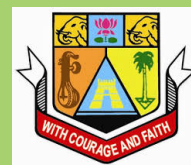




# The Abstracts of Patents



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## **CYCLOMETALATED IRIIDIUM (III) COMPLEXES FOR LIGHT EMITTING DIODES**

**JAYABHARATHI JAYARAM ,  
THANIKACHALAM VENUGOPAL  
(292301)**

**Awarded**



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The present invention provides green light emitting Iridium (III) complexes of formula [I] with high quantum efficiencies, wherein L-X is a monoanionic bidentate ancillary ligand selected from the group consisting of 3-trifluoromethyl-5-(pyridine-2-yl)-1,2,4-triazole, 3-trifluoromethyl-5-imidazole-1,2-triazole and 3-trifluoromethyl-5-pyridinyl-1,2-diazole.



## **A PROCESS FOR HYDROGEN PRODUCTION FROM ANACARDIUM OCCIDENTAL (CASHEW APPLE) FRUITS**

**SIVAGURUNATHAN.P ,  
SIVASANKARI.S (298041)**

**Awarded**



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The present invention provides the technology for the production of hydrogen from tropical fruit feedstock. Wherein the Cashew apple, (*Anacardium occidentale*) rich in reducing sugars (fructose and glucose), vitamins, minerals, and some amino acids. *Citrobacter freundii* (MTCC 2420) metabolizes the organic material at elevated temperature and pH levels that are specific to the nitrogen fixing microbes. Individual colonies of *Citrobacter freundii* are contained within the production system, providing a sustainable level of hydrogen production. The *Citrobacter freundii* metabolites organic material in the organic feed material in substantially a 1:4 ratio with water and produces hydrogen. The environment in the production medium is preferably maintained between about 4.5 -7.5 pH. The present invention provides a simple and cost-effective way to produce by selectively harnessing hydrogen production by selectively bacteria utilizing organic sugar based solutions; it results in maximum hydrogen production with a reduced amount of energy utilization.



## **MEMS PRESSURE SENSOR BASED ON PULSE WIDTH MODULATION (PWM) TECHNIQUE**

**DR. R. JOSEPH DANIEL ,  
MRS. K.SIVASUNDARI  
(2884/CHE/2014 A)**

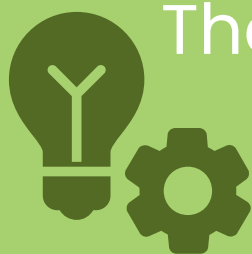
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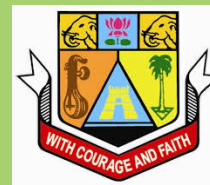
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The present invention relates to a novel type of pressure sensing mechanism for pressure measurement. The proposed mechanism converts the applied pressure into equivalent PWM signal with new innovative and simple structure. The simple structure has been developed in micro electro mechanical system technique. By the sensing method proposed the pressure measured can be transmitted as voltage output from the designed MEMS pressure sensor. Hence the additional signal conditioning circuits required for converting the sensed pressure to electrical output is not needed. Thus making the pressure sensor as a standalone transducer which can be used in application where static pressure has to be measured.



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## PREPARATION, METHOD AND USES OF AMIDE BENZOTHIAZOLE DERIVATIVES FOR THE TREATMENT OF DIABETES

MRS. S. AMUTHALAKSHMI,  
**DR. A. ANTON SMITH**  
(1624/CHE/2014 A)

The present invention is related to the use of benzothiazole derivatives for the diabetes treatment. A method has been developed to synthesize benzothiazole derivatives from 2-amino benzothiazole using chloroacetyl chloride. Upon acetylation, the intermediate is simply condensed with various aromatic amines. The compound formation is confirmed by the spectral studies. The antidiabetic activity of the compounds is found to be good.

**Published**



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## CREATING ENSEMBLE CLASSIFIERS USING RESAMPLING METHODS

**Dr.M.Govindarajan ,**  
Dr.A.Mishra  
(201741007727)

An ensemble framework is proposed to find highly accurate classifier by fusing many moderately accurate component classifiers with resampling methods as bagging and arcing and their performances are analyzed in terms of accuracy. A classifier ensemble is designed using Radial Basis Function (RBF) and Support Vector Machine (SVM). The proposed ensemble methods are based on three main parts: preprocessing, classification, and resampling. A wide range of comparative experiments are conducted for data mining problems and their results show that the proposed ensemble methods exhibit higher accuracy compared to individual classifiers. Thus, the ensemble framework provides significant improvement of efficiency in learning the classifiers and the accuracy of classification performance.



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## 2-SUBSTITUTED BENZYLIDENE-4-PHENYL-3A,4- DIHYDRO-2H-THIAZOLO[3,2- A]QUINAZOLINE-1,5-DIONE

Dr.T. Panneerselvam,  
**Dr. R. Suresh,**  
Dr. P. Parasuraman  
(201741032775 A)

The present application relates to a novel series of 2-substituted benzylidene-4-phenyl-3a,4-dihydro-2H-thiazolo[3,2-a]quinazoline-1,5-dione and pharmaceutically acceptable salts thereof, and further relates to a method of using such compounds, and process of preparing such compound.

**Published**

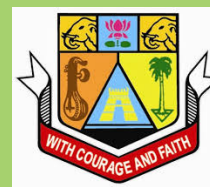


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## **INTEGRAL LARVAL GRUB COMPOSTING REACTOR**

Atun RoyChoudhury,  
**Dr. V. Arutchelvan**  
(201841006270 A)

**Published**



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[https://www.annamalaiuniversity.ac.in/download/NAAC/SSR\\_2020/C3/343/2019\\_1.pdf](https://www.annamalaiuniversity.ac.in/download/NAAC/SSR_2020/C3/343/2019_1.pdf)

The Integral Larval Grub Composting Reactor (ILGCR) is undoubtedly one of the best bioreactor systems which have been fabricated with an intention of wholesome waste treatment under a single platform. Unlike the existing reactors, the above-mentioned novel reactor is capable of addressing a wide variety of solid and liquid waste via the decomposition activity. The reactor is capable of auto pupal segregation. It has been designed such a way that it strengthens the zero discharge concept. In the case of conversion the utmost attention use to be paid towards the 1st inster stage namely, larva and the innovative technique prolongs the larval period and hence the treatment efficiencies get increased in attributed to the minimization of the treatment period (i.e. 2 weeks). Additionally, it accelerates the body growth factor of the larvae and it has found that the larvae introduced to this reactor grow approximately double to the larvae introduced to the existing bioreactors which are readily available in the market. Due to the multiple beneficial and novelty components, the above technology clearly gains superiority over the conventional bioreactor system.



## **SURFACE CRACK INDENTIFICATION USING COMPUTER AIDED DETECTION SYSTEM EMPLOYING IMAGE PROCESS TECHNIQUE**

**Dr. R. VARAHAMOORTHY,**  
A. UMESHBALA, Dr. K.J. SABAREESAN,  
Dr. G. MURALI, Dr. J. JAYA  
(201941014639 A)

**Published**



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[https://www.annamalaiuniversity.ac.in/download/NAAC/SSR\\_2020/C3/343/2019\\_2.pdf](https://www.annamalaiuniversity.ac.in/download/NAAC/SSR_2020/C3/343/2019_2.pdf)

The present invention discloses a method and system for surface crack identification using image processing techniques. Said metal crack identification system through CAD system (1) comprise of at least a SEM photography instrument (10), an operating system (2)with storage unit (13) and processor (14), a display unit (15) and power supply means (16) wherein said storage unit (13) is interconnected with the processor (14) and the processed images are displayed in display unit (15). Said operating system processes the images through numerical computing software preferably in MATLAB environment. Surface crack identification system helps to improve accuracy, life time and performance of the products and thereby reduces the failures, material. wastage and manufacturing cost of the manufacturers



## **METHOD FOR MINIMIZING POWER CONSUMPTION OF IOT BATTERY USING PACKET FILTRATION APPROACH**

Dr.M.Joseph Auxilius Jude, V.C.Diniesh,  
Dr.G.Murugesan, E.M.Jayanth,  
Dr.K.S.Tamilselvan, **Dr.K.Selvakumar,**  
M.Suresh, Dr.Mohammad Israr, Dr. Parul  
Gupta, Dr. Hitesh Panchal, Dr. Ravindra  
Pathak, Radhey Shyam Meena, K.  
Mahendran (201911038413 A)

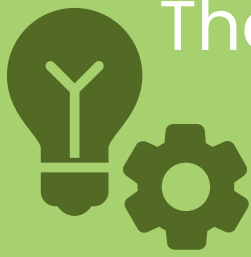
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The present invention relates to method for energy management for the battery of an Internet of Things Sensor associated with an Internet of Things system. The disclosure present a novel packet filtration approach to minimize transmission of redundant packets and energy consumption of the processor and transceiver modules, which in turn extend the sensor device battery life for a longer duration.



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## **A PORTABLE SUBTALAR ARTHROMETER AND A PROCESS THEREOF**

**V. Pasupatham,**  
S. Sathishbabu  
(201941006634 A)

**Published**



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The range of motion is an important component in the physiotherapeutic assessment of foot and ankle injuries. As the range of motion decreases, strength and power decreases, which may lead to poor ankle and sub-talar joint performances. As these joint performance getting worsen with ageing, sports and occupational injuries, it might influence on functional activity like dynamic balance and etc. Studies pertaining to various methods of measuring sub-talar movements are meagre. This leads to ignoring the same by the health professionals in the process of measuring the range. In light of the above, the present disclosure provides a tool named as "Subtalar Arthrometer™". In addition, the present disclosure provides an easy to carry, portable, subtalar arthrometer and also provides a simple and easy method to measure the range of motion. The device of the present disclosure could also be used to measure the supination and pronation of the forearm.

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## **LM13 ALUMINIUM ALLOY STEEL FIBER REINFORCED COMPOSITES FOR AUTOMOBILE PISTONS**

Dr.C.Samson Jerold Samuel, Dr.A.Ramesh,  
S.Gnanasekaran, S.Sivananthan, M.Vimal Raja,  
Dr.A.Umesh Bala, G.Arulprakasam, C.Subramanian,  
**Dr.R.Varahamoorthi,** B.Prakash, Mr.T.Vignesh,  
Dr.K.Balasubramanian (202041005537 A)

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Copper coated steel fibers reinforced LM13 aluminium alloy composites have been prepared using stir casting process. Experiments have been designed using response surface methodology (RSM) by varying wt% of reinforcement (0 - 10), stirrer speed (350 800 rpm) and pouring temperature (700 800 °C). Microstructure, tensile strength and fracture surface of composites have been investigated. Analysis of variance, significance test and confirmation tests have been performed and regressions models have been developed to predict the tensile strength of composites. Response surface plots reveal that tensile strength of composites increases with increasing wt% of copper coated steel fibers reinforcement up to 6 wt%. Further increase in wt% of steel fibers decreases the tensile strength of composites. However tensile strength of composites increases with increasing stirrer speed due to the uniform and homogeneous dispersion of steel fibers in matrix. Optimum stir cast process parameters for obtaining higher tensile strength are found to be 5.9 wt% of reinforcement, 753 °C pouring temperature and stirrer speed of 633 rpm. Fracture mechanism is dominated by steel fibers pull out in composites with higher wt% of reinforcement and dimples are observed in the surface of composites contains lower levels of wt% of reinforcement.

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## **FACE DETECTION MODULE**

Dr.P. SRINIVASAN, Dr.B. KARUNAMOORTHY,  
Dr.N. V. KOUSIK, **Dr.D. SURESH,** Dr. A. SAGAI  
FRANCIS BRITTO, Dr. M. PREMKUMAR, Dr. S.  
GUNASEKARAN, Mr. N. YUVARAJ  
(202041001944 A)

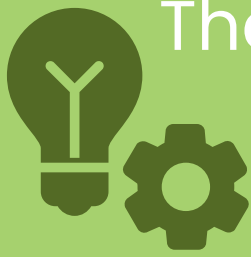
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The present invention relates to a method for facial recognition. Specifically, the present invention relates to a method for adjusting/correcting lighting or pose prior to recognition and authentication. The method comprises FNN, lighting normalization and FNN for fast and accurate face recognition.



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## **CONTROL OF BRUSHLESS DC MOTOR**

**N. Veeramuthulingam,**

Dr. A. Ezhilarasi,

Dr. M. Ramaswamy

**(202041055029 A)**

**Published**



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This invention relates to improving the quality of the power delivered to the Brushless DC motor in terms of lowering of total harmonic distortion (THD) and increasing the fundamental component of the output voltage of the voltage source inverter (VSI). The efforts underscore a fresh framework wherein the BLDC motor extracts power from a renewable solar PV and further introduces a change in the topology for the boost converter through which it facilitates reducing the ripple of the dc link voltage. It involves a maximum power point controller in the front end and a closed loop model reference adaptive control (MRAC) where from it generates the reference wave to generate the pulses to operate the switches in the VSI and thereby extradiate the regulatory and disturbance rejection characteristics for the motor. The experimental results obtained using a prototype validate the MATLAB based simulation performance and project the claim of the control methodology for its use in real world applications.

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## **IOT BASED AUTOMATION OF WATER SUPPLY AND THEFT IDENTIFICATION**

**Dr. T. PONNARASI,** Dr. Y. BRUCELY

Dr. G. NIRMALAPRIYA, S. SHEELA, S. PRABAKARAN

J. REEGAN, Dr. M. SINDHUJA, J. PRAKASH

Dr. D. KARUNKUZHALI **(202041051860 A)**

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This invention proposes an embedded based remote water monitoring and theft prevention system by recording the flow rates at the consumer/user end. Each consumer is provided with an embedded based water flow monitoring system consisting of a microcontroller to record the flow rate using a flow sensor and to transmit the same to a remote monitoring station using wireless transmitter and it is also provided with an electrically operated solenoid valve to supply water to the consumers. The valve turns on/off to stop the water supply whenever the flow rate exceed a predefined limit. The solenoid valves are also controlled using real time clock to control flow of water accordingly for a fixed duration of time. An IoT module for wireless communication is provided so that the information can be forwarded to particular responsive officer's cell phone for immediate action.

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## **COPY MOVE FORGERY DETECTION USING FEATURE EXTRACTION AND RNN CLASSIFIER IN VIDEO FRAMES**

**S.DHIVYA,** Dr.B.SUDHAKAR

Dr.J.SANGEETHA, Dr.P.MADHAVAN

**(202041045622 A)**

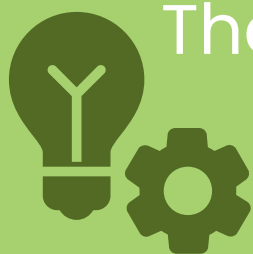
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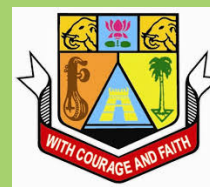
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Image processing is a strategy to change over a picture into an advanced structure and play out certain activities on it. to get an improved picture or to separate some valuable data from it. The videos can now be altered and manipulated easily using improved multi frame-resolution cameras and softwares available in internet for making counterfeit output. According to a recent survey, the flicker has a information of 350 million photographs with more than 1 million manipulated each day and Facebook has more than 50 million exchanges of altered pictures. Manipulation in video alters its original configuration but few detectable traces are left behind are known as forensic artifacts. The forensic fingerprints in videos can be detected using sensor pattern, interpolation artifacts and to pin down tampered or altered portions of a video by clustering identical pixels. Here, we propose a feature extraction technique in video frames utilizing improved wavelet transform. Speeded lip Robust Feature (SURF) is used to consolidate an extraction technique to get strong features against the recombination from the frames. The processed features utilize the Recurrent Neural Network (RNN) classifier for feature matching algorithm which detects forged frames of a video from an image.



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## **ELECTROCHEMICAL ENERGY STORAGE DEVICE AND A PROCESS THEREOF**

**Dr. D. GEETHA**  
Dr. P. S. RAMESH  
(202041044554 A)

**Published**



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The present disclosure relates to an electrochemical energy storage device and a process thereof. Transition metal sulphides are tried as a new type of electrode materials for supercapacitors and good performance. Cadmium doped CuS nanostructures are prepared via a simple hydrothermal process at 130°C. Nanocomposite of cadmium doped CuS are the focus of intensive study due to potential applications in diverse fields. The nanostructures are characterized by XRD, FTIR, SEM/ EDS and TEM. The XRD pattern reveals that the Cd nanoparticle incorporated CuS shows crystallite nature and the crystallinity increases with addition of cadmium on CuS. Electrochemical analysis is performed using a 2M KOH electrolyte in the technique called CV and EIS study. Cd-CuS exhibits hexagonal architecture and the specific capacitance is calculated as 458 F/g at 5mV/s scan rate. The high utility of pseudocapacitive Cd-CuS is achieved only in highest doping concentration of cadmium on CuS.

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## **ARTIFICIAL NEURAL NETWORK BASED MACHINE LEARNING INTRUSION DETECTION IN WIRELESS NETWORK USING FEATURE SELECTION**

Pushpa Gothwal, I. D. Soubache, Ankur  
Gupta, V. S. Bhagavan, R. Prema, A.P.  
Jagadeesan, **K Ranjit Kumar, K.**, K.  
Manikandan, (202011042949 A)

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In this invention, a novel system is developed based on supervised machine learning which is able to classify network traffic whether it is benign or malicious. Best model is found based on success rate of detection hence feature selection method is integrated with supervised learning algorithm in this invention. Based on research Artificial Neural Network (ANN) is found to outperform than support vector machine (SVM) as the proposed invention involves machine learning along with wrapper feature selection in order to classify network traffic. Intrusion detection is the first step in prevention security attack. Network traffic is classified by this system using both SVM algorithm and ANN algorithm by utilizing NSL-KDD dataset. It is found that success rate of intrusion detection for the proposed Artificial Intelligence based Machine learning algorithm for wireless network is comparatively efficient than SVM algorithm.

**18**



## **ARTIFICIAL INTELLIGENCE BASED PRODUCTION MONITORING AND TOOL LIFESPAN OPTIMIZATION SYSTEM**

Pradeep Kumar Mishra, Rashmi Dwivedi,  
Anupama, **K Ranjit Kumar**, M. Deivakani, J.  
Booma, Rukesh Akanambattu, Neel Kamal,  
and M. Sivaramakrishnaiah  
(202021038856 A)

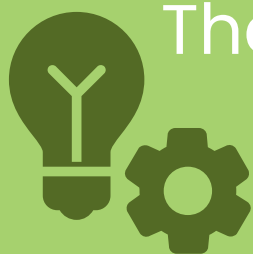
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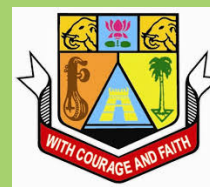
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Effective diagnosis of machine is predicted by real time modular monitoring system whose main focus is to forecast life span of the component /tool with high flexible capability of prediction. The proposed invention presents a two stage model based on back propagation neural network model of artificial intelligence, for real time prediction which monitors and validates life span of the tool. Parameters such as temperature, current, vibration, acceleration and cutting forces are utilized for forecasting tool wear from the analytic model. Process efficiency increases with effective assessment of tool wear rate such that tool replacement avoids any catastrophic event. Tool wear is predicted during turning of hardened steel by checking multilayer perceptron using artificial neural networks. Monitoring and prediction system of tool lifespan enhances the productivity of manufacturing unit based on the analysis of artificial neural networks



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## A RESTRICTED ELEMENTARY CARE IN THE HEALTHCARE SYSTEM WITH BLOCKCHAIN TECHNOLOGY

**C. Ananth**, M. Karthikeyan, Arun Balodi, N. Mohananthin, N.S. Kavitha, M. Chitra, S. Saranraj, M. Ranjitha, K. Sathiyasekar, R. Rajarajan, Mrs. S. Suganya

(202041028431 A)

**Published**



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An electronic social health records in the essential consideration are an important wellspring of human services keenness. The electronic records support a verified and stable framework which requires to be as often as possible common between the hospitals. The contribution of electronic records can be fundamental advance to present shrewd as well as enhanced social insurance association administration. Sharing the electronic records, among the foundations or spots, can be a troublesome assignment. The present sharing strategies, to efficiently deal with also defend the therapeutic records, have been inadequate. The Blockchain innovation exhibits an unchanging shared and straightforward history of the considerable number of exchanges to develop the applications with responsibility, straightforwardness, and trust. This innovation shows a restrictive chance to augment secure and trustable records the board to be imparted to the medicinal services framework. In this work, we present our points of view resting on Blockchain innovation inside the medicinal services framework. Conveyed record squares structure essential consideration electronic records

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**20**



## DESIGN OF COCONUT HUSK REMOVER WITH SHELL CUTTER AND SCRAPER

N.Nagarajan, M.Ramarao, P.Palanisamy, M.Babu, Ram Subbiah, **S.Vivekanandan**, **M.Senthil Kumar**, K.Lenin, R.Balamurugan, R.Ravikumar, Mr.S.Srinivasan

(202041028199 A)

**Published**



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At present coconut husk is being removed manually which employs more time and more man power. This coconut husk remover peels off the coconut husk from coconut fruit to obtain de-husked coconut fruit via pneumatic controlled de-husking device. This device is a coconut husk remover with shell cutter and scraper. An operator is required to handle the machine during the de-husking process. It can be used to de-husk both matured coconut and tender coconut. This device consists of pneumatic cylinder, solenoid valve, linkages, husk remover, scraper, motor, transformer and base frame. De-husking, cutting and scrapping are the three steps that can be performed in this machine. One part is for removing the husk from the coconut; second one is cutting part and next is scraper. In both parts pneumatic systems are used. The husk is removed with the help of hinge joint which is connected with the pneumatic actuator. And the scraper works with the help of motor. The power is given to the motor by using transformer.

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## UNCOVERING AND PREVENTION OF DATA LEAKAGE IN CLOUD FROM MOBILE DEVICE

**D.Suresh**, K.S.Giridharan, R. Suban, R. Padmaraj, K. Palaniyappan,

(202041012914 A)

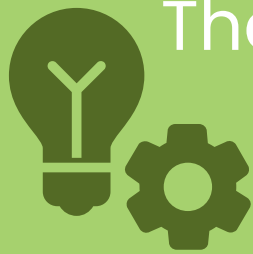
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Progressively, higher mobile purposes are making use of the Cloud as the backend, in particular the cloud APIs, for records capacity, information examination, message notification, and checking. Even though records misfortune has to turn out to be a considerable difficulty that needs to be illuminated in several varieties of organizations, conceivable courses of data misfortune have gotten confounded and various, making countermeasures hard to develop. This invention is growing data misfortune prevention applied sciences that comprise understanding identified with cell devices, facts searching technologies, and protection technologies like encryption. At that point, we shape a lot of robotized software investigation strategies, which include obfuscation-strong cloud API identification and string esteem examination, and execute them in a test gadget to distinguish the possible records spillage vulnerabilities from mobile purposes established on how the cloud APIs are utilized. We have triggered victorious revelation to each two of the cloud provider suppliers, and they have all affirmed the vulnerabilities we have identified and are successfully working with the cellular utility developers to fix their defenceless services.

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# The Abstracts of Patents



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**APROTECTIVE EFFECT OF NARINGIN IN AMMONIUM  
CHLORIDE INDUCED HYPERAMMONEMIA: A  
BIOCHEMICAL AND MOLE**

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Ammonia is an important source of nitrogen and is required for amino acid synthesis. It is also necessary for normal acid-base balance. When present in high concentrations, ammonia is toxic. Endogenous ammonia intoxication can occur when there is impaired capacity of the body to excrete nitrogenous waste, as seen with congenital enzymatic deficiencies. Hyperammonemia is a major contributing factor to neurological abnormalities observed in hepatic encephalopathy and in congenital defects of ammonia detoxication. Ammonia toxicity results in lipid peroxidation and free radical generation, which cause hepatic dysfunction and failure and significantly increase the number of brain peripheral benzodiazepine receptors and could increase the affinity of ligands for these receptors that might enhance GABA (gamma-amino butyric acid) adrenergic neurotransmission. Naringin, plant bioflavonoid extracted mainly from grapefruit and other related citrus species. This study was designed to assess the neuroprotective effect of naringin on ammonium chloride (NH<sub>4</sub>Cl) induced hyperammonemic rats. Naringin administration drastically restored the levels of blood ammonia, plasma urea, nitric oxide (NO), glutamate, glutamine, lipid peroxidation, lipid profile, activities of liver marker enzymes, antioxidant status and sodium/potassium-ATPase (Na<sup>+</sup>/ K<sup>+</sup>-ATPase). Hence, this study suggested that naringin exhibited their protective effect against NH<sub>4</sub>Cl induced toxicity via enhancing the activities of antioxidant enzymes and inhibiting the lipid peroxidation process. Take together, this study provides data that naringin effectively reduced neurotoxicity by attenuating hyperammonemia, suggesting that naringin act as a potential therapeutic agent to treat hyperammonemic rats.

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**LOW DENSITY POLYETHYLENE(LDPE) DEGRADATION  
PROCESS**



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