3/32
(31) Priority Document No	:NA
(32) Priority Date	:NA
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(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
TITLE: An Enhanced MPPT Technique of Solar PV System Utilizing Negative Current Correction Control" for Steady Power Output under Dynamic Solar·Irradiance ABSTRACT The present invention discloses an enhanced Maximum Power Point Tracking (MPPT) control technique for solar photovoltaic (PV) systems operating under rapidly varying irradiance conditions. Conventional Perturb and Observe (P&O) algorithms, though widely adopted for their simplicity, exhibit instability and erroneous duty-cycle decisions when transient disturbances produce negative current measurements due to sensor noise, converter dynamics, or abrupt environmental changes. Such negative power events degrade tracking accuracy and voltage stability in applications requiring reliable DC output, including electric-vehicle charging stations, DC microgrids, and standalone PV power systems. To overcome these limitations, the proposed method introduces a Negative Current Correction (NCC) stage within the P&O MPPT framework. The controller continuously measures PV voltage and current and, upon detecting negative current during transient events,.replaces the current value with its absolute magnitude prior to power computation. This ensures that the MPPT decision process always utilizes positive power, thereby preventing oscillatory perturbations and instability in duty-cycle adjustment of the DC-DC boost converter. The algorithm then perturbs the duty cycle within predefined bounds to achieve smooth and rapid convergence to the maximum power point while maintaining regulated DC-bus voltage. The system is modeled using a single-diode PV equivalent circuit and validated under dynamic irradiance conditions. Experimental and simulation results demonstrate improved tracking accuracy, reduced voltage oscillations, fast settling time, and stable DC output in the 320-350 V range. The technique preserves the low-cost and computational simplicity of conventional P&O while significantly enhancing robustness for real-time renewable-energy applications

No. of Pages : 12 No. of Claims : 3

PERI CENTRE FOR INNOVATION

95.Patent Title : **A SOLAR-ASSISTED ELECTRIC VEHICLE CHARGING FRAMEWORK LINKED TO MPPT-PCB UTILIZING PERTURB AND OBSERVE**

Application Number : 202641022236 **Published Date :** 17/04/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(21) Application No.202641022236 A
(43) Publication Date : 17/04/2026

(54) Title of the invention : A SOLAR-ASSISTED ELECTRIC VEHICLE CHARGING FRAMEWORK LINKED TO MPPT-PCB UTILIZING PERTURB AND OBSERVE

(51) International classification	:B60L 11/18, H02J 7/35, B60L 53/51, B60L 8/00, H02J 7/00	(71)**Name of Applicant :** **1)PERI Institute of Technology** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Ms. Sridevi T** **2)Ms. Anitha R** **3)Ms. Aiswarya R** **4)Dr. Tamilamuthan R** **5)Ms. Vinitha S** **6)Mr. Sreevathasava R**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
ABSTRACT A solar-assisted electric vehicle (EV) charging framework incorporating a Maximum Power Point Tracking (MPPT) enabled DC-DC boost converter using the Perturb and Observe (P&O) control algorithm is disclosed. The invention relates to renewable-energy-based EV charging systems designed to ensure efficient power extraction from photovoltaic (PV) arrays and stable battery charging under varying environmental conditions. Conventional EV charging stations primarily rely on grid-supplied electricity or employ fixed-duty or constant-voltage control strategies that fail to adapt to fluctuations in solar irradiance and temperature, resulting in reduced energy utilization and unstable charging performance. The proposed system integrates PV modules, a DC-DC boost converter, an embedded MPPT controller implementing the P&O algorithm, and an EV battery management interface. The controller continuously senses PV voltage and current, calculates instantaneous power, and compares present and previous operating points to determine optimal duty-cycle adjustments of the boost converter. This adaptive control mechanism drives the PV array to operate near its maximum power point in real time, thereby maximizing solar energy harvesting and ensuring smooth and efficient energy transfer to the EV battery. Simulation and functional evaluation demonstrate tracking accuracy of approximately 99%, charging efficiency exceeding 90%, improved state of charge, and stable output voltage within the required charging range. Compared with conventional fixed-duty PWM charging systems, the invention offers faster convergence to optimal operating conditions, higher renewable energy utilization, and enhanced battery life through regulated charging. The framework is suitable for standalone, hybrid, and off-grid EV charging stations, particularly in rural or distributed energy environments.

No. of Pages : 11 No. of Claims : 3

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PERI CENTRE FOR INNOVATION

96.Patent Title : **SYSTEM AND METHOD FOR CINEMATIC CONTENT SIMILARITY DETECTION AND PRE-PRODUCTION COPYRIGHT VERIFICATION USING ARTIFICIAL INTELLIGENCE**

Application Number : 202641026347 **Published Date :** 01/05/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/03/2026

(21) Application No.202641026347 A
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(54) Title of the invention : SYSTEM AND METHOD FOR CINEMATIC CONTENT SIMILARITY DETECTION AND PRE-PRODUCTION COPYRIGHT VERIFICATION USING ARTIFICIAL INTELLIGENCE

(51) International classification	:G06F 17/30, G06F 17/00, G06Q 50/18, G06F 17/24, H04N 21/254
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(87) International Publication No	: NA
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(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT The current invention reveals a smart web-based cinematic content verification and similarity detection system. to avert inadvertent plagiarism and copying of tales, characters, subjects and pertinent creativity in the motion picture industry. Newly produced films are often similar to the films that were produced earlier, therefore, it is common to find film industries in the world and especially in Hollywood, Hollywood and other regional cinemas facing legal, ethical and financial problems. In most cases, copyright issues, lawsuits, damaged reputations, and financial loss to creators and producers emerge due to disagreements after the release of the film, as to whom the storyline, screenplay structure, theme, or even character concept, belongs. To solve this issue, the design of the proposed invention is to implement the pre-production verification of the cinematic content through a central digital platform. The system allows directors, writers, producers and production houses to have a hire of uploading story scripts, summaries, plot outlines, character descriptions and thematic characters into the site before film production. The site will then automatically match the uploaded content to a massive database of information of other previously published movies in different languages and genres. The database contains both structured and unstructured metadata such as titles of movies, plots, themes, genre (romance, thriller, action, drama, and comedy, etc.), character archetypes, screenplay patterns, actor and crew data, music composition, lyrics, production credits and other pertinent movie qualities. The system includes the evaluation of the similarity between the proposed story and the existing works based on the use of the advanced artificial intelligence methods, including natural language processing, semantic similarity analysis, keyword extraction, and pattern recognition by the use of the machine learning. On analysis, the site produces a similarity report, which identifies the common themes, narrative patterns, similarity of characters, and genre. The system creates similarity percentages, lists of references movies and visual comparison summaries which in tum allows the user to customize or refine his or her script to appear original before going into production. Such pre-emptive checking minimizes the_ chances of infringements and lawsuits over copyright. Moreover, the site divides the films based on language, genre, era, cast, technical crew, and thematic subdivisions that allow it to search, index and cross-reference effectively. Additional features that can be included in the invention are that of cloud storage, update of new releases which are automatic, multilingual support, and security of user authentication to safeguard confidential submissions of stories. The invention fosters ethical filmmaking habits, safeguards intellectual property rights and supports original storytelling by offering an early-stage creative similarity detection and an open and transparent mechanism of checking. The given system would therefore act as a pre-emptive -- teenrfological-intervention that protects-creators -as well-as-promotes innovation.and.integrity .in the world film industry.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

97.Patent Title : **BREAK BUDDY: A SMART DIGITAL WELLNESS APPLICATION FOR SCHEDULED SCREEN-TIME BREAK MANAGEMENT**

Application Number : 202641026348 **Published Date :** 01/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :06/03/2026

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(43) Publication Date : 01/05/2026

(54) Title of the invention : BREAK BUDDY: A SMART DIGITAL WELLNESS APPLICATION FOR SCHEDULED SCREEN-TIME BREAK MANAGEMENT

(51) International classification	:H04M 1/72451, G16H 40/67, G06F 9/445, G16H 40/63, H04M 1/72403	(71)**Name of Applicant :** **1)PERI Institute of Technology** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai, Tamil Nadu, India - 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Ms.Bhagyashri S** **2)Ms. Ashika Shirin M** **3)Ms. Haripriya M** **4)Ms. Angeline M** **5)Ms. Angel Mary J** **6)Ms. Divya Dharshini A**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
ABSTRACT The sustained use of electronic devices including mobile phones, computers, laptops, and other electronic gadgets over long hours may lead to eye strain, mental exhaustion, lack of concentration and health problems in the long term. In an attempt to fix this issue, this present invention suggests a device smart digital wellness reminder application named Break Buddy, which requires healthy habits in utilizing the device by implementing regular breaks. Break Buddy is created as an APK-based application that may be installed to the electronic equipment and provides its users with the possibility of creating their own customized work-rest routine, e.g., breaking every one or two hours or based on the user's setting time. Depending on the preset time, the system will automatically send alerts in the form of notifications, temporarily dimming the screen, or sleep/lock to make sure that the user takes a moment to stop using the device. This sporadic distraction assists in taking the eyes off, decreasing psychological- strain, and enhancing productivity and wellbeing. The invention offers an easy, automatic, and convenient method of keeping digital health and avoiding strains due to constant screen time.

No. of Pages : 12 No. of Claims : 5

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

98.Patent Title : **SELF-POWERED WALKWAY SYSTEM USING PIEZOELECTRIC FOOTSTEP ENERGY CONVERSION**

Application Number : 202641028863 **Published Date :** 01/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(54) Title of the invention : SELF-POWERED WALKWAY SYSTEM USING PIEZOELECTRIC FOOTSTEP ENERGY CONVERSION

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6)Rishidharan M

(57) Abstract :
The current high rate of increase in the world electricity demand has caused excessive reliance on non-renewable sources of energy like coal and petroleum, which cause massive contamination of the environment and are few in their supply, Meanwhile, tremendous quantities of mechanical energy created by the motion of people in the busy places are fully wasted. The railway stations, shopping malls, the learning institutions, bus terminals, airports, and the pedestrian walkways all experience this constant foot traffic during the day. The mechanical energy generated by these footsteps is usually lost without recovery of energy at all. Thus, it becomes necessary to have a new system that can capture and transform this wasted mechanical energy to useful electrical energy in a sustainable fashion that is environmentally friendly. -Mar-2026/34804/202641028863/Form 2(Title Page) The current invention offers a Footstep Power Generation System based on Piezoelectric Sensor, a device that will tap electrical energy of human footsteps. The system comprises of specially engineered floor tiles or platforms with piezoelectric sensors embedded in them. Mechanical pressure on the piezoelectric sensors located beneath the surface is exerted when an individual steps on the tile.-Because of piezoelectric effect, mechanical stress produced causes an electrical charge. The resulting electrical power is then gathered and fed into a rectifier circuit and used to convert the alternating power into direct current which can then be used. The corrected power is then stored in an energy store like rechargeable battery or capacitor. The resulting electrical power can be used to drive small electrical devices and applications consuming less energy like mobile phone charging stations, LED systems, emergency lighting, power banks, sensors, and information display systems. The proposed system will be developed to work 24 hours in the presence of foot traffic, which is why it is possible to produce energy during the day and night and not rely on weather conditions. The separate nature of the tiles is designed in a manner that allows the installation of its usage within an already established infrastructure like pedestrian corridors, railway tracks, shopping centers, parks, and the institutional corridors. In addition, the system is not very maintenance intensive and it has a long lasting structure that can withstand repeated foot pressure in crowded places. The suggested invention will help to preserve energy, decrease the reliance on fossil fuels, and improve the use of sustainable and renewable energy sources in urban areas by transforming otherwise wasted mechanical energy into usable electricity. In general, it can be seen that the invention is an eco-friendly, affordable, and scalable way of decentralized micro-power production through the use of human footsteps as a renewable source of energy.

No. of Pages : 15 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

99.Patent Title : **FOCUS FOOTPRINT: DIGITAL ATTENTION MONITORING AND VISUALIZATION SYSTEM**

Application Number : 202641028802 **Published Date :** 08/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :11/03/2026
(21) Application No.202641028802 A
(43) Publication Date : 08/05/2026

(54) Title of the invention : FOCUS FOOTPRINT: DIGITAL ATTENTION MONITORING AND VISUALIZATION SYSTEM

(51) International classification	:G09B 19/00, G09B 5/06, G09B 7/00, G09B 5/00, G06F 3/0484
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
TITLE: Focus Footprint: Digital Attention Monitoring and Visualization System ABSTRACT- In the modern digital era, students, researchers, and professionals frequently interact with multiple digital devices for academic work, professional tasks, and communication. While such devices improve accessibility and efficiency, they also introduce significant distractions due to frequent notifications, rapid application switching, social media interruptions, and multitasking demands. Existing digital wellbeing tools mainly provide screen-time statistics, which only indicate the duration of device usage. However, screen-time data alone cannot determine whether the user was working productively or experiencing fragmented attention due to distractions. As a result, many users spend long hours on digital devices yet experience reduced productivity, increased mental fatigue, and poor concentration. To address this limitation, the present invention proposes a system titled "Focus Footprint - Attention Usage Visualizer." The system is designed to analyze and visualize the quality of user attention in digital environments rather than simply measuring usage duration. The proposed system continuqpsly monitors behavioral interaction patterns such as application switching frequency, notification interruptions, active session duration, and interaction pauses. These parameters are analyzed using an intelligent algorithm to identify patterns of focused work and distraction-heavy periods. Based on the behavioral analysis, the system computes a Focus Score, which represents the level of concentration during device usage. The system then generates a visual attention footprint in the form of graphs, charts, and heatmaps that illustrate daily and weekly attention trends. This visualization enables users to clearly understand when they are most focused and when distractions frequently occur . The system also identifies distraction-prone time windows and highlights peak focus periods, helping users plan study sessions or work schedules more effectively. Unlike restrictive I .....I .. productivity applications, the proposed invention does not block applications or enforce limitations. Instead, it acts as an awareness and decision-support system that encourages users to improve focus through behavioral insights and personalized recommendations. The invention ensures privacy protection by analyzing only interaction metadata without accessing personal content, messages, or documents. By combining behavioral analytics with intuitive visualization, the Focus Footprint system provides a powerful yet user-friendly approach to improving digital attention, productivity, and overall mental wellbeing.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

100.Patent Title : **WEARABLE CHEMICAL-ACTIVATED FLOATING SAFETY BELT FOR AQUATIC EMERGENCY RESCUE**

Application Number : 202641036759 **Published Date :** 22/05/2026

Type of Patent : Collaboration **Funded by** : Self

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :26/03/2026

(21) Application No.202641036759 A
(43) Publication Date : 22/05/2026

(54) Title of the invention : WEARABLE CHEMICAL ACTIVATED FLOATING SAFETY BELT FOR AQUATIC EMERGENCY RESCUE

(51) International classification	:B63C 9/105, B63C 9/08, B63C 9/20, B63C 9/15, B63C 9/18
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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4)Iraianbu
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(72)**Name of Inventor :**
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(57) Abstract :
TITLE: Wearable Chemical-Activated Floating Safety Belt for Aquatic Emergency Rescue ABSTRACT The current invention is connected to the emergency personal flotation device that is an emergency sea safety belt with on-demand carbon dioxide production that can be used to improve survival in water bodies. The invention will be targeted at swimmers, fishermen and water-sports users who can face distress conditions including fatigue, cramping of muscles, accidental submersion, and loss of swimming capacity. The proposed device is set up in the form of a light wearable belt that is ergonomically designed to be worn like a belt without affecting the movement of a normal body during swimming or any other water related activity. The belt has two internally divided and insulated compartments with a sodium bicarbonate and a citric acid container. Such compartments are separated by manually operated release system like a pull-rope system or separator valve to ensure that the reactants do not interact prematurely. During an emergency, the user triggers the release system, and the two chemical substances blend and experience a direct reaction creating carbon dioxide (CO 2) gas. 0) ◆◆) re Q. CD The produced gas expands the belt construction in a very short time, which makes it more buoyant and allows the user to stay in the air or re-emerge safe. Such buoyancy support is an important factor that minimizes the chances of drowning and allows enough time to save or save oneself. Some of the benefits that come with the invention are that it is easy to design, cost-effective, portable and environmental friendly. The device is very dependable and simple to maintain unlike traditional flotations because it does not use compressed gas cylinders, electronic systems, and third-party power sources. The suggested safety belt is applicable in seas, rivers, lakes, and swimming pools, and the best solution to enhancing safety of the individual in recreational and occupational activities in water bodies

No. of Pages : 8 No. of Claims : 4

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PERI CENTRE FOR INNOVATION

101.Patent Title : **ARTIFICIAL INTELLIGENCE DRIVEN MULTI-MODAL BEHAVIORAL ENTROPY FRAMEWORK FOR CONTINUOUS CRYPTOGRAPHIC KEY DERIVATION AND ADAPTIVE AUTHENTICATION**

Application Number : 202641036792 **Published Date :** 22/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :26/03/2026

(21) Application No.202641036792 A
(43) Publication Date : 22/05/2026

(54) Title of the invention : ARTIFICIAL INTELLIGENCE DRIVEN MULTI MODAL BEHAVIORAL ENTROPY FRAMEWORK FOR CONTINUOUS CRYPTOGRAPHIC KEY DERIVATION AND ADAPTIVE AUTHENTICATION

(51) International classification	:H04L 9/08, G06F 21/32, H04L 9/32, G06N 3/08, G06N 3/04	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Pon Selvam R** **2)Dr. Rajagopal M** **3)Lokesh N** **4)Ekambaram V** **5)Rajesh D** **6)John Mathew S** **7)Sidharth S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention is related to the field of cyber security and cryptography and pertains to an innovation in the field of continuous authentication and dynamic key generation mechanisms based on behavioral characteristics. More specifically, the present invention discloses an artificial intelligence-based multi-modal behavioral entropy system that is designed to generate cryptographic keys dynamically based on behavioral biometric signals received from various user interaction modalities. The system comprises a behavioral data acquisition module that is used to acquire interaction-based data from various user interaction modalities such as keystroke dynamics, mouse movement patterns, touch screen gestures, device usage behavior, and motion sensor-based signals from one or more computing devices. A multi-modal behavioral fusion engine is used to aggregate the behavioral signals and generate a composite behavioral profile that represents the legitimate user. An artificial intelligence-based entropy extraction engine is used to extract high-entropy behavioral feature vectors from the behavioral signals. The extracted entropy is used by the dynamic cryptographic key derivation module. This module is used to derive session-specific encryption keys that can be used in the communication process. Continuous authentication controller monitors behavioral patterns during an active session. It has the ability to adaptively update keys or authentication requirements in case of deviations in the behavioral profile. This proposed framework improves cyber security by providing continuous authentication, dynamic cryptographic key derivation, and adaptive access control. This reduces the risk of password attacks, session hijacking, and unauthorized access in various digital systems, such as banking systems, corporate networks, cloud computing environments, and secure government infrastructures.

No. of Pages : 18 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

102.Patent Title : **WEARABLE AI NAVIGATION AND OBJECT RECOGNITION SYSTEM FOR THE VISUALLY IMPAIRED**

Application Number : 202641041618 **Published Date:** 29/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :01/04/2026

(21) Application No.202641041618 A
(43) Publication Date : 29/05/2026

(54) Title of the invention : WEARABLE AI NAVIGATION AND OBJECT RECOGNITION SYSTEM FOR THE VISUALLY IMPAIRED

(51) International classification	:G06K 9/00, G06V 10/82, G06N 3/08, G06V 10/764, G06N 3/04
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The invention relates to an AI-powered wearable assistive device designed to enhance the mobility, safety, arid independence of visually impaired individuals. Visually impaired users often face difficulties in detecting obstacles, identifying objects, reading text, and navigating dynamic environments, while existing assistive tools offer limited real-time situational awareness. The proposed system introduces intelligent Smart Assistive Glasses integrating a miniature camera, ultrasonic sensors, embedded processors, and deep learning algorithms to provide continuous environmental understanding. The device captures live video through a front-facing camera and processes it using computer vision models for obstacle detection, object and face recognition, traffic signal interpretation, and optical character recognition (OCR). Short-range ultrasonic sensors supplement the vision system to improve obstacle detection accuracy in low-light and complex environments. The processed information is converted into real-time audio alerts delivered via bone-conduction earphones or an integrated speaker, ensuring that ambient sounds remain perceivable for safe navigation.

No. of Pages : 15 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

103.Patent Title : **USER-CENTRIC SKILL MONITORING AND VISUALIZATION APPLICATION**

Application Number : 202641041619 **Published Date:** 29/05/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :01/04/2026

(21) Application No.202641041619 A
(43) Publication Date : 29/05/2026

(54) Title of the invention : USER CENTRIC SKILL MONITORING AND VISUALIZATION APPLICATION

(51) International classification	:G06Q 50/20, G09B 19/00, G06Q 10/06, G06Q 10/10, G06F 17/30	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai tamil nadu india 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Santhosh M** **2)Sriram M** **3)Sidharth K** **4)Jothiprakash B** **5)Akash K** **6)Ananth P**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The present invention relates to a web-based Skill Analysis System designed to evaluate, compare, and visually interpret an individual's proficiency across multiple skill domains. Tn the current academic and professional environment, individuals often face difficulty in accurately identifying their strengths and weaknesses due to the absence of simple, interactive, and user- friendly assessment tools. The disclosed system overcomes these limitations by providing a dynamic, browser-based interface that enables users to enter self-assessed skill names and corresponding proficiency levels on a numerical scale. The system is developed using HTML, CSS, JavaScript, and the Chart.js visualization library. Once the skill data is entered, the system automatically stores, processes, and analyzes the inputs to determine the strongest and weakest skills based on their proficiency values. A radar chart is generated to offer a clear and intuitive graphical comparison of all skill levels, enabling users to visually interpret their capabilities at a glance. The application further highlights the highest- ranking (strongest) and lowest-ranking (weakest) skills directly on the interface, providing immediate insights into personal performance patterns. By presenting complex skill information in a simplified, visual format, the Skill Analysis System empowers students, job seekers, and professionals to better understand their competency profiles and focus on targeted improvement areas. The proposed invention enhances self-evaluation accuracy, supports informed career decisions, and serves as an effective tool for continuous skill development.
No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

104.Patent Title : **INTELLIGENT ADAPTIVE EMI CANCELLATION SYSTEM WITH REAL-TIME FREQUENCY TRACKING AND ANTI-PHASE SIGNAL INJECTION**

Application Number : 202641048543 **Published Date:** 12/06/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/04/2026

(21) Application No.202641048543 A
(43) Publication Date : 12/06/2026

(54) Title of the invention : INTELLIGENT ADAPTIVE EMI CANCELLATION SYSTEM WITH REAL TIME FREQUENCY TRACKING AND ANTI PHASE SIGNAL

(51) International classification	:H02M 1/44, H05K 9/00, H05K 1/02, H02M 1/12, H01F 27/36	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Rupesh Harivardhan K** **2)Harish S** **3)Gokul Surendera Kumar G** **4)Maithreyan H** **5) Srisainath P** **6) Karthi N**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The current invention is connected with the adaptive electromagnetic interference (EMI) suppression system that is aimed at reducing dynamic and broadband conducted noise in current electronic circuits. As higher frequency switching equipment, smaller printed circuit board (PCB) designs, ferrite beads, inductive filters, and shielding have become increasingly popular methods of passive EMI suppression, time-varying and non-stationary interference, such as that by power converter capacitors, has become difficult to alleviate by these conventional passive methods. The suggested system presents a smart closed-loop EMI suppression system continuously tracking conducted noise signals via an integrated sensing circuit. These sensed signals are then in real time processed using an embedded digital signal processing unit, which is able to perform spectral analysis to determine the dominant interference frequencies and their properties. According to the data under analysis, the system is dynamically formed in that the anti-phase signal with the same amplitude and phase properties is generated. This signal is actively added into the affected line which causes the destructive interference and effective cancellation of all unwanted noise components. The system is adaptive and it keeps changing its response in response to changes in pattern of interference in different conditions of operation. The architecture proposed combines sensing, processing and controlled signal injection into a small and energy efficient system, which is easily interconnected with the existing electronics. Compared to traditional methods of filtering on a static basis, the invention offers adaptive realtime EMI mitigation of signals, better signal integrity, system reliability, and electromagnetic compatibility (EMC). It is a scalable and smart invention that can be utilized in the next-generation electronic devices such as power electronics, automotive systems, communication equipment, and high-speed digital platforms.

No. of Pages : 13 No. of Claims : 6

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PERI CENTRE FOR INNOVATION

105.Patent Title : **A SMART EMBEDDED GAS FLOW CONTROL SYSTEM FOR PREVENTING LEAKAGE USING TIME-BOUND FLAME DETECTION**

Application Number : 202641048544 **Published Date:** 12/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/04/2026

(21) Application No.202641048544 A
(43) Publication Date : 12/06/2026

(54) Title of the invention : A SMART EMBEDDED GAS FLOW CONTROL SYSTEM FOR PREVENTING LEAKAGE USING TIME BOUND FLAME DETECTION

(51) International classification	:F24C 3/12, F24C 3/10, G08B 21/16, F23N 5/24, F24C 3/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to an embedded safety control system for domestic gas stoves, designed to prevent accidental gas leakage at the source through intelligent verification of user intent and real-time flame correlation. Gas leakage in household kitchens is a significant safety concern, often leading to fire hazards and explosions. Conventional systems primarily act as postdetection alarm mechanisms and fail to prevent gas discharge during ignition failure. The proposed system introduces a fail-safe smart gas stove knob integrated with an embedded control unit that ensures gas flow only under verified safe operating conditions. The system incorporates a rotary encoder to detect intentional user interaction through knob rotation, thereby confirming usage intent. Upon activation, the system initiates a time-bound verification process wherein the presence of flame must be detected within a predefined time window of approximately 3 to 5 seconds using a flame sensor. Simultaneously, a gas sensor continuously monitors ambient gas concentration levels. In scenarios where gas flow is initiated but flame detection fails within the specified time window, or abnormal gas concentration is detected, the system triggers an automatic corrective response. A servo motor mechanism reverses the knob position to shut off gas flow immediately, thereby preventing hazardous gas accumulation. Additionally, an alert system comprising a buzzer and visual indicators is activated to notify the user. The system is powered by an ESP32 microcontroller and operates based on a state-driven safety algorithm that ensures reliable, real-time decision-making and fail-safe operation. This invention emphasizes preventive safety through the integration of usage-intent verification and time-bound flame correlation, offering a proactive solution to mitigate gas-related domestic hazards. This innovation is novel in its approach to combining user intent validation with dynamic flame monitoring and automated gas shut-off, making it highly suitable for provisional patent filing.

No. of Pages : 13 No. of Claims : 6

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

106.Patent Title : **SMART POWER LINE BREAKAGE DETECTION AND ALERT SYSTEM FOR ENHANCED ELECTRICAL SAFETY**

Application Number : 202641054546 **Published Date:** 19/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/04/2026

(21) Application No.202641054546 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : SMART POWER LINE BREAKAGE DETECTION AND ALERT SYSTEM FOR ENHANCED ELECTRICAL SAFETY

(51) International classification	:G01R31/52, G01R31/54, G01R31/08, H02J13/13, G08C17/02, G16Y10/35, G16Y40/10
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
Power line breakage during adverse weather conditions such as heavy rain, storms, and strong winds poses significant risks to public safety and infrastructure. Conventional fault detection systems rely heavily on manual inspection or delayed reporting, resulting in prolonged outages and increased hazards such as electric shocks and fires. The proposed invention presents a Smart Power Line Breakage Detection and Alert System that autonomously detects line faults using real-time monitoring of electrical and mechanical parameters. The system employs sensors to measure voltage, current, and line tension, which are processed by a microcontroller-based unit to identify abnormal conditions indicating line breakage. Upon detection, the system automatically disconnects the power supply using a relay mechanism and simultaneously transmits alert notifications through GSM or IoT modules to the concerned authorities. This intelligent system ensures rapid fault isolation, minimizes human intervention, enhances safety, and reduces downtime. The invention is particularly suitable for smart grid applications and contributes to the development of resilient and automated power distribution networks.

No. of Pages : 11 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

107.Patent Title : **MACHINE LEARNING-BASED SYSTEM FOR DYNAMIC SOUND THERAPY USING BIOMETRIC FEEDBACK**

Application Number : 202641054526 **Published Date::** 26/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/04/2026

(21) Application No.202641054526 A
(43) Publication Date : 26/06/2026

(54) Title of the invention : MACHINE LEARNING BASED SYSTEM FOR DYNAMIC SOUND THERAPY USING BIOMETRIC FEEDBACK

(51) International classification	:A61B 5/00, A61B 5/01, A61B 5/024, A61B 5/0205, A61B 5/16
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Salmaan Faarisi I

(57) Abstract :
The invention is an intelligent adaptive sound therapy system that measures, assesses and reduces stress in real time through biometric feedback and artificial intelligence. The system includes a wearable or mobile device equipped with a set of biosensors to monitor physiological and behavioral indicators, including heart rate variability (HRV), electrodermal activity (EDA), skin temperature and voice. These data are continuously analyzed by machine learning techniques to accurately determine the user's stress level. The system then automatically generates or recommends customized sound therapy such as binaural beats, ambient sounds, white noise or music according to the stress level, with real-time adjustments to the frequency, amplitude, tempo and rhythm of the sound. The adjustment engine dynamically alters the audio characteristics, including frequency, amplitude, tempo, and rhythm, to optimise the therapeutic effects. This invention also includes a feedback loop to continuously track and adjust the audio output based on user's physiological responses. This approach offers a dynamic, non-invasive, and individualised stress management system, compared to conventional static and generic methods. It can be coupled with mobile phones, smartwatch or dedicated wearable devices, enhancing convenience. The invention has uses in the area of psychological well-being, medical treatment, productivity improvement at work and rehabilitation settings. The system leverages the latest developments in artificial intelligence, biomedical sensing, and audio engineering to improve the efficacy of stress management and engagement, and as a result, foster better psychological health and well-being.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

108.Patent Title : **MACHINE LEARNING-BASED WORKPLACE STRESS MONITORING SYSTEM WITH SECURE DATA AGGREGATION**

Application Number : 202641054535 **Published Date:** 26/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
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(21) Application No.202641054535 A
(43) Publication Date : 26/06/2026

(54) Title of the invention : MACHINE LEARNING BASED WORKPLACE STRESS MONITORING SYSTEM WITH SECURE DATA AGGREGATION

(51) International classification	:A61B 5/00, G06Q 10/06, A61B 5/16, A61B 5/0205, G06N 20/00	(71)**Name of Applicant :** **1)PERI College of Arts and Science** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Anupriya P** **2)Thiruselvi S** **3) Sneha D** **4)Hemavarshini S** **5)Kiruthiga Sree M** **6)Harinima S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The invention concerns a system and method for stress monitoring, assessment and management in workplace settings by leveraging a privacy-preserving artificial intelligence (AI) system. In today's fast-paced workplaces, organizations are struggling to promote employee wellbeing, productivity and mental health because of the increasing workload, ever-changing workplaces and digital fatigue. Traditional methods of stress monitoring, including surveys and manual assessments, are often subjective, limited in frequency and lack real-time capabilities. The current invention provides an intelligent dashboard system that gathers anonymous physiological, behavioural, and digital interaction data from employees via wearable devices, usage patterns of software and environmental sensors. The platform integrates machine learning techniques to analyze the data and identify stress, outliers, and patterns. Rather than focusing on individual users, the system aggregates the data at the team or department level, with differential privacy and secure multi-party computation techniques to maintain privacy. The system offers real-time monitoring of stress indices, predictive stress management for potential burnout prevention, and dynamic suggestions such as workload balancing, optimal break times, and stress-relieving measures. The system also integrates with enterprise resource planning (ERP) and human resource management systems (HRMS) for easy installation. The innovation employs AI-powered analytics with robust privacy preservation techniques to ensure ethical monitoring practices and enable data-driven decision making. The system contributes to employee satisfaction, burnout prevention, productivity enhancement, and a positive working environment, making it perfectly applicable to contemporary enterprises, distributed work environments and hybrid workplaces.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

109.Patent Title : **A HYBRID DEEP LEARNING FRAMEWORK FOR EARLY DETECTION OF ADVERSE DRUG REACTIONS USING PUBLIC PHARMACOVIGILANCE DATA**

Application Number : 202641057456 **Published Date:** 26/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/05/2026

(21) Application No.202641057456 A
(43) Publication Date : 26/06/2026

(54) Title of the invention : A HYBRID DEEP LEARNING FRAMEWORK FOR EARLY DETECTION OF ADVERSE DRUG REACTIONS USING PUBLIC PHARMACOVIGILANCE DATA

(51) International classification	:G06N 3/08, G16H 70/40, G16H 20/10, G06N 3/04, G16H 10/60
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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3)Kirupa R
4)Shanmugapriya M
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6)Vanitha M

(57) Abstract :
The current invention is a proposal of an advanced deep learning-based framework that can be used to early detect harmful drug side effects using publicly available datasets of adverse events. The current pharmacovigilance systems are plagued with slow detection of adverse drug reactions (ADRs), ineffective use of large-scale publicly available datasets, and inefficient modeling methods that are unable to capture complex multi-label relationships among drug side effects. The invention overcomes these limitations by providing a hybrid deep learning architecture that is able to extract both sequential and local contextual features of the pharmacovigilance data sources including FAERS (FDA Adverse Event Reporting System) and SIDER databases. CD ��) re 0. CD The proposed framework combines the use of Convolutional Neural Networks (CNN) to extract local features and the use of Bidirectional Long Short-Term Memory (BiLSTM) networks to capture temporal dependencies in adverse event sequences. There is also an attention mechanism that will be used to rank important patterns of severe drug reactions. The system is multi-label classification, which allows the simultaneous detection of multiple co-occurring side effects in different physiological systems. CM E o One of the major contributions of this invention is that it is capable of dramatically lowering detection latency since it automates signal identification and constantly learns by repeatedly accessing real time data streams. It also has a preprocessing module to reduce noise, normalize data and enrich the semantics with biomedical ontologies. Experimental validation has shown better traditional machine standalone LSTM accuracy, recall, Random Forest, invention helps and early warning ability than Support Vector Machines, increase the efficiency learning models like architectures. The supports the work of clinicians in their decision-making process, and of and pharmacovigilance, eventually leads to a higher level of patient safety, as it allows detecting dangerous drug reactions in timeVa*

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

110.Patent Title : **AN INTELLIGENT NOISE-ADAPTIVE AUDIO VOLUME CONTROL SYSTEM FOR HEADSETS AND BLUETOOTH DEVICES**

Application Number : 202641057457 **Published Date:** 26/06/2026

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/05/2026

(21) Application No.202641057457 A
(43) Publication Date : 26/06/2026

(54) Title of the invention : AN INTELLIGENT NOISE-ADAPTIVE AUDIO VOLUME CONTROL SYSTEM FOR HEADSETS AND BLUETOOTH DEVICES

(51) International classification	:H03G 3/32, H04R 3/00, H04R 1/10, H04M 1/60, H04R 5/033	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Kanagapriya V C** **2)Dr, Surya Prasanth S** **3)Sonalisha R** **4)Yugaseelan R** **5)Sriram A** **6)Vinothini M**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The invention is a smart audio control system for headsets and Bluetooth devices that regulates volume of sound based on the ambient noise level. In today's busy cities, users often struggle with audio clarity because of variable noise levels, particularly in crowded streets, public transportation and public spaces. Traditional headsets rely on manual volume controls, which can be cumbersome, dangerous and time-consuming. This invention is an intelligent, dynamic adaptive volume control system embedded in a headset or Bluetooth audio device. The invention uses an external noise sensor to measure the surrounding noise level. The processing unit automatically controls the output volume of the audio interface depending on the level of ambient noise, to ensure appropriate volume and listening comfort. CD ��) (C Q. 0) P E o In low-noise environments, like in offices or at home, it automatically decreases the audio output to safe and comfortable levels, avoiding hearing fatigue and saving power. In contrast, in noisy environments, such as streets or public transport, the system amplifies the audio to ensure the user can hear calls or media during such activities. The system improves user comfort by removing the need to adjust the volume, and promotes safe listening. This system can be used in mobile phones, music playback, hearing aids, and sound systems. This invention combines hardware and software elements such as microphones (noise sensors), signal processing and adaptive algorithms to provide natural and smart audio solutions. The system can be incorporated in wired or wireless headsets and work with smartphones and other audio equipment.

No. of Pages : 14 No. of Claims : 4

PERI CENTRE FOR INNOVATION

111.Patent Title : **A UNIFIED IDENTITY-DRIVEN DIGITAL PLATFORM FOR INTEGRATED STUDENT ECOSYSTEM MANAGEMENT**

Application Number : 202641057466 **Published on** :26/06/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :06/05/2026

(21) Application No.202641057466 A
(43) Publication Date : 26/06/2026

(54) Title of the invention : A UNIFIED IDENTITY-DRIVEN DIGITAL PLATFORM FOR INTEGRATED STUDENT ECOSYSTEM MANAGEMENT

(51) International classification	:G06Q 50/20, G06Q 10/10, G06Q 10/06, G06Q 10/00, G09B 7/00
(31) Priority Document No	:NA
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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4)NAVEEN S
5)Hemavarshini R
6)Mahalakshmi R

(57) Abstract :
The Hubbier X is a single, identity-based student ecosystem platform, aimed at redressing the fragmentation of academic, extracurricular and peer-to-peer activities among college communities. Students in current environments use a variety of unconnected platforms to discover events, make payments, collaborate academically, buy and sell on the resale market, and find a job. Such systems are not contextually integrated, lack verification systems and fail to provide records of verifiable achievement, which is inefficient. CD ◆◆) re Q. CD The proposed invention presents a new digital infrastructure with a permanent, dual-layer student identity, which is termed Hubbier ID, comprising of a human-readable handle and systemgenerated unique identifier. This identity unifies and confirms all student interactions throughout the platform, whether it is event participation, competition results, project submissions, marketplace transactions, and internship applications. HubblerX is an integrated platform combining multiple modules in a single platform: event ticketing with QR-based authentication and UPI-enabled payments; a hierarchical credits and leaderboard system; verified college community spaces; a limited academic resale marketplace; a project showcase with achievement connection; automated digital certification; and an administrative dashboard to provide institutional analytics. CM E o CD CD Tf in o Tf CD CM O cs o CD CD CM O CM I * re S I CD o The system has a role-based access control architecture with secure authentication protocols such as passwordless authentication and two-factor authentication. Multi-layer event visibility controls are used to provide secure and scalable operations. The invention also proposes a multi-sided network concept that increases the engagement between students, institutions, and startups, as well as creating layers of institutional dependency that ensures a long-term retention. HubblerX creates a consistent, verifiable and scalable digital identity system customized to student ecosystems, where fragmented interactions are individualized and unified into a cohesive, trusted and data-driven academic and professional ecosystem.
No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

112.Patent Title : **AI-BASED STRUCTURAL HEALTH PREDICTION PLATFORM FOR BUILDINGS USING VIBRATION ANALYSIS, WEATHER INTELLIGENCE, AND MATERIAL AGING ASSESSMENT**

Application Number : 202641060083 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :12/05/2026

(21) Application No.202641060083 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : AI BASED STRUCTURAL HEALTH PREDICTION PLATFORM FOR BUILDINGS USING VIBRATION ANALYSIS,WEATHER INTELLIGENCE, AND MATERIAL AGING ASSESSMENT

(51) International classification	:G01M 5/00, G06Q 50/08, G06Q 10/04, G01N 33/00, G06N 3/08
(31) Priority Document No	:NA
(32) Priority Date	:NA
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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2)Naga Subramanian G
3)Yokesh E
4)Mahalakshmi K
5)Poonkodi S
6)Madhan B

(57) Abstract :
The present invention -pertains to an Artificial intelligence ()based structural Health prediction platform for continuous monitoring, analysis, and prediction of structural failure risk in residential, commercial, industrial and public infrastructure buildings. The system that is proposed will combine vibration sensing, environmental monitoring, weather information, and material degradation analysis into one unified prediction system that will allow the identification of early stages of structural instability before catastrophic failure is reached. Traditional methods of structural inspection rely primarily on the manual inspection of structures, which is timeconsuming, labour intensive, expensive and rarely provides real-time information on the condition of the structure. The invention provides several distributed sensors compnsmg accelerometers, strain gauges, humidity sensors, crack detection sensors, and temperature sensors at critical locations in the structure. These sensors gather real-time data that is sent to a cloud-based AI system via the internet of things (loT) communication technology. The AI engine processes the vibration signature, load fluctuations, environmental exposure, seismic activity, corrosion and aging of structural materials like concrete, steel, and composites. The system also takes into account external weather forecasting databases, environmental risk models to assess the impact of rainfall, heat cycles, humidity, wind pressure, floods and earthquakes on building stability. The platform forecasts structural fatigue, crack growth, foundation settling and collapse threats based on historical and real-time data patterns. Each monitored section of the building is assigned a risk index score and engineers and authorities can then take preventive maintenance actions on them. The invention also enables automatic alerts, graphical visualization dashboards, maintenance scheduling recommendations, and remote monitoring via web and mobile applications. The platform proposed in this work has a significant advantage for the structural safety, maintenance cost reduction, extending the life of the building, improving the disaster prevention and preparedness, and smart city infrastructure management, by introducing intelligent predictive structural analysis.

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

113.Patent Title : **SMART GLASSES-BASED MULTIMODAL HOME AUTOMATION SYSTEM USING EYE BLINK DETECTION AND VOICE RECOGNITION FOR ASSISTIVE LIVING**

Application Number : 202641063559 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :20/05/2026

(21) Application No.202641063559 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : SMART GLASSES BASED MULTIMODAL HOME AUTOMATION SYSTEM USING EYE BLINK DETECTION AND VOICE RECOGNITION FOR ASSISTIVE LIVING

(51) International classification	:G06F 3/01, H04L 12/28, G05B 15/02, G10L 15/22, G06F 3/16	(71)**Name of Applicant :** **1)PERI Institute of Technology** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Ms. Priscilla N** **2)Ms. Sowmya S** **3)Ms. Shobana S** **4)Mr. Pravinraj D** **5)Ms. Madhumitha S** **6)Ms. HencyR**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The patented system presented proposes a smart and assistive home automation system that allows one to control household appliances with a pair of smart glasses containing eye blink detection and voice recognition technologies. The invention is particularly directed towards physically challenged people, elderly people, a patient that is paralyzed and limited mobility users, and is designed to provide an intuitive, contactless, and user-friendly interaction with smart home devices. The typical home automation system relies on hand controls, smart phone apps or physical switches, which can be difficult for people with significant physical restrictions to operate. To overcome these challenges, the proposed system introduces a multimodal interaction framework that integrates both eye blink pattern recognition and voice command processing, thereby enhancing both reliability and accessibility, and allowing for greater operational flexibility. This system is equipped with sensors with the smart glasses, which constantly track eye movements and blink sequences. Blinking sequence is understood as set commands to power on/off appliances, change light levels, control fans, operate doors or send alarms. Also, integrated voice recognition serves as a second control channel to allow users to speak instructions for added convenience and redundancy. A microcontroller-based loT platform like ESP8266 or NodeMCU receives user inputs, and then wirelessly communicates with the connected smart appliances using Wi-Fi or Bluetooth protocols. The proposed invention enables real-time response, low power consumption, compact wearable architecture, and easily integrates into the existing home infrastructure. The system also has safety features to prevent accidental triggering with intelligent blink classification algorithms and confirmation logic. The invention can be used in assisted living, rehabilitation centers, hospitals, and homes. The proposed technology integrates the concepts of wearable computing, artificial intelligence, and loT -based automation to support independent living, user comfort, and inclusive and accessible smart environments.
No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

114.Patent Title : **ADVANCED PCM-EMBEDDED PROTECTIVE CASE FOR MOBILE THERMAL MANAGEMENT**

Application Number : 202641063562 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :20/05/2026

(21) Application No.202641063562 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : ADVANCED PCM EMBEDDED PROTECTIVE CASE FOR MOBILE THERMAL MANAGEMENT

(51) International classification	:A45C 11/00, H04M 1/02, H05K 7/20, H04M 1/18, H04B 1/38
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(32) Priority Date	:NA
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(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
A novel Phase Change Material (PCM) Integrated Thermal Management Case for the mobile phone is disclosed which is used to reduce excessive heat generation during continuous operation of the mobile phone. With today's mobile phones, significant heat is generated during long gaming sessions, video streaming, charging and high performance processing which can shorten battery life, impair electronic components, hampers device function, and in extreme cases, may result in overheating dangers or explosions. A desired object of the proposed invention is to provide a detachable or integrated mobile phone protective case with a particular selected combination of PCM layers that has the ability to absorb and store additional thermal energy generated by the cell phone. As the temperature of the mobile phone comes to exceed a set value, the PCM changes its phase from solid to liquid, and absorbs latent heat without increasing the mobile phone surface temperature by much. This passive cooling method allows to maintain an operation temperature of the mobile device that is lower without consuming additional power. The PCM module can incorporate thermal storage chambers that are encased in a shell, nano-enhanced conductive materials, flexible heat-spreading layers, activation regions which respond to temperature, and interchangeable PCM cartridges for re-use. The system may be engineered to control the temperature automatically with different atmospheric conditions and user's operating patterns. The invention reduces thermal stress, thus extending the life of mobile phones, battery safety, processing stability and user comfort. The proposed technology offers a lightweight, energy efficient, reusable and economical thermal protection system for smartphones, tablets, gaming devices and other portable electronic systems

No. of Pages : 14 No. of Claims : 5

PERI CENTRE FOR INNOVATION

115.Patent Title : **SMART BUS TICKETING SYSTEM WITH DYNAMIC SEAT ALLOCATION USING REAL-TIME ANALYTICS OF PASSENGER DESTINATIONS**

Application Number : 202641063560 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :20/05/2026

(21) Application No.202641063560 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : SMART BUS TICKETING SYSTEM WITH DYNAMIC SEAT ALLOCATION USING REAL TIME ANALYTICS OF PASSENGER DESTINATIONS

(51) International classification	:G06Q 50/30, G06Q 10/02, G07B 15/02, G06Q 30/02, G06Q 10/06
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The prem:mt invention oonoom3 a Smart Bu3 Ticketing Sy3tcm with Dynamic Scat Allocation to enhance seat utilization, passenger comfort and fairness in public transportation systems. Most traditional public buses collect fares using Electronic Ticketing Machines (ETMs) and the information of where passengers are going is only used for fare collection and not for intelligent seat management. In the current systems, seat occupancy is mostly based on the proximity of vacant seats, and not on waiting time, or on optimization logic, resulting in seat waste, passenger inconvenience and unfair distribution of seats. The proposed invention provides an intelligent seat allocation system for dynamically allocating seats based on real-time passenger on-boarding information, destination information and travel time gaps. The system is a system based on embedded controllers, loT communication modules, seat occupancy sensors, and ETM integration mechanisms. The system automatically verifies if there are available seats when a passenger steps on the bus. If there is an empty seat, then it is assigned immediately. When all the seats are full the system predicts the next seat available, based on the destination data of passengers, and pre-allocates it to the passenger waiting in advance. One of the key aspects of the invention is that several passengers can occupy the same seat for different time periods without overlap. The invention continuously monit~rs the boarding and drop-off locations, and updates the seat assignments in real-time. The solution also includes display modules and mobile notification systems to educate passengers about their assigned seats and future availability . The system is developed on an ESP based microcontroller using real-time processing embedded· software algorithms. The experimental evaluations show that the efficiency of seat usage, the fairness of allocation, passenger confusion and comfort of travel are improved when compared with conventional ticketing systems. Moreover, the invention can be readily implemented at low cost and can be easily embedded into the existing bus ETM infrastructure for minimal hardware modification. The technology is especially well suited for smart city transportation systems, for the modernization of public transport and for intelligent mobility applications.

No. of Pages : 14 No. of Claims : 5

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

116.Patent Title : **SMART AUDIO GUIDANCE SPECTACLES (SAUG) USING COMPUTER VISION FOR THE VISUALLY IMPAIRED**

Application Number : 202641069485 **Published on:** 19/06/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :03/06/2026

(21) Application No.202641069485 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : SMART AUDIO GUIDANCE SPECTACLES (SAUG)USING COMPUTER VISION FOR THE VISUALLY IMPAIRED

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(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Sheazadi K

(57) Abstract :
ABSTRACT The present invention provides an intelligent wearable assistive device for visually challenged persons which enables the person to become more mobile, independent and safe by providing an immediate awareness of the surrounding environment and auditory guidance. The invention consists of a light-weight spectacle frame incorporating imaging sensors, object recognition modules, light weight, artificial intelligence based processing units, and an audio commentary mechanism located near the user's ear. Embedded cameras and depth sensing technologies like LiDAR or infrared sensors continuously extract visual information from the surroundings of the user. Advanced computer vision and machine learning algorithms are used to analyze the captured data to identify, classify, and track objects, people, pathways, obstacles, vehicles, signage, and environmental conditions in real-time. Processed information is then transformed into useful and intelligible verbal descriptions by means of a speech synthesis engine and presented to the user via the bone conduction speaker or through a compact earbud incorporated into the frame of the spectacle. The commentary provides navigation assistance, obstacle alerts, identification of objects, tracking of human movement and contextual details like traffic, stairs, doors, benches, or landmarks. The system is also able to warn the user of any emergency situations by producing priority alerts when needed. The invention also provides customizable user settings, controllable through voice commands and/or touch controls and/or a mobile application interface, said user settings including audio volume, commentary frequencies, language settings and operational modes. The wearable device features a low-power, long-lasting battery system. The proposed invention provides a compact, discreet and intelligent assistive solution that greatly enhances the situational awareness for the visually impaired than conventional walking aids and simple audio alert systems. The invention is a wearable spectacle platform, which integrates artificial intelligence, real time image processing and adaptive audio feedback, to improve daily life activities for increased accessibility, safer navigation and independence.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

117.Patent Title : **SMART MODULAR ELECTRIC VEHICLE (EV) BATTERY SWAPPING SYSTEM FOR AUTOMATED BATTERY EXCHANGE AND BATTERY LIFECYCLE MANAGEMENT AND METHOD THEREOF**

Application Number : 202641068010 **Published on** : 10/07/2026

Type of Patent : Institute **Funded by** : Management

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(21) Application No.202641068010 A
(43) Publication Date : 10/07/2026

(54) Title of the invention : SMART MODULAR ELECTRIC VEHICLE (EV) BATTERY SWAPPING SYSTEM FOR AUTOMATED BATTERY EXCHANGE AND BATTERY LIFECYCLE MANAGEMENT AND METHOD THEREOF

(51) International classification	:B60L53/80, B60L58/10, B60L53/65, B60L53/62, B25J5/00, B60S5/06, G06V20/56, B60Q1/26
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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1)Dr. Palson Kennedy R
2)Dr. Rajeswari R
3)Dr. Sreedevi S. L
4)Dr. Mohamed Abbas S

(57) Abstract :
A smart modular electric vehicle (EV) battery swapping system (100) is disclosed. The system (100) comprises a swapping station (102) configured to receive discharged battery module (140) from an electric vehicle (142) and provide a charged battery module (140) in exchange. The modular battery units (104) comprise embedded battery management system (150) for monitoring operational parameters. A user authentication and interface module (106) initiates battery exchange, while an automatic battery-handling unit (108) having Omni-directional mobility wheels (130) and a robotic manipulator arm (110) performs battery removal and installation through an engaging module (112). A vision-based recognition unit (114), compatibility verification module (116), vehicle-positioning platform (118) with embedded sensors (146) and laser projection alignment module (120) coordinate precise exchange operations. A dynamic charging control module (122), communication and control module (124), and collision avoidance unit (126) collectively enable rapid automated battery swapping with reduced operational downtime.

No. of Pages : 36 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

118.Patent Title : **AI-BASED CROWD PREDICTION AND DISPATCH SYSTEM FOR AN ELEVATOR AND METHOD THEREOF**

Application Number : 202641070637 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/06/2026

(21) Application No.202641070637 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : AI-BASED CROWD PREDICTION AND DISPATCH SYSTEM FOR AN ELEVATOR AND METHOD THEREOF

(51) International classification	:B66B 1/18, B66B 1/34, B66B 1/24, G06N 3/08, B66B 1/06	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai – 600048, Tamil Nadu Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Magesh B** **2)Dr. Mohamed Abbas S** **3)Ms. Janaki M** **4)Dr. Rajmohan K**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:01/01/1900	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
AI-BASED CROWD PREDICTION AND DISPATCH SYSTEM FOR AN ELEVATOR AND METHOD THEREOF An AI-based crowd prediction and dispatch system (100) for an elevator is disclosed. The system (100) comprises a multi-modal sensor network (102) configured to capture real-time crowd occupancy data from floor lobbies and elevator cabins, and a deep learning prediction module (104) configured to generate probabilistic crowd occupancy forecasts based on historical and real-time passenger data. A control circuitry (106) assigns elevator cabins and optimizes cabin movement, while a predictive idle positioning module (108) strategically pre-positions elevator cabins during low-demand periods. A projection unit (110) maintains a virtual replica of elevator operating conditions and simulates dispatch strategies prior to execution. A passenger characterization module (112), a passenger clustering module (114), and a predictive door control module (116) optimize occupancy estimation, passenger grouping, and door operation. An energy optimization module (120) reduces power consumption by controlling elevator cabin operation based on predicted demand and passenger grouping conditions.
No. of Pages : 34 No. of Claims : 10

PERI CENTRE FOR INNOVATION

119.Patent Title : **IoT-ENABLED PRECISION MONITORING SYSTEM FOR ADAPTIVE RESOURCE OPTIMIZATION IN AGRICULTURAL ENVIRONMENTS AND WORKING METHOD THEREOF**

Application Number : 202641070811 **Published on** : 12/06/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/06/2026

(21) Application No.202641070811 A
(43) Publication Date : 12/06/2026

(54) Title of the invention : IoT-ENABLED PRECISION MONITORING SYSTEM FOR ADAPTIVE RESOURCE OPTIMIZATION IN AGRICULTURAL ENVIRONMENTS AND WORKING METHOD THEREOF

(51) International classification	:A01G 25/16, G06Q 50/02, G06N 5/04, H04W 4/38, H04L 67/12
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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4)Dr. Arockiasamy S

(57) Abstract :
The present invention discloses an IoT-enabled precision monitoring system (100) for adaptive resource optimization in agricultural environments. The system comprises a multi-parameter environmental sensor array (101) for acquiring soil and climatic data, a wireless communication gateway module (102) for data transmission, an edge intelligence processing unit (104) for real-time analysis, and a cloud-based analytical and decision engine (105) for predictive modelling. An adaptive resource control actuator assembly (103) executes irrigation, fertigation, and agrochemical application based on generated insights. A solar-assisted hybrid power management unit (106) ensures energy autonomy, while an agronomic knowledge base and AI inference engine (107) provides crop-specific recommendations. A secure data transmission and encryption module (108) ensures data integrity, and a user interface dashboard (109) enables monitoring and control. The system enables continuous monitoring and intelligent optimization of water, nutrients, and energy, thereby improving crop yield and resource efficiency. Accompanied Drawings [Fig. 1-4]

No. of Pages : 30 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

120.Patent Title : **SECURE COMMUNICATION SYSTEM FOR VEHICLE-TO-INFRASTRUCTURE DATA EXCHANGE IN SMART TRANSPORTATION NETWORKS AND WORKING METHOD THEREOF**

Application Number : 202641070812 **Published on** : 12/06/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :06/06/2026

(21) Application No.202641070812 A
(43) Publication Date : 12/06/2026

(54) Title of the invention : SECURE COMMUNICATION SYSTEM FOR VEHICLE-TO-INFRASTRUCTURE DATA EXCHANGE IN SMART TRANSPORTATION NETWORKS AND WORKING METHOD THEREOF

(51) International classification	:H04L 29/06, H04W 12/06, H04W 4/44, H04W 4/40, H04L 29/08
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(72)**Name of Inventor :**
1)Dr. Mohamed Abbas S
2)Dr. Rajeswari R
3)Dr. Sreedevi S. L
4)Dr. Kotteswari k

(57) Abstract :
The present invention discloses a secure communication system for vehicle-to-infrastructure (V2I) data exchange in smart transportation networks. The system comprises a vehicular on-board secure communication unit (10), a multi-protocol wireless communication interface module (20), a context-aware cryptographic processing engine (30), a distributed infrastructure node controller (40), a blockchain-anchored audit and identity management layer (50), a machine learning-based anomaly detection subsystem (60), a cloud-integrated operations centre (70), and a quality-of-service orchestration framework (80). The invention enables adaptive selection of communication channels and cryptographic protocols based on real-time contextual parameters, ensuring secure, low-latency, and reliable data exchange. It further provides tamper-evident logging, privacy-preserving identity management, and automated threat detection with response mechanisms. The system ensures resilient and efficient communication across vehicular, edge, and cloud tiers, thereby enhancing safety, security, and operational efficiency in intelligent transportation systems. Accompanied Drawings [Fig. 1-4]

No. of Pages : 30 No. of Claims : 10

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PERI CENTRE FOR INNOVATION

121.Patent Title : **INTELLIGENT HUMAN EMOTION RECOGNITION AND RESPONSE COMPUTING PLATFORM**

Application Number : 202641069496 **Published on:** 19/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/06/2026

(21) Application No.202641069496 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : INTELLIGENT HUMAN EMOTION RECOGNITION AND RESPONSE COMPUTING PLATFORM

(51) International classification	:G10L 25/63, G06N 3/08, G06N 3/04, A61B 5/16, G10L 15/22	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI Knowledge Park, Mannivakkam, CHENNAI,TAMILNADU,INDIA. PIN:600048 Tamil Nadu India (72)**Name of Inventor :** **1)Usha P** **2)Hemavathy R** **3)Saraswathy M** **4)Preethi P** **5)Yogesh R** **6)Jagadeesh T**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
ABSTRACT The present invention discloses an Intelligent Human Emotion Recognition and Response Computing Platform designed to identify, interpret, predict, and respond to human emotions through a multi-modal artificial intelligence framework. The proposed platform integrates facial expression analysis, speech emotion recognition, physiological signal monitoring, behavioural pattern detection, and contextual sentiment analytics to achieve highly accurate real-time emotional state assessment. The system gives advanced deep learning architectures, adaptive neural networks, and cognitive computing algorithms to process data collected from cameras, microphones, wearable sensors, smart devices, and digital communication interfaces. Unlike conventional emotion recognition systems, the proposed invention introduces a dynamic emotional intelligence engine capable of continuously learning individual emotional behavior patterns and generating personalized adaptive responses. The platform further incorporates a hybrid affective computing module with predictive emotional modeling that anticipates stress, anxiety, aggression, confusion, fatigue, and psychological discomfort before visible manifestation. An intelligent response generation subsystem automatically delivers customized voice responses, environmental adjustments, virtual assistant interactions, mental wellness recommendations, emergency alerts, or automated machine actions based on the detected emotional state. Additionally, the invention introduces a decentralized privacy-preserving emotional data processing mechanism using edge computing and encrypted emotional data storage to ensure secure and ethical handling of sensitive user information. The proposed platform can be deployed in healthcare monitoring systems, smart classrooms, autonomous vehicles, human-robot interaction systems, industrial safety monitoring, customer experience platforms, defense applications, and next-generation smart environments. The novelty of this invention lies in its self-adaptive emotional learning capability, predictive emotional response , multi-sensory fusion framework, and privacy-aware intelligent computing architecture that collectively enable proactive and human-centric emotional interaction between humans and intelligent machines.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

122.Patent Title : **AI DRIVEN PREDICTIVE MAINTENANCE FRAMEWORK FOR SMART DEVICES**

Application Number : 202641069504 **Published on** : 19/06/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/06/2026

(21) Application No.202641069504 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : AI DRIVEN PREDICTIVE MAINTENANCE FRAMEWORK FOR SMART DEVICES

(51) International classification	:G06N 20/00, G06N 3/08, G06N 3/04, G06Q 10/00, G06N 5/04
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
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2)Florence A
3)Kalairajan B
4)Hariharan G
5)Raman M
6)Pavithra M

(57) Abstract :
ABSTRACT The present idea discloses an intelligent and adaptive predictive maintenance framework designed for next-generation smart devices operating in interconnected digital ecosystems. The proposed system integrates artificial intelligence, edge computing, self-learning analytics, and multi-sensor behavioural monitoring to predict device degradation, detect hidden operational anomalies, and autonomously recommend maintenance actions before critical failures occur. Unlike conventional maintenance systems that rely on periodic servicing or threshold-based alerts, the proposed framework utilizes a dynamic hybrid learning architecture combining deep neural networks, federated learning, digital twin modeling, and context-aware decision intelligence for real-time predictive diagnostics. The framework continuously acqutres operational parameters including thermal variations, vibration signatures, battery health, processor workload, communication latency, environmental exposure, and user interaction patterns from smart devices such as smartphones, wearable systems, industrial IoT nodes, home automation systems, healthcare monitoring devices, and autonomous embedded platforms. The collected data is processed through an adaptive edge intelligence engine capable of performing local anomaly inference with minimal latency and reduced cloud dependency. A novel feature of the invention is the implementation. of a "Behavioral Degradation Mapping Engine" that constructs individualized device health profiles and predicts component-level failures using temporal pattern evolution and self-supervised learning mechanisms. The framework further incorporates an AI-driven maintenance recommendation module that automatically schedules maintenance windows, optimizes energy utilization, .estimates remaining useful life (RUL) of components, and triggers autonomous recovery protocols. Additionally, the invention introduces a decentralized secure maintenance architecture usmg blockchain-assisted maintenance logs for tamper-resistant service history validation and trusted device lifecycle management. The system supports continuous model adaptation through federated collaborative learning while preserving user privacy and minimizing centralized data transfer. The proposed AI-driven predictive maintenance framework significantly improves operational reliability, reduces unexpected downtime, enhances device lifespan, lowers maintenance cost, and enables intelligent autonomous maintenance management for future smart ecosystems. The invention is highly applicable in smart manufacturing, consumer electronics, healthcare devices, intelligent transportation systems, smart homes, and Industry 5.0 environments

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

123.Patent Title : **AI DRIVEN PREDICTIVE MAINTENANCE FRAMEWORK FOR SMART DEVICES**

Application Number : 202641069504 **Published on** : 19/06/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/06/2026
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(54) Title of the invention : AI DRIVEN PREDICTIVE MAINTENANCE FRAMEWORK FOR SMART DEVICES

(51) International classification	:G06N 20/00, G06N 3/08, G06N 3/04, G06Q 10/00, G06N 5/04
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
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4)Hariharan G
5)Raman M
6)Pavithra M

(57) Abstract :
ABSTRACT The present idea discloses an intelligent and adaptive predictive maintenance framework designed for next-generation smart devices operating in interconnected digital ecosystems. The proposed system integrates artificial intelligence, edge computing, self-learning analytics, and multi-sensor behavioural monitoring to predict device degradation, detect hidden operational anomalies, and autonomously recommend maintenance actions before critical failures occur. Unlike conventional maintenance systems that rely on periodic servicing or threshold-based alerts, the proposed framework utilizes a dynamic hybrid learning architecture combining deep neural networks, federated learning, digital twin modeling, and context-aware decision intelligence for real-time predictive diagnostics. The framework continuously acqutres operational parameters including thermal variations, vibration signatures, battery health, processor workload, communication latency, environmental exposure, and user interaction patterns from smart devices such as smartphones, wearable systems, industrial loT nodes, home automation systems, healthcare monitoring devices, and autonomous embedded platforms. The collected data is processed through an adaptive edge intelligence engine capable of performing local anomaly inference with minimal latency and reduced cloud dependency. A novel feature of the invention is the implementation. of a "Behavioral Degradation Mapping Engine" that constructs individualized device health profiles and predicts component-level failures using temporal pattern evolution and self-supervised learning mechanisms. The framework further incorporates an AI-driven maintenance recommendation module that automatically schedules maintenance windows, optimizes energy utilization, .estimates remaining useful life (RUL) of components, and triggers autonomous recovery protocols. Additionally, the invention introduces a decentralized secure maintenance architecture usmg blockchain-assisted maintenance logs for tamper-resistant service history validation and trusted device lifecycle management. The system supports continuous model adaptation through federated collaborative learning while preserving user privacy and minimizing centralized data transfer. The proposed AI-driven predictive maintenance framework significantly improves operational reliability, reduces unexpected downtime, enhances device lifespan, lowers maintenance cost, and enables intelligent autonomous maintenance management for future smart ecosystems. The invention is highly applicable in smart manufacturing, consumer electronics, healthcare devices, intelligent transportation systems, smart homes, and Industry 5.0 environments

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

124.Patent Title : **AI POWERED VOICE MESSAGING ASSISTANT FOR VISUALLY CHALLENGED SMARTPHONE USERS**

Application Number : 202641069507 **Published on** : 19/06/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :03/06/2026

(21) Application No.202641069507 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : AI POWERED VOICE MESSAGING ASSISTANT FOR VISUALLY CHALLENGED SMARTPHONE USERS

(51) International classification	:G06F 3/16, G10L 15/22, G09B 21/00, G06F 3/01, H04M 1/72433
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(72)**Name of Inventor :**
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3)Anushya Mary R
4)Ganga.T
5)Ramya R
6)Afrin Begum A

(57) Abstract :
ABSTRACT The present invention is directed to a voice-first mobile messaging application particularly tailored to support visually impaired users so that they can communicate seamlessly, independently and efficiently with speech-driven interactions. Text-based messaging apps are mostly visual, touch-driven and text-based, which can be difficult for people with low vision or other visual impairments. Accessibility services like a screen reader offer some support, but it may require several navigation steps and a greater cognitive effort along with an understanding of complex interactions with the smartphone. The proposed invention overcomes these problems by providing an intelligent Android-based communication platform that functions mostly via voice commands, audio feedback, gesture backed-up controls, and speech backups aided by the use of artificial intelligence. The system allows users to send, record and send vmce messages with natural language commands, like "Send message to John," without having to open the messaging apps. The invention provides automated contact recognition, real-time speech interpretation, automatic recording of voice messages and smart routing of the voice messages in the native application or via third-party platforms like WhatsApp and Facebook Messenger via secure integration mechanisms and accessibility APIs. The invention also provides for AI-driven noise suppression, speech improvement, speech-tospeech translation or interpretation in multiple languages, optional voice-to-text transcription, and emergency communication capabilities for immediate support requests. Offline message queuing provides users with the ability to store and retain messages when no Internet connection can be made and then automatically send them when the connection is restored. Personalized settings allow for the adjustments of the voice feedback speed, language preferences, confirmation protocols and gesture sensitivity. The invention provides a significant improvement in digital accessibility, communication speed, independence and user confidence for the visually impaired through reducing visual dependence and easing interaction with today's messaging environments. The proposed system is a scalable and practical assistive communication technology for inclusive digital communication environment.

No. of Pages : 14 No. of Claims : 5

PERI CENTRE FOR INNOVATION

125.Patent Title : **SELF-REGENERATING MICROBIAL BIOFILTER FOR AIR AND WATER PURIFICATION**

Application Number : 202641071802 **Published on** : 19/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :10/06/2026
(21) Application No.202641071802 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : SELF REGENERATING MICROBIAL BIOFILTER FOR AIR AND WATER PURIFICATION

(51) International classification	:B01D 53/84, B01D 53/85, C02F 3/10, C02F 3/34, B01J 20/24	(71)**Name of Applicant :** **1)PERI College of Arts and Science** Address of Applicant :PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMILNADU,INDIA. PIN:600048. Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Anto Suganya R** **2)Dr. Sudha M** **3)Mr. Gladson K** **4)Mr.Castro ChandraBose R** **5)Mr. Lingeshwaran M** **6)Ms. Gowthami C**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
Self-Regenerating Microbial Biofilter for Air and Water Purification ABSTRACT 10-Jun-2026/85871/202641071802/Form 2(Title Page) The present invention concerns a novel microbial biofilter system which has the capacity to simultaneously purify both air and water using engineered microbial consortia,, bio-responsive_____ _____ nanostructured carrier matrices and autonomous regeneration mechanisms. The invention is based on a multi-layer biofiltration architecture that uses immobilized beneficial microorganisms capable of dealing with pollutants, including organic pollutants, volatile organic compounds (VOCs), pathogenic microorganisms, heavy metals, pharmaceutical residues, dyes, and emerging contaminants present in both gaseous and aqueous environments. One of the major innovations of the proposed system is the inclusion of the smart microbial regeneration chamber, which continuously monitors microbial viability, contaminant load, biofilm thickness, nutrient availability, and purification efficiency with embedded biosensors. The system works automatically on a real-time basis, depending on feedback it receives, and implements the following processes to restore filtration performance without any manual effort and without changing filters: Micro-dosing of nutrients, balancing of oxygen, enhancement of microbial population, restructuring of biofllms, etc. The invention also introduces biodegradable bio-carriers with nano-porous structures that are functionalized with natural antimicrobial peptides and pollutant binding biomolecules to improve the capture of pollutants and microbial activity. Optimization of regeneration cycles by a machine learning module to predict biofilter degradation trend and to maximize purification efficiency and the operational life of the biofilter. Apart from this, the system is also based on a carbon sequestration compartment for converting the captured pollutants into environment friendly biomass and biofertilizer by-products. The proposed self-regenerating biofilter enables continuous, low-maintenance, eco-friendly, energy-efficient and pure purification of industrial facilities, healthcare facilities, smart buildings, wastewater treatment facilities, agriculture and domestic applications. The invention integrates cutting-edge microbiology, biotechnology, biosensing, and intelligent automation that greatly enhances the purification efficiency, lowers operational expenses, cuts down on waste generation, and offers a sustainable solution for long-term environmental remediation and pollution control.
No. of Pages : 14 No. of Claims : 5

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

126.Patent Title : **GENETICALLY ENHANCED MICROBIAL CONSORTIUM FOR INDUSTRIAL WASTEWATER TREATMENT**

Application Number : 202641071806 **Published on** : 19/06/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(22) Date of filing of Application :10/06/2026

(21) Application No.202641071806 A
(43) Publication Date : 19/06/2026

(54) Title of the invention : GENETICALLY ENHANCED MICROBIAL CONSORTIUM FOR INDUSTRIAL WASTEWATER TREATMENT

(51) International classification	:C02F 3/34, C02F 3/32, C12N 1/20, C12N 1/12, C12R 1/89	(71)**Name of Applicant :** **1)PERI College of Arts and Science** Address of Applicant :PERI Knowledge Park, Mannivakkam, CHENNAI,TAMILNADU,INDIA. PIN:600048. Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Anto Suganya R** **2)Dr. Sudha M** **3)Ms. Dhanisha S** **4)Ms. Jhansi R** **5)Ms. Kaviya D** **6)Ms. Pramila A**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
TITLE: Genetically Enhanced Microbial Consortium for Industrial Wastewater Treatment ABSTRACT The present invention concerns a microbial consortium comprising a genetically modified microbial consortium for use in the efficient treatment, detoxification and resource recovery of industrial wastewater from the textile, pharmaceutical, chemical, food processing, mining or manufacturing sectors. The invention provides for a novel multi-species microbial ecosystem which is comprised of a plurality of genetically engineered bacteria, fungi and microalgae working together in a synergistic manner to degrade complex organic pollutants, remove toxic heavy metals, eliminate emerging contaminants, and improve overall water quality. The proposed consortium features engineered metabolic pathways, adaptive biosensing mechanisms, and selfregulating quorum communication networks, which enable them to optimize pollutant degradation under varying wastewater conditions, unlike conventional biological treatment systems that rely on the naturally occurring microorganisms with limited degradation capabilities. 0-Jun-2026/85880/202641071806/Form 2(Title Page) The consortium is linked with a smart (biofilm-based) treatment platform in which microorganisms grow into dynamically structured biofilms on nanostructured support matrices that increase the stability of the microorganism, resistance to toxic shock loads and treatment efficiency. The engineered microorganisms can produce pollutant specific enzymes, such as those capable of degrading dyes, hydrocarbons, phenolic compounds, pharmaceutical residues, pesticides and heavy-metal complexes. A novel genetic safety circuit for environmentally controlled proliferation and self-limiting biological circuits prevents uncontrolled proliferation of modified strains in the environment. The system also includes real-time biosensors that constantly monitor the contaminant levels and automatically turn on specific metabolic pathways for adaptive treatment performance. As described in one embodiment, the consortium allows for simultaneous degradation, bioaccumulation, biosorption and biotransformation processes, and yields significantly higher pollutant degradation rates and lower sludge production than traditional treatment methods. Recycled biomass can be used for bioenergy, recovery of nutrients or generating bio-industrial products, in line with circular economy principles. The invention provides an environmentally friendly, energy-efficient and scalable solution to industrial waste water management, greatly enhancing water reclamation and re-use potential. The genetically engineered microbial consortium is a next generation biotechnology platform that can be used to create intelligent, autonomous, high-performance industrial waste water treatment applications.

No. of Pages : 15 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

127.Patent Title : **AN INTELLIGENT INTRUSION DETECTION AND PREVENTION SYSTEM FOR IOT ENVIRONMENTS**

Application Number : 202641075951 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

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(21) Application No.202641075951 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : AN INTELLIGENT INTRUSION DETECTION AND PREVENTION SYSTEM FOR LO T ENVIRONMENT

(51) International classification	:H04L 29/06, H04L 9/40, G06N 20/00, G06F 21/55, G06N 3/04	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMILNADU,INDIA. PIN:600048. Tamil Nadu India (72)**Name of Inventor :** **1)Govarthanan G** **2)Dr. Yogeshwari M** **3)Yuvalakshmi M** **4)Rajeshwari R** **5)Alsiya Fathima A** **6)Asma A**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
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(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The present invention relates to an Inte!ligent Intrusion Detection and Prevention System (IIDPS) for Internet of Things (loT) environment that detects, predicts and mitigates cyber threats in real-time using a hybrid artificial intelligence framework. The proposed system includes edge intelligence, federated learning, digital twin simulation, blockchain-based threat intelligence sharing and autonomous response orchestration to protect heterogeneous loT networks. The invention relies on distributed anomaly detection models deployed on edge nodes to detect unknown attacks, zero-day exploits, botnets, ·device spoofing, ransomware propagation and abnormal network behavior, as opposed to conventional approaches that are based on centralized monitoring and signatures. A digital twin environment constantly keeps a copy of the status of loT devices, so that they can analyze attacks before they affect physical infrastructure. With federated learning, multiple loT gateways can work together to train security models without exposing sensitive data, thus keeping security models private. Validated threat signatures and attack intelligence are kept in an immutable format in a blockchain-based security ledger to be shared securely amongst network participants. If suspicious activity is detected, the system automatically triggers preventive measures like device isolation, dynamic access control changes, traffic filtering arid self-healing network reconfiguration. The invention is useful in the field of smart home, healthcare systems, industrial automation, smart cities, transportation networks, and critical infrastructure protection. The proposed architecti.rre offers considerable gains in accuracy of detection, fewer false positives, and faster response time to attack, while additionally providing increased resilience to new cyber threats in the resource-constrained loT environments .
No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

128.Patent Title : **QUANTUM-RESISTANT ENCRYPTION FRAMEWORK FOR NEXT-GENERATION COMPUTING**

Application Number : 202641075959 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :19/06/2026

(21) Application No.202641075959 A
(43) Publication Date : 03/07/2026

(54) Title of the invention : QUANTUM -RESISTANT ENCRYPTION FRAMEWORK FOR NEXT-GENERATION COMPUTING

(51) International classification	:H04L 9/30, H04L 9/08, G06N 10/00, H04L 9/32, H04L 9/06	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMILNADU,INDIA. PIN:600048. Tamil Nadu India (72)**Name of Inventor :** **1)Dhivya R** **2)Manickavelu C** **3)Vaishali B** **4)Reshma R** **5)Jaisamrithi I** **6)Prabakaran D**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The present invention relates to a Quantvm~Resistant Encryption Framework (QREF) for protecting next generation computing systems from both classical and quantum cyberattacks. As the quantum computer develops, the traditional public key cryptography, including Diffie- • -'1• ! . Hellman, ECC and RSA, will be easier and easier to be cracked by quantum algorithm such as Shor's algorithm and Grover's algorithm. The proposed security architecture is adaptive, multilayered, and unifies the use of lattice-based cryptography, hash-based signatures, code-based encryption, and multivariate polynomial cryptography in a single security ecosystem. The framework also includes an Artificial. Intelligence (AI) based threat prediction system that r can detect possible cryptographic weaknesses and adaptively modify the encryption at runtime. A tamper-proof key validation module that is d,ecentralized, using the blockchain, guarantees secure management of keys and authentication. The framework also employs quantum entropy generation and adaptive encryption switching for protecting against any new threats from the quantum world. The invention also provides for a self-evolving cryptographic orchestration engme that automatically evolves the encryption standards according to risk assessments and computational threat levels. The proposed framework will provide robust security features in terms of confidentiality, integrity, authentication, and resilience, making it suitable for diverse applications such as cloud computing, edge computing, Internet of Things (loT), critical infrastructure, fmancial ·systems, military communications, healthcare data management, and next-generation digital ecosystems. The invention combines post-quantum cryptographic algorithms, intelligent security adaptation, and decentralized trust management, creating a scalable and future-proof cybersecurity solution that ensures secure digital communications even in the quantum computing era.
No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

129.Patent Title : **SMARTPAD WITH AI-ENABLED PORTABLE PAPER-BASED COLORIMETRIC PLATFORM FOR RAPID, AFFORDABLE AND INTELLIGENT WATER SAFETY SCREENING**

Application Number : 202641075955 **Published on** : 03/07/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(54) Title of the invention : SMARTPAD WITH AI -ENABLED PORTABLE PAPER -BASED COLORIMETRIC PLATFORM FOR RAPID, AFFORDABLE AND INTELLIGENT WATER SAFETY SCREENING

(51) International classification	:G01N 33/18, G01N 21/78, G01N 31/22, G01N 21/31, B01L 3/00	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMILNADU,INDIA. PIN:600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Anto Suganya R** **2)Rubala Nancy J** **3)Tharun S** **4)Gladyslordwinny I** **5)Gurunathan S** **6)Dinesh K**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention concerns an intelligent portable paper-based analytical device (SmartPAD) for rapid and low cost, but also decentralised assessment of water quality. It is composed of a biodegradable cellulose-based microfluidic paper substrate with wax patterned hydrophobic microfluidic channels, colorimetric sensing zones enhanced with nanomaterials, and an artificial intelligence integrated smartphone analytics platform. The sensing zones are loaded with a specific biochemical reagent such as resazurin-based microbial activity indicators, bromocresol purple-lactose complexes for coliform detection, bromothymol blue for pH determination, heavy metal-sensitive nanoparticles, and biosensing compounds that are sensitive to toxins. Water samples are carried by passive capillary action with no power or instrumentation needed. It takes sensor images with a dedicated smartphone application, transforms them to RGB space, performs CIE Lab transformation, adds machine-learning-based sensor calibration and geotags the risk assessment, which is then colorimetrically interpreted by AI. The platform also includes cloud connectivity to map water safety in near real time and provide predictive water contamination analysis. The system has high correlation with traditional laboratory detection methods and can detect multiple parameters simultaneously in about 4 hours. The invention provides a low cost, environmentally friendly, portable, field deployable, and intelligent solution for use in rural communities, in disaster response, for environmental monitoring and agencies, for healthcare organizations,.and for smart city water surveillance systems.

No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

130.Patent Title : **CRISPR-BASED RAPID PATHOGEN IDENTIFICATION AND REAL-TIME MUTATION TRACKING SYSTEM USING ADAPTIVE AI AND MULTI-LAYER BIO-SENSING ARCHITECTURE**

Application Number : 202641077826 **Published on** : 17/07/2026

Type of Patent : Institute **Funded by** : Management

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(22) Date of filing of Application :24/06/2026

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(43) Publication Date : 17/07/2026

(54) Title of the invention : CRISPR-BASED RAPID PATHOGEN IDENTIFICATION AND REAL-TIME MUTATION TRACKING SYSTEM USING ADAPTIVE AI AND MULTI LAYER BIO SENSING ARCHITECTURE

(51) International classification	:C12Q 1/6869, C12Q 1/68, C12N 15/11, C12N 15/10, C12Q 1/6806
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(62) Divisional to Application Number Filing Date	:NA :NA

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4)Kanimozhi V
5)Usharani P
6)Emely Evangeline K

(57) Abstract :
The present invention provides an inventive system for a rapid pathogen identification and mutation tracking, and for the real-time highly accurate detection of infectious agents and their changing genetic variations. The system combines programmable CRISPR-Cas complexes, microfluidic processing of nucleic acid samples, artificial intelligence (AI) mutation analytics engine, and nanopore-based detection of nucleic acids. The proposed invention provides portable, point-of-care, and ultra-fast pathogen screening in minutes as compared to the conventional molecular diagnostics which requires centralized laboratory and longer turn around time. 0) O) re Q. CD The novelty of the invention is the self-adaptive guide RNA library generation module of the invention which can dynamically redesign the CRISPR guide RNA sequence when new mutations occur. Furthermore, the invention uses a multi-layered signal amplification matrix of the combination of the fluorescence, electrochemical and thermal outputs to achieve greater sensitivity of detection. The Al engine in the device automatically analyzes the genetic signature detected, and compares it to a cloud-based genomic mutation database to determine the lineage of the mutation, virulence potential and possible resistance markers. CM E o The invention also comprises a blockchain secured epidemiological data sharing scheme to allow safe dissemination of mutation reporting to healthcare authorities. The technology can be applied to hospitals, airports, public health centers, food safety laboratories, and stations for monitoring the environment. The system helps to drastically shorten the diagnostic delay, improve outbreak surveillance, and contributes to immediate pandemic readiness. It will be very useful for monitoring the evolution of future pathogens, as it can detect unknown mutation patterns.

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

131.Patent Title : **HYBRID NEURAL NETWORK FOR REAL-TIME CYBER THREAT DETECTION**

Application Number : 202641077830 **Published on** : 17/07/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(21) Application No.202641077830 A
(43) Publication Date : 17/07/2026

(54) Title of the invention : HYBRID NEURAL NETWORK FOR REAL-TIME CYBER THREAT DETECTION

(51) International classification	:G06N 3/04, G06N 3/08, H04L 29/06, G06F 21/55, H04L 9/40
(31) Priority Document No	:NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
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3)Soundarya K
4)Keerthana A
5)Antony Dikshitha X
6)Hari Prasad R

(57) Abstract :
The present invention provides an advance hybrid neural network model for real-time cyber threat detection in dynamic digital infrastructures. The proposed system combines several deep learning architectures such as Convolutional Neural Networks (CNNs), Long Short-Term Memory (LSTMs), Graph Neural Networks (GNNs), and attention mechanisms based on Transformer models to detect and classify cyber threats more accurately and quickly. In contrast to existing IDSs, which use signature-based or static machine-learning approaches, the present invention provides an adaptive behavioral intelligence mechanism that is able to continuously learn from the network traffic, user behavior, and changing attack patterns. The system uses a multi-dimensional threat analysis framework that enables the capture of spatial, temporal and relational patterns in cyber environments. CNN modules detect patterns at the packet level, LSTM models identify temporal attack sequences, GNN modules trace interconnected attack propagation paths, and Transformer layers focus on those threats that are most important based on context. Also, a new Threat Evolution Prediction Engine (TEPE) can predict potential zero-day attacks by examining the mutational patterns of known threats. CD ��) cc Q. CD An Explainable Threat Decision Layer (ETDL) gives human-readable threat reasoning to improve the transparency of cybersecurity analysts. It can be deployed in cloud, IoT, enterprise and critical infrastructure environments. CM E o Overall, the invention enhances detection speed, accuracy, adaptability, and proactive defense capabilities, improving real-time cybersecurity risk reduction.ion. In

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

132.Patent Title : AI-BASED EMOTIONAL DRIFT PREDICTION SYSTEM

Application Number : 202641077804 **Published on :** 17/07/2026

Type of Patent : Institute **Funded by :** Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
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(43) Publication Date : 17/07/2026

(54) Title of the invention : AI - BASED EMOTIONAL DRIFT PREDICTION SYSTEM

(51) International classification	:A61B 5/16, G10L 25/63, A61B 5/00, A61B 5/024, G16H 50/20	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA- 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Vinitharajakumari W M** **2)RAGAVI D** **3)Giftson Daniel S** **4)Manisha S** **5)Vasanth R** **6)Neelaveni G**
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(33) Name of priority country	:NA	
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(87) International Publication No	: NA	
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(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention is associated with ah advanced artificial intelligence (Al) based emotional monitoring and prediction system that can identify and predict emotional instability prior to the onset of clinically recognizable psychological disorders. The system combines multimodal data acquisition from speech tone variations, typing behavior analytics, face microexpression recognition and physiological signal monitoring like heart rate variability, galvanic skin response and body temperature. Unlike existing emotion detection systems, which can only detect emotions at a particular moment, the proposed invention provides a novel Emotional Drift Mapping Engine (EDME) that monitors subtle changes in emotion over time and generates predictive behavioural timelines. CD ��) re Q. CD The system uses hybrid deep learning architectures, which feature Transformer-based temporal analysis, convolutional neural networks and recurrent emotional memory networks, to detect hidden patterns related to escalation of stress, anger outbursts, depressive moods, and anxiety surges. The invention also provides for an Adaptive Psychological Baseline Model (APBM) that customizes an emotional threshold for each user using a user's past behavior to improve prediction accuracy. CM E o o co N- O 5 CD CM : O cs i Tf CO co CM o CM I c 3 The innovative feature of the present invention is the capability to calculate Emotional Drift Risk Scores (EDRS) and predict the likelihood of the emotional breakdown in the future time frame of minutes to weeks. The system can be applied in health, workplace wellness, educational, defense and personal mental health monitoring applications. It also alerts caregivers, psychologists or authorized persons to the early intervention. This invention provides an important advancement in the field of preventive mental healthcare by shifting from emotional analysis from a reactive detection mode to a proactive prediction mode.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

133.Patent Title : **ADAPTIVE DIRECTIONAL PULSED ILLUMINATION SYSTEM FOR WEARABLE ANIMAL DETERRENCE**

Application Number : 202641077833 **Published on** : 17/07/2026

Type of Patent : Institute **Funded by** : Management

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(43) Publication Date : 17/07/2026

(54) Title of the invention : ADAPTIVE DIRECTIONAL PULSED ILLUMINATION SYSTEM FOR WEARABLE ANIMAL DETERRENCE

(51) International classification	:A01M29/10, H05B45/10, H05B47/115, H05B47/13
(31) Priority Document No	:NA
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(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
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(62) Divisional to Application Number	:NA
Filing Date	:NA

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Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA- 600048 Tamil Nadu India
(72)**Name of Inventor :**
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3)Dr, Vignesh A R
4)Kavitha E K
5)Priyadharshini S

(57) Abstract :
The present invention provides an Adaptive Directional Pulsed Illumination System for Wearable Animal Deterrence which is a srnart^ child protection device for protection against aggressive or approaching animals, particularly stray dogs. It features a multi-sensor threat detection system of mmWave radar sensors, passive infrared (PIR) sensors, ultrasonic proximity sensors, and optional Al-based vision modules, which constantly tracks surrounding movement and in real-time recognizes animal approach patterns. If an animal is detected in the vicinity, an embedded processing unit is used to make sense but of the different data from the various sensors, and to calculate the direction, speed and distance of the animal approaching.. . . L Depending on the threat parameters analyzed, the system can selectively activate directionally- oriented high-intensity LED clusters located around the wearable body assembly and emit adaptive pulsed illumination patterns specifically to the threat direction. The pulse frequency, brightness intensity, flash duration and pulse sequence are automatically adjusted based on animal-action, animal-movement, velocity and distance to the animals, thus enhancing the deterrence effect while minimizing unnecessary consumption of energy. The wearable assembly can be incorporated in belts, shoes, ankle bands, bags, body-mounted accessories, etc. to be portable and child-friendly within the context of the use. CM E o The invention also provides an optional wireless communication for emergency alerts and remote monitoring, as well as a rechargeable power management system. The proposed system is a silent, non-invasive, energy efficient and automatic animal deterrence system unlike the conventional animal deterrence systems that use manual activation, ultrasonic emissions or harmful chemical sprays. The invention improves child safety by offering intelligent, localized and real-time protection in public and residential locations.n-

No. of Pages : 9 No. of Claims : 5

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

134.Patent Title : **PORTABLE MULTI-SENSOR FRUIT CHEMICAL DETECTION DEVICE**

Application Number : 202641077835 **Published on** : 17/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
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(21) Application No.202641077835 A
(43) Publication Date : 17/07/2026

(54) Title of the invention : PORTABLE MULTI-SENSOR FRUIT CHEMICAL DETECTION DEVICE

(51) International classification	:G01N 21/359, G01N 21/64, G01N 33/02, G01N 21/3563, G01N 33/00	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA- 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr.Magesh B** **2)Dr. Abhilash V** **3)Dr, Rajmohan K** **4)Ramya devi V** **5)Subashini B**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
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(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The present invention provides a Portable Multi-Sensor Fruit Chemical Detection Device for rapid, non-destructive and real-time detection of harmful chemical contaminants on fruit surfaces. The invention is based on combining various sensing technologies such as Near Infrared (NIR) spectral analysis, Ultraviolet (UV) fluorescence detection, Volatile Organic Compound (VOC) gas sensing, AI-based image processing, and environmental monitoring for comprehensive contamination assessment. Set up to detect artificial ripening agents like calcium carbide and over-ripe ethylene, pesticide residues, fungicides^ wax coatings and other harmful surface treatment chemicals which are widely used in the preservation and transportation of fruits. I The system consists of a portable and transportable case with sensor modules, a processing unit, a wireless communication interface, and embedded artificial intelligence algorithms for multisensor data fusion. In operation, surface properties of the fruit are examined by spectral reflectance, surface UV fluorescence response, chemical vapor emission pattern and visual anomalies of the fruit texture. These collected data are input into machine learning models trained with contamination datasets to calculate a contamination probability score for accurate classification. i CD ◆◆) Q. CD CM E o in co co o 5 CD CM O o o co SJ ◆◆ CM o CM I c L CM The invention offers an easy-to-use and inexpensive alternative to laboratory testing that allows ordinary users, retailers, agricultural inspectors and food safety agencies to determine the safety of fruits in real time. The device can be connected to a mobile application that will, provide live contamination reports, alerts and safety tips. The proposed invention has a significant contribution to the monitoring of food safety, decrease the health risk due to chemically contaminated fruits and enable the quality assurance process in the agricultural supply chain, in the supermarket, in the export industries, and in the environment of domestic consumption
No. of Pages : 11 No. of Claims : 6

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PERI CENTRE FOR INNOVATION

135.Patent Title : AI-BASED IMAGE FORGERY DETECTION SYSTEM

Application Number : 202641084287 **Published on :** 07/08/2026

Type of Patent : Institute **Funded by :** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/07/2026

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(43) Publication Date : 07/08/2026

(54) Title of the invention : AI-BASED IMAGE FORGERY DETECTION SYSTEM

(51) International classification	:G06N 3/08, G06T 1/00, G06N 3/04, G06V 10/774, G06V 10/764	(71)**Name of Applicant :** **1)PERI Institute of Technology** Address of Applicant :PERI INSTITUTE OF TECHNOLOGY,PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMIL NADU-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Sanjai M** **2)Adithya S** **3)Hemanth V** **4)Sarathy K** **5)Amirtha P** **6)Suryaswathi J**
(31) Priority Document No	:NA	
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(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
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(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present embodiment is directed to ah Artificial Intelligence (AI)-based intelligent image forgery detection system that can detect images that have been digitally manipulated by a combination of deep learning, digital forensic analysis and adaptive feature intelligence. Conventional verification methods are no longer effective due to the rapid development of image editing software and generative AI technologies, which have significantly broadened the realm of highly realistic fakes. However, with the rapid development of image editing software and generative AI technologies, traditional verification methods are no longer effective, as highly realistic fakes are now becoming more common. Current approaches are mainly based on metadata inspection or watermark verification, and manual forensic examination, which are all possible to circumvent or tamper with. The proposed invention provides an integrated multilevel image authentication framework so as to analyze the visible and invisible forensic traces without relying on metadata. It unifies Error Level Analysis (ELA), sensor noise pattern extraction, illumination consistency verification, texture anomaly detection, edge discontinuity analysis, compression artifact evaluation and adaptive pixel-distribution learning in a single deep learning architecture. The invention includes an Adaptive Multi-Forensic Fusion Engine which assigns confidence weights to various forensic features according to the quality of the image, the ratio of compression, the editing method and the acquisition device. The extracted forensic signatures are then fed into a hybrid Convolutional Neural Network (CNN) with Vision Transformer (ViT) attention networks for increasing localization and classification accuracy. The invention also creates a heat map of forgery confidence at a pixel level, allowing investigators to determine areas that may have been manipulated and their degree of confidence that the image has been tampered. The system continually refines its performance with incremental learning from new manipulation techniques, without the need for retraining the model. The proposed system achieves high detection accuracy for copy-move forgery, image splicing, object insertion, object removal, AI-generated image modification and deep image editing. The invention can be used in digital forensics, journalism, cybercrime investigation, insurance claim verification, law enforcement, social media authentication, judicial evidence validation, government security agencies, and others.
No. of Pages : 14 No. of Claims : 5

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

136.Patent Title : **ATP-MMDR: AI-BASED PRIORITY ROUTING FOR RELIABLE WBANS**

Application Number : 202641084296 **Published on** : 07/08/2026

Type of Patent : Institute **Funded by** : Management

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(43) Publication Date : 07/08/2026

(54) Title of the invention : ATP-MMDR: AI-BASED PRIORITY ROUTING FOR RELIABLE WBANS

(51) International classification	:A61B 5/00, H04W 84/18, H04W 40/02, H04W 40/24, A61B 5/0205	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI KNOWLEDGE PARK,MANNIVAKKAM,CHENNAI,TAMIL NADU-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Rajeswari R** **2)Dr. Rajmohan K** **3)Santhanalakshmi G** **4)Sindhu Usha S** **5)Swama T** **6)Dhanush P**
(31) Priority Document No	:NA	
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(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
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(57) Abstract :
The present invention concerns an intelligent communication framework for Wireless Body Area Networks (WBANs) to reliably and efficiently communicate medical data in real-time healthcare monitoring systems while being aware of the delay. In particular, the invention provides for a new routing protocol, called Adaptive Threshold Priority with Multi-Metric Dynamic Routing (ATP-MMDR), that utilizes AI, adaptive priority scheduling, multi-parameter routing optimization, and predictive congestion avoidance to enhance medical data delivery. To overcome the limitations of conventional, WBAN routing protocols based on static routing decision or a single routing metric, the proposed ATP-MMDR framework utilizes an adaptive priority engine which has the capability of dynamically categorizing physiological data based on medical severity, patient condition, sensor type, contextual health status, and permissible transmission delay. The protocol also includes a multi-metric routing decision engine that considers the residual energy, queue occupancy, wireless link stability, packet error probability, interference level, hop distance, node temperature, transmission reliability and the historical forwarding performance. One of the key innovations of the invention is the AI-powered Predictive Congestion Intelligence Engine (PCIE) that leverages lightweight edge intelligence to continuously analyse temporal network behaviour. The proposed system is not concerned with congestion after it happens, but rather predicting congestion prior to packet accumulation based upon a number of factors: historical queue variations, transmission intervals, channel utilization, and patient activity patterns. To base on this prediction, the routing is modified proactively to avoid the bottleneck nodes. Further, a Digital Health Priority Score (DHPS) and Dynamic Network Health Index (DNHI) are introduced to jointly evaluate the patient criticality and the network conditions to enable optimal packet scheduling and forwarding strategies. The proposed invention greatly improves packet delivery ratio, reduces end-to-end latency, reduces packet loss rate, saves energy usage and extends WBAN lifetime and ensures reliable transmission of emergency medical information. Jt is especially well suited for wearable health care or in-body health care devices, implantable sensors, remote patient monitoring, telemedicine, smart hospitals, elderly care, emergency response, military health care, and next-generation AI integrated medical Internet of Things (loMT) applications.
No. of Pages : 15 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

137.Patent Title : **SMART WATER WASTAGE DETECTION AND INTELLIGENT AUTOMATED CONTROL SYSTEM**

Application Number : 202641086957 **Published on** : 07/08/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
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(21) Application No.202641086957 A
(43) Publication Date : 07/08/2026

(54) Title of the invention : SMART WATER WASTAGE DETECTION AND INTELLIGENT AUTOMATED CONTROL SYSTEM

(51) International classification	:A01G 25/16, G05B 15/02, G06Q 50/06, G06Q 50/02, G05B 19/418
(31) Priority Document No	:NA
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(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention pertains to a Smart Water Wastage Detection and Intelligent Automated Control System for minimizing loss of water by constantly monitoring water distribution networks, storage tanks, domestic pipelines, commercial buildings, and agricultural irrigation systems and the like, with intelligent control of water assets.The present invention relates to an intelligent Internet of Things (IoT) based Smart Water Wastage Detection and Intelligent Automated Control System for continuously monitoring water distribution networks, storage tanks, domestic pipelines, commercial buildings, agricultural irrigation systems and other such water distribution systems with the aim of minimizing water loss through intelligent control of water assets. The invention combines various sensing technologies such as flow sensors, pressure sensors, ultrasonic water level sensor, acoustic vibration sensors, and smart valve controllers with edge-based Artificial Intelligence (AI) analytics to ensure leak detection and predictive water management. In contrast to traditional systems which only detect water leakage once a large amount has been consumed, the proposed invention utilizes adaptive machine learning algorithms which learn and detect abnormal water usage patterns, micro-leakage, pipeline bursts, tank overflows, unauthorized water use, and valve failure in real-time. The system also includes a Digital Water Twin model, which uses a continuous flow of expected hydraulic behavior to draw conclusions about unknown leak locations and predict future failures, based on the data collected by the sensors. If any abnormalities are detected, the controller will intelligently isolate the corresponding pipeline using solenoid valves while alerting users and maintenance personnel via GSM, Wi-Fi or cloud-based application. A predictive maintenance module capable of estimating the state of pipes based on the pressure variations and flow anomalies to avoid future pipe failure. The system can be operated with renewable energy, with the optional solar-powered module, it can be used in remote villages and in agriculture. Cloud connectivity allows for long-term analysis, water consumption optimization and monitoring on the city level. The intelligent automation, predictive analytics and autonomous decision-making aspects of the proposed invention substantially contribute to more intelligent water conservation, lower maintenance costs, less damage to infrastructure, and improved sustainable water resource management.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

138.Patent Title : **SMART AI STREET LIGHTING WITH PREDICTIVE FAULT DETECTION**

Application Number : 202641086958 **Published on** : 31/07/2026

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :16/07/2026

(21) Application No.202641086958 A
(43) Publication Date : 31/07/2026

(54) Title of the invention : SMART AI STREET LIGHTING WITH PREDICTIVE FAULT DETECTION

(51) International classification	:H05B47/105, H05B47/11, H05B47/115
(31) Priority Document No	:NA
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(33) Name of priority country	:NA
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(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
TITLE: Smart AI Street Lighting with Predictive Fault Detection ABSTRACT The present invention concerns the field of intelligent street lighting systems, smart city infrastructure, embedded electronics, Internet of Things (IoT), artificial intelligence and automation that is energy efficient. In particular, the invention concerns a Smart Adaptive Street Lighting System that can dynamically manage street lighting based on a mixture of environmental sensing, smart object detection, edge artificial intelligence, predictive maintenance technologies. Unlike the conventional automatic street lighting system using only Light Dependent Resistor (LDRs) and Passive Infrared (PIR) sensors, the present invention combines multiple sensing technologies such as ambient light sensors, radar/mmWave sensors, thermal sensors, AI-based vision sensors, environmental sensors, and wireless communication networks in order to accurately detect vehicles, pedestrians, cyclists, stray animals, and emergency vehicles. The system uses an edge AI controller to categorise the objects it detects and anticipate the direction of their movement, such that any nearby street lights will then light up in advance of the object arriving at the next lighting zone. The invention also encompasses adaptive brightness control functions for solar-powered installations, dependent on traffic density, weather conditions, road visibility and battery availability. An intelligent fault diagnosis module is in continuous monitoring of the lamp status, power consumption, LED degradation, communication status and sensor functionality. Predictive analytics use historical data to predict component failures and schedule preventative maintenance, minimizing downtime. The system allows for wireless communication among the adjacent street lights via LoRa, ZigBee, NB-IoT or other low-power communication technologies, which can realize cooperative illumination and optimized energy use. With cloud connectivity you can monitor from a central location analvve vont enemy use and nndate von- firmware remotely_ and with edge comnutinu. you can keep working even if you have a communications problem. The proposed invention substantially lowers the electrical energy consumption, maintenance costs, public safety risks, LED life cycle, and supports smart city development in a sustainable way by providing autonomous, intelligent and energy-aware street lighting management.
No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

139.Patent Title : **IOT BASED SMART DRINKING WATER QUALITY MONITORING SYSTEM**

Application Number : 202641086959 **Published on** : 31/07/2026

Type of Patent : Institute **Funded by** : Management

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(54) Title of the invention : IOT BASED SMART DRINKING WATER QUALITY MONITORING SYSTEM

(51) International classification	:G01N 33/18, C02F 1/00, G06Q 50/06, G06N 20/00, C02F 1/72
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(32) Priority Date	:NA
(33) Name of priority country	:NA
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(57) Abstract :
TITLE: IoT Based Smart Drinking Water Quality Monitoring System ABSTRACT The present invention concerns an intelligent system for monitoring the quality of drinking water with the help of an ESP32 controller equipped with an artificial intelligence, multiple-parameter sensor, predictive contamination analysis, and adaptive purification control. The proposed invention, in contrast to conventional systems which simply monitor water quality data, where the water quality is unsafe such that the user is warned, the proposed invention provides a self-learning edge intelligence module that can detect trends in water quality before it becomes unsafe. The information from pH senSor, turbidity sensor, Total Dissolved Solids (TDS) sensor, temperature sensor, Oxidation Reduction Potential (ORP) sensor, conductivity sensor, dissolved oxygen sensor and residual chlorine sensor sensors is collected in real time. The algorithms used for sensor fusion within the ESP32 eliminate unusual sensor readings, which are generated due to sensor drift or environmental noise, leading to more reliable measurements. A novelty of the invention is the use of a Water Quality Index (WQI) prediction engine that takes into account several sensor readings and the historical use of the water to predict the level of water contamination. The auto-control system can start and stop purification equipment, like UV sterilizers, RO valves, booster pumps or storage diversion valves, according to the deterioration prediction. In addition, the invention provides an adaptive sensor self-calibration mechanism, which periodically validates the performance of the sensor by comparing reference parameters and corrects measurement errors by applying machine-learning-based correction models. Cloud connectivity allows for secure remote monitoring, historical analytics, predictive maintenance and emergency notifications via mobile application. The system also includes GPS tagging, blockchain water quality log integrity and sleep scheduling for low power operation. The proposed invention is an intelligent, low-cost, scalable and highly reliable drinking water monitoring platform for home buildings, schools, hospitals and industries, villages, smart cities and public drinking water distribution networks.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

140.Patent Title : **DYNAMIC TRAFFIC SIGNAL MANAGEMENT SYSTEM**

Application Number : 202641086960 **Published on** : 31/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
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(21) Application No.202641086960 A
(43) Publication Date : 31/07/2026

(54) Title of the invention : DYNAMIC TRAFFIC SIGNAL MANAGEMENT SYSTEM

(51) International classification	:G08G 1/07, G08G 1/08, G08G 1/081, G08G 1/01, G08G 1/087
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(57) Abstract :
TITLE: Dynamic Traffic Signal Management System ABSTRACT The present invention is directed to an Artificial Intelligence (AI) based intelligent traffic signal control system for dynamically optimizing traffic signal timing based on real-time traffic conditions. The system is different from traditional traffic signals, which work on a fixed time cycle, it constantly observes the density of vehicles with the help of artificial intelligence (AI) equipped vision sensors and edge computing. Deep learning algorithms identify, classify and count the vehicles heading towards an intersection and track them as well as forecast short-term traffic congestion with traffic history and real-time data. A novel Priority Index Engine (PIE) is proposed that calculates a Dynamic Lane Priority Score (DLPS) based on various parameters, such as vehicle density, queue length, waiting time, detection of emergency vehicles, public transport priority, pedestrian demand and predicted incoming traffic volume. The proposed invention includes a Fairness-Aware Adaptive Scheduling Algorithm (FASA) which does not cause any low-density lane to become starved even if the busiest lane receives the green signal. The invention also encompasses an AT Predictive Congestion Model which can predict traffic conditions several signal cycles in advance, enabling proactive signal control instead of reactive control. The system has the capability to communicate with surrounding intersections via cloud computing to form synchronized green corridors and optimize the flow of traffic inside corridors. The proposed system siEmificantiv reduces traffic coneestion, average waiting time, fuel consumption, emissions, and delay in travel, and increases road safety. It can be used as an independent intelligent junction controller or linked to the intelligent traffic management infrastructure of the city. The invention offers a scalable, independent and cost effective solution for urban and semi-urban road networks. OFFI CE CHENNA.I

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

141.Patent Title : **CARBON-CAPTURING CEMENT ADDITIVE FOR CO_2 MINERALIZATION**

Application Number : 202641089194 **Published on** : 31/07/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(22) Date of filing of Application :22/07/2026

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(43) Publication Date : 31/07/2026

(54) Title of the invention : CARBON-CAPTURING CEMENT ADDITIVE FOR CO2 MINERALIZATION

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Filing Date	:NA

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(57) Abstract :
ABSTRACT The present invention relates to a novel Carbon-Capturing Cement Additive (C3A) to capture atmospheric CO2 permanently during hydration/curing process of cementitious materials and at the same time to improve the mechanical properties and durability of concrete. The proposed additive is engineered to contain nano-mineral catalysts, bio-inspired carbonate nucleation agents and moisture-responsive porous microcapsules, as well as alkaline mineral activators which continuously absorb CO2 in the atmosphere during the normal curing process. The absorbed carbon dioxide is chemically transformed into stable calcium & magnesium carbonate crystals, which remain to capture carbon in the cement throughout the service life of the building structure. The invention also combines a smart pH responsive activation mechanism which controls the carbonation process without adversely impacting the cement hydration. The crystallization of the nano-carbonate structure fills the capillary pores, optimizes the microstructures, decreases. permeability and increases resistance to chloride penetration and sulfate attack, while improving compressive strength. The additive can be used in concrete made from Ordinary Portland Cement, blended cement, geopolymer concrete, precast, and 3D printed. This invention offers a practical and cost efficient way for lowering carbon emissions and creating durable, high-strength building materials for infrastructure, structures, pavements and marine use that is scalable and environmentally friendly.
No. of Pages : 12 No. of Claims : 4

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

142.Patent Title : **BLOCKCHAIN-BASED DIGITAL INVOICE AUTHENTICATION AND AI-DRIVEN FRAUD DETECTION PLATFORM**

Application Number : 202641089195 **Published on** : 31/07/2026

Type of Patent : Institute **Funded by** : Management

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(43) Publication Date : 31/07/2026

(54) Title of the invention : BLOCKCHAIN-BASED DIGITAL INVOICE AUTHENTICATION AND AI-DRIVEN FRAUD DETECTION PLATFORM

(51) International classification	:G06Q 30/04, H04L 9/32, H04L 9/06, G06Q 20/38, G06Q 40/00
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(87) International Publication No	: NA
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(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
ABSTRACT The present invention relates to a Blockchain Based Digital Invoice Authenticatipn ancl Fraud Detection Platform which proposes a secure, transparent and intelligent platform for digital invoice and authentication creation, verification, approval, and auditing in real-time within an organization. The existing digital invoice systems lack the necessary security features and are mostly centralized in the database, which leads to problems with invoice duplication, tampering, fake vendors, unauthorized changes and payment' frauds. The proposed invention presents an innovative architecture of multiple security layers including blockchain technology, artificial intelligence, cryptographic hashing, smart cOnti-acts, And decentralized consensus mechanisms. Every invoice becomes a unique cryptographic 'hash thid is added to a permissioned blockchain in a permanent manner. AT instantly scans invoice metadata, transaction history, supplier patterns, payment history, GST compliance and organizational purchase records to identify duplicate invoices, forged documents, abnormal payment requests, shell vendors and suspicious transactions. Smart contracts are used to predefine any business rules which are enforced before process invoice is approved. The system also supports AI-based risk scoring, explainable AT, QR-based invoice authentication, digital signature verification, and predictive fraud intelligence to monitor finances in real-time. The authorized persons such as vendors, finance departments, auditors, banks and regulatory agencies can verify the authenticity of invoice without revealing any confidential information. The invention greatly improves financial transparency, the processing time, reduces the human effort, improves the readiness condition of the Audit, and enables the creation of an invoice management - ecosystem- scalable - and-fraud-proof- for - enterprises,- governmental- and -financial institutions, healthcare, logistics, and international trade.

No. of Pages : 13 No. of Claims : 4

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PERI CENTRE FOR INNOVATION

143.Patent Title **:VIRTUAL TRAUMA REPROCESSING CHAMBER (VTRC)**

Application Number **:** 202641089196 **Published on** **:** 31/07/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :22/07/2026

(21) Application No.202641089196 A
(43) Publication Date : 31/07/2026

(54) Title of the invention : VIRTUAL TRAUMA REPROCESSING CHAMBER (VTRC)

(51) International classification	:A61M 21/00, G16H 20/70, A61B 5/00, A61M 21/02, A61B 5/16
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(57) Abstract :
ABSTRACT The invention relates to an intelligent psychological therapy platform called the Virtual Trauma Reprocessing Chamber (VTRC) capable of helping those suffering from trauma, Post-Traumatic Stress Disorder (PTSD), anxiety disorders, phobi,a s and other psychological ailments caused by stress. The system utilizes immersive Virtual Reality (VR), Artificial Intelligence (AI), biometric sensing, emotional computing, digital twin psychology and adaptive therapeutic algorithms, to recreate therapeutic virtual versions of traumatic experiences. While similar to traditional exposure therapy, the proposed invention continuously monitors the patient's emotional statc by tracking a variety of multimodal physiological signals such as heart rate variability, electrodemial activity, respiration, eye movement, facial micro-expressions, voice stress, and optionally EEG signal. Al adjusts the intensity, sequence, environmental parameters and therapeutic pace dynamically according to the emotional threshold of the user in real-time. The invention provides a novel Emotional Threshold Adaptation Engine (ETAE) that avoids emotional overload while ensuring the utmost therapeutic effectiveness. The system also incorporates predictive recovery analytics, therapist-assisted remote monitoring, encrypted therapy logs, and a unique digital resilience scoring. The intended VTRC is designed to create a safer, data-informed, adaptive, and measurable psychological rehabilitation experience that will also increase patient engagement and decrease therapist burden to improve treatment results

No. of Pages : 12 No. of Claims : 4

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

144.Patent Title **:TAMIL MEET AI: REAL-TIME MULTILINGUAL SPEECH TRANSLATION SYSTEM FOR SMART MEETINGS**

Application Number **:** 202641091856 **Published on** **:** 07/08/2026

Type of Patent **:** Institute **Funded by** **:** Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/07/2026

(21) Application No.202641091856 A
(43) Publication Date : 07/08/2026

(54) Title of the invention : TAMIL MEET AI: REAL-TIME MULTILINGUAL SPEECH TRANSLATION SYSTEM FOR SMART MEETINGS

(51) International classification	:G06F 17/28, G06F 40/58, G10L 15/22, G06N 3/04, G10L 15/18	(71)**Name of Applicant :** **1)PERI College of Arts and Science** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU - 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dhivya R** **2)Prathiba G** **3)Prathiksha T** **4)Ranjani devi R** **5)Reena K** **6)Hariharan K**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention relates to an Artificial Intelligence (AI) based real-time multilingual speech translation system particularly aimed at enabling communication between the parties in different languages for an online meeting attended by government, organization or individual participants who speak the Tamil language in the online meeting. The existing translation services mostly cater to the dominant languages across the globe and the invention provides an intelligent meeting translation system that translates Tamil voice into multiple target languages and vice versa in minimal latency maintaining the meaning, technical terminologies and speaker inient of the conversation within the meeting. The system comprises of Automatic Speech Recognition (ASR), Natural Language Understanding (NLU), Neural Machine Translation (NMT), Context-Aware Translation Engine, Voice Cloning based Text-to-Speech (TTS), and adaptive learning modules. One of the innovations is the Meeting Context Memory Engine which adapts to the needs of the meeting, learning new words, acronyms, technical and speakers' terms as the meeting progresses to make the translation more accurate. The invention also includes an AI Confidence Analyzer to automatically identify translations that are not entirely certain and provide alternative versions for the listeners. Intelligent Terminology Repository supports domain-specific vocabulary updates for education, healthcare, engineering discussions, legal discussions and government meetings dynamically. The platform can be used as an independent application or as a plug-in that can be installed on MS Teams, Zoom, Google Meet, Webex and other major video communication services. The proposed system is different from the conventional one which works on sentence level translation, where semantic-level multilingual communication keeps the speaker's emotion, conversational flow and linguistic nuance. The invention greatly enhances access to and inclusiveness of Tamil, or other Indian regional language speakers in multilingual meetings, allowing them to participate equally to other participants in professional, academic, governmental and international collaborative settings.
No. of Pages : 15 No. of Claims : 5

PERI CENTRE FOR INNOVATION

145.Patent Title **:SMART LIE-STRESS DIFFERENTIATION ANALYZER (SLSDA)**

Application Number **:** 202641091857 **Published on** **:** 07/08/2026

Type of Patent **:** Institute **Funded by** **:** Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/07/2026
(21) Application No.202641091857 A
(43) Publication Date : 07/08/2026

(54) Title of the invention : SMART LIE-STRESS DIFFERENTIATION ANALYZER (SLSDA)

(51) International classification	:A61B 5/16, A61B 5/00, A61M 21/00, A61B 5/0205, A61B 5/11	(71)**Name of Applicant :** **1)PSG COLLEGE OF ARTS & SCIENCE** Address of Applicant :PERI COLLEGE OF ARTS AND SCIENCE PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU - 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Balkis Fathima A** **2)Dr. Cyril Allen Jonathan W** **3)Girija N** **4)Banupriya A** **5)Elakkiya M** **6)Mohammed Faias O**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention relates to an intelligent system of psychological interrogation that could differentiate between a real stress response and forced falsification by multi-modal analysis of physiological and behavioural factors. Lie detection apparatuses based on conventional methods mainly use the polygraph, which can misread anxiety, fear or emotional upset as lying, leading to poor accuracy and reliability. This work overcomes the drawbacks by gathering all the required data from the pulse, pupil, voice, and respiration variability, facial expression microexpressions, cognitive response timing, and the context into a single Artificial Intelligence (AI) platform, which is called Smart Lie-Stress Differentiation Analyzer (SLSDA). A novel Adaptive Cognitive-Emotional Fusion Engine (ACEF) dynamically is able to disassociate stress-related physiological responses from deception-specific behavioural indicators by means of machine learning models learned from multimodal psychophysiological data. The system is continually calculating a Truth Confidence Index (TCI) and Stress Authenticity Score (SAS) and adjusting the interrogation technique according to the individual baseline emotional trait. The invention also provides adaptive baseline calibration, contextual questioning, and confidence-based decision fusion to greatly minimize 'false positives' from anxiety disorders, trauma or high-pressure environments, which eliminates the need for monotonous questioning and complicated algorithms. The invention may be used in border security, military intelligence, behavioural research, clinical research, security screening, psychological evaluation and forensic investigations and for providing explainable AI-based decisions instead of guilt determination.

No. of Pages : 14 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

146.Patent Title : **BIODEGRADABLE PLASTIC FROM AGRICULTURAL WASTE AND MARINE ALGAE**

Application Number : 202641091858 **Published on** : 07/08/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/07/2026

(21) Application No.202641091858 A
(43) Publication Date : 07/08/2026

(54) Title of the invention : BIODEGRADABLE PLASTIC FROM AGRICULTURAL WASTE AND MARINE ALGAE

(51) International classification	:C08L 97/02, C08L 5/00, C08L 67/04, C08L 5/12, C08L 1/02
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Logeshwari A

(57) Abstract :
The present invention relates to an eco-friendly biodegradable plastic composite which is prepared by utilizing agri-waste fibers and ocean-derived biopolymers and having improved mechanical strength, water resisting property and biodegradable property. A naturally-extracted alginate, agar, carrageenan and bio-cellulose extracted from marine algae are used in conjunction with the use of agricultural residues like rice husk, sugarcane bagasse, coconut coir, banana fiber or wheat straw. A new feature of the invention is the use of Microbial Activation Capsules (MACs) filled with dormant, micro-biodegradable microorganisms contained in biodegradable microspheres. During use, these capsules are inactive and only decompose when the product is under composting or moisture conditions in the land-filling area so that degradation occurs sooner, but without negatively impacting product service life. Also, the reinforcement with the marine shells (bioresin) and nanocellulose from agricultural waste enhances tensile strength, flexibility, and thermal stability. The durability is further improved by a naturally derived bio-crosslinking network, without compromising complete biodegradability. Natural antimicrobial plant extracts and color pigments are optionally incorporated in the invention to improve shelf life and safety for the user. The proposed composite has superior properties that allow for rapid degradation after disposal and high strength during use, unlike conventional biodegradable plastics, which tend to degrade slowly or have inconsistent degradation results. The invention effectively eliminates plastic pollution, encourages circular bioeconomy use and transforms agriculture and marine biomass wastes into high value sustainable packaging.

No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

147.Patent Title : **ADAPTIVE TECHNOLOGY DEPENDENCY INDEX(ATDI)**

Application Number : 202641097278 **Published on** : 11/09/2026

Type of Patent : Institute **Funded by** : Management

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :12/08/2026

(21) Application No.202641097278 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : ADAPTIVE TECHNOLOGY DEPENDENCY INDEX (ATDI)

(51) International classification	:A61B 5/16, G16H 20/70, G16H 50/30, G16H 50/20, A61B 5/00	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI COLLEGE OF ARTS AND SCIENCE, PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI-600048, INDIA Tamil Nadu India (72)**Name of Inventor :** **1)Balkis Fathima A** **2)Dr. Cyril Allen Jonathan W** **3)Dr. Gokulanathn M** **4)Lourdu Brissilla Mary V** **5)Shamini V** **6)Gayathri K**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention concerns an intelligent psychological assessment system, which is used to measure scientifically the degree of dependency of humans to the digital and intelligent technologies. The proposed invention introduces an Adaptive Human—Technology Dependency Index (AHTDI) which is able to assess behavioural, cognitive, emotional, social and decisionmaking dependency in a multi-dimensional scoring system. It combines self-reported answers with behavioural passive measures, contextual digital use patterns, cognitive autonomy measures; and, if available, inputs from wearable sensors, to create a dependency profile. A new Artificial Intelligence (AI) engine, which automatically scans individual behavioural trends, continually determines a dynamic Technology Dependency Index (TDI) with identification of protective and risk factors for digital dependence. The invention also includes a Digital Resilience Score (DRS), Technology Recovery Index (TRI), and Cognitive Independence Quotient (CIQ) to provide an individual with a measure of how effectively they can operate without technological support. The system provides recommendations for adaptive digital wellness interventions, learning approaches, counselling and behavioural change as a result of individual assessment. The invention can be used in educational environments, at work, in healthcare facilities, in counselling Centres and research institutions in the fields of preventive mental health, digital wellness, responsible technology use, and policy development. The invention that is proposed here offers a novel scientific base to continuously monitor and advance the healthy human—technology interaction.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

148.Patent Title : **AI-ASSISTED PSYCHOLOGICAL PRESSURE MONITOR**

Application Number : 202641097279 **Published on** : 11/09/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :12/08/2026

(21) Application No.202641097279 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : AI-ASSISTED PSYCHOLOGICAL PRESSURE MONITOR

(51) International classification	:A61B 5/16, A61B 5/00, A61B 5/024, G16H 20/70, G16H 50/30	(71)**Name of Applicant :** **1)PERT College of Arts and Science** Address of Applicant :PERI COLLEGE OF ARTS AND SCIENCE PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI-600048, INDIA Tamil Nadu India (72)**Name of Inventor :** **1)Lourdu Brissilla Mary V** **2)Dr.Cyril Allen Jonathan W** **3)Lavanya S** **4)Aishwarya S** **5)Kokila M** **6)Keerthana S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention concerns an intelligent Psychological Pressure Monitor (PPM) that incorporates emotional, cognitive, occupational, social, behavioral and physiological factors in a single psychological pressure index to provide a rapid, standardized, multidimensional assessment of a person's psychological pressure. The proposed system introduces a Dynamic Psychological Pressure Index (DPPI), which relies on artificial intelligence algorithms that adapt over time and a longitudinal trend analysis to differentiate between short-term emotional stressors and long-term psychological stressors in contrast to the conventional stress questionnaires, which solely record the perception of stress. Structured psychological assessment module, optional heart rate variability, sleep quality, skin conductance wearable sensor integration, voice emotion analysis, behavioral response patterns will be incorporated to create a user's psychological profile. Another aspect of the invention relates to the use of predictive analytics to identify early indicators of burnout, emotional exhaustion, anxiety progression and lowered coimitive resilience, before the onset of clinical symptoms. Automatically generated personalized recommendations, resiliency tips and referral suggestions based on individual risk categories. The invention can be used in educational facilities, workplace, hospitals, counselling centres, military organisations, rehabilitation facilities, and community wellness programs. The invention offers a fast, objective, repeatable psychological pressure assessment, which allows for mental health prevention, ongoing monitoring, and early intervention, while also protecting user privacy and ensuring a systematic evaluation process.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

149.Patent Title : **THE AI-DRIVEN COGNITIVE BURNOUT PREDICTION AND ADAPTIVE WORKFORCE OPTIMIZATION SYSTEM WITH BEHAVIOURAL INTELLIGENCE & DIGITAL WORKLOAD TWINS**

Application Number : 202641099991 **Published Date :** 11/09/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :19/08/2026

(21) Application No.202641099991 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : THE AI-DRIVEN COGNITIVE BURNOUT PREDICTION AND ADAPTIVE WORKFORCE OPTIMIZATION SYSTEM WITH BEHAVIOUR

(51) International classification	:G06Q 10/06, G06Q 10/10, G06N 20/00, G06Q 10/00, G06Q 10/04
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
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6) Harini V

(57) Abstract :
The present invention provides an intelligent Human Resource Management (HRM) platform for dynamically and continuously forecasting employee burnout and managing organizational productivity through Artificial Intelligence (AI), behavioural analytics and digital workforce intelligence. The proposed invention comprises a Cognitive Burnout Prediction Engine (CBPE) which creates a real-time Digital Workload Twin for each employee, unlike traditional employee wellness tools, which were mostly based on periodic questionnaires and self-reported assessments of employee stress. Multidimensional work parameters like workload intensity, switching tasks, density of meetings, emailing and messaging, calendar density, cognitive interruptions, response time, collaboration diversity, work hour irregularity, as well as optional emotional sentiment indicators are continuously analysed by the system. A novel Adaptive Cognitive Resilience Score (ACRS) is created that can estimate burnout likelihood before noticeable symptoms appear. The invention also provides a Predictive Workload Redistribution Engine (PWRE) which automatically suggests an optimal balance of task allocation between the team members, without impacting employee well-being, organizational productivity or project timelines. Machine learning continually adjusts prediction models as per organisational culture, expectations of roles, and seasonal workload changes. The system doesn't just tell managers how stressed an employee is, it also offers them recommendations that can be explained.

No. of Pages : 14 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

150.Patent Title : **ADAPTIVE LORA-IOT VEHICLE SPEED AND DIRECTION CONTROL SYSTEM**

Application Number : 202641099992 **Published Date :** 11/09/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :19/08/2026

(21) Application No.202641099992 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : ADAPTIVE LORA - IOT VEHICLE SPEED AND DIRECTION CONTROL SYSTEM

(51) International classification	:G05D 1/02, G05D 1/00, B60L 15/20, B60W 30/14, G08G 1/052
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention is directed to an automatic vehicle speed and direction control system that combines Long Range (LoRa) wireless communication, Internet of Things (IoT) and embedded motor-control technology to provide reliable. remote control of a robotic vehicle or electric vehicle. The proposed system consists of a transmitter unit and a receiver and control unit mounted in the vehicle. The transmitter unit produces PWM signals for movements, speed, direction, buzzer and the lighting, the receiver unit is implemented with ESP32 microcontroller and accepts the bottom commands and controls one or more motors via motor driver by using PWM. One of the inventive elements of the system is an adaptive speed-direction control mechanism which determines a safe motor-control output, based on selected speed mode, direction command, vehicle operating state and communication status. A direction-transition interlock allows no instant reversal between opposite directions, and provides a controlled stop/braking period before switching the motor direction. The system also includes bidirectional LoRa communication, which sends the vehicle status and command acknowledgements and communication-health data to the transmitter. If there is a loss of communication, invalid command or abnormal control conditions are set, the vehicle automatically enters an established safe state in case of loss of communication, invalid commands and abnormal control conditions. A web interface, which runs on the ESP32, also allows remote monitoring and manual control via a wireless device. The proposed system enables remote vehicles, surveillance robots, industrial automation and smart transportation systems to operate safely, with long-range communication links, responsive navigation and adaptive speed control, and to be scalable to accommodate the growing number and variety of IoT devices.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

151.Patent Title : **AI-BASED ORGANIZATIONAL DECISION CONFIDENCE ANALYZER WITH DYNAMIC UNCERTAINTY INTELLIGENCE AND EXPLAINABLE STRATEGIC RECOMMENDATION ENGINE**

Application Number : 202641099993 **Published Date :** 11/09/2026

Type of Patent : Institute **Funded by** : Management

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(19) INDIA
(22) Date of filing of Application :19/08/2026

(21) Application No.202641099993 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : AI-BASED ORGANIZATIONAL DECISION CONFIDENCE ANALYZER WITH DYNAMIC UNCERTAINTY INTELLIGENCE AND EXPLA

(51) International classification	:G06Q 10/06, G06N 5/04, G06N 5/02, G06Q 10/00, G06N 20/00	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Venkata Vijayalakshmi N** **2)David Baburaj D** **3)Marichandru S** **4)Naveenkumar D** **5)Nivetha P** **6)Perumal D**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention provides an Artificial Intelligence Based Organizational Decision Confidence Analyzer (AIDCA) which assesses the confidence and reliability of the Managerial and Organizational Decision before it is implemented and the Implementation Readiness of the Decision. The proposed invention is a Decision Confidence Index (DCI) for measuring the reliability of decision-making processes, as opposed to the conventional decision support systems that focus exclusively on either predictive results or business analytics; the proposed invention is capable of quantifying the trustworthiness of strategic decisions by strategically combining data quality analysis, uncertainty prediction, stakeholder consensus, organizational readiness, historical decision intelligence, cognitive bias detection and business risk evaluation. The invention utilizes Explainable Artificial Intelligence (XAI), machine learning algorithms, fuzzy logic and probabilistic reasoning to detect the lurking uncertainties and suggest optimized alternative strategies. To simulate a variety of implementation scenarios and forecast organizational reactions prior to actual implementation, a Digital Decision Twin is created. This system constantly adapts and improves based on past organizational decisions to make better estimates of confidence in the future. Executives, managers, educational institutions, government agencies, healthcare organizations, financial institutions and corporate enterprises gain a visual confidence dashboard, implementation readiness indicators and AI-powered recommendations. The invention has the ability to reduce •strategic failures, provide increased transparency, accountability of decision making and higher organization success rate by integration of predictive intelligence and explainable confidence analytics.

No. of Pages : 14 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

152.Patent Title : **ADAPTIVE FLAT-PLATFORM ESCALATOR SYSTEM FOR SAFE WHEELCHAIR TRANSPORTATION**

Application Number : 202641100011 **Published Date :** 11/09/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

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(19) INDIA
(22) Date of filing of Application :19/08/2026

(21) Application No.202641100011 A
(43) Publication Date : 11/09/2026

(54) Title of the invention : ADAPTIVE FLAT-PLATFORM ESCALATOR SYSTEM FOR SAFE WHEELCHAIR TRANSPORTATION

(51) International classification	:B66B 29/00, B66B 23/12, B66B 25/00, B66B 29/08, B66B 23/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
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4)Sahanashree B
5)Dharshini M S
6)Blessy Pavlo David

(57) Abstract :
The present invention relates to an Adaptive Flat-Platform Escalator System for Safe Wheelchair Transportation, which offers safe vertical mobility for wheelchair users, elderly persons, patients and physically disabled people in public infrastructure in a safe, efficient and accessible manner. The invention involves combining one or more adaptive flat-platform modules into a conventional escalator system and substituting certain stepped sections of the escalator with a horizontal platform that is capable of safely carrying a wheelchair while the escalator is moving. When accessed via an accessibility interface or by automatic detection of users, the system transforms the designated escalator section into a stabilized flat platform, without interrupting the escalator's operation. Intelligent leveling mechanisms, wheelchair locking assemblies, deployable safety barriers, occupancy and positioning sensors, adaptive speed control and emergency protection features ensure secure transportation when ascending or descending. Once the platform reaches the destination, it stays level to allow easy departure from the platform and then returns to normal escalator operation for all passengers. The invention also includes a smart control unit which only turns accessibility mode on when it is necessary, which reduces the impact on normal traffic flow while keeping the system and its operation as efficient as possible. The proposed system is space efficient, time saving, integrated and is an alternative to traditional accessibility solutions that use only dedicated lifting equipment or lifts. The invention greatly increases universal accessibility, decreases the time required to wait at the railway station, metro station, airport, hospital, shopping mall, educational institution, government building, and other multi-level public facilities, and helps passengers to be more safe while traveling at the railway station, metro station, airport, hospital, shopping mall, educational institution, government building and other multi-level public facilities. This proposed system is an innovative approach that integrates the three areas of intelligent public transportation infrastructure: adaptive mechanical design, automated safety system and intelligent accessibility control, in a unified platform of escalators

No. of Pages : 11 No. of Claims : 5

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

153.Patent Title : AUTO-GRIND SINK WITH SELF-CLEANING DRAIN

Application Number : 202641105623 **Published on** : 18/09/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/09/2026

(21) Application No.202641105623 A
(43) Publication Date : 18/09/2026

(54) Title of the invention : AUTO-GRIND SINK WITH SELF-CLEANING DRAIN

(51) International classification	:E03C 1/266, E03C 1/23, E03C 1/264, E03C 1/182, E03C 1/18	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERT Knowledge Park, Mannivakkam, Chennai Tamil Nadu India 600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Kannirajalingam T** **2)Dr. Dhanalakshmi P** **3)Santhosh K** **4)Kishore Kumar M** **5)Sivapreethi N** **6)Diliban B**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
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(86) International Application No	:NA	
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(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :
The present invention concerns an Auto-Grind Sink comprising a sink or washbasin with a specially designed drain outlet with an integrated compact solid-particle grinding mechanism. The grinding mechanism is located inside or near the drain opening (also known as Drain Nostril Grinding Assembly) and is designed to chop small solid waste particles, food particles, hair, sludge and other materials that can accumulate in the drain into smaller particles to clear the water and avoid drain blockage. The proposed system is constructed in the drain structure to integrate a micro-grinding blade assembly, flow responsive activation, blockage detection, and automatic flushing and self-cleaning mechanism, which are all missing in conventional sink strainers and conventional garbage disposals. The grinding assembly is selectively activated by an abnormal accumulation of water or restricted drainage detected by a sensor or flow monitoring. The blade can be driven alternately forward and backward to break up material that may have built up, and then forward again to release material from the surface of the blade. By inducing a cyclonic (vortex or jet) flow around the grinding assembly a passage for controlled water flushing is created to carry fragmented material through the passage of the drainage pipe. Additionally, the system can feature an anti-corrosion/anti-fouling surface coating, removable blade cartridge, safety interlock, overload protection and foreign-object detection. The invention is significantly useful in kitchen sinks, utility sinks, washbasins and other sink types where small solid particles accumulate and cause stagnant water, bad odour and microbial growth and pipe clogging

No. of Pages : 14 No. of Claims : 5

PERI INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)

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PERI CENTRE FOR INNOVATION

154.Patent Title : **ADAPTIVE FLAT-PLATFORM ESCALATOR SYSTEM FOR SAFE WHEELCHAIR TRANSPORTATION**

Application Number : 202641105624 **Filed on** : 02/09/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/09/2026

(21) Application No.202641105624 A
(43) Publication Date : 18/09/2026

(54) Title of the invention : AI-BASED FAMILY EMOTIONAL CLIMATE SCANNER WITH MULTIMODAL RELATIONSHIP MAPPING AND DYNAMIC EMOTIONAL HEALTH INDEXING

(51) International classification	:A61B 5/16, G10L 25/63, G06Q 50/10, G06Q 50/00, G06Q 10/06	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Cyril Allen Jonathan W** **2)Balkis Fathima A** **3)Jasima** **4)Siva J** **5)Kidher Nasrin Husaina A A B** **6)Mahaswary K**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The present invention concerns an intelligent system for assessing and monitoring the emotional climate, communication quality, family relationship and emotional status in a family environment. The proposed Family Emotional Climate Scanner (FECS) involves the analysis of a structured questionnaire, optional voice and conversational analysis, behavioural indicators, relationship-network mapping and temporal trend analysis, which will result in a dynamic Family Emotional Climate Index (FECI). The proposed system is a novel psychological assessment system that focuses on the family as a whole emotional system, rather than individual assessment. The system detects patterns of emotional support, trust, empathy, communication, cohesion, conflict, emotional withdrawal, and imbalance in relationships. A novel Family Emotional Relationship Graph is developed to describe interactions between the family members and to detect the positive and negative interaction patterns. Historical assessments are then compared in a temporal analysis module to identify any trends in family emotional status over time. The system can also offer personalized, non-diagnostic suggestions for communication enhancement, conflict resolution and family wellness. Sensitive conversational or behavioural data may be processed locally, without the need for unnecessary transfer to servers abroad thanks to privacy-preserving processing. The invention can be used in family counselling, parenting programs, educational counselling, preventive wellness programs and community support systems.

No. of Pages : 12 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

155.Patent Title : **EXPLAINABLE AI SYSTEM FOR DIABETIC RETINOPATHY DETECTION AND GRADING**

Application Number : 202641117078 **Published on** : 16/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/09/2026

(21) Application No.202641117078 A
(43) Publication Date : 16/10/2026

(54) Title of the invention : EXPLAINABLE AI SYSTEM FOR DIABETIC RETINOPATHY DETECTION AND GRADING

(51) International classification	:A61B 3/14, A61B 3/12, G06T 7/00, G16H 50/20, G06N 3/04
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Purusothaman A
7)Syed Mohiuddeen I

(57) Abstract :
The present invention is related to an explainable artificial intelligence system to automatically detect and grade diabetic retinopathy from retinal fundus images. The system tackles the drawback of traditional deep-learning-based screening systems, which give only a disease classification, without the prediction being backed up by a sufficiently comprehensible argument. The proposed system takes a retinal fundus image as input, and then enhances the image, normalizes it and reduces the artifacts before extracting multi-scale retinal features with a Vision Mamba based feature extraction architecture. The extracted features are sent to a Kolmogorov–Arnold Network (KAN) classifier to classify the retinal image into five diabetic retinopathy grades No DR, Mild DR, Moderate DR, Severe DR and Proliferative DR. The system also detects and maps clinically important retinal features such as microaneurysms, haemorrhages, exudates and cotton wool spots and grades the disease. An explainability module creates visual evidence maps of the important retinal regions and extracts representative prototype cases with similar retinal characteristics. The system integrates the predicted grade, confidence value, lesion information, visual explanation and similar prototype cases to provide a holistic and interpretable screening result. An explanation and referral indicator may also be provided as a text-based explanation based on the forecasted severity. A lightweight implementation can be installed on an edge computing device that is linked to a portable or smartphone-based fundus camera, allowing the camera to be used to screen in rural or resource-limited settings without the internet. The invention thus offers an integrated mechanism for disease classification, lesion-level evidence, example-based interpretation, and for resource-efficient deployment.

No. of Pages : 15 No. of Claims : 5

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

156.Patent Title : **AUTOMATED RECONSTRUCTION OF THE LAST VERIFIED PHYSICAL STATE DURING INTERRUPTED MAINTENANCE**

Application Number : 202641117079 **Published on** : 16/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/09/2026

(21) Application No.202641117079 A
(43) Publication Date : 16/10/2026

(54) Title of the invention : AUTOMATED RECONSTRUCTION OF THE LAST VERIFIED PHYSICAL STATE DURING INTERRUPTED MAINTENANCE

(51) International classification	:G06Q 10/00, G06Q 10/06, G05B 23/02, G06Q 50/10, G06Q 50/06
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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1)Karunya P
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4)Lilly V
5)Evanjalin P
6)Jasmine A

(57) Abstract :
The present invention relates to an automated system and method for restoring and recording the most recent known physical condition of equipment when maintenance operations are suspended. Maintenance operations are normally a series of physical changes such as cover opening, connector separation, component removal, part replacement, parts reconnection and tests. Maintenance records that have been kept conventionally may only show that a task is being done or is to be done, and do not necessarily show the exact configuration of the physical systems at the time of interruption. There is a need to overcome this shortcoming, particularly when one or more imaging devices and, optionally, physical sensors, are used to continuously monitor a predetermined maintenance space. The system recognizes the maintenance elements of equipment parts, tools, connectors, covers and other elements that can be observed and recognizes the changes in their physical states. The timestamp of each event is recorded, and it is passed through a set of known rules to differentiate a "condition" from a "maintenance". The verified events are recorded as a state history that is chronological. If an interruption is detected, or manually declared, the system automatically sets the most recent verified physical state to be a Last Verified Physical State (LVPS). The record contains the identification of the equipment, the nature of the components, the operations completed and pending, the verified sequence of operations that led to the interruption, the time of the interruption(s) and the time(s) of the operations completed. A dashboard is then used to visualize the state and event reconstruction to the next technician, eliminating uncertainties and physical re-inspections. The invention presents a scalable and controlled method for maintaining continuity of state-aware state verification and logging of events and optionally sensor integration.

No. of Pages : 13 No. of Claims : 5

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PERI CENTRE FOR INNOVATION

157.Patent Title : **Adaptive Psychological Immunity Assessment and Monitoring System**

Application Number : 202641120075 **Published on** : 16/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026

(21) Application No.202641120075 A
(43) Publication Date : 16/10/2026

(54) Title of the invention : ADAPTIVE PSYCHOLOGICAL IMMUNITY ASSESSMENT AND MONITORING SYSTEM

(51) International classification	:A61B 5/16, A61B 5/00, G16H 20/70, G16H 10/20, G16H 50/30
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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3)Nivetha E
4)Vaishnavi S
5)Sandhiya S
6)Nandhitha P

(57) Abstract :
The present invention is for an adaptive multimodal system for assessing, monitoring and dynamically estimating a psychological resilience an-dwell-being of an individual in terms of a Psychological Immunity Index (PH). The proposed system is designed to be different from traditional psychological assessment tools, which are based on surveys or questionnaires that are static and do not consider the psychological baseline of the individual, but to create a psychological baseline of each individual and integrate the responses given by the individual, the behaviors, interaction mode, consistency of the answers, recovery characteristics and other optional physiological indicators. Short adaptive psychological micro-challenges or scenariobased assessment could be administered by the system and response, emotional regulation, decision stability and recovery tendency could be measured. A computational engine with weights processes the gathered parameters, and returns a multidimensional Psychological Immunity Index which captures the level of Resilience, emotional regulation, adaptability, coping capability, optimism, self-awareness, social connectedness, and recovery capacity. The system also does a temporal comparison with the previous assessment to detect changes when compared with the individual's normal level, not just population based thresholds. To avoid poor-quality assessments, a confidence score and dataquality indicator are produced. The system detects vulnerability patterns and gives individual nondiagnostic recommendations and sets a time for the next reassessment. The invention can take the form of a mobile application, website, institutional system or system of wearables connected to the mobile or web platform for preventive psychological well-being monitoring.

No. of Pages : 12 No. of Claims : 5

PERI CENTRE FOR INNOVATION

158.Patent Title : Adaptive Night-Walking Visibility and Path Safety Assessment System Using a Mobile Camera

Application Number : 202641120098 **Published on** : 16/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026
(21) Application No.202641120098 A
(43) Publication Date : 16/10/2026

(54) Title of the invention : ADAPTIVE NIGHT-WALKING VISIBILITY AND PATH SAFETY ASSESSMENT SYSTEM USING A MOBILE CAMERA

(51) International classification	:G06T 7/20, G06K 9/00, G08G 1/16, G06T 7/00, G08G 1/005	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI INSTITUTE OF TECHNOLOGY PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMILNADU-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Keerthana E** **2)Dr. Premkumar G** **3)Sounthararasu V** **4)Kaviya R** **5)Archana V** **6)Lathika H** **7)Kavinmalar M** **8)Isha Shree S**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The invention concerns a pedestrian visibility and path safety assessment system for night time walking on a mobile basis. A mobile camera and sensor input continuously analyse the environment and produce an adaptive visibility score. The proposed system measures more than just the ambient brightness as is the case in conventional applications, but also monitors several metrics such as image luminance, local contrast, shadow intensity, image degradation by motion, camera exposure condition, and path-surface visibility that can be detected. These are used in a weighted visibility assessment algorithm and then classified as safe, caution and low-visibility conditions for the walk. It dynamically adapts assessment based on changes of environmental illumination and the user's actions, in order to minimize false alarms due to transient illumination changes caused by the camera or single bright objects. If the calculated safety score is below a pre-programmed limit, an audible, visual or vibration warning is sounded. The system could also detect any sudden decrease in flow of the path and keep a short-term visibility history to locate the ongoing hazards in walking. The invention provides a low cost, portable and easy to use method of supporting pedestrians and joggers, students and workers, and users as they travel through poorly lit environments.

No. of Pages : 13 No. of Claims : 5

PERI CENTRE FOR INNOVATION

159.Patent Title : Adaptive Multilingual AI System for Context-Aware Patient Case History Generation and Clinical Information Validation

Application Number : 202641120099 **Published on** : 30/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026

(21) Application No.202641120099 A
(43) Publication Date : 30/10/2026

(54) Title of the invention : ADAPTIVE MULTILINGUAL AI SYSTEM FOR CONTEXT-AWARE PATIENT CARE HISTORY GENERATION AND CLINICAL INFOR

(51) International classification	:G16H 10/60, G16H 50/70, G16H 40/20, G16H 50/20, G16H 70/40
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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6)Chandru G
7) Dilip P R

(57) Abstract :
The present invention concerns an Artificial Intelligence (AI) supported system for gathering, structuring, validating and creating patient case histories prior to or during consult. Patient information is collected via text, voice and multilingual interactions and the following questions are dynamically generated based on the information gaps, uncertainty and clinical relevance of the previously collected information. A clinical completeness map classifies collected data by its completeness level (e.g., complete/incomplete/uncertain contradicting) for chief complaints, history of present illness, past medical history, surgical history, medication history, allergy history, family history, personal history and review of systems. A multilingual normalization engine can be used to accurately map regional-language answers and colloquial phrases into the standardized clinical concepts used in the clinical domain, while preserving the patient's answer to ensure it is the actual answer being compared. The system also includes temporal symptom mapping, contradiction detection, and confidence assessment and intelligent re-questioning. A structured case summary is only created when rules for validation have been applied and it offers a doctor controlled interface for reception, editing, rejection and clarification of information. The system can send non-diagnostic priority alerts according to the predefined or configured clinical information patterns. The invention thus provides a reduction in manual documentation of repetitive work, enhanced consistency of collecting patient histories, enhanced communication in multiple languages and a structured, reviewable and editable clinical history without being able to diagnose the patient or treat the patient.

No. of Pages : 15 No. of Claims : 4

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PERI CENTRE FOR INNOVATION

160.Patent Title : AI-Enabled Wearable VR Camera System for Real-Time Construction Site-to-BIM Verification, Deviation Detection and Material Waste Prevention

Application Number : 202641120100 **Published on** : 23/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026
(21) Application No.202641120100 A
(43) Publication Date : 23/10/2026

(54) Title of the invention : AI-ENABLED WEARABLE VR CAMERA SYSTEM FOR REAL-TIME CONSTRUCTION SITE-TO-BIM VERIFICATION, DEVIATION DETECTION AND MATERIAL WASTE PREVENTION

(51) International classification	:G06T 19/00, G06T 19/20, G06Q 10/06, G06T 7/00, G01C 11/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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4)Karthika T
5)Kirithika R
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(57) Abstract :
A wearable construction inspection system acquires synchronised images, depth measurements and inertial observations and registers measured geometry to an approved building information model using surveyed controls. A processor associates observed features with model elements and calculates deviations with uncertainty intervals. Consistency across distinct viewpoints and visibility checks separate confirmed deviations from uncertain observations. A confirmed deviation generates a spatial display indication and an electronic hold linked to a subsequent construction operation. Clearance requires fresh measurements within tolerance and authorised acknowledgement. Model quantities optionally provide estimates of material exposure to rework. The system supports on-site extended-reality inspection and virtual-reality review while recording calibration, model revision and measurement evidence. Early verification before concealment or irreversible work is intended to reduce avoidable rework and material waste.

No. of Pages : 13 No. of Claims : 7

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Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

161.Patent Title : Multi-Layer Adaptive Ground–Foot Interface Incorporating Pressure-Responsive Pneumatic Cells, Spring–Damper Energy Management, and an Adaptive Auxetic Load- Distribution Structure

Application Number : 202641120101 **Published on** : 16/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026

(21) Application No.202641120101 A
(43) Publication Date : 16/10/2026

(54) Title of the invention : MULTI-LAYER ADAPTIVE GROUND-FOOT INTERFACE INCORPORATING PRESSURE-RESPONSIVE PNEUMATIC CELLS, SPRING

(51) International classification	:A43B 13/18, A43B 13/20, A43B 7/14, A43B 7/32, A43B 21/26	(71)**Name of Applicant :** **1)PERI INSTITUTE OF TECHNOLOGY** Address of Applicant :PERI INSTITUTE OF TECHNOLOGY PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMILNADU-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Magesh B** **2)Vignesh Kumar M** **3)Ashokkumar A** **4)Sri Vishwa H** **5)Teku Naresh** **6)Pujari Charan**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
A footwear sole assembly comprises regional load pads, an auxetic spreader, pneumatic cells and guided spring—damper supports. Displacement of a loaded pad actuates a cam and sliders to extend an auxetic region in-plane, producing transverse expansion and transferring load to neighbouring supports. After a preset travel, an actuator linked to the same pad opens a restricted pneumatic path, allowing pressure-driven gas transfer to neighbouring cells. Resilient supports and viscoelastic damping control recovery, while a restraint frame, progressive bearings and stops bound deformation and provide residual support following pneumatic failure. Separate return passages permit cell refill during unloading. A protective barrier and outsole enclose the assembly as a footwear cassette. The coupled mechanism is intended to distribute plantar loads and manage transient forces in labour footwear without reducing the wearer's static weight.

No. of Pages : 14 No. of Claims : 6

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Approved by AICTE, Affiliated to Anna University
Accredited by NAAC | Recognized by UGC with 2(F)

PERI CENTRE FOR INNOVATION

162.Patent Title : Drone-Mounted Non-Contact Radar Scanning System for Detecting Water Stagnation and Localising Obstructions in PVC Pipelines

Application Number : 202641120102 **Published on** : 30/10/2026

Type of Patent : Institute **Funded by** : Management

Published Certificate

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/10/2026

(21) Application No.202641120102 A
(43) Publication Date : 30/10/2026

(54) Title of the invention : DRONE-MOUNTED NON-CONTACT RADAR SCANNING SYSTEM FOR DETECTING WATER STAGNATION AND LOCALISING OBSTRU

(51) International classification	:G01S 13/88, G01S 7/40, G01S 13/86, G01S 13/89, G01S 13/931
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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4)Bavinesh U
5)Aathithiya T

(57) Abstract :
A drone carries a stabilised microwave radar head, optical geometry sensor and inertial sensor to inspect accessible PVC pipelines externally. A processor registers radar bursts to axial pipe stations, rejects unqualified sensing poses and compensates measured air-path changes. Pipe-specific calibration supports content-response features. Repeated station observations before and after a recorded upstream water release distinguish transient liquid responses from persistent retention. An upstream-to-downstream response change defines a suspected obstruction interval, subject to excitation and signal quality. Additional scans refine the evidence within calibrated geometry. Reports retain spatial uncertainty and alternative causes, including sag or intended liquid retention, and mark obscured or ambiguous conditions indeterminate. The system supports non-contact screening without inserting a sensor into the pipeline.

No. of Pages : 16 No. of Claims : 6

PERI CENTRE FOR INNOVATION

163.Patent Title : **Dust-Repellent Intelligent Fan System with Adaptive Electrostatic Control And Automated Self-Cleaning Mechanism**

Application Number : 202641126451 **Published on** : 06/11/2026

Type of Patent : Institute **Funded by** : Management

Filed Receipt

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/10/2026
(21) Application No.202641126451 A
(43) Publication Date : 06/11/2026

(54) Title of the invention : DUST-REPELLENT INTELLIGENT FAN SYSTEM WITH ADAPTIVE ELECTROSTATIC CONTROL AND AUTOMATED SELF-CLEANING MECHANISM

(51) International classification	:F04D 25/08, F04D 29/70, F04D 25/06, F04D 29/32, F04D 29/00	(71)**Name of Applicant :** **1)PERI Institute of Technology** Address of Applicant :PERI INSTITUTE OF TECHNOLOGY PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMILNADU - 600048, INDIA Tamil Nadu India (72)**Name of Inventor :** **1)Dr. K A Sundararaman** **2)Dinesh S** **3)Arshan A S** **4)Pravin M** **5)Gopesh S** **6)Harimurugan R** **7)Rohit V**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	:NA :NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :
The current invention pertains to a novel Dust-Repellent Intelligent Fan System aimed at reducing dust buildup on fan blades and related parts via a synergistic approach that includes electrostatic particle management, sophisticated dust-repellent surface treatment, intelligent dust surveillance, and automated self-cleaning mechanisms. Traditional ceiling and table fans are perpetually subjected to airborne dust, leading to surface pollution, diminished aerodynamic performance, heightened maintenance needs, and possible unbalance after extended use. The suggested innovation has a regulated electrostatic particle-handling system that affects electrically charged airborne dust particles and channels them into a removable dust-collection chamber. The fan blades feature a unique low-adhesion, dust-repellent coating that reduces particle adherence and simplifies dust elimination. A sophisticated sensor configuration perpetually observes dust levels, fan functionality, and dust-collection efficacy. A microcontroller-driven adaptive control system analyzes the gathered data and autonomously modifies electrostatic operational settings and fan-speed conditions to enhance dust-management efficacy. A notable characteristic of the innovation is its automatic self-cleaning system, which employs regulated fan-speed variation and electrostatic-field modification to facilitate the detachment of loosely adhered dust particles, minimizing the need for regular hand cleaning. The system additionally has an energy-conserving operational approach, a removable collection chamber, and an optional wireless monitoring capability. The suggested innovation seeks to deliver a more hygienic, energy-efficient, low-maintenance, and smart air circulation system appropriate for residential properties, educational facilities, workplaces, healthcare institutions, commercial venues, and industrial settings.

No. of Pages : 14 No. of Claims : 5

PERI CENTRE FOR INNOVATION

164.Patent Title **:Terrain-Adaptive Intelligent Agriculture System with Smart Irrigation and Predictive Monitoring for Hilly Regions**

Application Number **:** 202641126452 **Published on** **:** 06/11/2026

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(54) Title of the invention : TERRAIN-ADAPTIVE INTELLIGENT AGRICULTURE SYSTEM WITH SMART IRRIGATION AND PREDICTIVE MONITORING FOR HILLY REGIONS

(51) International classification	:A01G 25/16, G06Q 50/02, A01G 25/00, A01G 25/02, G01W 1/14
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(57) Abstract :
The current invention pertains to an intelligent agricultural system that adapts to terrain, aimed at enhancing cultivation efficiency, water management, and crop surveillance in hilly and mountainous areas. Traditional farming methods in mountainous regions suffer numerous obstacles, such as uneven terrain, inconsistent water allocation, inadequate irrigation systems, erratic weather patterns, and issues in ongoing field surveillance. To address these constraints, the suggested innovation presents a cohesive Internet of Things (IoT)-driven agricultural management framework that includes smart sensors, automated irrigation, anticipatory environmental monitoring, and adaptive water allocation based on terrain. The suggested system utilizes a network of dispersed soil moisture sensors, temperature and humidity sensors, water-level sensors, rainfall sensors, and slope-monitoring sensors to perpetually evaluate agricultural conditions at varying altitudes. A sophisticated control unit analyzes the gathered data and autonomously manages irrigation via electronically operated valves and pumps. A notable characteristic of the invention is its terrain-responsive irrigation system, which takes into account variations in field elevation, soil moisture levels, rainfall intensity, and water supply to deliver regulated irrigation to specific crop areas. Additionally, the system integrates a forecasting water management algorithm, a gravity-driven irrigation system, and a preemptive alert system for high soil moisture and possible slope instability. A solar-powered wireless monitoring system enables functionality in isolated agricultural areas with minimal electricity and communication resources. Agriculturalists can oversee field conditions from a distance and obtain irrigation suggestions and environmental notifications via a mobile application. The suggested innovation seeks to curtail superfluous water usage, lessen physical labor, enhance crop oversight, and promote sustainable agricultural yield in difficult mountainous terrains.y

No. of Pages : 17 No. of Claims : 5

PERI CENTRE FOR INNOVATION

165.Patent Title : **Mosquito-Selective Molecular Agent Having Substantially No Detectable Human Odor and Reduced Biological Activity toward Non-Mosquito Organisms**

Application Number : 202641126437 **Published on** : 06/11/2026

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(54) Title of the invention : MOSQUITO-SELECTIVE MOLECULAR AGENT HAVING SUBSTANTIALLY NO DETECTABLE HUMAN ODOR AND REDUCED BIOLOGICAL ACTIVITY TOWARDS NON-MOSQUITO ORGANISMS

(51) International classification	:A01P 7/04, A01N 63/50, A01N 25/00, A01N 43/90, A01N 65/00	(71)**Name of Applicant :** **1)PERI COLLEGE OF ARTS AND SCIENCE** Address of Applicant :PERI KNOWLEDGE PARK, MANNIVAKKAM, CHENNAI, TAMIL NADU, INDIA-600048 Tamil Nadu India (72)**Name of Inventor :** **1)Dr. Kannirajalingam T** **2)Authibhuvaneswari T** **3)Robert Wilson M** **4)Dinesh D** **5)Pravin Kumar K** **6) Keerthivasan D**
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(57) Abstract :
The present invention relates to the development of an innovative Mosquito-Selective Molecular Agent (MSMA) formulated to specifically manage mosquito populations while reducing negative impacts on humans, advantageous insects, animals, flora, and other non-target species. Traditional mosquito management techniques frequently include chemical pesticides that might emit disagreeable scents, lead to ecological pollution, and impact non-target organisms. To address these constraints, the suggested invention presents a chemically characterized molecular agent founded on a multi-tiered biological selectivity framework. The suggested agent is engineered to selectively identify and engage with biological targets that are particular to or abundant in mosquitoes, such as receptors, enzymes, ion channels, brain signaling proteins, and metabolic pathways. Upon engaging with the chosen target, the molecular agent aims to provoke critical biological changes, such neurological impairment, paralysis, metabolic disruption, or cessation of cellular energy synthesis, ultimately leading to the incapacitation or demise of the mosquito. A significant novel characteristic of the proposed invention is its designed capability to attain efficient mosquito management at levels beneath the human scent perception threshold, thereby offering a largely scentless use. Moreover, the molecular agent is engineered to demonstrate diminished biological efficacy against non-target organisms by selective molecular identification and focused biological intervention. The innovation moreover suggests the incorporation of controlled-release carriers, automated mosquito traps, and ecological mosquito management methods to sustain effective concentrations while reducing superfluous chemical exposure. The suggested technology may be utilized in residential structures, healthcare facilities, academic institutions, communal areas, and regions susceptible to mosquitoes. The concept seeks to offer an environmentally sustainable and sophisticated substitute for traditional broad-spectrum mosquito control drugs by integrating mosquito-specific molecular mechanisms, human odor invisibility, less toxicity to non-target organisms, and controlled-release technologies. The stated design objectives of selectivity, safety, and odorlessness necessitate experimental verification

No. of Pages : 12 No. of Claims : 5