Department of Computer Science and Engineering

List of Patents

S.No.	Title of the Patent	File Number	Date	Names of the Patenter	Status
2024-25					
1.	Design and Development of lot based Smart Electricity Monitoring and Control System	202541037515	09/05/2025	Dr Nagaraju Krishna Chythanya	2025 Published
2.	Smart Glasses for Visually Impaired Individuals	202541000874 A	10/01/2025	Dr.Gajula Ramesh	2025 Published
3.	Malaria Detection Using a Convolutional Neural Network: Separating Infected From Uninfected	202441080870 A	01/11/2024	Dr.B.Sankara Babu	2024 Published
4.	Hybrid Convolutional Neural Networks for Detecting Lung Cancer From CT Images and Applying Support Vector Machine Classification	202441080869 A	01/11/2024	Dr.K.Anuradha	2024 Published
5.	Intelligent System for Analysis of Live CCTV Video: Using Deep Learning to Identify Weapons	202441080868 A	01/11/2024	DR.G.Charles Babu	2024 Published
6.	AI Based Action and Gesture Recognition Framework for Children Diagnosed With Cerebral Palsy	202441076938 A	25/10/2024	Dr.Praveen Jugge	2024 Published
7.	Diabetes Detection and Diet Plan Recommendation in Healthcare Big Data Clouds: An Integrated Approach Using the Ensemble Framework	202441071959 A	04/10/2024	Dr.K.Madhavi	2024 Published

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/04/2025

(21) Application No.202541037515 A

(43) Publication Date : 09/05/2025

(54) Title of the invention : Design and Development of IoT based Smart Electricity Monitoring and Control System

(51) International classification :A45D0020120000, H04W0004800000, G01R0031327000, H04L0067120000, G05B0019418000
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 (61) Patent of Addition to Application Number :NA
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 (62) Divisional to Application Number :NA
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(57) Abstract :

Electricity is essential to daily living, but it must be used properly. Over the years, the current systems have been examined to improve household electricity control. The error ratio of the current PMAS approach is larger, though, and a remote monitoring system is not possible. Thus, a smart monitoring and control system (SMACS) for home appliances is suggested in this work. The purpose of the application is to employ hardware and Internet of Things (IoT) techniques to track how much electricity is being used by household appliances. The Arduino UNO, a liquid crystal display (LCD), an ACS712 current sensor module, relays, and AC sources are all taken into consideration when designing and developing the suggested system's prototype. The simulation results are determined to be identical to the prototype, and the components are chosen from the software library. Since the ESP8266 WiFi module is not included in the system, it is not included in the design. Thing-speak is used to record the data in cloud storage. The data is also accessed using a mobile application called Virtuoso, which uses a graphical and numerical display to visualise it. Through the use of mobile applications, this study offers customers a simple way to track and manage the power use of household equipment. According to the results, current errors for the hairdryer appliance are 0.6% with the proposed system and 7.8% with the current Power Monitoring and Switching (PMAS) system.

No. of Pages : 14 No. of Claims : 3

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(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541000874 A

(19) INDIA

(22) Date of filing of Application :03/01/2025

(43) Publication Date : 10/01/2025

(54) Title of the invention : Smart Glasses for Visually Impaired Individuals

(51) International classification	:G06V0030100000, H04N0007180000, G09B0021000000, A61H0003060000, G06V0020520000
(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 system presents a shiny glass innovation that will help visually impaired people by analysing their surroundings through cameras and computer vision algorithms. The glasses provide real-time audio feedback, allowing users to move safely and confidently. They can identify objects, recognize obstacles, read written text using Optical Character Recognition (OCR), and distinguish currency for transactions. By fostering situational awareness, the device addresses challenges like navigation, reading, and safety hazards. Moreover, the glasses are connected to a mobile application where smartphone operation is possible via voice commands to access several features. The wearable gadget encourages independence by enabling its users to read, study, and move about in public or at home with full confidence. Future developments will aim at increasing the accuracy of object detection, hazard detection, and GPS integration for location tracking purposes.

No. of Pages : 6 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441080870 A

(19) INDIA

(22) Date of filing of Application :24/10/2024

(43) Publication Date : 01/11/2024

(54) Title of the invention : MALARIA DETECTION USING A CONVOLUTIONAL NEURAL NETWORK: SEPARATING INFECTED FROM UNINFECTED IMAGES

(51) International classification	:G06N0003045000, G06N0003080000, G06N0020000000, G06V0010820000, G06N0003044000
(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 :
Infected female mosquitoes spread malaria, a deadly disease. This disease infects humans and animals. Fever, headache, sweating, vomiting, and muscle pain are mild malaria symptoms; coma, seizures, and kidney failure are severe. Health workers find malaria parasite identification difficult and chaotic. An expert technician microscopes schematic blood smears of infected red blood cells. Traditional malaria detection methods fail. Machine learning works for simple classification tasks but not complex ones. To train the model and find patterns in features, machine learning requires rigorous feature engineering. Deep learning automatically extracts low and high-level image features to detect disease and works well with complex tasks. In this paper, EfficientNet, a deep learning-based approach for detecting Malaria, is proposed that uses red blood cell images. Experiments are carried out and performance comparison is made with pre-trained deep learning models. K-fold cross-validation also supports the proposed approach. Experiments show that the proposed approach is 97.57% accurate in detecting Malaria from red blood cell images and can be beneficial practically for medical healthcare staff.

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

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/10/2024

(21) Application No.202441080869 A

(43) Publication Date : 01/11/2024

(54) Title of the invention : HYBRID CONVOLUTIONAL NEURAL NETWORKS FOR DETECTING LUNG CANCER FROM CT IMAGES AND APPLYING SUPPORT VECTOR MACHINE CLASSIFICATION

(51) International classification : G06F0018241100, G06T0007000000, A61B0006000000, G06N0003080000, 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
 	
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(57) Abstract :

Medical imaging is essential for early-stage lung cancer diagnosis and treatment monitoring. For lung cancer detection, chest X-ray, magnetic resonance imaging, positron emission tomography, computed tomography, and molecular imaging have been extensively studied. The lack of automatic cancer image classification makes these methods unsuitable for patients with other pathologies. A sensitive and accurate lung cancer early diagnosis method is urgently needed. Deep learning is a fast-growing medical imaging topic with applications in image-based and textural data modalities. Clinicians can quickly and accurately detect and classify lung nodules using deep learning-based medical imaging tools. Therefore, this work uses advanced CNN model modifications to detect lung cancer from chest scan images. The proposed CNN model classifies benign and malignant (normal and cancerous) with higher accuracy than the state-of-the-art SVM classifier. The quality metrics also show that the proposed deep CNN model aids expertise in diagnosis.

No. of Pages : 10 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/10/2024

(21) Application No.202441080868 A

(43) Publication Date : 01/11/2024

(54) Title of the invention : INTELLIGENT SYSTEM FOR ANALYSIS OF LIVE CCTV VIDEO: USING DEEP LEARNING TO IDENTIFY WEAPONS

(51) International classification	:H04N0007180000, G06V0020520000, G06N0003080000, G08B0013196000, G06T0007292000
(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 :
CCTV cameras, which are found in public places, stores, and important buildings, keep us safe. They constantly record video to monitor and protect us. As safety concerns rise, CCTV systems must be upgraded to detect weapons in real time.Manually watching live video feeds from multiple cameras is error-prone, and a person can only watch so many cameras at once. The massive amount of video data these cameras generate makes it impossible for humans to monitor everything, so security threats may be missed. Traditional security personnel or operators passively watch video feeds for suspicious activity, such as a weapon. This method has drawbacks. Humans make mistakes and may react slowly in real time. This method is difficult to scale as the number of cameras increases, and costs can rise significantly. To overcome these challenges and improve public safety, a more advanced solution is needed. For weapon detection, this project develops real-time CCTV video analysis with deep learning. A sophisticated system that analyzes CCTV camera video streams in real time can be built using deep learning models. It can spot weapons and threats in real time. Due to its speed and accuracy, it reduces false alarms and missed opportunities. It's also scalable, cost-effective, and helps security agencies respond quickly to threats and protect us more efficiently.

No. of Pages : 10 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/10/2024

(21) Application No.202441076938 A

(43) Publication Date : 25/10/2024

(54) Title of the invention : AI BASED ACTION AND GESTURE RECOGNITION FRAMEWORK FOR CHILDREN DIAGNOSED WITH CEREBRAL PALSY

(51) International classification	:G09B0021000000, G09B0019000000, A61P0025000000, A61B0005000000, G16H0010600000
(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 :
Cerebral Palsy (CP) is a physical disability found in children. Statistics show that for every 1000 live births, 2.1 children are diagnosed with CP. This condition affects motor function, leading to sensory and cognitive impairments in children. CP is actually a group of neurological disorders that result in movement impairment and voice and muscle tone issues in children. CP can be caused by abnormal brain development or damage to the developing brain. Infections, genetic factors, maternal health problems, and exposure to toxins are common reasons for CP in children. Children with CP face numerous challenges, including difficulty expressing themselves and understanding others. Their ability to concentrate and communicate is severely affected, impacting their development and everyday life. It's important to develop technology-driven support systems to help these children, such as using sign language or technology that interprets their gestures and actions. This invention is aimed at the medical sector, focusing specifically on children with Cerebral Palsy. The goal is to create a software product that addresses the communication and other disabilities associated with CP. The main objective of this proposed method is to enrich the lives of children diagnosed with Cerebral Palsy and allow them to experience the same playfulness as typical children. This method is based on the Action and Gesture Recognition Framework for Children with CP (AGRF-CCP), which enables understanding of the gestures and actions of children. This invention is beneficial to stakeholders such as healthcare units, healthcare professionals, governments, healthcare departments, researchers, and academia.

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

(54) Title of the invention : DIABETES DETECTION AND DIET PLAN RECOMMENDATION IN HEALTHCARE BIG DATA CLOUDS: AN INTEGRATED APPROACH USING THE ENSEMBLE FRAMEWORK

(51) International classification	:G16H0010600000, G06F0021620000, G16H0050700000, G16H0050200000, G16H0050300000
(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 :
Integration of healthcare big data with machine learning techniques is advanced by the ensemble framework for diabetes detection and personalized diet plans. This framework, unlike others, uses a sophisticated ensemble learning strategy to combine the strengths of multiple machine learning models to improve diabetes detection and dietary recommendations. The framework provides a holistic view of an individual's health by integrating electronic health records, biometric data, and lifestyle information into a cloud-based system, enabling more accurate diagnostics and personalized treatment plans. Cloud infrastructure allows the system to process and analyze large amounts of data in real time, making it scalable and adaptable to diverse populations. The system's privacy and data security measures address critical healthcare data management issues, protecting sensitive data. This novel approach improves diabetes management and sets a new standard for big data and ensemble learning in personalized healthcare.

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