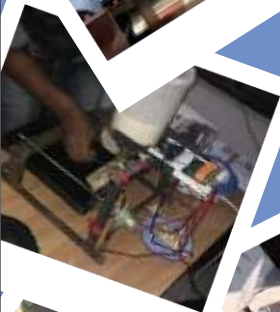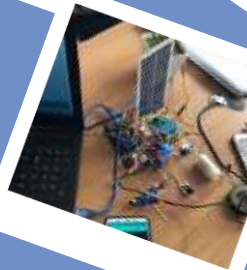# Technofist

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IEEE LATEST PROJECTS ON MACHINE LEARNING USING PYTHON
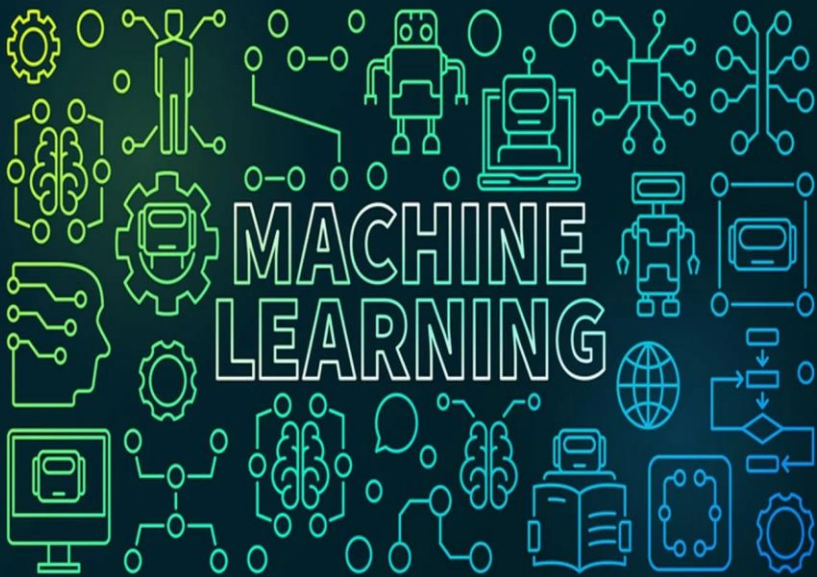
LATEST MACHINE LEARNING PROJECT'S ABSTRACTS 2022-23

Title :- OpenPose: Realtime Multi-Person 2D Pose Estimation using Part Affinity Fields

ABSTRACT : We present an approach to efficiently detect the 2D pose of multiple people in an image. The approach uses a nonparametric representation, which we refer to as Part Affinity Fields (PAFs), to learn to associate body parts with individuals in the image. The architecture encodes global context, allowing a greedy bottom-up parsing step that maintains high accuracy while achieving realtime performance, irrespective of the number of people in the image. The architecture is designed to jointly learn part locations and their association via two branches of the same sequential prediction process. Our method placed first in the inaugural COCO 2016 keypoints challenge, and significantly exceeds the previous state-of-the-art result on the MPII MultiPerson benchmark, both in performance and efficiency.

Title :- An Anomaly Based Network Intrusion Detection System Using LSTM and GRU

ABSTRACT : A network intrusion detection model that fuses a convolutional neural network and a gated recurrent unit is proposed to address the problems associated with the low

accuracy of existing intrusion detection models for the multiple classification of intrusions and low accuracy of class imbalance data detection. In this model, a hybrid sampling algorithm combining Adaptive Synthetic Sampling (ADASYN) and Repeated Edited nearest neighbors (RENN) is used for sample processing to solve the problem of positive and negative sample imbalance in the original dataset. The feature selection is carried out by combining Random Forest algorithm and Pearson correlation analysis to solve the problem of feature redundancy.

Title :- Analysis of Feature Selection Techniques for Android Malware Detection

ABSTRACT : Android mobile devices have reached a widespread use since the past decade, thus leading to an increase in the number and variety of applications on the market. However, from the perspective of information security, the user control of sensitive information has been shadowed by the fast development and rich variety of the applications. In the recent state of the art, users are subject to responding numerous requests for permission about using their private data to be able run an application. The awareness of the user about data protection and its relationship to permission requests is crucial for protecting the user against malicious software. Nevertheless, the slow adaptation of users to novel technologies suggests the need for developing automatic tools for detecting malicious software.

Title : - Research and Application of Air Quality Prediction Model Based on Urban Big Data

ABSTRACT : In the previous research on air quality prediction, the research on the problem is usually one-sided, and many problems are solved from a

single time dimension. In the research of this problem, this paper starts from the time dimension and the space dimension respectively. Considering the temporal continuity and spatial diffusion of air pollutants, the prediction results of the two dimensions are dynamically combined. Comprehensive consideration of various factors to achieve better prediction results. In order to solve the problem that there are few air quality monitoring stations in cities and there is no monitoring data in a large number of areas, an air quality prediction model is proposed.

Title :- Detection of Alzheimer's disease at Early Stage using Machine Learning

ABSTRACT : Alzheimer's is the main reason for dementia that affects frequently older adults. This disease is costly especially, in terms of treatment. In addition, Alzheimer's is one of the deaths causes in the old-age citizens. Early Alzheimer's detection helps medical staffs in this disease diagnosis, which will certainly decrease the risk of death. This made the early Alzheimer's disease detection a crucial problem in the healthcare industry. The objective of this research study is to introduce a computer-aided diagnosis system for Alzheimer's disease detection using machine learning techniques. We employed data from the Alzheimer's disease Neuroimaging Initiative (ADNI) and the Open Access Series of Imaging Studies (OASIS) brain datasets.

Title :- Child Abuse Mental Symptom Prediction Model using Machine Learning Techniques

ABSTRACT : Mental health problems, such as depression in children have far-reaching negative effects on child, family and society as whole. It is necessary to identify the reasons that contribute to this mental illness. Detecting the appropriate signs to anticipate mental illness as depression in children and adolescents is vital in making an early and accurate diagnosis to avoid severe consequences in the future. There has been no research employing machine learning (ML) approaches for depression detection among children and adolescents aged 4–17 years in a precisely constructed high prediction dataset, such as Young Minds Matter (YMM).

Title : - Apple Disease Classification Built on Deep Learning

ABSTRACT : Diseases and pests cause huge economic loss to the apple industry every year. The identification of various apple diseases is challenging for the farmers as the symptoms produced by different diseases may be very similar, and may be present simultaneously. This paper is an attempt to provide the timely and accurate detection and identification of apple diseases. In this study, we propose a deep learning based approach for identification and classification of apple diseases. The first part of the study is dataset creation which includes data collection and data labelling.

Title :- Anomaly Detection in Credit Card Transaction using Deep Learning Techniques

ABSTRACT : Anomaly Detection is a method of identifying the suspicious occurrence of events and data items that could create problems for the concerned authorities. Data anomalies are usually associated

with issues such as security issues, server crashes, bank fraud, building structural flaws, clinical defects, and many more. Credit card fraud has now become a massive and significant problem in today's climate of digital money. These transactions carried out with such elegance as to be similar to the legitimate one. So, this research paper aims to develop an automatic, highly efficient classifier for fraud detection that can identify fraudulent transactions on credit cards. Researchers have suggested many fraud detection methods and models, the use of different algorithms to identify fraud patterns. In this study, we review the Isolation forest, which is a machine learning technique to train the system with the help of H2O.

Title :- A Machine Learning Classification Model for Process Waste Types Identification and Business Process Re-Engineering Automation

ABSRACT : A business process re-engineering value in improving the business process is undoubted. Nevertheless, it is incredibly complex, time-consuming and costly. This study aims to review available literature in the use of machine learning for business process re-engineering. The review investigates available literature in business process re-engineering frameworks, methodologies, tools, techniques, and machine-learning applications in automating business process re-engineering. The study covers 200+ research papers published between 2015 and 2020 in reputable scientific publication platforms: Scopus, Emerald, Science Direct, IEEE, and British Library. The results indicate that business process re-engineering is a well-established field with scientifically solid frameworks, methodologies, tools, and techniques, which support decision making by generating and analysing relevant data.

Title :- Auto ML for Multi-Label Classification Overview and Empirical Evaluation

ABSTRACT : Automated machine learning (AutoML) supports the algorithmic construction and data-specific customization of machine learning pipelines, including the selection, combination, and parametrization of machine learning algorithms as main constituents. Generally speaking, AutoML approaches comprise two major components: a search space model and an optimizer for traversing the space. Recent approaches have shown impressive results in the realm of supervised learning, most notably (single-label) classification (SLC).

Moreover, first attempts at extending these approaches towards multi-label classification (MLC) have been made. While the space of candidate pipelines is already huge in SLC, the complexity of the search space is raised to an even higher power in MLC. One may wonder, therefore, whether and to what extent optimizers established for SLC can scale to this increased complexity, and how they compare to each other.

Title :- Predicting Discharge Destination of Critically Ill Patients Using Machine Learning

ABSTRACT : Decision making about discharge destination for critically ill patients is a highly subjective and multidisciplinary process, heavily reliant on the ICU care team, patients and their caregivers' preferences, resource demand, staffing, and bed capacity. Timely identification of discharge disposition can be useful in care planning, and as a surrogate for functional status outcomes following critical illness. Although prior research has proposed methods to predict discharge destination in a critical care setting, they are limited in scope and in the generalizability of their findings.
We proposed and implemented different machine learning architectures to determine the efficacy of the Acute Physiology and Chronic Health Evaluation (APACHE) IV score as well as the patient characteristics that comprise it to predict the discharge destination for critically ill patients within

24 hours of ICU admission.

Title :- Intrusion Detection System Using Improved Convolution Neural Network

ABSTRACT : Network intrusion detection is an important component of network security. Currently, the popular detection technology used the traditional machine learning algorithms to train the intrusion samples, so as to obtain the intrusion detection model. However, these algorithms have the disadvantage of low detection rate. Deep learning is more advanced technology that automatically extracts features from samples. In view of the fact that the accuracy of intrusion detection is not high in traditional machine learning technology, this paper proposes a network intrusion detection model based on convolutional neural network algorithm. The model can automatically extract the effective features of intrusion samples, so that the intrusion samples can be accurately classified.

Title :- Image Segmentation for MR Brain Tumor Detection Using Machine Learning: A Review

ABSTRACT : Brain tumor segmentation is an important task in medical image processing. Early diagnosis of brain tumors plays an important role in improving treatment possibilities
and increases the survival rate of the patients. Manual segmentation of the brain tumors for cancer diagnosis, from large amount of MRI images generated in clinical routine, is a difficult and time consuming task. There is a need for automatic brain tumor image segmentation. The purpose of this paper is to provide a review of MRI-based brain tumor segmentation methods. Recently, automatic segmentation using deep learning methods proved popular since these methods achieve the state-of-the-art results and can

address this problem better than other methods. Deep learning methods can also enable efficient processing and objective evaluation of the large amounts of MRI-based image data. There are number of existing review papers, focusing on traditional methods for MRI-based brain tumor image segmentation.

Title :- A Machine Learning-based Distributed System for Fault Diagnosis with scalable detection quality in industrial iot

ABSTRACT : In this paper, a methodology based on machine learning for fault detection in continuous processes is presented. It aims to monitor fully distributed scenarios, such as the Tennessee Eastman Process, selected as the use case of this work, where sensors are distributed throughout an industrial plant. A hybrid feature selection approach based on filters and wrappers, called Hybrid Fisher Wrapper method, is proposed to select the most representative sensors to get the highest detection quality for fault identification. The proposed methodology provides a complete design space of solutions differing in the sensing effort, the processing complexity, and the obtained detection quality. It constitutes an alternative to the typical scheme in Industry 4.0, where multiple distributed sensor systems collect and send data to a centralized cloud.

Title :- An Optimal Channel Selection for EEG-based Depression Detection via Kernel-Target Alignment

ABSTRACT : Depression is a mental disorder with emotional and cognitive dysfunction. The main clinical characteristic of depression is significant and persistent low mood. As reported, depression is a leading cause of disability worldwide. Moreover, the rate of recognition and treatment for depression is low. Therefore, the detection and treatment of depression are urgent.

Multichannel electroencephalogram (EEG) signals, which reflect the working status of the human brain, can be used to develop an objective and promising tool for augmenting the clinical effects in the diagnosis and detection of depression.

However, when a large number of EEG channels are acquired, the information redundancy and computational complexity of the EEG signals increase; thus, effective channel selection algorithms are required not only for machine learning feasibility, but also for practicality in clinical depression detection.

LATEST ARTIFICIAL INTELLIGENCE PROJECT'S ABSTRACTS 2022-23

Title :- **DSNet Joint Semantic Learning for Object Detection in Inclement Weather Conditions**

ABSTRACT : The main purpose of object detection is to know and work for one or more effective targets from still image or video data. Object detection is a key ability required by most computer and robot vision systems. The very recent research and works on this topic has been making great progress in many directions and different ways. In the current manuscript, we give an overview of past research on object detection depending on the weather conditions, outline the current main research strategies, and discuss open problems and possible future directions and views. In this paper, we address the object detection problem in the presence of fog by introducing a novel dual-subnet network (DSNet) that can also be trained and learnt three things: visibility improvement, object differentiation, and object localization.

Title : - **Apple Disease Classification Built on Deep Learning**

ABSTRACT : Diseases and pests cause huge economic loss to the apple industry every year. The identification of various apple diseases is challenging for the farmers as the symptoms produced by different diseases may be very similar, and may be present simultaneously. This paper is an attempt to provide the timely and accurate detection and identification of apple diseases.

In this study, we propose a deep learning based approach for identification and classification of apple diseases. The first part of the study is dataset creation which includes data collection and data labelling.

Title :- An Identification Method of Apple Leaf Disease Based on Transfer Learning

ABSTRACT : Mosaic, Rust, Brown spot, and Alternaria leaf spot are the four common types of apple leaf diseases. Early diagnosis and accurate identification of apple leaf diseases can control the spread of infection and ensure the healthy development of the apple industry. The existing research uses complex image preprocessing and cannot guarantee high recognition rates for apple leaf diseases. This paper proposes an accurate identifying approach for apple leaf diseases based on deep convolutional neural networks. It includes generating sufficient pathological images and designing a novel architecture of a deep convolutional neural network based on AlexNet to detect apple leaf diseases.

Title :- Analysis of Arrhythmia Classification on ECG Dataset

ABSTRACT : In this paper, Recurrent Neural Networks (RNN) have been applied for classifying the normal and abnormal beats in an ECG. The primary aim of this paper was to enable automatic separation of regular and irregular beats. The MIT-BIH Arrhythmia database is being used to classify the beat classification performance. The methodology used is carried out using huge volume of standard data i.e. ECG time-series data as inputs to Long Short Term Memory Network . We divided the dataset as training and

testing sub-data. The effectiveness, accuracy and capabilities of our methodology ECG arrhythmia detection is demonstrated and quantitative comparisons with different RNN models have also been carried out.

Title :- A New Approach to Detect Anomalous Behaviour in ATMs

ABSTRACT : An automated teller machine is an electronics telecommunications device which is utilized by people, mostly to withdraw money. In the present scenario, a fair amount of the population using an ATM machine to withdraw cash are facing a problem of robberies and theft due to lack of security guards. Surveillance cameras being used in the ATM cells, however monitoring capabilities of law enforcement agencies has not kept pace. So, in this system anomalous behavior is detected using CNN and LSTM on the surveillance videos. Accurate recognition of anomalous behavior at a point in time is the most challenging problem for systems. The anomaly as well as non-anomaly dataset is fed to a machine and trained to identify abnormal behavior.

Title :- Comparative Analysis of Banana Leaf Disease Detection and Classification Methods

ABSTRACT : The feature extraction technique plays a very critical and crucial role in automatic leaf disease diagnosis system. Many different feature extraction techniques are used by the researchers for leaf disease diagnosis which includes colour, shape, texture, HOG, SURF and SIFT features. Recently Deep Learning is giving very promising results in the field of computer vision. In this manuscript, two feature extraction techniques are

discussed and compared. In first approach, the Gray Level Covariance Matrix (GLCM) is used which extracts 12 texture features for diagnosis purpose. In second approach, the pretrained deep learning model, Alexnet is used for feature extraction purpose. There are 1000 features extracted automatically with the help of this pretrained model.

Title :- A Smart Approach For Health Monitoring System Using Artificial Intelligence

ABSTRACT : The Internet of Things (IoT) has enabled the invention of smart health monitoring systems. These health monitoring systems can track a person's mental and physical wellness. Stress, anxiety, and hypertension are key causes of many physical and mental disorders. Age-related problems such as stress, anxiety, and hypertension necessitate specific attention in this setting. Stress, anxiety, and blood pressure monitoring can prevent long-term damage by detecting problems early. This will increase the quality of life and reduce caregiver stress and healthcare costs. Determine fresh technology solutions for real-time stress, anxiety, and blood pressure monitoring using discreet wearable sensors and machine learning approaches. This study created an automated artefact detection method for BP and PPG signals.

Title :- Analysis of Deep Learning Methods for Detection of Bird Species

ABSTRACT : Now a day some bird species are being found rarely and if found classification of bird species prediction is difficult. Naturally, birds present in various scenarios appear in different sizes, shapes, colors, and angles from human perspective. Besides, the images present strong variations to identify the bird species more than audio classification. Also, human ability to recognize the birds through the images is more understandable. So this

method uses the Caltech-UCSD Birds 200 [CUB-200-2011] dataset for

training as well as testing purpose. By using deep convolutional neural network (DCNN) algorithm an image converted into grey scale format to generate autograph by using tensor flow, where the multiple nodes of comparison are generated.

Title :- Analytical study for Price Prediction of Bitcoin using Machine Learning and Artificial Intelligence

ABSTRACT : Bitcoin, a type of cryptocurrency is currently a thriving open-source community and payment network, which is currently used by millions of people. As the value of Bitcoin varies everyday, it would be very interesting for investors to forecast the Bitcoin value but at the same time making it difficult to predict. Bitcoin is a cryptocurrency technology that has attracted investors because of its big price increases. This has led to researchers applying various methods to predict Bitcoin prices such as Support Vector Machines, Multilayer Perceptron, RNN etc. To obtain accuracy and efficiency as compared to these algorithms this research paper tends to exhibit the use of RNN using LSTM model to predict the price of crypto currency. The results were computed by extrapolating graphs along with the Root Mean Square Error of the model which was found to be 3.38.

Title :- Comparative analysis on U-Net based Retinal Blood Vessel Segmentation

ABSTRACT : In this work we compare the performance of a number of vessel segmentation algorithms on a newly constructed retinal vessel image database. Retinal vessel segmentation is important for the detection of

numerous eye diseases and plays an important role in automatic retinal disease screening systems. A large number of methods for retinal vessel segmentation have been published, yet an evaluation of these methods on a common database of screening images has not been performed. To compare the performance of retinal vessel segmentation methods we have constructed a large database of retinal images. The database contains forty images in which the vessel trees have been manually segmented.

Title :- Interface Using Statistical Measures and Machine Learning for Graph Reduction to Solve Maximum Weight Clique Problems

ABSTRACT : In this paper, we investigate problem reduction techniques using stochastic sampling and machine learning to tackle large-scale optimization problems. These techniques heuristically remove decision variables from the problem instance, that are not expected to be part of an optimal solution. First we investigate the use of statistical measures computed from stochastic sampling of feasible solutions compared with features computed directly from the instance data. Two measures are particularly useful for this: 1) a ranking-based measure, favoring decision variables that frequently appear in high-quality solutions; and 2) a correlation-based measure, favoring decision variables that are highly correlated with the objective values. To take this further we develop a machine learning approach, called Machine Learning for Problem Reduction (MLPR), that trains a supervised learning model on easy problem instances for which the optimal solution is known.

Title :- Adversarial Attacks on Time Series

ABSTRACT : Time series classification models have been garnering significant importance in the research community. However, not much

research has been done on generating adversarial samples for these models. These adversarial samples can become a security concern. In this paper, we propose utilizing an adversarial transformation network (ATN) on a distilled model to attack various time series classification models. The proposed attack on the classification model utilizes a distilled model as a surrogate that mimics the behavior of the attacked classical time series classification models. Our proposed methodology is applied onto 1-Nearest Neighbor Dynamic Time Warping (1-NN DTW) and a Fully Convolutional Network (FCN), all of which are trained on 42 University of California Riverside (UCR) datasets. In this paper, we show both models were susceptible to attacks on all 42 datasets.

ABSTRACTS OF LATEST JAVA PROJECTS 2022 -23

Title : Graphical Password To Avoid Shoulder-Surfing

ABSTRACT – Since the standard hidden term plans are helpless against shoulder surfing, a range of secure shoulder-surfing visual secret word plans have been suggested. Nonetheless, since most consumers are more familiar with literary passwords than with graphical passwords, content-based graphic secret key plans were introduced. Tragically, none of the existing content- based shoulder-surfing proposals for protected graphical hidden phrases are both reliable and professional. An authentication methodology that operates on the touch screen devices will address the problem of shoulder-surfing assaults over validation. This uses the system of combining two keypads with separate digit commands in such a way that the victim uses the gadget to see one keypad to join the sequence, while the aggressor who takes the gadget from a

distance sees the other keypad.

Title : House Price Prediction Using Machine LearningAlgorithms

ABSTRACT—In today's world, everyone wishes for a house that suits their lifestyle andprovides amenities according to their needs. House prices keep on changing very frequently which proves that house prices are often exaggerated. There are many factors that have to be taken into consideration for predicting house prices such as location, number of rooms, carpet area, how old the property is and other basic local amenities. We will be using CatBoost algorithm along with Robotic Process Automation for realtime data extraction. Robotic Process Automation involves the use of software robots to automate the tasks of data extraction while machine learning algorithm is used to predict house prices with respect to the dataset.

Title : Lightweight Cloud Storage Auditing With De-duplication Supporting Strong Privacy Protection

ABSTRACT - The cloud storage auditing with deduplication is able to verify the integrity of data stored in the cloud while the cloud needs to keep only a single copy of duplicated file. To the best of our knowledge, all of the existing cloud storage auditing schemes with deduplication are vulnerable to brute-force dictionary attacks, which incurs the leakage of user privacy. In this paper, we focus on a new aspect of being against brute-force dictionary attacks on cloud storage auditing. We propose a cloud storage auditing scheme with deduplication supporting strong privacy protection, in which the privacy of user's file would not be disclosed to the cloud and other parties when this user's file is predictable or from a small space.

Title : Identity Based Encryption With Outsourced UserRevocation In Cloud Computing

ABSTRACT— With regards to putting away information, distributed storage is quickly transforming into the strategy for decision. Distributed storage is rapidly turning into the methodology for choice. Securing data

remotely rather than locally brags a variety of inclinations for both home and expert users. Distributed storage signifies "the capacity of information online in the cloud", be that as it may, the distributed storage is not totally trusted. Regardless of whether the information set up away on cloud are or not transforms into a huge worry of the customers additionally get to control turns into a troublesome employment, especially when we share information on cloud servers.

Title : Fake Product Review Monitoring System Using Cloud Computing

ABSTRACT- In the current scenario, the data on the web is growing exponentially. Social media is generating a large amount of data such as reviews, comments, and customer's opinions on a daily basis. This huge amount of user generated data is worthless unless some mining operations are applied to it. As there are a number of fake reviews so opinion mining technique should incorporate Spam detection to produce a genuine opinion. Nowadays, there are a number of people using social media opinions to create their call on shopping for product or service.

Title : A Graphical Pin Entry System With Shoulder SurfingResistence

ABSTRACT : Personal identification number or PIN based authentication systems are most commonly used authentication systems. Due to maturity and simplicity, these authentication systems are vastly deployed in many different areas such as automatic teller machine (ATM), point of sale (POS), electronic

Door access system and in different kinds of mobile applications. However, due to limited password space and small password length, they are highly susceptible to   different kinds of shoulder surfing attacks.

In this paper, we have proposed a graphical PIN entry scheme that provides resistance against shoulder surfing attacks.

LATEST MACHINE LEARNING PROJECTS WITH HARDWARE

AN INTERNET OF THINGS BASED SMART WASTE MANGEMENT SYSTEMUSING LORA AND TENSOR FLOW LEARNING MODEL

ABSTRACT: Traditional waste management system operates based on daily schedule which is highly inefficientand costly. The existing recycle bin has also proved its ineffectiveness in the public as people do not recycle theirwaste properly. With the development of Internet of Things (IoT) and Artificial Intelligence (AI), the traditional waste management system can be replaced with smart sensors embedded into the system to perform real time monitoring and allow for better waste management. The aim of this research is to develop a smart waste management system using LoRa communication protocol and TensorFlow based deep learning model. LoRa sendsthe sensor data and Tensorflow performs real time object detection and classification

AUTOMATED EVALUTION OF COVID-19 RISK FACTORS COUPLED WITH REALTIME,INDOOR,PERSONAL LOCALIZATION DATA FOR POTENTIAL DISEASE IDENTIFICATION,PREVENTION AND SMART QUARANTINING

ABSTRACT: Since the beginning of the current COVID-19 pandemic, more than five million people have been infected and the numbers are still on the rise. Early symptom detection and proper hygienic standards are thus of utmost importance, especially in venues where people are in random or opportunistic contact with each other. To this end, automated systems with medical-grade body temperature measurement, hygienic compliance evaluation and individualized, person-to-person tracking, are essential, not only for disease spread intervention and prevention, but also to assure economic stability.

AUTOMATIC TRAFFIC VIOLATION RECORDING AND REPORTING SYSTEM

ABSTRACT: The quantity of street mishaps increments and causes numerous issues. Numerous individuals bite the dust and harmed. Likewise, that causes numerous financial, social and mental issues that have negative effect on the improvement of the world. The primary reason for most of these mishaps is because of the infringement of the traffic rules: driving with high speeds, crossing a red-light signal, not keeping adequate separation with the front vehicle in the roadways, driving an inappropriate opposite way, and so forth. As the number of streets and avenues are huge and the all-out length of these streets is long, it is extremely unlikely to completely screen every one of them all the time by Traffic Patrol or camera frameworks. This paper proposes a framework to consequently and self-sufficiently identify and record the criminal traffic offenses without the help of the individual.

DEVELOPMENT OF NON-CONTACT BODY TEMPERATURE MONITORING AND PREDICTION SYSTEM FOR LIVESTOCK CATTLE

ABSTRACT: Annually, numerous cattle die of various diseases, necessitating the need for effective cattle health management. To ensure cattle disease detection at an early stage and identify the health status of cattle, we collected the environment temperature, humidity, illuminance, and infrared images of cattle in an actual-life environment as input parameters to develop an artificial intelligence characterization module for measuring deep body temperature in a contactless manner. By analyzing the correlation of estimating deep body temperature at the horn, eyeball, and nose of cattle, the most effective way of estimating this temperature was found to be at the horn. The estimation accuracy was particularly high in the sitting state.

RASPBERRY PI BASED VIDEO SURVEILLANCE SYSTEM FOR ADVANCE SECURITY

ABSTRACT: This paper proposes the Smart Surveillance System using Raspberry Pi and PIR sensor. This system will serve as smart security module for monitoring. Traditional surveillance systems only records the activities based on motion, but this system serves the purpose of facial recognition so as to reduce the error caused due to motion detection . Raspberry Pi camera module is used to capture images once the motion is detected by the PIR Sensor. This system will monitor when motion detected and checks for the faces in the image captured and with the help of face recognition alerts if the face detected is not stored in the database. Send through SMS to alert even if he/she has internet issues he will get to know about the intruder.

ABSTRACT: A self-driving car is a vehicle that senses its environment and navigates without human intervention and is a high research topic in computer vision that involves various sub- topics and need to be deeply reviewed. To accomplish this, our paper discusses hardware and software components of a self driving car that includes usage of technologies such as Deep learning techniques namely Convolution Neural Networks, YOLO algorithm, Hough Transform Algorithms, Transfer Learning, Canny Edge Detection algorithm. Software components such as Arduino IDE, Raspberry Pi Cam Interface, Open CV, Tensor Flow, Carla simulators and hardware components such as Raspberry Pi 3, Arduino UNO, Pi Camera, sensors like radar, lidar are used to build a prototype of a self- driving car.

CROP YIELD PREDICTION USING MACHINE LEARNING ALGORITHM

ABSTRACT: Agriculture is the pillar of the Indian economy and more than 50% of India's population are dependent on agriculture for their survival. Variations in weather, climate, and other such environmental conditions have become a major risk for the healthy existence of agriculture. Machine learning (ML) plays a significant role as it has decision support tool for Crop Yield Prediction (CYP) including supporting decisions on what crops to grow and what to do during the growing season of the crops. The present research deals with a systematic review that extracts and synthesize the features used for CYP and furthermore, there are a variety of methods that were developed to analyze crop yield prediction using artificial intelligence techniques. The major limitations of the Neural Network are reduction in the relative error and decreased prediction efficiency of Crop Yield.

DRIVER ASSISTANCE SYSTEM USING RASPBERRY PI AND HAAE CASCADECLASSIFIERS

ABSTRACT: Around 43% of road accidents are due to drowsiness of a driver, says a study by the Central Road Research Institute (CRRI). Another leading cause for road accidents is drunken driving. Any amount of alcohol can impact a person's driving ability and slows their response time. On an average 8 people die every day because of driving under the influence of alcohol. In case of an accident to reduce the fatalities and get quick emergency response a vehicle crash detection mechanism is necessary. Road accidents claim nearly three lives every minute, so it is of utmost importance to develop a cost efficient driver assistance system for automobiles. This will help us to monitor the driver's physiological behaviours which will affect the stability of the vehicle and avoid accidents. To implement this, a variety of software algorithms, input and output extraction hardware tools have been employed in a collaborative way.

of automatic self-driving cars etc. The misadventure is caused by driver's fatigue and drowsiness about 20%. It poses a serious problem for which several approaches

were proposed. However, they are not suitable for real-time processing. The major challenges faced by these methods are robustness to handle variation in human face and lightning conditions. We aim to implement an intelligent processing system that can reduce road accidents drastically. This approach enables us to identify driver's face characteristics like eye closure percentage, eye-mouth aspect ratios, blink rate, yawning, head movement, etc. In this system, the driver is continuously monitored by using a webcam.

ENHANCED SECURITY MECHANISM FOR ATM MACHINES

ABSTRACT: The project proposes the idea of an image base added security for ATM machines using Raspberry pi that will eliminate the unauthorized usage of ATM cards by person other than the owner. The basic idea of the system is that after insertion of the ATM card into the machine and after the card verification, his image is captured using the webcam in the ATM and then it is matched with the card owner's actual images already stored in the database. If the captured image matches with the stored images, it means he is the authorized user and moves to the next stage where he can enter the password to continue the transaction. When the stored image and the captured image don't match, it means that he is an unauthorized user and thus blocking his access. The system may also inform the actual owner of the card regarding the card
misuse.

MACHINE LEARNING BASED ACOUSTIC REPELLENT SYSTEM FOR PROTECTING CROPS AGAINST WILD ANIMAL ATTACKS

ABSTRACT: We present some insights on the issue of crop destruction by wild animals. This is a serious concern for the affected farmers throughout the world and leads to significant social and financial distress among them. In order to understand the background of this problem, a survey of Katli village, Rupnagar, (India) was conducted. The main aim of the current work is to develop a device to protect crops from damage by wild animals by diverting them from the farms, without harming them physically. In this context, an Acoustic Repellent System has been designed which uses a convolutional neural network (CNN) based machine learning model and an IR camera to identify target animals, such as wild boar, nilgai, and deer. A Raspberry Pi (Rpi) module has been integrated with a camera and a frequency generator to recognise different animals and produce corresponding frequencies that keep them away from the farms of interest.

Vehicular Ad Hoc Networks (VANETs), the network of vehicles that can communicate with each other play a vital role in the reduction of such accidents. Many survey and research papers published on this topic majorly emphasize on implementation of VANETs using

simulators but this research work is focused on implementation using hardware components.

DESIGN AND IMPLEMENTATION OF SMART GLOVE TO AID THE VISUALLYIMPAIRED

ABSTRACT: Locating objects of daily use is a strenuous task for the visually impaired. The objective of this paper is to design a smart glove by using Deep Neural Networks (DNN) and object tracking algorithm which will guide the hand of the visually impaired to the desired object in an indoor environment. The smart glove has five micro- vibrating motors, each one used to guide the user's hand in five different directions namely, forward, upward, downward, rightward and leftward. The palm of the glove has a Universal Serial Bus (USB) camera which feeds the real-time video to the Raspberry Pi for processing. The camera also has an inbuilt microphone. The user vocally commands the system to identify the desired object. The camera then detects the object using DNN.

RASPBERRY PI BASED INTELLIGENT READER FOR VISUALLY IMPAIREDPERSONS

ABTRACT: The human communication is totally based on speech and text. So visually impaired people can gather information from voice. With the help of this project visually impaired people can read the text present in the captured image. In this Project we use Raspberry Pi Camera and this help to take pictures and that picture is converted into scan image for further process by using Image magick software. The output of Image magick software is in the form of scanned image this scan image is giving as an input to the Tesseract OCR (Optical Character Recognition) software to convert imageinto the text. For transformation of text into speech we use TTS (Text to Speech) engine. Experimental results shows that the analysis of different captured images and it will be more helpful to blind people.

DESGIN AND IMPLEMENTATION OF REAL AUTONOMOUS CAR BY USING IMAGEPROCESSING AND IOT

ABSTRACT: Because of the inaccessibility of Vehicle-to- Infrastructure correspondence in the present delivering frameworks, (TLD), Traffic Sign Detection and path identification are as yet thought to be a significant task in self- governing vehicles and Driver Assistance Systems (DAS) or Self Driving Car. For progressively exact outcome , businesses are moving to profound Neural Network Models Like Convolutional Neural Network (CNN) as opposed to Traditional models like HOG and so forth. Profound neural Network can remove and take in increasingly unadulteratedhighlights from the Raw RGB picture got from nature.

In any case, profound neural systems like CNN have a highly complex calculation.

DEEP LEARNING BASED SPEED BUMP DETECTION MODEL FOR INTELLIGENT VECHICLE SYSTEM USING RASPBERRY PI

ABSTRACT: Artificial intelligence in vision based approaches have proven to be effective in various phases of intelligent vehicle system (IVS). An IVS has to intelligently take many critical decisions in heterogeneous environment. Speed bump detection is one such issue in real world due to its varying appearance in dynamic scene. The major issue is the scaling appearance of such objects from far distance and often viewed as small entity. In the proposed article, deep learning and computer vision based speed bump detection model is proposed, which assist and control the driving behavior of an IVS before it reaches to speed bump.

SMART ROBOTIC PERSONAL ASSISTANT VECHICLE USING RASPBERRY PI AND ZERO UI TECHNOLOGY

ABSTRACT: This paper presents a prototype of a smart robotic personal assistant vehicle based on Raspberry Pi and Zero-UI technology. Zero UI uses sensory experiences such as gestures, voice and movement to control the devices. A voice controlled robot vehicle implemented in this paper performs three functions, viz. movement of the robot is controlled using voice commands; it has the ability to articulate the text from a captured image using optical character recognition and present the equivalent audio to the user by using a built-in speaker or headset; it accepts voice commands from the user and uses Google Assistant API for any query processing and presents information searched on the Internet to the user in audio form using the built-in speaker or headset**.**

SMART CAP FOR VISUALLY IMPAIRED PERSON USING RASPBERRY PI

ABSTRACT: In our surrounding the Communication generally takes place through speech and text. The aim of this project is to provide an assistive technology to help the visually impaired person usage in disaster situations. The aim purpose of our paper is to develop a cap for blind which will guide them from their source to destination. The solution for smart Cap is to support visually Impaired person and it is cost effective wearable 'smart cap'. The Proposed system consists of web camera which is fitted into a cap, audio microphone, ultrasonic sensor, Raspberry pi, speaker for voice. The software's use in this project is Image processing. open cv, numpy, python.

IoT ENABLED PRESCRIPTION READING SMART MEDICINE DISPENSERIMPLEMENTING MAXIMALLY STABLE EXTERNAL REGIONS AND OCR

ABSTRACT: The concept of the Internet of Things (IoT)integrated with embedded system and new technologies in the healthcare sector has opened a new era. The natural decrease in physical condition of senior citizens with aging prompts an expansion in frequencies of different diseases and for that reason they need to take medicine on time to improve their health conditions. In this research work we are focusing on the circumstances of senior citizens, we have proposed an IoT enabled smart medicine box equipped with camera for scanning the prescription. After the system scans the prescription through camera, a number o f preprocessing techniques are applied on theprescription for better extraction of information. Following that, weapplied Maximally Stable Extremal Regions (MSER) which . Later, string manipulation is done on the extracted text and relevant information are uploaded in the database. Afterwards, our medicine box uses the information to notify the patient using buzzer and shows the medication information on the LCD display.

SMART DETECTION AND REPORTING OF POTHOLES VIA IMAGE-PROCESSING USING RASPBERRY-PI

ABSTRACT: One of the causes of local road accidents in developing countries, such asthe Philippines, is due to road damages such as potholes. In addition, there is no proper road maintenance in the local roads, and so the checking of pothole is done manually. Hence, in this paper we propose a simple and robust design of a portable and affordabledevice that will be suitable for local jeepney (cab) drivers here in the Philippines. A distinguishing feature of this proposal is that it does not need a sophisticated Smartphone to automatically send the reports, and was tested in an actual moving vehicle. Furthermore, the system can be installed in a moving vehicle to automatically detect and report potholes via image-processing of Raspberry-Pi.

SMART OBSTACLE RECOGNITION SYSTEM USING RASPBERRY PI

ABSTRACT: Blindness is a major problem in the society which made difficult for the person to lead his/her day-to-day life. The proposed system will detect, track and analyze the approaching objects and alert them to avoid collision. The PI camera and the Ultrasonic sensor sense the type and distance between the person and the object. The contactless temperature sensor senses the temperature of the object contactless manner using infrared rays. The GPS sensor tracks the route and location of the blind and the ESP8266 connects with the cloud for Realtime monitoring of the blind.

SECURED IOT BASED SMART GREENHOUSE SYSTEM WITH IMAGE INSPECTION

ABSTRACT: Automated Greenhouse System helps the farmers by controlling the environmental parameters through Internet of Things(IoT), including crop health inspection using image analysis. The Greenhouse is generally affected by two factors: plant disease and weather condition, which leads to the fall in production. The weather condition can be controlled through Microcontroller Unit(MCU) and the plant disease can be monitored using image inspection system. The research recommends a cheaper image evaluation framework for the plant disease analysis and fully automated Greenhouse with data security. The prototype of the proposed system consists of Raspberry pi, MSP432, Temperature sensor, Moisture sensor, Humidity sensor and Open CV Image Inspection System. The actuators and motors are controlled by MCU MSP432 through relays upon reaching predetermined threshold values.

LATEST PROJECTS ON MACHINE LEARNING USING IOT

WIRELESS EMBEDDED ELECTRONICS FOR SOLIDER SERCUITY

ABSTRACT: One of the important and vital roles in a country's defense is played by the army soldiers. Every year Soldiers get strayed or injured and it is time consuming to do search and rescue operations. In this paper, we present a WSN-based environmental and health monitoring approach in which sensor data is processed using robust and stable algorithm implemented in controller. These processed data are then sent to the base station via low-cost, low- power and secure communication links provided by a LoRa network infrastructure instead of cellular networks, since, they are either absent or doesn't allow data transmission in warzone or remote areas. We focus on monitoring environmental factors such as temperature, humidity, air pressure, air quality; physical factors such as motion, position, geographic location and health parameters like ECG (electro cardiograph), blood oxygen level, body temperature. Moreover, camera and microphone are used to monitor any undesirable situation of
soldier.

DESIGN AND REALIZATION OF INTELLIGENT SAFETY HELMET BASED ON IOT

ABSTRACT: Safety helmet has a long history, which can be traced back to ancient times. Primitive people used coconut shells to protect their heads when hunting wild animals. With the development of metallurgical technology, metal safety helmets have appeared gradually. China's economy was relatively backward. Most of the workers wore safety helmets woven by rattan, which was easy to cause accidents. The painful cost brought the progress of safety management. Safety helmets were improved to plastic ones. In 2000, the high impact plastic was selected for injection molding. It
features excellent surface, good elasticity, firm and durable.

DESIGN OF IOT BASED MUTIFUNCTIONAL CAMOUFLAGE MILITARY ROBOT

ABSTRACT: In this modern era, huge capital of the country has been spent for the defence field to deploy primitive and high security measures and safeguard the border security forces from the trespassers. Some defence organizations utilizes robotics in the defence field and the efficiency of robots are very high when compared to the human forces. Camouflage

Robot plays a vital role in saving human loses as well as the damages that occur during disasters. Thus, it will gain more importance in the upcoming era. The robot basically consists of a vehicle mounted with one camera, which captures the images and detects colour accordingly as a part of the camouflaging feature. The robot can quietly enter into enemy area and send information via camera
to the controller.

DEVELOPMENT OF TERRESTRIAL MOBILE ROBOT FOR EXPLORING AND MONITORING ENVIRONMENTAL PARAMETERS AT MINE ANALOGUE SITES USING IOT PLATFORM

ABSTRACT: Mining is one of the main activities in Andean Countries and occupational safety is one of the most important duties. Despite this, there has been an increase in the number of accidents, even the mortality rate is still high. Therefore, a Terrestrial Mobile Robot called "MineBot", integrated with Tele operation Open-Source technologies, has been proposed for exploring and detecting chemical and physical as well as biological agents within the underground mines for the purpose of keeping safe the place for workers. Endowed with both a strong Mechanical design and an intuitive Telerobotic system applying User Experience design principles as well as Navigation Control, and Environmental Monitoring systems along with an Internet of Things (IoT)
Platform storage.

DESIGN AND DEVELOPMENT OF BRIDGE MONITORING SYSTEM USING IOT

ABSTRACT: The bridges get damaged due to aging or damage due to natural calamities, the people will remain unnoticed of it. Then the bridges will be a danger to travel as it can collapse anytime and leads to disaster. So, continuous bridge checking must be done for better bridge health. For solving this problem, a design for continuous bridge monitoring has been proposed using wireless IoT technology. This proposed design helps in monitoring bridges and can also be applied for flyovers. The design consists of
monitoring devices as sensors like load sensor, water level sensor, vibration sensor and tilt sensor which are interfaced with communication devices.

IOT BASED MULTIPURPOSE AGRIBOT WITH FIELD MONITORING SYSTEM

ABSTRACT: The objective of this paper is to design, development and the fabrication of the Agribot which is a multipurpose bot can perform all the farming operations including ploughing the soil of the field, sowing seeds in the ploughing area, making the field in plain by using leveler, watering the crops, fertilizing them and monitor the agribot by using

camera. The traditional farming methods consume a lot of manuallabour. Some of the

operations are manual, while others are operated using manually operated machines. Therefore, there are no such robots, which can perform all these operations autonomously. In addition with this when the major fieldwork is done, the
farmer has to keep a check on the field for various reasons

IOT BASED AUTOMATED SHRIMP FARM AQUACULTURE SYSTEM

ABSTRACT: This project was conducted to identify the problems and rising issue that occurred in UMP neighbourhood especially in agriculture field. Upon researching, we found that the traditional way of monitoring the parameter of shrimp pond might be time consuming, extra labour, and less efficiency. Not only that, the maintenance of motor that keeps running 24 hours daily in order to keep the water at optimum level may have caused burden in cost. This study aimed to establish an IoT based monitoringsystem which employed an Embedded System and Smart Phone for shrimp farming management and problem solving using Raspberry Pi and Arduino Uno. The data
collected and comparative analysis from the manufacturer was applied in this project.

IOT BASED BABY MONITORING SYSTEM SMART CRADLE .

ABSTRACT: This paper is centered around a plan to develop a IOT based Smart baby cradle that would assist the Parents with monitoring and keeping an eye on their infants regardless of whether they are at home or at work and can identify each activity of the infants from any inaccessible corner of the world. It is a brilliant, imaginative and defensive Cradle System to support a newborn child in a productive manner. This framework considers all the moment subtleties that are needed for the consideration and insurance of the Baby in the support. The plan of keenness and development
accompanies the utilization of advancements which incorporate Internet of Things (IOT).

IOT BASED SMART SHOE FOR THE BLIND

ABSTRACT: IoT based Smart shoe system for the blind is a system made with the helpof ultrasonic sensors paired to an Arduino UNO board. Internet of things is all about making physical objects communicate with other objects or even with humans. It is an enabling technology which has a rapid development and growth in the market. In our India there are almost 40 million blind people among which 1.6 million are children. Blind people face great difficulty to travel independently. They have to depend on others in many aspects of their life. The Major problem is when they walk on the road. With a stick in hand they cannot detect every obstacle that comes in their way. The Smart shoe design provides a longterm solution for the blind to walk on roads
independently

IOT BASED SMART VEHICLE PARKING SYSTEM USING RFID

ABSTRACT: In the current decade, we are facing a parking problem with the advancement in technology. The population in urban cities is dense due to which lots of vehicles are running on the road leads to the parking problem, traffic problem. The world is facing the new challenge of Vehicle parking. It is observed that one million vehicles consume oil on daily basis. In this paper, an automatic real-time system for automated Vehicle parking is proposed. This system has been implemented with the help of the internet of things (IOTs). IOT generally exchanges information or data between the two physical devices. Arduino Uno is a microcontroller used in the proposed system.

IOT ENABLED DATA ACQUISITION SYSTEM FOR ELECTRIC VEHICLE

ABSTRACT: Electrical Vehicles (EV) are being embraced in the automobile sector in wake of increasing awareness regarding the environmental hazards caused by the toxic emissions caused by petroleum fueled vehicles. The workhorse of the EV is a high-current rating BLDC motor, fed from a secondary battery. Battery parameters and other related EV electrical observables have to be continually monitored, for multiple purpose related to research, industrial concerns, etc. With a futuristic vision for automated EVs, the scope of data acquisition and curation becomes even more crucial for proper upkeep of EVs. The proposed platform utilizes Internet of Things (IoT) sensors' data acquisition and cloud platform Thing Speak. The IoT sensors collect data sends to Cloud Platform through ESP2866(Wi-Fi Module) connected to sensors monitored by Laptop/smart phone. Thing Speak - a MATLAB based cloud platform has been used for graphical data display, and simplified analysis. The proposed IoT based Cloud Platform Data Acquisition is meant to improve scalability, safety, reliability and optimal operation of complex EV System.

SMART BIN FOR CLEAN CITIES USING IOT

ABSTRACT: Different attempts have been made so far all over the world for a cleaner and greener environment. Waste management is the need of an hour. To make the country a better place to live in, it should be made smarter. To view the locality a litter free zone, the Smart bin for clean cities using Internet of Things (IOT) has to be implemented. The main purpose for adapting this technology is to conserve the environment without exhausting the time, energy, wealth, etc. In this work with the help of sensors the bin level, presence of gas and humidity in the bin are monitored. The status of the bin is updated in the cloud, and it is indicated to the authorities and
to the garbage collectors using developed IoT based app. This will minimize the working hours and save money

SURVEY ON DEVELOPMENT OF SMART HEALTHCARE MONITORING SYSTEM IN IOT ENVIRONMENT

ABSTRACT: In recent days, people are easily affected by chronic diseases like heart attack, respiratory problems, mind stroke etc. Henceforth, it is very essential for common people to undergo health checkups to avoid any unanticipated health conditions. Since people are busy in their work, they tend to have all the services at the tip of their fingers. IoT healthcare monitoring system is one such smart and efficient technologies, which makes the human life more simple and easy. In this way, the smart healthcare monitoring technologies utilizes several sensors that can monitor the patient's daily health-related activities, collect the data from the sensors, store the data and further transmit the data to doctors, care takers or nurses through internet.

THE PRELIMINARY DESIGN OF WATER QUALITY MONITOR SYSTEM FOR THE ECOLOGICAL POND BASED ON LORA WAN

ABSTRACT: In the modern aquaculture, diverse environmental sensing in the application of intelligent monitoring system is receiving more and more attention. To monitor the water quality of aquaculture ponds, we design and develop a water quality monitoring system based on LoRaWAN. LPWAN (Low Power Wide Area Network) occupies an important place in IoT communication technology. LoRa (Low Range) is also one of the technologies, with the advantages of long distance and low power consumption which can extend the service life of power supply equipment. A system
realizes remote collection and data storage of multi-sensor processor information (temperature, pH, conductivity and turbidity levels).

WASTE CONTAMINATION IN WATER – A REAL TIME WATER QUALITY MONITORING SYSTEM USING IOT

ABSTRACT: Groundwater is one of the major sources of drinking water in most of the countries. Dumping of waste in landfill leads to the contamination of the underground water, which is termed as Leachate, which contains harmful organic and inorganic matters which makes the underground water unusable for consumption. This project proposes an IoT based water quality monitoring system and alerts the concerned authorities if the consumed groundwater is polluted. The proposed system uses
various sensors. Node MCU and is integrated with cloud infrastructure for database storage and for real-time dashboard maintenance of the measured parameters.

AUTOMOBILE BLACK BOX SYSTEM FOR ACCIDENT ANALYSIS

ABSTRACT: Automobiles and computing technologies are creating a new level of data services in vehicles. The Automobile Black Box has functions similar to an airplane black box. It is used to analyze the cause of vehicular accidents and prevent the loss of life and property arising from vehicle accidents. This paper proposes a prototype of an Automobile Black Box System that can be installed into vehicles. The system aims to achieve accident analysis by objectively tracking what occurs in vehicles. The system also involves enhancement of security by preventing tampering of the Black Box data. In addition, the Black Box sends an alert message to a pre-stored mobile number via Short Message Service (SMS) in the case of an accident.

SMART WIRELESS POWER TRANSMISSION SYSTEM FOR AUTONOMOUS EVCHARGING

ABSTRACT : the wireless charging system can self-determine the most efficient coil to transmit power at the EV's position based on the sensors activated by its wheels. To ensure optimal charging, our approach involves measurement of the transfer efficiency of individual transmission coil to determine the most efficient one to be used. This not only improves the charging performance, but also minimises energy losses by autonomously activating only the coils with the highest transfer efficiencies. The results show that with the proposed system it is possible to detect the coil with maximum transmitting efficiency without the use of actual power transmission and comparison of the measured efficiency.

AIRPORT BIOCRYPTIC EMBARKATION SYSTEM

ABSTRACT: Airport security system is mandatory in all developing and developed countries. The major threat to any country's economy, health and development is targeted and transported via airports which are evident from the past historical examples. The main objective of this paper is to develop a smart IOT based surveillance systems that is implemented in airport in smart screening without causing any unpleasant disturbances to the passengers. This paper makes use of the recently developed smart sensors, controller and Wi-Fi is connected via IOT and cloud and a remote station to effectively secure the airport area and overcoming all the real time challenges. Biometric systems are increasingly replacing traditional password and boarding passes authentication systems .

ALIVE SOLDIERS DETECTION IN WAR FIELDS AND SOLDIER HEALTH MONITORING SYSTEM USING IOT

ABSTRACT: In this project, a new approach for detecting alive humans in destructed environments using a mobile robot is proposed. Human detection in an unmanned area can be done only by an automated system. Alive human body detection system proposed a monitoring system using PIR sensor to analyze the conditions of human body. In order to detect a human body, a robot must be equipped with a specific set of sensors that provide information about the presence of a person in the environment around. This work describes a robot for rescue operations. The proposed system uses an PIR sensor in order to detect the existence of living humans. Additional, other sensors include temperature and gas detector to analyse the surrounding condition. This approach requires a relatively small number of data to be acquired and processed during the rescue operation. This way, the real-time cost of processing and data transmission is considerably reduced. This system has the potential to achieve high performance in detecting alive humans in devastated environments relatively quickly and cost effectively.

ELECTRIC VEHICLE DATA ACQUISITION SYSTEM

ABSTRACT: A data acquisition system for electric vehicles is presented. The system connects to the On-board Diagnostic port of newer vehicles, and utilizes the in-vehicle sensor network, as well as auxiliary sensors, to gather data. Data is transmitted continuously to a central database for academic and industrial applications, e.g. research in electric vehicle driving patterns, vehicle substitutability analysis and fleet management. The platform is based on a embedded computer running Linux, and features a high level of modularity and flexibility. The system operates independently
of the make of the car, by using the On-board Diagnostic port to identify car model and adapt its software accordingly.

LOW-COST MECHANICAL VENTILATOR FOR PATIENT MONITORING FOR COVID-19 PATIENTS

ABSTRACT: This paper shows the construction of a low-cost, open-source mechanical ventilator. The motivation for constructing this kind of ventilator comes from the worldwide shortage of mechanical ventilators for treating COVID-19 patients—the COVID-19 pandemic has been striking hard in some regions, especially the deprived ones. Constructing a low-cost, open-source mechanical ventilator aims to mitigate the effects of this shortage on those regions. The equipment documented here employs commercial spare parts only. This paper also shows a numerical method for monitoring the patients' pulmonary condition. The method considers pressure measurements from the inspiratory limb and alerts clinicians in real-time whether the patient is under a healthy or unhealthy situation. Experiments carried out in the laboratory that had emulated healthy and unhealthy patients illustrate the potential benefits of the derived mechanical ventilator.

AN EYE ON HYDROPONICS: THE IOT INITIATIVE

ABSTRACT: The need for the soil in agriculture is crucial and its role is prominent. But the process o f urbanization takes away the land in larger areas. So continuous cropping on the rest of the land makes the soil to lose it's fertility as all the nutrients are consumed. In quest of an alternative solution, we have gone through the Hydroponics. In this paper, we integrate IoT into our solution and also reduce power consumption by utilizing Solar Energy. Hydroponics is a special type of farming where the growth of plants takes place in a soil-free medium, provided with a blend of water along with nutrients. As an alternative for soil, we are here using Rockwool as support for plants to withstand.

WOMEN SAFTEY USING IOT

ABSTRACT: The crimes against women have been rising significantly and often hear about molestation, eve-teasing and rape cases in the public places of the society. The security of women is the most important concern these days and to build a safety device to act as a rescue and to prevent from harm at the time of hazard is highly necessary especially for women. In this paper, a smart device for women's safety which automates the emergency alert system by using pressure sensor, pulse-rate sensor and temperature sensor to detect a possible atrocity automatically using outlier detection is proposed. This system detects and sends the alerts for the dear ones with the location coordinates of the women without the requirement of her interaction in critical times. It sends an emergency message automatically to the relatives and nearby police station.

TRANSMISSION LINE FAULT MONITORING AND IDENTIFICATION SYSTEM BY USING INTERNET OF THINGS

ABSTRACT: The fault location detection has been a goal of power system engineers, since the creation of distribution and transmission systems. Quick fault detection can help protect the equipment by allowing the disconnection of faulted lines before any significant damage of the equipment. The accurate fault location can help utility personnel remove persistent of the faults and locate the areas where the faults regularly occur, thus reducing the occurrence of fault and minimize the time of power outages. As a result, while the fault location detection schemes have been developed in the past, a variety of algorithms continue to be developed to perform this task more accurately and more effectively. The detection and location of faults on power transmission lines is essential to the protection and maintenance of a power system.

DESIGN AND IMPLEMENTATION OF REAL TIME MONITORING OF BRIDGE USING WIRELESS TECHNOLOGY

ABSTRACT: The bridges get damaged due to aging or damage due to natural calamities, the people will remain unnoticed of it. Then the bridges will be a danger to travel as it can collapse anytime and leads to disaster. So, continuous bridge checking must be done for better bridge health. For solving this problem, a design for continuous bridge monitoring has been proposed using wireless IoT technology. This proposed design helps in monitoring bridges and can also be applied for flyovers. The design consists of monitoring devices as sensors like load sensor, water level sensor, vibration sensor and tilt sensor which are interfaced with communication devices.

IoT BASED ANTI-POACHING ALARM SYSTEM FOR TREES IN FORESTS

ABSTRACT: Now-a-days, there are many incidents happening about smuggling of trees like Sandalwood which are very expensive and rare in nature. Smuggling of sandalwood has created many law and order problems in India. Also, India's economy has been greatly effected through these incidents. The main objective of our project is to deploy a system which can be used to restrict these kind of incidents like smuggling of sandalwood trees. This project design uses three different sensors namely, temperature sensor(to detect forest fires),Mems accelerometer(to detect the inclination of tree which is being cut),sound sensor(for effective detection of illegal logging of trees i.e.the sounds generated while axing the tree is sensed).Data generated from these three sensors is continuously monitored by the forest officials with the help of BLYNK IOTserver and app.

DESIGN OF AN IOT-BASED MOUNTAINEERING TEAM MANAGEMENT DEVICE USING KALMAN FILTER ALGORITHM

ABSTRACT: The heart rate and body temperature for the mountaineering user is very import to detect their life risk factor. Amidst the emergence of wearable and Internet of Things (IoT) devices, exercise and leisure-related wearable devices have exhibited the most growth in popularity. While many exercise related wearable devices are available, few have been designed for group interactions. This paper proposes an IoT- based mountaineering team management device to effectively assist mountaineering guides in leading mountaineering teams. The device can monitor the real-time physiological status and coordinate of each team member, and uploads the information to the cloud service platform via the fourth generation (4G) mobile Internet.
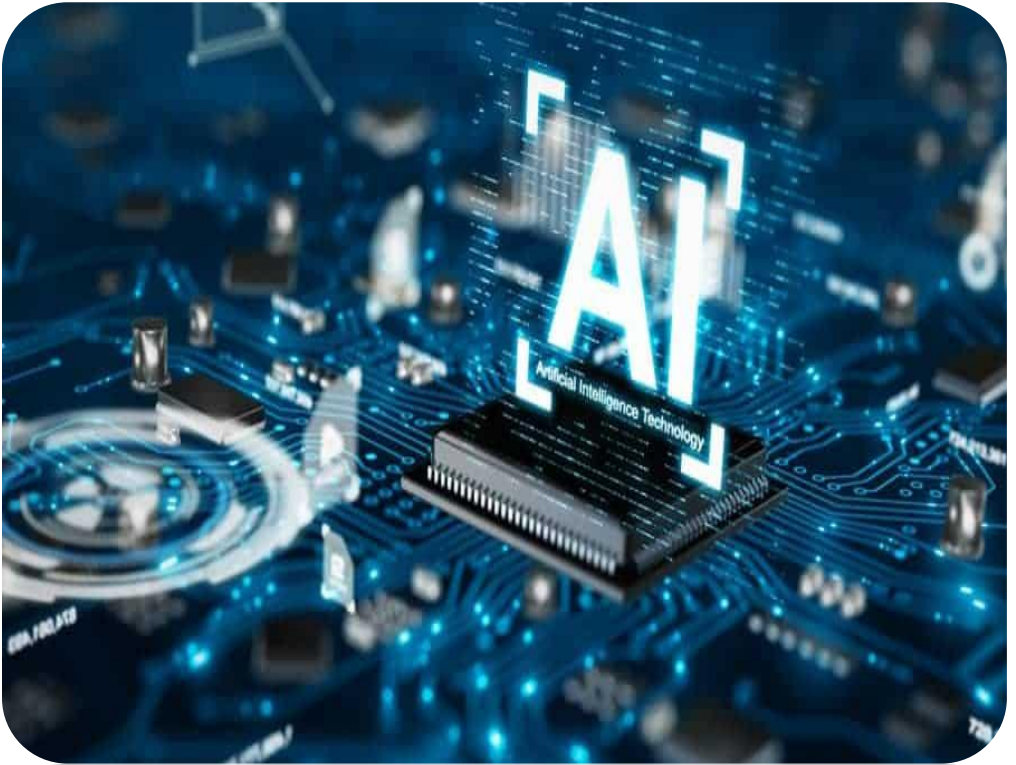
LATEST ARTIFICIAL INTELLIGENCE PROJECTS WITH HARDWARE

HAWK-EYE: AN AI-POWERED THREAT DETECTOR FOR INTELLIGENT SURVEILLANCE CAMERAS

ABSTRACT: With recent advances in both AI and IoT capabilities, it is possible than ever to implement surveillance systems that can automatically identify people who might represent a potential security threat to the public in real-time. Imagine a surveillance camera system that can detect various on-body weapons, masked faces, suspicious object. This system could transform surveillance cameras from passive sentries into active observers which would help in preventing a possible mass shooting in a school, stadium or mall. In this paper, we present a prototype implementation of such systems, Hawk-Eye, an AI-powered threat detector for smart surveillance cameras. Hawk-Eye can be deployed on centralized servers hosted in the cloud, as well as locally on the surveillance cameras at the network edge.

SMART BORE WELL CHILD RESCUE SYSTEM THROUGH WIRELESS MONITORING USING ARTIFICIAL INTELLIGENCE

ABSTRACT: India is horticulture-based nation, farmers or ranchers essentially depend by and large upon groundwater for their fundamental water system necessities. Ensuing to the essential prerequisite yielding of the water, the drag wells would have commonly left uncovered. So that, most by a wide margin of children adventitiously pushes toward the well and falls into it, which is the principal reason for these misery debacles eventually. Lately, numerous cases have been accounted for of kids getting caught in bore wells which take life of the kids and are a bad dream for guardians. There is a clear requirement for building up a security and salvage framework for kids to safeguard from bore well. numerous odds of human mistake.

REVAMPING SUPERMARKETS WITH AI AND RSSI

 ABSTRACT—Super markets are mushrooming in every city as shopping has became a daily activity. An average person goes to shopping 1.6 times in a week and spends approximately 40 minutes there per visit. This sum up to around 60 hours every year. Around

15 of the time spent in the supermarkets is wasted due long billing queues andweighting for the turn. On public holidays and special discount days, there will be a significant upsurge in the number of customers. With the present system it sometimes becomes difficult to manage the rush. The traditional way of shopping in which people put the articles in the shopping cart and wait in the long queues at the billing counter is being followed pretty much since the opening of first supermarket.

SMART SERICULTURE SYSTEM BASED ON IOT AND IMAGE PROCESSING TECHNIQUE

ABSTRACT: The following paper gives a Sharp view of technological innovation in underperforming agricultural branches such as sericulture, and it explains the system and techniques to be employed to increase the quality and productivity in the sericulture. In this brief communication, thepaper will present how the complicated process such as monitoring the environmental parameters such as humidity, temperature and rain also with the health of the silkworm. Simultaneously improving quality of silk by controlling environmental parameters and proper aggregation of cocoons are done. All these operations are achieved by using Arduino aided internet of things (IoT), image processing technique and smart sensors.

ARTIFICIAL INTELLIGENCE BASED SMART DOOR WITH FACE MASK DETECTION

ABSTRACT: In this pandemic situation, health plays an important role in everyone's life. Most of the people are not aware of preventing themselves and their surroundings from this pandemic. Face mask is essential to prevent ourselves and others. So, people are in need to wear face mask regularly. People who visit home won't wear mask due to their unawareness which may affect people. People may not know if someone visits their home when they are not there. AI based smart device (Raspberry pi with AI model with camera) is proposed in this project which identifies whether a person is wearing face mask and gives us an alert message (via mobile app). This device is integrated with a mobile app. Mobile app identifies if someone enters home when
people are not physically present in their home

SERVICES

DOORS OF TECHNOLOGY

- IEEE ĪRANSACĪIONS ONEMBEDDEDSYSĪEMS
- IEEEĪRANSACĪIONSONARĪIFICIALI NĪELLIGENCE
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- IEEEĪRANSACĪIONSONROBOĪICSW
- IRELESSCOMMUNICAĪION

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- IEEE ĪRANSACĪIONS ONPYĪHON
- IEEEĪRANSACĪIONSON INĪERNEĪOFĪHINGS
- MECHANICALFABRICAĪIONS

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