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Department of CSE [Artificial Intelligence & Machine Learning]

FACULTY PATENTS LIST (A.Y.2022-23)

S. No	Application Number	Title of The Patent	Name of the Faculty	Patent Office Journal No	Published Date	Status
1	202241035708	Detecting And Monitoring/Controlling Sound Pollution By Making Use Of Machine Learning	Dr. S Rao Chintalapudi M. Ravindran V. Ravindernaik	26/2022	01/07/2022	Published
2	202241058757	Autonomous Vehicle Control (AVC): A System to Prevent Accidents in the Context of Autonomous Vehicle	Dr. G. Vinoda Reddy	42/2022	21/10/2022	Published
3	202241062492	Feature Selection Using Multi-Objective Clustering Based Gray Wolf Optimization For Big Data Analytics	Dr. Mahesh Kotha	45/2022	11/11/2022	Published
4	202241070205	Artificial Inteligence And Machine Learning To Secure Iot In Industrial Environment	Swaroopa Rani B	26/2022	30/12/2022	Published
5	202341002755	Design And Implentation Of Smart Card Based Automobile Parking System Using Rfid Reader	Dr. Vinoda Reddy	04/2023	27/01/2023	Published
6	202341024462	An Iot Based Crop Recommendation System To Maximize Crop Yield Using Adaptive Deep Neural Network Model	Dr. Vinoda Reddy, Syeda Sumaiya Afreen	15/2023	14/04/2023	Published

7	202341032029	Deep Learning Based Sensitivity Analysis Of Electric Energy Consumption In Battery Electric Vehicles With Different Electric Motors	Mamatha B	25/2023	23/06/2023	Published
8	389056-001	Iot Based 3-D Printers	Dr.Md.Mohammad Shareef	NA	26/06/2023	Granted
9	388660-001	Machine Learning-Based Humaniod Device For Object Identification	Bushra Tarannum	NA	19/06/2023	Granted

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :22/06/2022

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(54) Title of the invention : DETECTING AND MONITORING/CONTROLLING SOUND POLLUTION BY MAKING USE OF MACHINE LEARNING

(51) International classification	:G01H0003080000, G01F0023296000, G10L0021000000, G10L0019000000, G06N0005000000
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(57) Abstract :

Abstract of the Invention: The designed model will capture the sound from the environment and then the same which is in analog format will be converted to digital form and it is stored in the computer. Sound wave frequencies can be measured with a frequency counter or with a spectrum analyzer. These devices work by using a microphone to convert the sound wave into an electrical signal. The peaks and valleys of wave are counted to find the frequency. We measure sound intensity (also referred to as sound power or sound pressure) in units called decibels. Decibels (dB). A low-frequency sound has fewer waves, while a high-frequency sound has more. Sound frequency is measured in hertz (HZ) and is not dependent upon the medium the sound is passing through. Time Period - The time period is almost the opposite of the frequency. Sound waves travel at the same speed but vibrate in different ways. Some vibrate quickly and have a high frequency or pitch, while others vibrate slowly and give a lower pitch. When an object vibrates very fast it makes a high pitch sound. E.g. - A mouse can make a high squeak, because the sound made by the mouse vibrates very fast. The higher harmonics make the note sound louder partly because they add extra power to the sound wave, but also because our ears become more sensitive as the frequency increases with increasing frequency (at least up to about a kHz). Sound is the continual vibration of air particles and is an analogue signal. Therefore, we need to convert sound into binary to be able to process and store it using a computer. A sound card translates between the outside world's analogue information and a computer's digital information. Sounds created on a computer exist as digital information encoded as audio files. Digital sound is broken down into thousands of samples per second. Each sound sample is stored as binary data. Factors that affect the quality of digital audio include: sample rate - the number of audio samples captured every second. Bit depth - the number of bits available for each clip. Bit rate - the number of bits used per second of audio. The higher the frequency waves oscillate, the higher the pitch of the sound we hear. As you see, sound frequency is determined by the way in which sound waves oscillate whilst travelling to our ears, meaning that they alternate between compressing and stretching the medium, which in most cases is air. Once the data which is the sound is stored in digital format then the data will be processed by the model in order to check whether the data is of high frequency sound or low frequency sound. The task of classification here is done by the classification algorithm of machine learning and based on the outcome of the algorithm, the sound which is captured is labelled as high frequency beyond a threshold level or it is placed in a category of low frequency which is in the limits of given threshold level. Once the detection and classification process is complete then the device or the object which has generated this kind of sound which is beyond threshold level is identified and the message is passed to the same on the basis of the outcome generated by the machine learning model. Which is designed Once the object which has created this kind of sound is recognition then the information is passed to the object by identification and then accordingly certain measures are taken in order to see that the same is not repeated by the same object again and again. This will help to reduce the sound pollution which is increasing day after day in the urban areas. The overall concept of designing the framework is to see that the sound generated or created is captured or tapped and then the same is converted and stored in a system which then can be given as an input to the model which is designed and later the outcome of the model is passed on the device or the object created the sound causing sound pollution in the urban areas. All this will happen in span of seconds so that the idea of identification and controlling is hampered. The use of machine learning is to see that the different frequency sounds are recorded and then they are classified to make all this controlling possible.it becomes much easier if the same is done by creating a model and then up training the same is used for the purpose of classification.

No. of Pages : 21 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
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(54) Title of the invention : Autonomous Vehicle Control (AVC): A System to Prevent Accidents in the Context of Autonomous Vehicle

(51) International classification :G05D0001020000, G05D0001000000, G08G0001010000, G01S0017931000, G08G0001160000
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Filing Date :NA

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(57) Abstract :
[05] The objective of this work is to propose, implement and evaluate a system called Autonomous Vehicle Control (AVC), which is designed to be used in fully autonomous vehicles (without any human interaction). The main motivation of this work is to design a system that is capable of providing greater safety to the vehicle and its occupants when compared to other configurations of systems other than the AVC system. The AVC configuration is based on separating the control system into two independent layers, the Autonomous Vehicle Operation (AVO) layer and the Autonomous Vehicle Protection (AVP) layer. As mentioned in the work, the main characteristic of the AVC system is the presence of the AVP layer. This layer monitors the environment around the vehicle and its status in order to identify and avoid dangerous events and/or conditions. Thus, this proposal grants an extra layer of protection without interfering with the control algorithm (whatever it may be) present in the AVO layer - responsible for coordinating the vehicular mission. Therefore, it is concluded that the objective of the work is achieved as expected. Accompanied Drawing [FIG. 1] [FIG. 2] [FIG. 3] [FIG. 4] [FIG. 5]

No. of Pages : 22 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :02/11/2022

(21) Application No.202241062492 A
(43) Publication Date : 11/11/2022

(54) Title of the invention : FEATURE SELECTION USING MULTI-OBJECTIVE CLUSTERING BASED GRAY WOLF OPTIMIZATION FOR BIG DATA ANALYTICS

(51) International classification	:G06K0009620000, H04L0005000000, G16H0050700000, G16H0050300000, H04L0067610000
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(87) International Publication No	: NA
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(57) Abstract :
Dimension reduction or feature selection is thought to be the backbone of big data applications in order to improve performance. Many scholars have shifted their attention in recent years to data science and analysis for real-time applications using big data integration. It takes a long time for humans to interact with big data. As a result, while handling a high workload in a distributed system, it is necessary to make feature selection elastic and scalable. In this study, a survey of alternative optimizing techniques for feature selection is presented, as well as an analytical result analysis of their limits. This invention contributes to the development of a method for improving the efficiency of feature selection in big complicated data sets.

No. of Pages : 8 No. of Claims : 7

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(19) INDIA
(22) Date of filing of Application :05/12/2022

(21) Application No.202241070205 A
(43) Publication Date : 30/12/2022

(54) Title of the invention : Artificial Intelligence and Machine Learning to Secure IoT in Industrial Environment

(51) International classification :G06F0016280000, G06N0020000000, H04L0067610000, G06F0008350000, H04L0067565100
(86) International Application No :PCT//
Filing Date :01/01/1900
(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 document discloses systems, methods, and devices for a cyber physical Internet of Things (IoT) software application development platform based upon a model driven architecture, as well as derivative Internet of Things software as a service applications. Concentrators may be included into the system in order to receive and transmit time-series data from sensors or intelligent devices. Message decoders may be included in the system. These would be responsible for receiving messages that included the time-series data and storing them on message queues. The system could include a persistence component that stores the time-series data in a key-value store and the relational data in a relational database. If it does, then the time-series data would be accessible via the relational database. A data services component might be included in the system in order to construct a type layer on top of the data storage. A processing component that may access and process data stored in the data stores through the type layer may also be included in the system. This processing component may comprise both a batch processing component and an iterative processing component.

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :13/01/2023

(21) Application No.202341002755 A
(43) Publication Date : 27/01/2023

(54) Title of the invention : DESIGN AND IMPLEMENTATION OF SMART CARD BASED AUTOMOBILE PARKING SYSTEM USING RFID READER

(51) International classification :G06Q0020340000, G07F0007100000, G06K0019070000, G06K0019077000, G06K0007000000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
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Filing Date :NA

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(57) Abstract :
Abstract Today, in our worldwide evolution, no one will go anywhere without a car, both businesspeople and employees. Most people use their automobiles mostly in cities for commuting to work, shopping, and other purposes. The primary issue, however, is where to park these vehicles because, in some locations, there may not be enough space for all the cars to park, making it quite crowded. A smart card is often an embedded system chip with storage that can decide things. Any pocket-sized card having integrated electronic components that can acquire knowledge is referred to as a smart card, microchip card, or electronic circuit card. In this project, we're employing a contact smart card, which communicates its contents to the card reader by being inserted into the reader. When a legitimate user with a card enters the parking garage of an accommodation, business, or residential area, the card is recognized and permits the staff to open the gate for automobile parking; if the cards is not authorised at that community, an alarm is triggered to alert the staff members.

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :31/03/2023

(21) Application No.202341024462 A
(43) Publication Date : 14/04/2023

(54) Title of the invention : AN IoT BASED CROP RECOMMENDATION SYSTEM TO MAXIMIZE CROP YIELD USING ADAPTIVE DEEP NEURAL NETWORK MODEL

(51) International classification :A01D 411270, G06K 096200, G06N 030400, G06N 030800, G06Q 500200
(86) International Application No :PCT//
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(87) International Publication No : NA
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(57) Abstract :
ABSTRACT AN IoT BASED CROP RECOMMENDATION SYSTEM TO MAXIMIZE CROP YIELD USING ADAPTIVE DEEP NEURAL NETWORK MODEL The prediction of the right crop at the right place at the right time will be extremely helpful in increasing the crop yield, which also results in economic proliferation. Machine learning is an emerging technique in the field of agriculture in various ways, including soil classification, soil nutrient analysis, crop prediction or suggestion. Deep learning has previously been utilized to construct decision support systems in a variety of fields with the help of Deep Neural network. As a result, there's an incentive to use it in other essential areas like agriculture. A prospective study area has been predicting which crop to grow based on environmental, soil, water, and crop factors. Farmers may use an accurate crop recommendation model to help them determine what to grow and when to grow it. Crop Recommendation Systems are approached in different ways Based on the given input, the model applies an extreme learning machine, a fast learning classifier algorithm, for suggesting the appropriate crop to its users. ML-based model, Smart Crop Selection (SCS), which is based on data of metrological and soil factors. These factors include nitrogen, phosphorus, potassium, CO2, pH, EC, temperature, humidity of soil, and rainfall. Existing IoT-based systems are not efficient as compared to our proposed model due to limited consideration of these factors. In the drafted work, real-time sensory data is sent to Firebase cloud for analysis. Multiple Linear Regression leverages prediction of the rainfall in future, a much-desired information for the health of any crop and also visualized on the Android app.

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

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/05/2023

(21) Application No.202341032029 A
(43) Publication Date : 23/06/2023

(54) Title of the invention : DEEP LEARNING BASED SENSITIVITY ANALYSIS OF ELECTRIC ENERGY CONSUMPTION IN BATTERY ELECTRIC VEHICLES WITH DIFFERENT ELECTRIC MOTORS

(51) International classification	:B60L 538000, G01R 313400, G06F 216200, G06N 030400, G06N 030800
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(57) Abstract :
Deep Learning based sensitivity analysis of Electric Energy Consumption in battery electric vehicles with different electric motors is the proposed invention. The invention focuses on implementing the Deep Learning based algorithms for sensitivity analysis of electric energy consumption. The present invention aims at studying the battery life in Electric Vehicle with different electric motors.

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INTELLECTUAL PROPERTY INDIA
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सत्यमेव जयते

ORIGINAL
क्रम सं/ Serial No. : 142576

पेटेंट कार्यालय, भारत सरकार The Patent Office, Government Of India

डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं./ Design No. : 389056-001

तारीख / Date : 26/06/2023

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डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अध्यधीन प्रावधानों के अनुसरण में।

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