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SNS COLLEGE OF TECHNOLOGY
(An Autonomous Institution)

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SNS Kalvi Nagar, Saravanampatti Post, Coimbatore, Tamilnadu, India



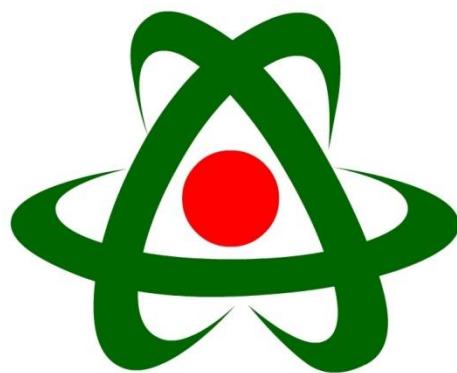
in association with
AIMST UNIVERSITY, MALAYSIA





SNS
COLLEGE OF
TECHNOLOGY
ICES 2020

20th & 21st February 2020
in association with



AIMST UNIVERSITY

**Book of Abstracts of the
International Conference on
Electrical Sciences**

ICES 2020

20th & 21st February 2020

SNS College of Technology

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Preface

International Conference on Electrical Sciences – ICES 2020 is a stalwart platform to nurture the young minds towards research, innovation and entrepreneurship, which intends to bring the integrity of the students towards both industries and academia to amend the academic research challenges, concerns of the entire student community and upcoming entrepreneurs around the globe. It is a forum to harness innovative mind to level-up the economic echelon of current society from research to industries. ICES 2020 works as catalyst for building leaders through holistic, transformable and innovative ideas.

I would like to pour out my profuse heartfelt thanks to our beloved Chairman - Dr. S. N. Subbramanian, Correspondent - Dr. S. Rajalakshmi, Technical Director - Dr. S. Nalin Vimal Kumar, Director - Dr. V. P. Arunachalam and Principal - Dr. S. Chenthur Pandian for providing a great assistance morally and financially for the smooth conduct of the Conference. My special mention of gratefulness goes to the Chief Guest, Guest of Honors, Advisory and Technical Committee members.

We vow, the success of this ICES 2020 to the efforts and dedication of not only SNSCT fraternity but to all those who were directly or indirectly involved in the conduct of this conference. We would like to thank our Technical review committee members, Guest speakers, Chairpersons, Co-Chairpersons, Committee coordinators, Committee members, authors of contributed papers and students for their contribution and relentless support to the success of this Conference.

Innovative ideas make Technology

Technology moves NATION forward

Let us take our NATION forward

Dr. N. J. R. Muniraj

Organizing Secretary

Dean BME & EIE

20st & 21th February 2020

MESSAGES



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Dr. S. N. SUBBRAMANIAN

Chairman
SNS Group of Institutions

“The size of your success is measured by the strength of your desire, the size of your dream, and how you handle disappointment along the way”

-Robert Kiyosaki

I am happy to know that **INTERNATIONAL CONFERENCE ON ELECTRICAL SCIENCES – ICES 2020** is organized by the Departments of **BME, ECE, EEE and EIE** on 20th and 21st February 2020. As research and development is an indicator of human progress in the frontiers of science and technology, organizing such a conference seems to be praise worthy and promising which in turn would benefit the society numerously.

I appreciate the sincere efforts made by the Organizing Secretary, Convenors, Faculty Members and the Students for the coordinated team work to make this event successful. I welcome all the delegates from all over the globe for participating in this conference. I wish great success on all your endorsements.

CHAIRMAN



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Dr. S. RAJALAKSHMI

Correspondent
SNS Group of Institutions

"I believe in innovation and that the way you get innovation is you fund research and you learn the basic facts".

-Bill Gates

I am elated and impressed by the **INTERNATIONAL CONFERENCE ON ELECTRICAL SCIENCES – ICES 2020** organized by the Departments of **BME, ECE, EEE and EIE** on 20th and 21st February 2020.

Today's younger generation needs to be broad minded, more focused, intelligent, smart and technically sound to become worthy technocrats. This is possible only when there is productive technical forum of experts exchanging ideas and paving way for the further invention, through strategic technological development. The Departments have offered a tribute for gainful exchange of knowledge and opportunity to develop a passion to strive for great achievements.

I believe strongly that this will stand as a great source of knowledge to the researchers. With great pleasure and pride I welcome all the participants and convey my best wishes and assuring my support for all your endeavors.

CORRESPONDENT



SNS COLLEGE OF TECHNOLOGY



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Dr. S. NALIN VIMAL KUMAR

Technical Director

SNS Group of Institutions

“Education is not the learning of facts, but the training of the mind to think”.

-Albert Einstein

I would like to congratulate the Departments of **BME, ECE, EEE and EIE** for organizing **INTERNATIONAL CONFERENCE ON ELECTRICAL SCIENCES - ICES 2020** on 20th and 21st February 2020.

The participation of many eminent thinkers, educationalists and students in this event would have a meaningful impact on the researchers and would also be an important contribution in the direction of empowering innovation in engineering and technology.

I sincerely hope this conference will deliberate and discuss all the different facts of this exciting topic and come up with recommendations that will lead to a better, healthier, merrier world. I wish the conference great success.

TECHNICAL DIRECTOR



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Dr.V.P.ARUNACHALAM

Director

SNS Technical Institutions

“The more that you read, the more things you will know, the more that you learn, the more places you’ll go”.

-Dr. Seuss

I am happy to note that the Departments of **BME, ECE, EEE and EIE** are organizing the **INTERNATIONAL CONFERENCE ON ELECTRICAL SCIENCES - ICES 2020** on 20th and 21st February 2020.

Research and Development is a key indication of success for any educational institution. Instrumenting and connecting devices have massive potential to deliver a social and economic value. However, there is a need for a coordinated effort when rolling out the next generation of self-reporting paradigm.

I am sure that the conference will provide the right platform to establish a network among researchers from various parts of the world and lead to innovative strategies in the field of Electrical Science and allied fields. I hope the conference provides an awesome opportunity to scholars, academicians, industrial experts and the students for exchanging their ideas and findings in current research area to excel in their field of specialization. I extend my hearty wishes to the success of this conference and good wishes to all the members associated with it.

DIRECTOR



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Dr. S. CHENTHURPANDIAN

Principal
SNS College of Technology

“Success is the result of perfection, hard work, learning from failure, loyalty and persistence”.

-Thomas Huxley

I invite you to attend and actively participate in this **INTERNATIONAL CONFERENCE ON ELECTRICAL SCIENCES – ICES 2020** organized by the Departments of **BME, ECE, EEE and EIE** on 20th and 21st February 2020. The objective of the conference is to keep abreast the researchers about the latest trends of research and development in the diversified field. This conference provides a common platform for deliberations and discussion for people from academia and industry in-house and abroad.

I congratulate the organizing committee, supporting staff and delegates for their initiative and wish them a grand success for the conference.

PRINCIPAL



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Dr. N. J. R. MUNIRAJ

DEAN-EIE&BME

SNS College of Technology

“Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives”.

- William Foster

ICES 2020 goes with William Foster's lines. Yes, it is a quality conference with the workouts of high intention and wise choices of intelligent slog. And I would like to acknowledge my heartfelt thanks to the management for extending their support to organize such notable conference.

I specially appreciate all my ICES'2020 crew for their fathomless effort in making this conclave laudable. I wish all the presenters and participants an enlightening spirit with ICES'2020. May this conference wide open a way for futuristic development and growth in technical arena.

ORGANIZING SECRETARY

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Key Note Address: 1

OPTO-ELECTRONICS: A DARK HORSE IN DEFENSE TECHNOLOGIES

Dr. R. Rajesh, Scientist at NPOL, Kochi, Kerala

Optical technologies are often strong in areas where electronics are weak, while electronics has plenty of advantages over optical technologies in certain applications. However, for the reasons that, today optics and electronics are closer, perhaps in a much better way than ever, they have been and continue to be melding into a new discipline known as "*optoelectronics*". This technology combines the best of both technologies and created a wonderful field which perished almost all fields with innovative instruments. As anticipated, optoelectronics becomes a revolutionary technology which has changed the human life and world economy. Optoelectronics has peeped into almost all scientific and technological fields in a significant manner and find wide applications in civilian and defense sectors. With the invention of blue LED's in 1990s by three Japanese scientists, who won the Nobel Prize, made the lightening of world, a revolutionary change.

Innovative engineering has taken the optoelectronic field with capabilities far beyond the entertainment sphere to allow man to explore inside the human body, bottom of the oil wells, far outside the solar system and in almost total ambient darkness. Being widespread, optoelectronics offers military systems with decreased size and weight, vastly increased data processing and throughput, broad resistance to electromagnetic interference etc and creates deep excitement. Technological advances in optics, opto-electronics, and electronics together resulted into more rugged, reliable, compact and efficient devices and are responsible for making these indispensable in modern warfare. Last two decades optoelectronic instrumentation has seen exponential growth and found some new potential areas of usage. Some of these areas include rapid growth in the usage of lasers and opto-electronics devices for Directed Energy Weapons (DEW), systems for Electro-Optic Countermeasure (EOCM), Tools and Diagnostic systems that can perform online functionality checks on military systems and also their inter-operability. Himalayan growth has been achieved in the communication industry with the introduction of fiber optics, however secured communication for defense or secured civilian transactions is found possible with quantum communication which is presently a hot topic for research. Optical fibers, infrared cameras, OLED displays,

and photovoltaic's are attracting the attention of military R&D projects not only for their technical advantages but also their capability to be more lightweight and robustness in the field. It is well known that optics have played a part in military equipment mainly as displays and imaging devices. Now advances in OLED technologies are enabling next-generation helmets and micro displays that can further enhance the viewing and data-access capabilities of soldiers in the field and still satisfy the "size-weight-power-cost" performance criteria required by the armed forces. The present talk aimed to introduce the field of optoelectronics to the wide audience who are from different background along with an overview of different optoelectronics based technologies used in defence sector. The talk will outline important optoelectronic instruments like laser weapons, laser range finders, target designators, optical radar and sonar systems, EO/CM devices etc., in brief with the principals and status of these technologies.

Key Note Address: 2

RECENT DEVELOPMENTS IN BIOMEDICAL RESEARCH

Mr. K. Kadirvelu, Scientist – F & OiC

DRDO-BU Centre for Life Sciences

Bharathiar University Campus, Coimbatore

The frontier of biomedical science has rarely been as exciting and is the broad area of science that looks for ways to prevent and treat diseases that cause illness and death in people and in animals. Utilizing biotechnology techniques, biomedical researchers study biological processes and diseases with the ultimate goal of developing effective treatments and cures. Biomedical research is an evolutionary process requiring careful experimentation by many scientists, including biologists and chemists. Discovery of new medicines and therapies requires careful scientific experimentation, development, and evaluation. Those developments have also begun to transform the conduct of both large- and small-scale biological and biomedical research in rather dramatic ways. Current biomedical sciences display specific trends that are likely to continue at least for some time in the future. These trends include, System analysis, Biomedical instrumentation, Medical imaging, Biomaterials, Artificial organs, Rehabilitation, Diagnostics, Controlled drug delivery, etc. Advancing with biomedical science today, in most developed countries, modern hospitals have become centers of sophisticated health care delivery using advanced technological methods.

Considering the progress recently achieved in the field of nanotechnology, one can safely predict that nanotechnology will play an important future role in sciences in general and biomedical sciences in particular. Furthermore, certain trends in contemporary sciences strongly suggest that boundaries between biomedical sciences, delimiting one scientific discipline from another, will be less distinct and will possibly disappear in time. Consequently, multiple fields of biomedical science, as known today, will eventually converge into the limited number of highly multidisciplinary fields of biomedical science. A dominant position in biomedical sciences will be assumed by translational health research that crosses barriers between basic and clinical research.

Key Note Address: 3

DESIGNING A VIABLE LOW CARBON ELECTRICAL RURAL TRANSPORTATION SYSTEM FOR INCLUSIVE GROWTH AND LIVELY HOOD GENERATION FOR RURAL POPULATION

Mr. U. Chandra Mohan, Founder, GRE, Bangalore

The project proposes novel & innovative system solutions enabling Rural Entrepreneurship business models. The system comprises of Solar Energy based Electric Vehicle charging system with innovative Storage Solution to reduce the cost of energy storage thus increasing the viability of the solution. Rural areas in India face challenges of accessing transport infrastructure and depend on inefficient transportation systems. This restricts their access to markets and employment opportunities. In India approximately 70 percent of the population lives in rural area. The villages have very poor access & are not linked efficiently. Transportation plays a significant role for the development of the rural areas. Till today almost thirty percent of the villages in India are missing all-weather roads and during monsoon season they are not usable. The villages are missing an efficient transport system which is affordable or viable.

During travelling in the rural India, the challenges faced by the underprivileged segment or common man are predominant & obvious. Hence there is a need for a complete ecosystem for an efficient transport system.

Current Status & Open Questions

In India there is a wide gap in adopting among IC Engine & Electric Vehicles. The rural transport system is currently inefficient & poor. There is a need for efficient & affordable transport system. Below are the open questions:

- ✓ Inefficient Grid Power system
- ✓ Carbon Positive IC Engine based vehicles
- ✓ Battery life is limited & recurring
- ✓ Viable Business Model

Complete Eco-System: Investor, Innovator, Implementer, Marketing, Sales & After Sales Support

Key Note Address: 4

RECENT TREND IN HEALTHCARE TECHNOLOGY

&

ACCELERATING - ARTIFICIAL INTELLIGENCE (AI)

Mr. P. Prabakaran, General Manager, Carex Services, Coimbatore

In recent trend, as we all of us know the whole world is stepping towards digital technology which is growing enormously in various aspects. The one among the technology growth and digitalization in healthcare is EMR-Electronic Medical Record. As we all know every hospital or small clinics is mandatory to maintain patient medical history of the individual patient. In a decade year before, any medical institutions will maintain medical record of their patient by hard copies i.e. paper or file system and later they moved towards saving in the computer as storage media only.

In 2017, almost 85% of the medical institutions in India was upgraded to the Electronic or digital technology in maintaining the patient records i.e., EMR. In any hospital, the provider has to be maintained patient medical record of an individual patient towards their ongoing treatment to understand the clinician about surgical history, Drug allergies, past investigation and many.

EMR is not only to maintain the medical record but it also helps clinician to improve the quality outcome of the patient treatment, more over EMR helps doctor or patients to access anywhere and at any point of time to know the history of the patients and also can be shared to

other facility to get the second opinion as well. EMR also ensure, whoever is treating or undergoing investigation can be fed the latest report and also the history is available at any point of time with in finger tips.

In recent trend and technology, providers collected medical records through various electronic / digital systems in order to simulation of human Intelligence in machine that are programmed to think and act like a human being. AI-Artificial intelligence uses different algorithm and software's, which help machine to give the concrete conclusion to the clinician to rule out.

AI is widely applicable in healthcare industry for various purposes such as drug discovery, precision medicine, robotic surgery and radiology imaging. It also helps to analyze patient's medical data and to predict diseases onset. The AI Market is segmented based on: Offerings, Technology, Application and End User.

On the basics of Offerings, it is divided in to Hardware, software and services Technology: Classified into Deep learning, queerly method, and Natural languages.

Application: Covered the study of Robotic surgery, Biological screening identification, Fraud detectors & virtual Nursing.

End user: Market categorized into Healthcare provides, Pharmaceutical companies and Biotechnology.



LORA BASED GPS TRACKER USING ARDUINO AND LORA SHIELD

Dr. K. S. Neelu Kumari¹, T. Sonal², A. Yasodha³ & P. Yogapriyadharshin⁴

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Abstract

GPS Tracking has many uses in today's world. For any tracking device the primary design consideration will be about its battery expectancy and monitoring range. This paper aims on implementing low power consuming and long range coverage GPS Tracker using LoRa Technology. We present a GPS tracking system using Lora, the system consists of a Transmitter which will read the location information from the NEO-6M GPS module and transmit it wireless over Lora. The receiver part will receive the information and display it on a 16x2 LCD display.



STEALTHY MONITORING AND CONTROL OF VEHICLE SAFETY SYSTEM

Sridharshini Sasikumar

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Abstract

Now a day's traffic rules are frequently violated by the drivers and over speeding occur due to bad driving behavior. But sometimes it may not be possible to view the signboards and there is a chance for accident. The main objective of the Project is to design and develop a new system that can effectively detect speed violations on the road. It will use RF technology. The proposed system gives an alert with the help of buzzer and LCD. In this system, if over speeding vehicles don't get controlled manually, then system turns ON and will get controlled automatically and automatically detect any vehicle opposite to, utilizing the vehicle on-board unit. The challenges to overcome include GSM based Accident/Panic alert using Arduino mega.



AIR QUALITY MONITORING SYSTEM

Babykala. M¹, Dineshwaran. K², Gayathri. C³, Danial Prabu. K. J⁴ & Akash. S⁵

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babykalam@ksrct.ac.in¹ & dineshwarank507@gmail.com²

Abstract

The main objective of this project is to control air pollution by designing and implementing an Air Quality Monitoring (AQM) system. To reduce air pollution, and also to reduce the health issues caused by air pollution, the air quality monitoring system plays a major role. The air quality monitoring should be capable of measuring the air quality parameters. The parameters to be considered are temperature, humidity, carbon monoxide, low concentration ozone gas, and dust particles. Finally, all the sensor data will be processed by the PIC Microcontroller and the output can be displayed with the help of LCD Display. This air quality system also alerts when the air quality level is greater than the normal value using a buzzer.



IoT BASED FUEL MONITORING SYSTEM FOR FUTURE VEHICLES

S. Naveen Prasath¹ & M. Venkateshwaran²

K.S.Rangasamy College of Technology, Tiruchengode

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Abstract

In present scenario everything is changed with digital revolution but still in some fields like automobiles digital revolution is yet to come, where analogue type of fuel gauge meters are used for indication of fuel. With analogue indication meters, there is a lack of accuracy and precision. Using of digital indication meters, we can determine the correct quantity of fuel available in the fuel tank. Hence, this system will be indicating the amount of fuel in the tank in milliliters. The indication of fuel will be in numerical digits (ex: - 100ml, 200ml and 1000ml). This system mainly focuses about the indication of fuel level in car, trucks or diesel occupied tanks. This project allows us to get rid of issues like fuel theft at fuel stations, fuel adulteration and keeps us from getting into circumstances where we may get into inconvenient situations due to unspecified level of fuel. Current systems contain the fuel indication mechanism for the automobiles which are computerized yet they don't show the correct amount of fuel which is available in the tank i.e. they demonstrate the measure of fuel in as bars and not in numbers or digits like liters or milliliter. so, this issue is considered for our work of building up the digital (numeric) fuel indication mechanism for automobiles which indicates correct measure of fuel in milliliters (ml). In addition to this internet of things technology is incorporated to our system which helps to view the fuel level at any time through an internet connection.



RFID BASED CAR PARKING SYSTEM USING ANDROID

Dr. M. Amutha¹, Pavithra. K², Nivethitha. T³, Jayasuriya. B⁴ & Indhumathi. J⁵

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Abstract

We propose a RFID based Car parking system using android where the manual work of parking and payment will be reduced making it very easy to tag a vehicle by using RFID tracker extensively to find the user details and deduct amount from his wallet. This System makes the work easier on both the ends to book the available free slots in car parking, keep a track as well as pay the amount in a very efficient way. When the car enters the car parking, the users have to register in the RFID tag for unique identification and the user has to scan the RFID card. The starting time and the user details are sent to the admin and when the user check out the car, the system automatically generates payment status and the amount in his wallet would be deducted.



ONLINE VOTING SYSTEM USING AADHAAR CARD AND BIOMETRIC

Dinesh Kumar .P¹, AkshayHareendran², Askar Ali .S³ & Bharanidharan .K⁴

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Abstract

The problem of voting is still critical in terms of safety and security. This paper deals with the design and development of a web-based voting system using cloud computing and aadhaar card in order to provide a high performance with high security to the voting system. We also use web technology to make the voting system practical. The proposed Online Voting System allows the voters to authenticate using aadhaar no which is then matched with an already saved within a database that is retrieved from aadhaar card database of the government. The voting system is managed in a simpler way as all the users must login by aadhaar card number and password and click on his/her favorable candidates to cast the vote. This will increase the voting percentage in India and reduces the cost of voting process. By using aadhaar card identification it provides enough security which reduces the false votes.



GSM BASED DOOR LOCK SYSTEM WITH SECURITY CAMERA AND FINGERPRINT

Mrs. S. S. Thamilselvi¹, Mrs. Geetha K² & Mr. Barathkumar A³

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Abstract

Finger print based security system can be used at many places like Industries, Offices, and Colleges or even at our home. This project is a fine combination of “Biometrics technology” and “Embedded system technology”. This simple fingerprint door unlock project using Arduino found to be very useful for door security, forensics, crime investigation, personal identification, attendance laboratories, school or home in order to make data, money, premises and personal belonging safe and secured from unauthorized person. This method represents a finger print recognition biometrics system based on real time which will provides a complete security solution and making unable to access for the unauthorized people. In comparison to the other authentication methods using passwords this method has proven to be most efficient and reliable in terms of security. Unauthorized access will be strictly prohibited by designing this system. The system stores the finger print of authorized people and only give access to them. Fingerprint recognition is done by a sensor connected with Arduino to validate for authentication. If the user's fingerprint has a positive match the door will open otherwise the GSM module gets triggered and the registered user gets a message and the buzzer connected will be initiated to alert the people or the security official in the surroundings. In a verification system person desired to be identified submits an identity claim to the system usually via magnetic stripe card login name smart card etc. and the system either rejects or accepts the submitted claim of identity. In an identification system the system fails if the subject is not enrolled in the system data base. Traditional automatic personal identification technologies to verify the identity of a person which use something that you know, such as a personal identification number or something that such as an identification are no longer considered reliable enough to satisfy the security requirements of electronic transactions.



AUTOMATIC DETECTION OF WATER THEFT AND CONTROLLING

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Abstract

Every living organism on the face of the earth relies on the water for survival, from the smallest microorganism to the largest mammal. Freshwater is crucial for drinking, washing, growing food, producing energy and just about every other aspect of modern life. Wastage of water is also a major cause of water shortage. Some people leave their taps running even when they are not fetching water. The resultant problem is lack of enough water. In urban areas the water supply to residence and commercial establishments is provided at a fixed flow rate. There are incidents of excess water being drawn by certain users by connecting motor-pump sets to the water lines which is considered as water theft and also sometimes there is breakage of pipeline due to external problems. This project is proposed to develop an embedded based water monitoring and theft prevention system by observing the flow rates at the user end. When the threshold value of the water flow fall behind or exceeds which is observed by the flow sensor, an authentication message is send to the authority through WIFI module. It prevents theft of water by using motor value to stop the flow of water when there is water leakage, water theft or water tax payment is delayed which is controlled by authority through WIFI module.



ENGINE PARAMETER DISPLAY FOR SAFETY CRITICAL SYSTEM USING OPEN GL

Nayana K¹, Manju Nanda², Anand G³ & J.Jayanthi⁴

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Abstract

The display of an aircraft is the most critical part which is having software level A criticality. This requires a perfect software development following the standards for safety criticality. An Human-Machine Interface (HMI) can be created for the pilot through which pilot can get awareness about the aircraft parameters .The hardware and software of the safety-critical avionics system are established depending on Radio Technical Commission for Avionics (RTCA) guidelines. The aircraft engine has many parameters like oil temperature, oil pressure, fuel flow, exhaust gas temperature etc. The proper awareness about these parameters are to be updated to the pilot in the cockpit .In this paper, we propose a method to create an Human-Machine Interface (HMI) for a safety-critical system using OpenGL graphical library. An Engine Management Unit display application software was developed which shows the different engine parameters in graphically. The application software development is based on Software Development Life Cycle (SDLC). The software developed was interfaced with the display and real time testing was done using Thin Film Transistor (TFT) display.



MICROPROCESSOR BASED DIGITAL ELECTRONIC CURRENT MANAGER

JershiniR¹, Aravindkumar T² & Ajithkumar A³

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Abstract

The project is mainly designed to provide low voltage start to all the motors especially the inductive one. This is achieved by using a conversion known as star to delta. These starters are the most commonly used voltage starters in the 50Hz industrial motor world. The full load current is applied to the motor. The three general products are contactors and electromechanical timer and a thermal overload for operating a 3 phase motor at 440 volt. Thus, the interlocking arrangement of all the contactor coils is traditionally wired in 440 volt AC. Proposed system uses a system to start a 3 phase motor at 440 volt AC mains supply 50 Hz with a set of 12 volt DC relays in star mode first and then to delta mode by an electronically adjustable timer. The relays are used to shift the motor connections from star to delta with a delay in time. The project is supplied with six lamps instead of a 3 phase motor i.e., two lamps representing each phase winding of the motor. DC of 12 volt fed from an inbuilt DC power supply is inter locked with the relay coils and the electronic timer which is used for safe handling of the starter. It also retains its application for a three phase motor starting with single phase prevention too. During star operation the lamps would glow dim indicating the supply voltage across the coils are 440/root of (3) that is the amount of current supplied is only the 33% of the total load being incorporated. In the case of delta, after the timer operates the lamps would glow with full intensity indicating full supply voltage of 440volts which can be considered as the complete 100% load leading the motor to run in the full power. The timer comprises of a 555 timer based mono-stable mode that the output of which is fed to a relay for changing the mains supply from a three phase star mode to a three phase delta mode. The project also has the provision of single phasing protection since 3 phase motors get burnt if any one phase goes missing during running thus this system be the incorporated provision for the protection. If any phase failure occurs the output of the lamps will be completely cut-off the overloaded relay.



SENSOR BASED MONITORING OF WASTE WATER FOR AGRICULTURE USING IoT

Rekha Palaniswamy¹

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Abstract

The monitoring of urban waste water for agriculture use provides a smart solution for testing the quality of water by using array of sensors and the measured value is displayed in LCD. The major objective of this paper includes the measurement of water quality parameters such as pH, Turbidity, Temperature, BOD, TDS that helps to identified the deviations in the parameters and provides an alert messages when there is an abnormal level i.e., the value exceeds the predefined threshold or the standard value set in the Arduino Mega 2560 Controller. These extreme values indicated chemical spills, treatment plant issues or the problems in supply pipes which may causes severe problem in terms of the cultivation of crops and quality of the soil anomaly detection the water quality setup using a GSM module, the data is stored in the cloud and the server is connected with an IoT to sent message to the government and provides a remedial measure to overcome these problems and helps the farmers to improve the sales and business processes.



CAR SAFETY VIA ENGINE CONTROL UNIT (ECU)

Kaviya .R¹ , Nishanandhini J² ,Varshini M³ & Ms. B. Kamala⁴

Sri Sairam Engineering College

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Abstract

Day by day accidents are increasing. Most of the accidents occur due to the drivers drive vehicles at high speed even in speed limited area such as traffic signals, school zones, hilly regions, highly curved paths without considering the traffic rules. Our work mainly focus on automatically controlling the speed of vehicles at speed restricted place like traffic signal and prevents accidents using ultrasonic sensor. It is used to get information from other vehicles. The controller unit calculates the distance and makes the decision on processed data. Based on the distance calculation, the speed of the car is controlled by using Arduino as a microcontroller. Here we use machine learning and as well as embedded systems. The main features in our work includes Vehicle Speed Control in Variable Zone, Horn Control of Vehicle in No Honking Zone, Red Light Traffic Control, and automatic front vehicle distant check using ultrasonic sensor.



INTELLIGENT SAFETY SYSTEM FOR WOMEN SAFETY USING IOT

Mrs. Saraswathi¹ & Dona Joy²

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Abstract

Women security is need of the hour of now a day. The world is becoming unsafe in all aspects. The crime against women are increasing at a higher rate. The paper proposes a quick responding mechanism that help women during this troubles. When someone is going to harrass, she can just press a button and the location information is send as an SMS to predefined numbers in terms of latitude and longitude. The switch is pressed the controller take the current information from the GPS module. In existing method arduino is used, which is proposed by node MCU in proposed system. The programming is done using C language. Our developed system is 100% secure and will try to overcome majority of the crimes and ensuring the safety of women.



WIRELESS DATA MONITORING AND FAULT IDENTIFICATION USING ZIGBEE AND GSM IN GENERATOR

S. Hemasilviavinothini¹, S. Aarthi², M. Priyadharshini³, P. Sangeetha⁴ & R. Sowndariya⁵

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Abstract

This paper presents a ZIGBEE and GSM based solution for condition monitoring and predictive maintenance of generator set by establishing a communication between Electronic Hardware and Cloud Computing, popularly known as GSM based applications used especially for online and real time monitoring. Generator is heart of any power system used for power generation. Generally Generator suffers from abnormal conditions such as over loading and vibrations, to predict these abnormalities a ZIGBEE based system is proposed to avoid unnecessary shutdowns. In the implementation of ZIGBEE and GSM based system, different sensors such as vibration sensors, current, temperature sensors are used to capture some essential parameters to monitor health condition of generator. Faults are being simulated using ZIGBEE based hardware equipment for test purpose and to create alters to the respected field operator on web page application. The signal obtained from vibration sensors of time domain are converted in to frequency domain by using FFT algorithm in gateway and waveform patterns are analyzed for fault detection. Edge analytics has been carried out locally and efficient early warning system was created based on trends observed on web application.



IoT BASED SMART BILLING AND DIRECTION CONTROLLED TROLLEY

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Abstract

The smart shopping trolley system helps customers while shopping. The trolley has an automatic billing system and it follows the movement commands provided by the user by using an android application that was installed in customers mobile. The products purchased by the customer and their cost will be automatically updated to the android application through the local area network (LAN) created using Bluetooth and that bill will automatically send to the administrative system in the shop through the Internet of Things(IoT). This helps the customer by replacing the tedious process of pulling and pushing the trolley and saves time spent in the billing counter. The automatic billing process can be achieved through radio frequency identification (RFID) tag and reader and to enhance the efficient movement of the trolley the obstacle avoidance has also been implemented.



SECURED VOTING MACHINE USING BIOMETRIC

Aswini

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Abstract

Voting is every citizen's right to voice their choice of government. Our main objective is to create a secure voting system to avoid illegal proxy voting in favor of a particular party, hence ensuring every citizen to exercise their right to vote. This project proposes a voting system that is biometrically secure. The voter's biometric are saved in a database prior to the election (which can also be done with the help of the existing aadhaar database). Through the biometrics obtained we ensure the voter's identity is verified and thus we eliminate the chance of proxy votes.



IMPLEMENTATION OF KOGGE STONE PREFIX ARCHITECTURE FOR MODULAR ADDER USING REVERSIBLE CIRCUITS

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Abstract

Reversible logic is the memory less logic which is used for low power reliable circuits. In Reversible circuits adder is the significant module and to make such addition using parallel prefix operation is an efficient one. To avoid the carry propagation in addition, multiplication, and division, the arithmetic functions can be implemented using Residue Number System (RNS). Though RNS performs several moduli in parallel form, it consumes more time and has high power dissipation. To overcome this problem the RNS using reversible logic are used. In this paper the Kogge stone prefix adder architecture is used to perform the modulo $2^n - 1$ adder using reversible circuits. This method offers carry function easier with minimal fan-out and also offers high speed calculation compared to the conventional reversible circuits which is used in the general purpose digital signal processors. The proposed method is simulated using Xilinx 12.4 ISE and the functions are evaluated using MODELSIM 6.3c.



SECURE ALGORITHM USING BLOCK CIPHERS:A LIGHTWEIGHT ENCRYPTION STANDARD FOR IOT APPLICATIONS

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Abstract

Internet of Things (IoT) is evolving as a promising technology in recent times. IoT consists of a plethora of nodes which are capable of sensing and communicating to the relevant devices with the help of internet. These nodes will continuously be communicating with each other the security of which is a major concern. Conventional algorithms would run for a number of cycles in order to encrypt the data as they are in reality very complex. Conversely, the integrity may be sacrificed if the algorithms are less complex algorithm. The secure IoT algorithm has a 64-bit cipher and requires 64-bit key to encrypt the data. The architecture of the algorithm is a mixture of Feistel and the uniform substitution- permutation network. The simulated algorithm shall provide substantial security in just minimum encryption rounds.



SMART WATER LEAK DETECTION USING IOT

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Abstract

Water may be a precious resource that ought to be managed fastidiously. But because of leak in water distributed networks an outsized quantity of water is lost annually. The innovative plan is to automatize the water leak detection in water distributed network system. The amount of water distributed is detected using water flow device. The situation of autonomous water leak detection in an exceedingly immense space are often tracked and monitored. The paradigm has been designed for water leak detection. The system is controlled by ATMEGA328 microcontroller. The direction of water is monitored by resistance detector. Correct location and leak are the areas of concern whereas coming up with the system.



DENSITY BASED TRAFFIC CONTROL USING IoT

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Abstract

With the rapid development of road infrastructure, the volume of the vehicle on the road network increases which leads to traffic Congestion. The exact situation exists in the Coimbatore cities. Traffic congestions are amongst the top list of the problems faced in Muscat and other cities around Coimbatore. This is mainly caused due to the rapid surprise in the number of vehicles in a short period. To overcome such an impact of traffic congestions, it is required to develop an IoT Based traffic control system. The proposed system would be based on the measurement of the actual traffic density on the road. This would be achieved using real-time video and image processing techniques. Wherein the images captured and are stored in the server, which will be compared with the real-time image captured via camera to identify the density. The theme is to control the traffic by determining the traffic density on each side of the four roads and enabling a controlling option of the traffic signal to the user through a software application.



ANALYSIS OF POWER QUALITY PROFILE IN A STANDARD IEEE TEST BUS SYSTEM WITH RENEWABLE ENERGY PENETRATION

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Abstract

In little more than ten years, electricity power quality has grown from obscurity to a major issue in power system because the modern power electronic equipment's are widely used by both utility and the consumers. Power quality is among the main things that is stressed and is taken into account of consideration by utilities in order to meet the demands of their customer. This issue has becoming more serious problem and at the same time the user's demand on power quality also gets more critical. Thus it is essential to establish a power quality monitoring system to detect power quality disturbance and the impacts of various disturbances should be investigated. Solar energy resource plays an alternative for fossil fuels. Solar renewable energy has been steadily on the rise around the world, and as fossil fuels become increasingly scarce world. In order to meet out the day to day increasing demand solar power adopted. It is necessary to give the quality power to the end users while integrate the solar PV Renewable Energy Resource to the grid system to maintain the degree of quality and safety. This paper deals with the 100 KW solar power connected with standard IEEE 14 test bus system by using MATLAB STIMULINK and to study the power quality profile and voltage profile of the standard test bus system along with various nonlinear loads. Total Harmonic Distortion (%THDV) at Point of Common Coupling (PCC) to analyze the impact of PV integration on different power quality parameters are also measured according to IEEE Standard 519 -2014.



SURVEILLANCE ROBOT

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Abstract

In other to save energy, several countries recently made laws related to standby power consumption. To success this exertion, we could not only power reduction of consumer electronics itself but also efficient itself but also efficient automatic control in networked home environment. In this project we present a design approach and implementation result of control mechanism for standby power reduction. Proposed mechanism has the Host-Agent structure and uses the IEEE 802.15.4 based ZigBee protocol for communication and security between host and agent. Standby electricity is hte energy consumed by application when they are not performing their main functions or when they are switched off. As more and more applications are being used in households and offices, their energy consumption during standby periods represent a significant share of the total energy used. Household appliances are being and office equipments such television (TVs), video recorders, audio players, telephone answering and facsimile machines, computers, printers and copiers contribute to this standby loss which is relatively low, per appliance ranging from less than 1W to as much as 25W.



ACCIDENT IDENTIFICATION SYSTEM USING GLOBAL POSITIONING SYSTEM

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Abstract

The objective of this is monitor and accident identification using global positioning system. The global positioning system is space age navigational system that can pinpoint your position on anywhere in a globe, usually within a few yards or meter. This amazing technology is available to anyone, anywhere, day and night, best of all, at no cost for use of navigational data. GPS use the constellation of 24 satellites in precise orbit approximately 11,000 miles above the earth. The satellite transmits data via high frequency radio waves back to earth and, by locking onto these signals; a GPS receiver can process this data to triangulate its precise location on the globe. GPS operates 24 hours a day, in all weather condition and can be used worldwide for precise navigation on land, on water and even in air. Some of its many current applications including: boating, fishing, hunting, scouting on land or from air, hiking camping, biking, rafting, pack trips by horseback, hot air ballooning, general aviation, snowmobiling and skiing, search and rescue, emergency vehicle tracking, 4wheeling, highway driving and host of other outdoor activities where accurate positioning is required.



ADVANCED REMOTE AIRFIELD LIGHTING SYSTEM

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Abstract

There are many remote airfields that are not connected to the power grid. Providing adequate lighting to these airfields is necessary and challenging. The federal aviation administration (FAA) has sponsored a research project, remote airfield lighting systems (RALS), through the Center for general aviation research(CGAR). The finding from the RALS research specified a light that had low power needs and a colour/intensity to meet the requirements for airfield identification and landing. To make these lights more appropriate to wide spread applications, the research team is conducting an exemplary operational test in this. Paper ,we discuss the new function added to these lights for the operational test, including both automatically/ remotely switching on/off the lights and smart charging of the batteries using solar panels under the control of a microcontroller. In addition, we consider future new functions such as low cost pilot controlled lighting as well as wireless networking for health monitoring and controlling of the lighting system. These new function can greatly improve the convenience of the usage of RALS while keeping the same low cost.



GSM BASED PATIENTS MONITORING WITH PRIORITY CONTROL OF TRAFFIC LIGHT

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Abstract

Recent advances in wireless networks, medical sensors and microcontrollers improving the way we provide emergency care day by day. We have designed a system that facilitates collaboration between patients in the ambulance, medical professionals at the local hospitals or specialists who might be available for consultation through intelligent remotely monitoring patient system using global system for mobile communication until they reach destination hospital. Due to tremendous increase in population, traffic congestion is one of the major problems which in turn affect the patient reaching destination at correct time. In order to overcome the problem, we are also proposed automatic traffic light control along with patients monitoring system.



SMART GIL SYSTEM

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Abstract

The project aims to make a smart GIL system for smart cities. Smart cities face the challenges of energy consumption, waste management and water conservation. The function of garbage collection system, smart irrigation system and smart street lighting system are integrated into a single system namely smart GIL system and controlled by a single controller. The performance of this system can be monitored in a common control room. The data can also be monitored in the mobile phone by using IoT. The system reduces the man power and act smart in maintaining smart cities. Garbage collection system indicates the availability level of the dustbin. Irrigation system is used for watering the plants by measuring the moisture content in the soil. Lighting system is used for the automation of the street lights during night time. Availability level of dustbin, motor ON/OFF state of irrigation system and light ON/OFF state with day/night indication will be displayed in a common control room. These data are transferred to cloud server through serial communication and can be viewed in a mobile application.



LOW-POWER DESIGN FOR A DIGIT-SERIAL POLYNOMIAL BASIS FINITE FIELD MULTIPLIER USING FACTORING TECHNIQUE

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Abstract

Multiplication in Galois field is used in many applications, especially in cryptography. Several algorithms and architectures are proposed in the literature to obtain efficient multiplication operations in Galois fields. In CMOS based application specific integrated circuit (ASIC) designs, total power consumption is dominated by dynamic power, where dynamic power consists of two major components, namely, switching power and internal power. This paper presents low-power design for a digit-serial finite field multiplier in GF (2^m). In the proposed design, a factoring technique with Brent kung adder is used to minimize switching power. The Logic gate substitution is also utilized to reduce internal power. The synthesis results show that the proposed multiplier design consumes low power than previous work in comparison.



DESIGN OF CARRY SAVE ADDER BY PARITY-BASED ERROR DETECTION USING CMOS TECHNOLOGY

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Abstract

In this paper we uses parity based error detectable adder based on easy testability with CMOS technology. The proposed adder is based on a multi-block carry save adder. The circuit which may contain erroneous output from the adder which caused by a fault modeled as a single stuck-at fault that can be detected by comparing the predicted sum of parity with the sum of parity, that is the XORed value of sum bits, and comparing the duplicated carry outputs. In the carry save adder we will test the adder with a particular number of input patterns under single stuck-at fault model. The same property will detection the fault before the occurrence of a second fault. The concurrent error detectability and parity based error detectable both are to detect erroneous results and the easy testability to find a fault during operation are important for realizing reliable systems. 32-bit adder has been designed to easy detectable of error in the system. Its hardware overhead is about 70%. The concurrent error detectability with 100% test coverage and through the 10 patterns that has been confirmed by fault simulation technique.



IMPLEMENTATION OF DELAYED BLMS ADAPTIVE FILTER BASED ON VEDIC MULTIPLIER

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Abstract

Now-a-day's adaptive filters are used in most of the digital signal processing application like noise cancellation, echo cancellation, system identification and channel equalization. Block Least Mean Square Adaptive Filter (BLMS-ADF) is one of the most useful derivatives where convolution and correlation are performed using FFT/IFFT. BLMS favors software implementation is due to practical application. A new approach to the efficient VLSI architecture for BLMS adaptive filter is multiplier based. It is an evolution of multiplier based ADF using LMS or DLMS concepts. This structure is found to take the advantage of utilizing multiplier based design which has comparable area delay efficiency as the multiplier-less design and also supports variable length. This structure also supports adaptive filter implementation of variable lengths which provides low cost alternative to fixed length ADF's as separate implementation of these ADF's are expensive and time consuming. The proposed decomposition scheme favors time multiplexing. The filter computations to achieve 100% HUE which is not possible in existing schemes and provides an area efficient variable length BLMS adaptive filter structure.



A LOW POWER SERIAL-PARALLEL MULTIPLIER WITH LOW TRANSITION ADDITION

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Abstract

Multiplication is arguably the most important primitive for digital signal processing (DSP) and machine learning (ML) applications, dictating the area, delay, and overall performance of parallel implementations. In the proposed work a two-speed, radix-4, serial-parallel multiplier for accelerating applications such as digital filters, artificial neural networks, and other machine learning algorithms is designed. Our multiplier is a variant of the serial-parallel (SP) modified radix-4 Booth multiplier that adds only the nonzero Booth encodings and skips over the zero operations, making the latency dependent on the multiplier value. Two sub circuits with different critical paths are utilized so that throughput and latency are improved for a subset of multiplier values. Our optimizations can result in a improvement over the standard parallel Booth multiplier in terms of area-time depending on the input set.



INTERVAL TYPE-2 FUZZY LOGIC CONTROLLER OF PV BASED CUSTOM POWER DEVICE FOR POWER QUALITY ENHANCEMENT

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Abstract

In recent years, with the advent of smart grid, a rapid fall in the cost of various energy storage technologies and their integration into grid becomes a reality. The Dynamic Voltage Restorer (DVR) is a custom power device with an excellent dynamic capability that is used in distribution systems to provide voltage sag, swell compensation. DVR which is connected to the array of Photo Voltaic (PV) cells can be done by means of a novel control algorithm Synchronous Reference Frame (SRF) theory with Interval Type-2 Fuzzy Logic Controller (IT-2 FLC) is proposed for the creation of reference DVR voltages. The DVR is integrated with PV via DC-DC Boost converter which supports a rigid dc-link voltage for DVR and also helps in compensating momentary voltage sag and swell. IT2-FLC is used to improve the performance of PV-DVR. This work associates IT-2 FLC, type-1 fuzzy-tuned Proportional integral (PI) controller and their performances are assessed with reference to conventional PI controller using MATLAB.



VISIBILITY ENHANCEMENT FOR UNDERWATER IMAGES

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Abstract

To monitor the sedimentary process and morphological evolution in the Sea, free-ascending deep-sea tripod (FDT) has been developed. This FDT was equipped with a deep-sea camera and landed on the sea floor at a depth of 2100 m. Although the FDT was equipped with an artificial light, the battery capacity limited the duration and intensity of light. Therefore, enhancing such low-illumination images to obtain clear visual effects is an important advancement for analyzing the geological evolution process. Owing to refraction, absorption, and scattering of light by suspended particles in water, raw underwater images have low contrast, blurred details, and color distortion. This paper proposes an enhancement method to improve the deep sea photographs. In this method, RGB Image is converted to HSV color model. Hue is a pure component of the module. Saturation is an expression for how the spectrum color added with white color. Intensity refers to brightness of the color. To improve the contrast in saturation component the Contrast Limited Adaptive Histogram Equalization (CLAHE) is applied. In the Image, noise present as a low frequency component so to remove this low frequency component, High frequency Emphasis Butterworth filter in frequency domain is used and contrast stretching also applied for improving the contrast of the image. From the observed result, this proposed algorithm enhances the visibility of underwater images.



LOW POWER CONSUMPTION TECHNIQUES AND IMPLEMENTATION IN VLSI

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Abstract

Low strategic maneuvers a significant job and in the present current patterns of VLSI. There are evaluation procedures and augmentation circuits utilized in low power VLSI plans. Power dissemination has primary idea as execution and region. As a result of more excellent, diminishing force utilization and power the board on chip are the key difficulties directly down to 100nm. Reducing bundle cost and battery life is a significant issue in the advancement of intensity. Leakage current assumes a significant job in power the board and conjointly low force are a significant downside in superior advanced and smaller-scale chip framework. Leakage current is an essential issue in all out power dissemination of coordinated circuits. For successful chip it exclusively needs low force utilization, count of intensity scattering. This survey paper talks about power dissipation and future difficulties and techniques that must be to plan and use for low-power circuits traverses a wide range from device or technique level to recipe level.



DESIGN AND IMPLEMENTATION OF SPEED CONTROLLER OF BLDC USING FUZZY LOGIC

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Abstract

Brushless DC (BLDC) motors are widely used for many industrial applications because of their reliability, high efficiency, high starting torque, and less electrical noise. For the speed control of BLDC motor, different controllers are used. In this work, the performances of BLDC motor have been evaluated without controller and with conventional controllers PI and PID. The results have been compared with fuzzy based controller. In comparison with conventional controllers, fuzzy controller gives effective speed response. This system accurately controls the BLDC motor using fuzzy logic. This system uses 8051 microcontroller to achieve this purpose. This project uses fuzzy logic to increase or decrease pwm supply based off fan speed monitored to keep it spinning very close to the desired speed.



OPTIMAL CAPACITOR PLACEMENT AND SIZING IN RDF USING GREY WOLF ALGORITHM FOR DYNAMIC LOADING

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Abstract

The objective of the work is to place the suitable capacitors on a radial distribution feeder to reduce the losses and improve the voltage profile for dynamic loading. Grey Wolf Optimizer (GWO) is a new meta-heuristic swarm intelligence algorithm, which has shown effective capacitor sizing in radial distribution feeders not only to minimize the real power loss, but also help in maintaining the voltage profile within acceptable limit. Candidate buses for capacitor placements are decided by a set of rules given by the fuzzy expert system and the sizing of the capacitors is modelled by the objective function to obtain maximum savings using grey wolf optimizer (GWO). GWO approach used for searching global optimum solution focuses on leadership hierarchy and hunting behavior of grey wolves in multi-objective search spaces. A case study with IEEE 69 bus radial distribution feeders is presented to illustrate the applicability of the newer algorithm. The results obtained from comparative study between Particle Swarm Optimization (PSO) and GWO shows that GWO algorithm is better suited to optimal allocation of capacitors.



DESIGN AND IMPLEMENTATION OF MULTIFUNCTIONAL DIGITAL SERVOS CONTROL SYSTEM USING ARDUINO VIA PICK AND PLACE ROBOT

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Abstract

To design the process of controlling multiple servo motor with Arduino and mobile controlled bluetooth application. Each and every module is described in software and hardware structure. The working of pick and place robot, Servo motors is made interface with Arduino UNO micro-controller. And mobile application is used to control the servo motor using Bluetooth module. By using this concept Pick and place robot is constructed. Arduino, Servo motor, HC-05 and other stationary components are arranged. Arduino micro-controller is powered with 12v power supply. Common VCC and GND is taken from 5v pin of arduino board. Each VCC and GND pins of servo motor is connected to 5v and GND of arduino. Pot pin of servo motor is connected to digital pins of arduino. VCC and GND of HC-05 is also connected to 5V and GND of arduino. TX and RX pins are also connected to digital pins arduino. Then suitable construction for pick and place robot is made. Program is uploaded in arduino micro-controller. Bluetooth controlled mobile application is created. Mobile application is paired with HC-05. Finally, Multiple servo motors are controlled using mobile application. And, Then pick place robot is operated.



SIGNAL CONDITIONER CIRCUIT DESIGN FOR HYDROGEN DETECTOR IN ISRO TEST FACILITIES

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Abstract

The primary objective of ISRO propulsion complex (IPRC) is to develop and test the liquid propulsion stages & components for launch vehicle such as PSLV, GSLV-MkII and GSLV-MkIII. The instrumentation systems are used to measure, monitor and control the process parameters during test activities. During test operation, the field parameters like pressure, temperature, vibration, flow, level & speed measurement are monitored and controlled. Different test conditions were simulated to measure the performance. The sensors such as pressure transducers, pressure transmitters are used to measure pressure. RTD, thermocouples are the sensors used for measuring temperature. For monitoring & control the test operation PLC based system are being used and for storing the data, Data acquisition system is being used. All the parameters are measured by means of a sensor. The field signals are being processed by signal conditioner circuitry as per user requirement. During testing of cryogenic engine and stage components Liquid Hydrogen and Liquid Oxygen are used as process fluids. Since hydrogen is easily flammable, hydrogen detectors are being used to detect any leak of hydrogen in the circuit. The existing H2 detectors have response time of approximately 10s. In order to have higher response time, ISRO is developing hydrogen detectors & associated signal conditioners. In this project, we have designed a signal conditioning circuitry for H2 detector that include bridge circuitry for H2 sensor input, amplifier unit and filter unit using Proteus software. The simulations were carried out for each unit and the complete circuitry was integrated, simulated and validated.



TEMPERATURE AND QUALITY MONITORING SYSTEM OF RAW MILK

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Abstract

To improve the safety of dairy products, milk quality determination is very important. The temperature also influences the quality of milk. Temperature increases the number of bacteria in the raw milk. Thus the temperature of raw milk should be kept at a certain range, so that the quality of milk can be maintained. Therefore, the realization of raw milk temperature and quality monitoring system is particularly important. This system monitors the temperature and quality of milk by using various types of sensors. It also maintains the milk temperature when the temperature increases or decreases and also gives the indication about the temperature level.



LOW POWER HIGH PERFORMANCE FPGA IMPLEMENTATION OF VEDIC MULTIPLIER WITH BIST CAPABILITY

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Abstract

Multiplication is an important fundamental function in arithmetic operations. Multiplication-based operations such as Multiply and Accumulate(MAC) and inner product are among some of the frequently used Computation- Intensive Arithmetic Functions(CIAF) currently implemented in many Digital Signal Processing (DSP) applications such as convolution, Fast Fourier Transform(FFT), filtering and in microprocessors in its arithmetic and logic unit. The main objective is to design and implementation of a fast multiplier with self testing, which can be used in any processor application. The work is devoted for the design of a high speed Vedic multiplier, its implementation on reconfigurable hardware and Built in Self Testing (BIST) of the implemented multiplier. Interfacing of FPGA with a PS2 KEYBOARD has also been done. For arithmetic multiplication various Vedic multiplication techniques like Urdhvavatiryakbhyam, Nikhilam and Anurupye has been verified. It has been found that Urdhvavatiryakbhyam Sutra is most efficient Sutra (Algorithm), giving minimum delay for multiplication of all types of numbers, either small or large. Further, the Verilog HDL coding of Urdhvavatiryakbhyam Sutra for 32x32 bits and 64x64 bits multiplication and their FPGA implementation by Xilinx Synthesis Tool on Spartan 3E kit have been done. The input of Vedic multiplier has been given by a PS2 KEYBOARD and output has been displayed on LCD of Spartan 3E kit. Finally the implemented design has been tested by using Built in Self Test, which shows that this Vedic multiplier is completely fault free.



REPLICATING HUMAN AUDITORY BEHAVIOUR USING A TASK OPTIMISED NEURAL NETWORK

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Abstract

Mimicking the Human Brain in modern Convolutional Neural Networks to enhance the prediction and classification. Power of the model is a rapidly growing interest among researchers. The objective of Auditory Neuroscience is to build models that predict human responses to natural sounds. Hierarchical neural networks have been optimized for speech & music recollection and noticed that the best performing network have separate music and speech tracks by following early shared processing as it mimics human cortical setup. The network performed the tasks and revealed human-like errors, proposing common behavior on both network and human performance. The network is also made to speculate fMRI voxel responses and found to perform better than traditional spectro-temporal filter models. Further, it also improves a quantitative depiction of the cortical hierarchy. The results propose that the appeal of task optimization provides a strong set of tools for modeling sensory systems and paves the way to better understand the inscrutable working of the brain



MICROCONTROLLER BASED ANAESTHESIA INJECTOR

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Abstract

In case of any major operations to be performed the patient must be in anaesthetize condition. For operations which last for more than four hours anesthesia should be given to patients on short intervals as complete dose of anesthesia cannot be administered in a single stroke. It may lead to the death of the patient. If the anesthesia administered is low, then the person may wake up at the middle of the operation. In order to administer the condition of the patient the anaesthetist to be present. If the anaesthetist fails to administer serious problems may occur. In order to avoid these inconvenience an automated anesthesia injector based on a microcontroller will be useful. In this system a microcontroller and a syringe infusion pump will be provided. The anaesthetist can decide the level of anesthesia to be administered in millilitres per hour to the patients using three different sensors. The sensor sends signal to the microcontroller and using the information provided the microcontroller controls the signal to the desire level and fed it into the syringe infusion pump in proper manner



DEVELOPMENT OF VOICE OPERATED EXOSKELETON ARM USING SOLAR POWER

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Abstract

Exoskeleton are as of now being investigated for help of those with weak limbs. A great deal of paralyzed individuals with motor disabilities are confronting challenges. This paper is to develop a model undertaking of voice worked exoskeleton arm utilizing solar power going about as a help gadget for paralyzed individuals. It audits the upper exoskeleton arm with expanded degrees of freedom (DOF), voice commands and solar power. The exoskeleton arm makes no falsification of supplanting the lost arm, however attempts to supplant a few capacities that were lost. The gadget can be worn according to will and can be evacuated when not needed. A nonattractive material is utilized for the manufacture and will attempt to overcome the confinements in decreased expense and weight.



FINGERPRINT BASED MEDICAL INFORMATION SYSTEM

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Abstract

Medical data implies all data connected with treatment of the patient, and is, by its nature, the most sensitive and necessary data in terms of privacy of the individual. Recently, laws, policies, and technological standards square measure quickly developing to securely protect the medical data of the individual. This model applies fingerprint recognition technology to the medical data system, to ensure a reliable electronic case history system which may be accessed globally. It provides associate degree identification and denial interference operate, by applying fingerprint recognition to the access of doctors, nurses, and different medical staff. The EMR authentication system supported the projected fingerprint recognition technology allows the user to eliminate the inconvenience of personal key management, and provides security authentication that's most fitted for personal networks, as external communication isn't needed. specifically, the reliability of the EMR system is increased through disabling delegation of the personal key, that is that the most major problem of electronic signature authentication.



ARDUINO BASED MEDICINE REMINDER

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Abstract

The principle motivation behind this paper is to propose the essential thought of programmed prescription update hooked in to ARDUINO which can assist the patients with taking their recommended drug at the right time. Programmed medication update is a clever to plan to assist the patient with taking their drug on schedule and subsequently may decrease an opportunity to recover from their disease. At times, the matured patient takes the off-base medication and their off-base dose erroneously causing the serious issue. This framework isn't only useful for an individual however can likewise have a significant commitment in medical clinics. In the present, focused and booked life, individuals are experiencing bunches of ailments however are not ready to recall their prescription and timing of it and here this framework can be of genuine use. This framework utilizes LCD (Liquid Crystal Display), keypad (push button), ARDUINO module, RTC framework, and caution framework. This versatile and efficient framework would be useful for each age gathering.



SIGNAL PROCESSING FOR COMMUNICATION

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Abstract

The technology has advanced to such a level that connecting with the world and its people can be done in duration of milliseconds. Though there are many new aspects and devices that have contributed in the improvement of communication, the quality and speed has always been the best in the signal processing medium. Signal processing is the process of analyzing and modifying the signals to synthesize and interpret them as sound or images. This solution resolves the problem of lack of quality communication as it ensures to improve transmission at a cheap rate. This process can be operated or researched in a digitalized version. The digital signal processing can be applied in the front end of transmitters and receivers of wireless communication. Communication is the process of interconnection between two sources or a group of source of information. Growing population and lack of proper communication means has induced more challenges in quick and clear way to set up interaction, thus new devices came up with the development in science and technology for creating a unique and revolutionary way of interacting. As soon as the competition began to increase, the speed and efficiency of the medium of communication were targeted to procure the top position in the industry. Doing so would increase efficiency and allows one to connect in a more flexible and improvised manner. This processing comprises of the radio frequency layer that limits few factors among which the concerning ones are speed, power and size.



PATIENT MEDICINE REMINDER SYSTEM

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Abstract

The aim of this project is to prompt people United Nations agency forget to require their medicines on time. Aged individuals attributable to their age generally chuck to require their medication. This project can support to prompt the patient to require his/her medication at prescribed time. The planned system is best suited to aged persons and people who're terribly busy, as these devices cannot simplest prompt them of their drug treatments with a buzzer sound but conjointly shows the decision of the medication to be taken at that point. The patient will store the several time of the distinctive drugs by a matrix computer keyboard. Supported associate RTC (Real Time Clock) interfaced to the microcontroller, the programmed time for medication is displayed on the LCD in conjunction with a buzzer sound to alert the patient some taking the most effective drugs. The microcontroller employed in this challenge is of 8051 family. RTC used maintains an accurate time because it is supported with the help of a crystal.



OPTIC DISC AND CUP SEGMENTATION METHODS FOR GLAUCOMA DETECTION WITH FULLY CONVOLUTIONAL NEURAL NETWORK

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Abstract

Glaucoma is a disease that damages eye's optic nerve and it is the leading cause of global irreversible blindness. A vertical cup-to disc ratio which is the of the fundus eye image is an important clinical indicator for glaucoma diagnosis. Optic Nerve Head(ONH) assessment is a convenient way to detect glaucoma early and cup to disc ratio(CDR)is an important index for ONH evaluation. It is mainly focus on noise removal process. The image is Preprocessed to enhance the contrast between cup and disk. Thus it is fundamental task to segment Optic Disc (OD) and Optic Cup(OC) from the fundus images automatically and accurately. The Fully Convolutional Network(FCN) is employed as a main core in this Deep neural network architecture.FCN transforms the fully connected layer in the traditional Convolutional neural network (CNN) into Convolutional layer and then a classification map is obtained with same size as the original image by up-sampling.



ULTRA-LOW POWER QRS DETECTION AND ECG MONITORING ARCHITECTURE USING HYBRID COMPRESSION TECHNIQUES

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Abstract

The ECG compression architecture for Internet of Things (IoT) Healthcare devices that is used as real time monitoring of cardiac State is proposed. In order to accomplish this goal the Hybrid compression technique is used. In this system the compression ratio of the R peak data which is to be transmitted is increased when compared to the variable bit compression technique and the power consumption is also reduced. Hybrid compression technique is the combination of Variable bit length compression and Dictionary compression. An absolute value curve length transform (A-CLT) is used for QRS detection with minimized hardware resources .The paper explains the design and analysis of Hybrid compression technique .This concept can be used in Pacemaker to monitor the cardiac state of the patients.



SMART HELMET FOR SAFETY ACCIDENT DETECTION AND NOTIFICATION

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Abstract

In This paper present smart helmet technology using GSM (Global system for mobile communication) and GPS (Global Positioning System) that safeguard that the rider cannot active the two wheeler vehicle without wearing the smart helmet. This smart helmet uses simple cable replacement for wirelessly switching on a vehicle, so that the vehicle should not start without both the key and the smart helmet. Also, whenever the rider or driver starts Ignition, the MQ3 sensor measures the content of the alcohol in his breath and automatically switches off the vehicle if driver or rideris drunken. To make driversafety GSM (Global system for mobile communication) and GPS (Global Positioning System) technology is used. Vibration sensors are placed in different places of smart helmet where the probability of hitting is more which are connected to Arduino board. So when the rider crater and the helmet hit the ground, these sensors sense and gives to the Arduino board, then controller extract GPS data using the GPS module that is interfaced to it. When the data exceeds minimum stress limit then GSM module automatically sends message to ambulance or family members with location using of GPS.



GESTURE BASED SIGN LANGUAGE FOR HEARING IMPAIRED PEOPLE

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Abstract

Gesture is one of the method used in sign language for non-verbal communication. It is most commonly used by deaf and dumb people who have hearing or speech problems to communicate among themselves or with normal people. A disabled person who is not able to speak or a person who speak a different language, the mobile device can be a boon for them as understanding, translating and speaking system for those people. In this paper, we implement a android based hand sign recognition system which can be used by disabled person. Vision based Technique is capturing by an image through a camera which converts the text to speech. It provides a way for the deaf people to read a text by speech to text conversion technology. Also, it provides a technique for dump people using text to voice conversion.



INTRAVENOUS FLUID LEVEL INDICATOR WITH MOVABLE SENSOR UNIT

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Abstract

Saline, one of the most popular intravenous therapy plays a major role in the management of patients who are critically ill. Surveillance of saline bottle level is very important because when the bottle is emptied and the needle is not removed from the vein then the blood flows outward into the bottle. In hospitals, the nurses or caretakers are responsible for monitoring the saline bottle level. Mostly, due to negligence and any unusual condition, the exact timing of removing the needle from the patient's vein is ignored which causes a serious casualty and may lead to death as well. To prevent the accident due to the ignorance of caretakers and to provide alertness for nurse, the proposed is cost-effective smart saline level monitoring device which includes IR sensor and LCD display. The system is built by using IR sensor and microcontroller. IR sensor can be used to detect the motion of flow of drip. IR sensor will be placed around the glucose bottle which is movable and can be fixed at any point at which level nurse is needed. When the glucose level reaches the point at which sensor is fixed automatically buzzer/alarm will be turned ON at patient room for the alertness of patient as well as the attender. At receiver side LCD display is used to display the reached value as well as indicate the room number where the drip bottle has to be replaced which can alert the nurse station. This system keeps nurse /attender aware of reach of level of drip bottle.



AN ASTUTE ASSISTIVE DEVICE FOR VISUALLY IMPAIRED PEOPLE

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Abstract

Visual impairment is a global health concern that causes blindness or partial blindness to any people irrespective of their age. According to the World health Organisation (WHO), there are 65% people who are visually impaired over the world population. Among the total world population, 82% people are blind. Several blind guidance systems and Travel aids have been developed earlier, to support and improve their quality of their lives but, Most of these systems are limited in their capabilities to function the best as possible. It also cannot provide any navigation information to the user. In this paper, we present a comparative study of the wearable and portable astute assistive device that senses the path (Example: Obstacles, Location, Hazards) immediately. This paper aims in addressing the issues of the existing walking aids and developing a better design to ensure safety, ease and independent mobility to the visually impaired people. The system described here focuses on developing an improved system that makes use of GSM, GPRS, Accelerometer sensor, Ultrasonic sensor on integration with google assistant interfaced to the device with google map and another mobile application for object identification, collision detection and path finding for the blind people.



SMART MEDICINE BOX

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Abstract

The project aims to make a smart medicine box for those who regularly take medicines. This work mainly helps the old age people who are suffering from permanent diseases like diabetes, blood pressure, cancer, heart problems and several other health issues. This cabinet will be connected to mobile applications that can cause multiple warnings when the medication is about to finish. It also provides a warning signal when the patient fails to take the medication in time to the care taker. Additionally information will be sent to the medical store through GPS system when the medication is to be ordered.



A STUDY ON VARIOUS MACHINE LEARNING FOR BREAST CANCER

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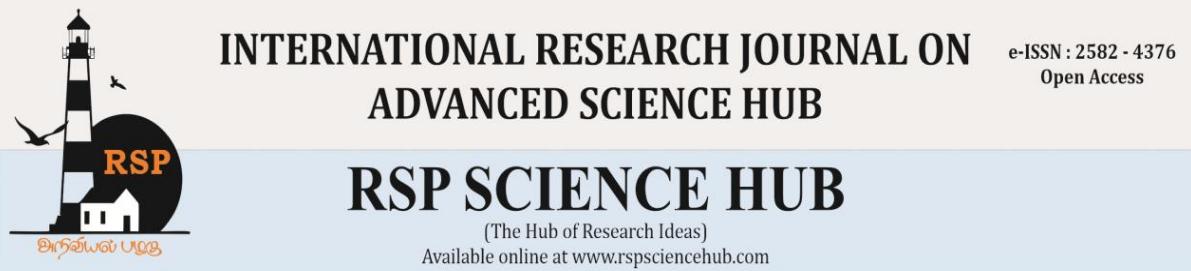
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Abstract

Breast cancer is the most invasive cancer among women in recent days. The causing factor of the disease is many which are very difficult to determine easily. The diagnosis and classification process for identifying the cancer requires a great deal of effort for physicians. Here digital image processing plays a vital role for assisting in the classification and detection of the cancer. Several algorithms are involved in deep learning for diagnosing breast cancer to determine benign or malignant. Here we are analyzing various deep learning algorithms on the Wisconsin breast cancer dataset to predict a benign or malignant.



MULTI SENSOR STRATEGIES TO ASSIST BLIND PEOPLE

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Abstract

In this project we are using two ultrasonic sensor, one ultrasonic sensor is for detect the objects when they come closely to blind people and which is interfaced with microcontroller. It Is also measure the distance between the blind people and the coming object. It is consists of ultrasonic transmitter and receiver. The transmitter always transmitting the waves, the receiver receives the reflected ray and converts it in to digital pulse. The ultrasonic sensor sends the high-low pulse to the controller. The pulse time will vary depends on the closeness between the sensor and the object using this pulse timing the controller measure the distance. When the distance becomes low, the controller will switch on the particular voice for indication. So the user can easily identify that someone is nearing. Another ultrasonic sensor is for deduct the dig when they come closely to blind people and which is interfaced with microcontroller. This ultrasonic sensor is fixed to down direction of the blind person. It's also measure the distance between the blind people and the coming dig. It is consist of another ultrasonic transmitter and receiver. The voice processor is stored some inbuilt voice that will activate on different voice for indication.



PNEUMONIC NODULE EFFECTUAL DISCLOSURE USING MALIGNANCY LEVEL CLASSIFICATION

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Abstract

Prediction of lung cancer is most challenging problem due to structure of cancer cell, where most of the cells are overlapped each other. The image processing techniques are mostly used for prediction of lung cancer and also for early detection and treatment to prevent the lung cancer. Image quality and accuracy is the core factors of this research, image quality assessment as well as improvement are depending on the enhancement stage. The summary for the prediction of lung cancer by previous researcher using image processing techniques is also presented. There are three main components: multichannel super pixel level feature extraction and fusion, kernel sparse representation, and segmentation. In this method, sparse coding and dictionary learning, both part of kernel sparse representation, are implemented in a high-dimensional feature space F with the help of the kernel trick. Fusion system passes information within each decomposition level so that the details of the source image is preserved expressing the artifacts. It is difficult to determine whether narrowing of a spinal canal. In Proposed, Qualitative analysis like Clustering and quantitative analysis like feature extraction and image quality assessment is used to segment the cancer detected portion in lung scanned images. To segment the portion, have to filter out the acquired image based upon the masking methodology. The Clustering function will be applied extracted throughout the filtered image. After filtering and contrast enhancement, image quality assessment (Mean Square Error, Peak Signal to Noise Ratio etc.) is calculated to compare other techniques. After segmenting cancer region, the patient's caretaker can receive the details through E-mail as report. Finally Accuracy estimation will be done for algorithm efficient level. After result, Feature Extraction and Image quality values are plotted and the message is sent to the caretaker through GSM.



A KNOWLEDGEABLE MEDICAL CARE EXPLOSION SYSTEM

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Abstract

The healthcare sector is one of the most challenging and fastest growing sectors in research issues. One of these is medical care. The hospital management needs to control the process of report generation and distribution of reports to the user (patient or doctor). The process is done manually. We propose a project that develops an automated medical reporting service for health care environment. This is achieved by creating two window services. Initially the window service1 checks the status field of all rows in the transaction table and selects the rows for which the reports should be generated where the status field is "OPEN". For each row selected, it browses through the master tables and gets the appropriate stored procedure and parameters to execute them and get the data which are required to generate the report. These data are stored in the data sets and they are connected to the RDLC file where the design of report is specified. A folder is been created named with the user-id in a specified location and the generated medical report is saved into the created folder as a PDF file. The window service then updates the states of the field as "WIP" (Work in process). The Window service2 also checks the status field and selects the rows for which email should be sent, where the status field is "WIP". It fetches the appropriate PDF file which is saved by window service1 and sends it as e-mail to the user, where the E-Mail ID of the user is retrieved from database. Finally when the email is sent it updates the status as "CLS" that represents close. Each and every action performed by both the Window Services is recorded in the Event Log. It is very useful see the happenings in the window services and also we can save it as a file if needed.



AN UNSUPERVISED APPROACH FOR PREDICTING THE BREAST CANCER USING K-MEANS WITH COMPOUND FEATURE GENERATION

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Abstract

Cancer is a serious threat and considered as most feared and dreaded disease. It is most common medical problem. In medical field, even experts are facing lots of problems and strain in both predicting and diagnosing the all types of cancer. There are numerous medical equipment available for diagnosing the cancer. Still medical experts are having puzzlement in predicting the cancer beforehand. So, we attempt to predict this deadly disease by using machine learning techniques. There are divers algorithms in machine learning for predicting the cancer. A few algorithms are k-nearest neighbor, support vector machine, Artificial Neural Network (ANN), Convolutional Neural Network (CNN), Bayesian decision rule, logistic Regression Model. We study the breast Cancer data obtained from the Breast Cancer Wisconsin (Prognostic) dataset (WPBC) from UCI machine knowledge with the hope of rising precise forecast replica for breast cancer using data mining system in this experiment. In WPBC dataset, the breast cancer dataset is categorized as twelve parameters. In order to improvise the efficiency, out of twelve parameters, the eight premium parameters should be chosen with the help of Compound Feature Generation (CFG). After applying CFG, the dataset is processed by k-means algorithm for better results. We evaluated various algorithms and found k-means algorithm has provided better accuracy and efficient outcome.



FOOD IMAGE RECOGNITION USING CNN

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Abstract

People find difficult to balance their food in daily life. The tasks of detecting and recognizing food images using convolutional neural network (CNN) and balance estimation of recognized food gives solution for maintaining balance of food . Be-cause of the wide diversity of types of food, image recognition of food items is generally very difficult. However, deep learning has been shown recently to be a very powerful image recognition technique, and CNN is a state-of-the-art approach to deep learning. We applied CNN to the tasks of food detection and recognition through parameter optimization. We constructed a dataset of the most frequent food items in a publicly available food-logging system, and used it to evaluate recognition performance. CNN showed significantly higher accuracy than did traditional support-vector-machine-based methods with handcrafted features. In addition, we found that the convolution kernels show that colour dominates the feature extraction process. For food image detection, CNN also showed significant higher accuracy than a conventional method did.



IMPLEMENTATION OF IMAGE PROCESSING TECHNIQUE FOR FLOWER CLASSIFICATION PROCESS USING EVALUATIONARY ALGORITHMS

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Abstract

In this project work, issues related to various stages involved in development of an effective and efficient flower classification, detection and retrieval system are addressed. The algorithm models in flower segmentation flower classification, flower detection and flower retrieval are made Successful attempt . To support effective classification of flowers, we propose a novel method to segment a flower from its background based on whole part of the flower. Further, we used a novel technique to detect the whole region of flowers based on fuzzy c means clustering technique. For a classification the model was proposed based on combined features and classifiers. The different features like color moments, texture feature, geometric features are extracted from the segmented flower images. Probabilistic neural network, Convolution neural network algorithms are used for the purpose of classification. The fusing possibilities for features and classifiers will improve performance of the classification have been explored already. We evaluate our method on a 11 category and a 165 category over database. Despite significant amount of intra-class variation, small inter-class variation and the scale of the database, we demonstrate good classification performance and very good retrieval performance.



DESIGN OF GDI BASED HYBRID FULL ADDER FOR EFFICIENT COMPUTING SYSTEMS

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Abstract

The main objective of the proposed GDI based hybrid full adder design is to provide the minimum energy consumption with less area. The aim is to reduce the size of the nanometer. The proposed hybrid design is simulated using SPICE with 22nm at an ULV of 0.2 v. In the recent years, the ultra-low- voltage (ULV) Operation is gaining more importance for minimum energy consumption. Full adder is one of the basic computational arithmetic block in many of the computing and image processing applications. The simulation results have shown that the proposed design achieved the significant improvements in the comparison with the other reported designs by achieving 92% savings in the energy, with only 14 transistors.



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ANDROID APP BASED ELECTRONIC- NOTICE BOARD SPEECH TO TEXT CONVERSION

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Abstract

In many educational institutions, the information is shared using paper notice board and text type of wireless notice board. In this way of information sharing is to take more time. Because every time type announcement message manually in phone. To overcome this realtime problems, the voice based electronic notice board is implemented. In the wireless notice board, user provide the voice information to android app and it converts that voice message in to text ,then the information goes to server page from android app through wireless and it produce cumulative server page retrieved in android app. The sending information passes from server page to LCD display through Node MCU. Finally, text message appeared in LCD.A button is placed near the display, if a person in the receiver side pressed the button, the acknowledgement message viewed will be send to the sender.



DEEP LEARNING ALGORITHMS USED IN FLIGHT DETECTION IN REMOTE SENSING IMAGES

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Abstract

Object detection in Remote sensing image becomes very difficult because of its dimension, position and type. Extracting features is the first required process for object detection. The quality of extracted features is very important because it directly governs the output. So Powerful feature representation is necessary. In this regard, the neural network (i.e. like Deep learning network) model selection plays an important role. in addition, feature extraction with the help of local contextual feature gives appreciable output. Here, few studies about the algorithm used in object or flight detection from the High Resolution Satellite Image. It can give an abstract idea about few algorithms. It makes the selection of algorithm little simpler.



IMPLEMENTATION OF AN IMAGE DEFOGGING ALGORITHM FOR MILITARY APPLICATION

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Abstract

Computer vision is an interdisciplinary scientific field and has their own importance in the area of Agriculture, Forestry, Geography, Land surveying, Military, with the advantage of rich information. Image processing techniques are commonly used to enhance an image and to extract the useful information from it. Images acquired by a visual system are seriously degraded under foggy weather, which will affect the detection, tracking and recognition of targets. Fog plays a major role in concealing the contrast of the images. Thus, restoring the true scene from such a foggy image is of significance. Due to the poor visibility of outdoor images generate significant problem for military application, this leads to increase the soldiers death in army. One of the reasons is bad weather conditions in the border of Indian army. This paper presents an efficient Defogging algorithm using Histogram Specification/Matching with Wavelet Transform for military images. In this method, the color image is converted into HSV color space to process the algorithm. Fog affects the Saturation and Intensity components in an image. Hence to improve the contrast, the Contrast Limited Adaptive Histogram Equalization (CLAHE) is used in this proposed work. In this algorithm two correction modules are there. To correct the Saturation component, the CLAHE is applied. To correct the Intensity component, have two major steps: Wavelet Transformation and Histogram Specification/Matching that performs low frequency enhancement. The experimental results demonstrate that this algorithm produces appealing defogged images with some performance metrices.



INTEGRAL STOCHASTIC COMPUTATION BASED ON FSM AND NEURAL NETWORK IMPLEMENTATION

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Abstract

Stochastic computing (SC) has recently gained plenty of attention due to extremely low-cost and fault tolerant hardware implementation. Random bit streams are used to represent operand. Arithmetic computing units in SC can be carried out by the simple combinational logic and sequential circuits. The finite state machine (FSM) based technique, has been widely exploited to implement the functions. To solve the problems of long latency and precision loss in SC, the integral SC (ISC) technique was developed. We present a new methodology of the FSM based implementation in ISC. As compared to the conventional ISC, the proposed technique reduces the hardware cost and provides a good approximation. The FSM based design is developed to reduce the number of states in the conventional ISC method with the state transitions in the FSM are modeled as a reversible Markov chain with n states. The presented technique is used in function implementations of the neural networks. In machine learning, the perceptron is an algorithm for supervised learning of binary classifiers. This classification algorithm makes its predictions based on a linear predictor function developed in the FSM technique above, combining a set of weights with the feature state. The proposed method exhibits the best accuracy performance for the functions. It indicates that the circuit area, delay, power and precision loss of this technique are significantly improved.



IMPLEMENTATION OF AN IMAGE RESTORATION TECHNIQUE FOR VEHICLE NUMBER PLATE DETECTION IN FOGGY ENVIRONMENT

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Abstract

The vehicle registration plate detection is an emerging area in image processing. The registration plates are detected by using the cameras on different locations for controlling the traffic, accidents etc. The visibility of outdoor images captured is often degraded due to the presence of haze, fog, rain, mist etc. The vehicle registration plates could be detected in normal environment, but when the environment changes to foggy, then the working of the system which detects the registration plate of vehicle gets affected. This work concentrates to detect the Registration plates (Licensing Plates) of vehicle in such environments using restoration technique. Fog is the combination of Airlight and Direct attenuation. This paper introduced a Single image defogging approach, which is dark channel prior for restoration technique. The foggy image is restored by taking dark channel prior. Based on the assumption that there will be dark pixels whose intensity values are very close to zero for at least one color channel within an foggy image. The defogging is accomplished through three major steps: Atmospheric light estimation, Transmission map and scene radiance. The top 0.1% brightest pixels in the dark channel is used to estimate the atmospheric light A. The transmission map implies the amount of light transmitted through fog from the object point to the camera. Finally, scene radiance is obtained using estimated atmospheric light and transmission map. From the result, this algorithm removes fog and preserve the information in the image.



DIGITAL IMAGE WATERMARKING USING HYBRID TECHNOLOGY

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Abstract

With the rapid development of digital information age, digital watermarking technology is gradually becoming a useful way to protect the copyright of multimedia vendors. The digital image watermarking is based on the fact that a watermark which is secret information is hidden into the host image such that image doesn't get disturbed and watermark can be retrieved easily. The method should be robust and imperceptibility. A robust digital image watermarking method based on Discrete Wavelet Transform (DWT) and Single Value Decomposition (SVD) is proposed in the present work. In this method, first, the host image is decomposed into wavelet coefficients providing four sub-bands LL, LH, HL, HH in the first level of decomposition. After that SVD is applied on these sub-bands to get diagonal matrices of singular values. The watermark image is then embedded into these singular values of sub-bands. The Proposed algorithm is simulated using MATLAB R2013a. The performance is measured by calculating PSNR, MSE Values. The PSNR value obtained for the current work is better compared to the previous approaches. Furthermore, the obtained results also shows that using the present method the watermark image can be extracted properly even when the watermarked image is under various attacks like rotation, salt and pepper noise, Gaussian filter, histogram equalization etc.



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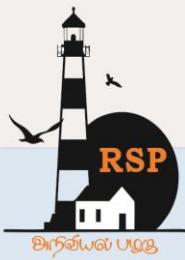
VALIDATION OF IMAGE POSTS IN SOCIAL MEDIA

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Abstract

While posting photos on social media sites and other photo sharing sites has become common place for many people, there are certain risks associated with it. Posting the organic content may help people to gain knowledge. But sharing the post with violent and abusive contents is not appreciable. The images and videos goes viral without knowing the fact behind it. This makes severe effects on some people. So we, therefore bring out the idea of classifying the words using the text classification process using data mining algorithms and also provide image post validation using Python OCR tool. There is a system to validate words or sentences related to the image post and ignores the post if it has violent and abusive contents. People should be conscious about what they sharing. When social media sharing is thrown into the mix, it can help change this pattern. Threats, intimidation messages and rumors can be sent to the masses to create discomfort and chaos in the society. These can be reduced by the validation system for image posts.



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IOT BASED SECURITY FOR HOME APPLIANCES USING ZIGBEE PROTOCOL

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Abstract

The paper explains various security issues in the existing home automation systems and proposes the use of logic based security algorithms to improve home security. The work classifies natural access points to a home as primary and secondary access points depending on their use. Logic based sensing is implemented by identifying normal user behavior at these access points and requesting user verification when necessary. User position is also considered when various access points changed states. Moreover, the algorithm also verifies the legitimacy of a fire alarm by measuring the change in temperature, humidity and carbon monoxide levels, thus defending against manipulative attackers. The experiment conducted in this paper used a combination of sensors, microcontrollers, Raspberry Pi and ZigBee communication to identify user behavior at various access points and implement the logical sensing algorithm. In the experiment the proposed logical sensing algorithm was successfully implemented for a month in a studio apartment.



IMPLEMENTATION OF SMART RESIDENTIAL ENERGY METER MONITORING SYSTEM USING ARDUINO-UNO

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Abstract

The design and development of a smart monitoring system for household electrical appliances in real time is implemented. This system monitors the electrical parameters of household appliances such as voltage, current and subsequently calculates the power consumed. This system developed with low-cost and flexible in operation and thus can save electricity expense of the consumers. In this system, consumer can do power management by knowing energy usage time to time. Main objective of this project is of comparing the output of previous and current month data repeatedly once for 15 days and give the notification to the consumer and gives the alarm when the message is sent from LCD display and placing of the magnetic detecting sensor to notify the illegal activity of the consumer and in this system. It can be able to turn off the supply by the web page which going to home and the data will be uploaded in web page for every 10 days and data are stored in data log .If the bill is not paid ,then the officer will turn off respective power supply of the home .This work can be extended to large scale. It can also able to predict the value of the next month detail with the reference of the previous month data by using the machine learning.



DESIGN AND DEVELOPMENT OF SOLAR PANEL WITH LUO CONVERTER

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Abstract

This paper involves the technique of producing high voltage with solar energy by using positive output parallel connected Luo converters. The Luo converter provides the stabilized output current along with the constant output voltage. Manipulating the higher current requirement of the load through the Luo converter is difficult because of current inequality. This is mainly due to dissimilarities in the power semiconductor switches and circuit components used in the Luo converters, which may lead to converter failures. In order to get maximum power from solar panel, Perturb and Observe method is used for switching pulses to luo converter. In hardware, STM controller has been developed in the feedback system to maintain the load current at both converters constant. In this paper, Initially Modelling of solar panel and luo converter is developed then converter performance is analysed using MATLAB/SIMULINK software and Verified Experimentally



REGENERATIVE BRAKING SYSTEM FOR HYBRID ELECTRIC VEHICLE WITH THERMO ELECTRIC GENERATOR TO IMPROVE THE BATTERY CHARGING EFFICIENCY

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Abstract

As we know that the regenerative braking, the efficiency is improved as it results in an increase in energy output for a given energy input to a vehicle. The normal regenerative braking system is only used to convert into the kinetic energy (using Wiper Motor) to electrical energy in case of the long drive to take a vehicle to produce the heat from the generator. The loss of heat energy is used in this process. When the generator to produce the heat with the help of peltier plate to convert the heat energy into electrical energy. These energies are saved with the help of battery. Hence, improving regenerative braking as much as possible in order to recapture this to-be wasted energy will significantly impact the driving range of EVs. To consume the how much of the voltages measurements are to show the LCD with the help of IOT Module



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INTERNET OF THINGS BASED AUTOMATIC
FERTILIZER INJECTOR FOR CORRESPONDING
PLANT

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Abstract

Agriculture is very important thing for people the formers counting are reduced day by day, for the reason the automation is implemented to agriculture. In forming process have a lot of work like a planting, watering, fertilizing, etc. In this project we provide the agricultural purpose. In this project the fertilizers are sprayed by the pump by the commands are given by the user. Fertigation is the process of delivering plants nutrients along with water to produce a quality crop with higher yield where the fertilizer and water are in the on tank with segment. If the user is enter the type of plant by using mobile (IOT) that system will mix the needed fertilizer with water and sprayed to the plant.



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A FULLY PORTABLE IOT CONTROLLER BASED ROBOT SYSTEM FOR CLEANING SOLAR PANELS

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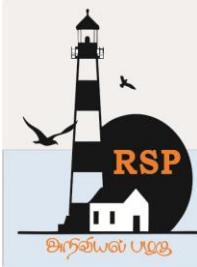
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Abstract

This paper proposes the accumulation of dust (soiling). Dirt particles on the surface of solar panels decreases the amount of sunlight reaching the solar cells and thereby reducing the overall power output and efficiency. Hence, cleaning the Solar panels is a problem of great practical engineering interest in solar power generation. This Paper solving the problem of solar panels and methods used for dust removal are discussed and the Micro controller-based robot is proposed to clean the solar panels. By proper cleaning mechanisms are used to clean the solar panels. It's going to show about 25% improvement in output energy or about 15 to twenty enhancement in conversion efficiency. Portable robotic cleaning device is developed and features a flexible platform which travels the whole length of a panel.



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STUDIES ON PERFORMANCE OF LIGHT WEIGHT CONCRETE USING EXPANDED POLYSTYRENE (EPS)

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Abstract

Lightweight structural concrete can be used for structural applications, with strengths equivalent to normal weight concrete. The benefits of using lightweight concrete Reduction in dead loads making savings in foundations and reinforcement. This paper handles the characteristics of new lightweight concrete consisting of polystyrene, sand, cement, coarse aggregate and water. The mechanical and chemical properties are discussed in order to study the behaviour of the polystyrene under different environments (i.e. field usage). Expanded Polystyrene (EPS) is a rigid cellular plastic, which is found in a multitude of shapes and applications. Expanded Polystyrene insulation is lightweight, rigid, closed cell insulation. The mix workability is very high at a very low water/cement ratio (down to 0.35). This work can be considered a new line of research for lightweight concrete as the mixing method is very simple, relatively inexpensive and does not need complex machinery systems and also to determine the optimum dosage of Expanded Polystyrene Beads. In the present work the Expanded Polystyrene beads are added at 30% interval (by total volume of fine aggregate) and their properties such as density and compressive strength are studied. From the results obtained it is observed that an optimum of 40% of Expanded Polystyrene beads can be replaced by volume of fine aggregate. It can be used for plain concrete structure, where M25 concrete is preferred.



AN EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF CEMENT BY EGG SHELL POWDER AND COCONUT SHELL ASH IN CONCRETE

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Abstract

The rising cost of construction materials in developing countries is necessitated research into the use of alternative materials in civil engineering construction. Concrete is a rocklike material mixing by fine aggregate and coarse aggregate and allowing the mixture to harden concrete. Egg shell powder and coconut ash is used as substitute in cement mixture. In 2004 ASTM international C150 allowed incorporation of upto 5% mass fraction of limestone in Ordinary Portland cement .Hawkins et al 2003 reported that use of upto 5% limestone does not affect performance of OPC. Calcium rich egg shell is a poultry waste with chemical composition (calcium carbonate) nearly same as that of limestone saving money and energy and reducing carbondioxide emissions. Use of egg shell waste can have benefits like minimizing use of cement conserves natural lime and utilizing waste material. Research indicates materials rich in amorphous silica can be used in partial replacement of cement. For example C Fly ash contain more than 10% CaO, Blast furnace slag and silica fumes. American Society For Testing and Material (ASTMC) 618-78 specifies any pozzolanas that will be used as a cement binder in concrete requires a minimum 70% of silica alumina and ferric oxides. The aim of this study is to determine suitability of coconut shell ash for using partial replacement of cement in concrete production. Therefore the entire egg and coconut product is used in efficient and Environmental friendly approach. Characteristics of the coconut ash are dependent on the components like temperature and of burning. It burned under controlled temperature. The main aim of this was to investigate the behavior of egg shell powder and coconut ash for ordinary portland cement. Partial replacement of cement concrete, 5%, 10%,15%. It is then cured in water and is tested for its plit tensile test on 7 days, 14 days, 28 days.



AN EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE AS BLACK COTTON SOIL MINERAL CONCRETE

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Abstract

This paper focus on replacement of fine aggregate as black cotton soil in mineral concrete. Black cotton soil is one of the major soil deposits of India. They exhibit high swelling on shrinkage when expose to changes in moisture content hence have been found to be most troublesome from engineering consideration. As the project has in mineral concrete, the mineral that has been used is white dolomite (powder form). Alternative name of dolomitic rock is known as dolostone. Dolomite is a Calcium Magnesium Carbonate ($\text{CaMg}(\text{CO}_3)_2$). The black soil is blend with white dolomite. Stabilization occurs due to presence of lime in dolomite. Black cotton soil (Bcs) with cement can increase the sub grade bearing capacity and strength significantly. Over a past few decades, there have been a wide range of alternatives available in field of construction, especially with reference to manufacture of concrete. Further, there are some inventions like fly ash concrete, bacterial concrete etc. There are also researches using black cotton soil as a raw material in the manufacturing of concrete along with mineral to alter the additional stabilizer in the concrete as partial replacement of sand in Indian context. These soil contained abundant iron and fairly high quantities lime ,magnesia and alumina. The term is also used for a sedimentary carbonate rock composed mostly of mineral dolomite. 20mm size of coarse aggregate, grade 53 cement and high performance concrete of grade 50 is used. In present work attempt has been made to evaluate effect of dolomite powder in Black cotton soil for improvement property by performing various laboratory test by varying the proportions. 3%,6%,9%of dolomite powder is added to the concrete at various stages. This technique is cheap and cost effective.



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STRENGTH AND DURABILITY PROPERTIES OF CONCRETE WITH M-SAND AS FINE AGGREGATE INCORPORATING WITH ACRYLIC STAPLE FIBER

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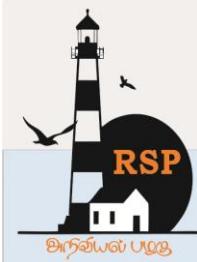
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Abstract

The river sand is the natural form of fine aggregate material which is used in the concrete and mortar. It is usually obtained from the river bed and mining's has disastrous environment consequences. Instead of the river sand we are using M-sand as a material in the concrete. The development of acrylic fiber concrete marks an important milestone in improving the product quality and efficiency of the concrete. By using of acrylic fiber in the concrete will increase the strength and durability of the concrete. It enhances the performance of the concrete and increase energy absorption compared with plain concrete. In the present work of the project we are going to analysis the compressive strength, flexural strength, split tensile strength, bond strength and also the rapid chloride penetration test, weight loss measurement and carbonation test for durability test has been suggested



AN INVESTIGATION ON STRENGTH AND DURABILITY PROPERTIES OF SELF COMPACTING GEOPOLYMER CONCRETE WITH GRANITE POWDER

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Abstract

Concrete is the most predominantly used construction material in the world. The main binding ingredient of concrete that is ordinary Portland cement is a major contributor to global warming. The cement industry is the second-largest producer of greenhouse gas. The total world production of cement is expected to be around 4800 Mt by 2030, which indicates the like impact on global warming indicates. In this regard, Utilization of industrial by-products from various industries as a supplementary cementitious material in concrete along with cement has been well recognized for its enhanced properties and potential to reduce environmental impacts. Most of the works on Granite powder based Self Compacting Geopolymer Concrete (SCGPC) reveals that hardening is due to heat curing. Recent studies on the various properties of heat-cured geopolymer concrete have shown its suitability for applications such as precast concrete members. The heat curing process requires special arrangements, which is energy consuming and may not be feasible to apply in cast-in-situ concreting. Therefore, the development of self compacting geopolymer concrete suitable for curing at ambient temperature will widen its application to concrete structures. SCGPC is a special type of concrete which can be placed and consolidated under its own weight without any vibration and which at the same time is cohesive enough to be handled without segregation or bleeding. Geopolymer is a relatively new binder, which can be a sustainable and economical binding material as it is produced from a combination of industrial by-products such as Granite powder replacing 10% of fine aggregate in concrete. SCGPC is synthesized by mixing aluminosilicate material with a strong alkaline solution, such as sodium hydroxide and sodium silicate. The Setting mechanism of the SCGPC is depended on the polymerization process. Nowadays, the demand for natural sand is very high. This project will discuss the properties of the SCGPC when the fine aggregate is partially replaced with fine aggregate. It is not only cost effective but, also facilitates the safe disposal of industrial waste, hence protects the valuable land from pollution and ambient curing also save the energy required for oven curing. Greenhouse gas emission potential will be reduced as much as 90 percent when compared with Ordinary Portland Cement.



LOW COST ROBOTICS FOR AGRICULTURE - HARVESTING AND PICKING

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Abstract

Agriculture is the backbone of India. The robotics plays a major role in various fields such as industrial, medical, military applications etc., The robotics field are gradually increasing its productivity in agriculture field. Some of the major problems in the Indian agricultural are rising of input costs, availability of skilled labors, lack of water resources and crop monitoring. To overcome these problems, the automation technologies were used in agriculture. The automation in the agriculture could help farmers to reduce their efforts. The robots are being developed for the processes such as fruit picking, monitoring, irrigation, etc., All of these functions have not yet performed using a single robot. In this the robots are developed to concentrate in an efficient manner and also it is expected to perform the operations autonomously. The proposed idea implements the robot to perform the functions such as planting, irrigation, fertilization, monitoring, and harvesting of an onion crop. These functions can be integrated into a single robot and then performed. The robot is expected to perform the functions such as planting, irrigation, fertilization, monitoring, and harvesting autonomously in the field of onion.



IMPROVING TRANSIENT RESPONSE OF INTERCONNECTED POWER SYSTEM WITH ELECTRIC VEHICLE (EV) USING GWO TUNED FOPID CONTROLLER

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Abstract

Load frequency control is an important topic in interconnected power system to ensure the stability of the power system. The power system becomes complicated due to the addition of renewable sources and it becomes highly imbalance because of the inconsistent power delivery of the renewable sources. The power generation as well as the load profile is highly dynamic. This leads to the necessity of improving the transient response of the interconnected power system. This paper presents the analysis of the transient response of the two area interconnected power system with electric vehicle. The PID controller is tuned to improve the transient and steady state response of the system. The response of the system with PID controller is not satisfactory hence this paper proposes fractional order PID controller (FOPID) to improve the response. The FOPID controller is tuned using the Grey Wolf Optimizer. The results are compared to validate the proposed GWO tuned FOPID controller.



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SPOT WELDING MACHINE USING HCT

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Abstract

The project aims to spot weld the battery terminals without affecting the battery life. Based on availability of materials on local area an option of various metal strips can be spot welded on the battery terminals. The high C rating of the battery increases the thickness of the metal strip to be used hence high thickness metal strip upto 0.7mm can be welded without affecting the battery life. The temperature sensor is used to monitor the temperature of the battery during welding. This controls the temperature and increases the battery life with good contacts of metal strip is assured. The current from the transformer is controlled by proper delay timing of relay using microcontroller. This reduces the red hot spot of metal strips during welding.



MODERN STREET LIGHTING SYSTEM BASED ON WIRELESS SENSOR NETWORK

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Abstract

Street lighting represents a large part of energy consumption in India which accounts for nearly 53% and there occurs an increasing demand in the electricity market. As a result of rising demand, energy efficiency improvement is becoming more important. The main aim of the project is to design a Modern Street lighting system using a wireless sensor network (IOT). Using this project we can monitor and control the street lamps using wireless sensor network technology. If we look at the existing system the power consumption and maintenance cost of the street light lamp is high. To overcome these faults in the existing system a wireless sensor network based on IEEE 802.11 is employed as this standard is given for its ultra-low power consumption. This system would provide optimal costing for streetlight maintenance, Remote on/off control and supports faulty detection of lamps. Wireless technology provides good economic savings and good efficiency, as there will be no physical damages to the nearby buildings, short circuits, and wiring installation and services. Life of Street Lamps relies upon the duration for which they get utilized. Using the wireless sensor network (IOT) technology the status of the street lamps can be monitored and controlled easily which results in increasing the life of the street lamps. The system employed the use of Wireless sensor network nodes for sensing of light and it transfers data of the present node to the next node and then the final node is connected to WIFI enabled microcontroller (IOT). The status of the street lamps can be viewed and accessed remotely through HTTP web server and mobile applications.



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DESIGN OF BLDC CONTROLLER FOR SENSORED BLDC MOTOR

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Abstract

The growing industrial demand needs the sophisticated control techniques for mechanism connected with motor. This leads to develop new control techniques for the motor. Since the DC motors are replaced with AC motors due to high maintenances. The AC motors are the major players in industrial drives controlling these motors are difficult. Since the BLDC motors used in some process control industries. This project constraint involves in developing sensored BLDC controller with high torque. This uses the low cost microcontroller moreover this control circuit was fully fabricated using PIC microcontroller. The proposed design will allow the user to either rotate the motor in clockwise direction or in counter-clockwise direction. The sensor will give response to the controller circuit depending on the position of the rotor. The controller circuit then fixes the direction of the current that flows to the stator.



IOT BASED SOLDIER MONITORING SYSTEM WITH AUTOMATIC TEMPERATURE ADJUST SUIT

K. Karvendaran¹, V. C. Santhvel², V. S. Sindupriya³ & A. Sivasakthi⁴

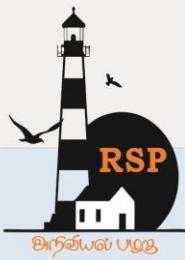
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Abstract

Nowadays the world has uncertain and insecurity situation that means the war is cultivated in any time. At the same time the soldiers to join in army is very less. In this situation we have to protect or increase the soldier's life. To increase the soldier's life we have a solution in embedded system. In this project we provide the special advanced techno suit for the army soldiers. While doing a war some people of soldiers are missed at that time the military base is confused about the soldier he was dead or alive. For avoiding this problem we found this suit. This suite is multi purposed suit. It is providing the location of soldier and injuries of the soldiers though IOT data base. IOT is a technology used for security purpose and they are used to safeguard the connected devices and networks in them, it also involves interconnecting computing devices by internet. Each thing is provided a unique identity and to automatically transfer data over internet. In some times the soldiers are stay in heavy winder and heat, for this problem we provide the automatic temperature control system. Its reduce the body temperature will goes to high and vice versa goes low increase the temperature it will helps to maintain the body health of the soldiers. Thus if a soldier is in any health trouble then with the help of sensor they are identified and they are regularly monitored by the IOT and the suits do it reversible temperature action.



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FRACTIONAL ORDER OF LOWPASS FILTER

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Abstract

The aim of this project is to represent the designing of a fractional order low pass filter using Operational Transconductance Amplifier (OTA). In this design various techniques are used such as, current mirrors to facilitate the working of the circuit. Simulation is done using 180nm technology on Pspice software. Response of the design circuit considers in terms of the gain, bandwidth etc. frequency is the main parameter which has to be maintaining according to the need. Along with that the noise in the simulation results has to be minimized.



SMART PORTABLE LIVE STREAMING USING OPENCV

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Abstract

Nowadays, the Closed-Circuit Television (CCTV) surveillance system is being utilized in order to keep peace and provide security to people. There are several defects in the video surveillance system, such as: picture is indistinct, anomalies cannot be identified automatically, a lot of storage spaces are needed to save the surveillance information, and prices remain relatively high. This paper describes the design and implementation of a low-cost system monitoring based on Raspberry Pi, a single board computer which follows algorithm written in Python as a default programming environment. In addition, the system is portable which significantly decrease and save investment costs. The algorithm implemented on Raspberry Pi, which enables live streaming camera. The live video camera can be viewed from any web browser, even from mobile in real-time.



PRIVACY PRESERVING OF PERSONAL HEALTH RECORDS USING ADVANCED MULTI-FACTOR AUTHENTICATION MECHANISM

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Abstract

In cloud computing, data security and privacy factors are playing a vital role because most of the sectors storing their applications and data in the third-party server. Among the various applications, health care information is one of the crucial factors because it helps to decision-making about the patient health. During the data storage process, third-party may get access to the user information which affects complete healthcare data and create the difficulties in patient health, hospital administration and integrity. According to the discussion, the security and privacy of the personal health records should be preserved by making use of the effective method of security system because the information is essential and sensitive. So, this paper introduces an advanced hybrid multi-factor authentication mechanism with effective steps. The introduced multi-factor authentication mechanism reduces intermediate data access due to the complexity of key access. Then, the efficiency of the system has been evaluated using experimental results such as authentication accuracy, encryption and decryption time, execution time.



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AGRICULTURE AUTOMATION FOR PRECISION FARMING AND TO ERADICATE PEST

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Abstract

Agriculture is the basic source of food supply for all countries in the world. Water is the Essential resources for agriculture. The automated irrigation and crop field monitoring system is used to optimize the use of water resource for agriculture. The system consists of sensor network for humidity, temperature, soil moisture, soil pH and NPK. Internet of the things (IOT) is an ecosystem of connected physical objects that are accessible through the internet. Real time monitoring data can be utilized and the performance can be tracked. Hence high yield can be achieved. Numerous seasonal, economic and biological patterns influence the crop production but unpredictable changes in these patterns lead to a great loss to farmers. These risks can be reduced when suitable approaches are employed on data related to soil type, temperature, atmospheric pressure, humidity and crop type. Whereas, crop and weather forecasting can be predicted by deriving useful insights from these agricultural data that aids farmers to decide on the crop they would like to plant for the forthcoming year leading to maximum profit.



A MODEL TO MAKE CLOUD COMPUTING SECURE WITH RELIABLE MULTI-TENANCY

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Abstract

Cloud computing is the term which is reverberating all over, a term on each lip and on each wish list, because it appears it is getting to be a more effective innovation for future, but synchronously the cons of cloud computing is increasing it. Cloud computing gives long term of multi-tenancy which permits different clients to share the same resource. In spite of the fact that it has major advantage over the innovations on the other confront it comes up short to avoid the prime threat of security and authentication protocols. Our thought is to supply secure authentication and an encryption model to make multi-tenancy a more secure and adaptable feature of cloud computing. Too, the aim of the model primarily centers on authentication of the client using the Kerberos authentication protocol with both ECC and SSH5 Encryption Standards. The broadly utilized calculation to serve the Kerberos authentication process is RSA (Rivest-Shamir-Adleman), but RSA isn't productive for littler and simpler gadget keys but more effective for bigger keys, which have been published in many works. After giving a survey over this issue our work propose Elliptical Curve Cryptography shaking hands with SSH5 Algorithm to provide double-layer security. In expansion to this we moreover give a productive algorithm for resource allocation mapping to overcome the insufficiency of multi-tenancy and make it much simple compared to both time and the resource.



EFFICIENT PORTABLE CAMERA BASED TEXT TO SPEECH CONVERTER FOR VISUALLY IMPAIRED PEOPLE

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Abstract

Aim is to recognize the text from an image for better understanding of the visually impaired people by using a particular sequence of different processing modules like OCR technology. Our proposed system identifies and compares different stages in the process of text detection, recognition and analyses different approaches used for text extraction from color images and of any languages. Two commonly used methods for this problem are stepwise methods and integrated methods, whereas this task is further divided into text detection and localization, classification, segmentation and text recognition. The information from these image documents would give higher efficiency and ease of access if it is converted to text form. The process by which Image Text converted into plain text is Text Extraction. Text Extraction is useful in information retrieving, searching, editing, documenting, archiving or reporting of image text. However, variation of these texts due to differences in size, orientation style, and alignment, text is embedded in complex colored document images, degraded documents image, low quality image, as well as low image contrast and complex background make problem text extraction extremely difficult and challenging one. The challenges involved are the font characteristics of the characters in paper documents and the quality of images. Due to these challenges, computers are unable to recognize the characters while reading them. Thus, there is a need for character recognition mechanisms to perform Document Image Analysis (DIA) which transforms documents in paper format to electronic format. In our proposed system, we have discussed the method for text recognition from images using Python 2.7.15 and implementing it using OCR technology.



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A ENHANCED AND AREA EFFICIENT CARRY
SELECT ADDER USING CBL FOR DATA
PROCESSING SYSTEM

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Abstract

Finite Impulse Response Filter is a major building block in Data Processing Systems. The conventional FIR Filters are implemented using Carry Select Adder and Carry select Adder with Binary to Excess converter which consumes more area, power and delay is also high. FIR Filter's complexity is dominated by Adder. Thus an efficient FIR Filter was designed using Carry Select Adder with Common Boolean Logic to reduce Power, Area, Delay complexity of the existing Filter's block. The Carry Select Adder (CSLA) is utilized to lighten the issue of carry propagation delay. Nonetheless, the CSLA is not region productive and there is a scope for reducing the area which yields a superior outcome in power utilization as well. In the focal point of area, power and delay reduction, Common Boolean Logic (CBL) is proposed and validated through variable bit size. A comparison with existing conventional adder architecture SQRT CSLA design proves the work effectiveness on significant parameter power and area.



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VLSI SYSTEMS FOR HIGH SPEED IOT DEVICES

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Abstract

The expansion of the Internet of Things (IOT) is vast whilst the devices it's composed of are getting shrunk day by day, which brings with it an entire mostly comprising new set of challenges in the semiconductor world. Wireless sensors which are the key to future for the long term of running on the IoT devices. But to achieve it we need an efficient way of combining the hardware, smart software and the networking technologies. The main concerns of IoT are the safety and privacy issues which consists of the large amount of private or sensitive data's that the system consists of which are processed in them. To achieve top level of security in these IoT hardware systems has a greater level of challenges than in the super computers, due to the factors takes into consideration such as power, area and price which are major constraints and physical accessibility by the attackers. Hence with such posed challenges, the problems are solved by designing a well-structured lightweight symmetric encoding and by implementing it which is emerging technology in IoT low power applications with more flexibility in the stream ciphers than the other ciphers which are portable and simultaneously can also act as wireless systems. The work done here as described is the implementation of Trivium stream cipher by using the method of parallelization techniques with efficient reduction within the power consumption and also the reduction in area with same technique. The implementation of trivium design are characterized in Tanner to analyse the reduction within the power and also to be area efficient.



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SMART WHEELCHAIR AND HOME AUTOMATION

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Abstract

This paper portrays the plan of a creative and minimal effort portability assistive innovation that is utilized to encourage the control of a wheel seat and home apparatuses by utilizing propelled voice direction of the crippled individuals. The four fundamental elements of the framework wheel seat can be explored through voice order or moving four position which is caught utilizing accelerometer sensors worked in android telephone. Utilizing IR sensors we can evade the danger of crash and damage and keep up some more secure good ways from the articles. Handicap individual can & stand up and switch on-off the light or fan unfailingly so to give them more unwinding this framework offers home mechanization by giving voice direction or android telephone or by physically swipe the catch on the screen. We have actualized this framework for the handicapped individuals when they faces any undesirable issues, for example, on the off chance that they shockingly tumbled down from the wheel seat or anyone badgering them or if the burglars upset them quickly the alarm message will lost to the worry individual through the GSM module. This framework will build the certain degree of the impaired people and encourages them to conquer their issues that they looked in their everyday life. We can actualized this framework can be crippled individuals faces any undesirable issues, for example, on the off chance that they lamentably tumbled down from the wheel seat or anyone.



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PREFATORY INTELLIGENCE

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Abstract

Health has prime importance in our day-to-day life. Sound health is necessary to do the daily work properly. This project aims at developing a system which gives body temperature and heart rate using LM35 and pulse sensor respectively. These sensors are interfaced with controller Arduino Uno board. Wireless data transmission done by Arduino through wifi module. ESP8266 is used for wireless data transmission on IoT platform i.e. thing speak. Data visualization is done on Thing speak. So that record of data can be stored over period of time .This data stored on web server so that it can seen to who logged. The Internet of Things (IoT) has been widely used to interconnect the available medical resources and offer smart, reliable, and effective healthcare service to the elderly people. Health monitoring for active and assisted living is one of the paradigms that can use the IoT advantages to improve the elderly lifestyle. In this paper, we present an IoT architecture customized for healthcare applications. The proposed architecture collects the data and relays it to the cloud where it is processed and analyzed. Feedback actions based on the analyzed data can be sent back to the user. A prototype of the proposed architecture has been built to demonstrate its performance advantages.



DEVELOPMENT OF MEDITRADE ANDROID APPLICATION

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Abstract

This project entitled development of meditrade android application is a prescription application which means to determine probably the most concerning issue in India by giving reliable access to certified medicinal services, items and administrations at reasonable costs in an advantageous way. The issue of unused drugs may happen in homes, emergency clinics, wholesalers, retail drug stores, or at the assembling locales. In India, regular medication removal rehearses remember direct removal for the earth – in land-fill site or at disengaged place, or by consuming. Drug stores burn the unused and lapsed meds. Numerous metropolitan partnerships don't know about and henceforth they need prescription removal offices. This Meditrade application gives an entryway to the clients to sell their unused to the individuals who are needing the prescription. The clients can put their unused prescriptions right now the individual who needs similar drugs can purchase from the dealer. To check the genuineness of the prescriptions, the vender is deprived to give the photograph of verification code to the purchaser where the authenticity of the drugs is checked. This application is created in the android stage through the Android Studio programming. Here, we are bringing different medication selling applications on a solitary stage. This causes the ordinary citizens to utilize our application almost certain than different ones, which is one of our fundamental destinations.



MEDICINE REMINDER SYSTEM

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Abstract

This task persistent prescription update is a framework which aides in drug organization and checking. This framework comprises of an Arduino Uno microcontroller with an inbuilt EEPROM and a constant circuit. This framework is driven by an installed program that sources of info predefined parameters which are handled dependent on the information factors entered by means of a UI gadget, for example, the keypad. Every one of the sections made on the keypad are simultaneously and all the while showed on the LCD board of the gadget. The rationale for the preparing is incorporated with the inserted program to start the caution through a sound alert. In addition to the fact that it has a caution framework, yet additionally a LCD which shows the drug to be taken at the update time. The possibility of computerized world where the extraordinary sorts of sensors and neighborhoods preparing associated with share data is utilized in numerous ventures these days. There are different items which are created dependent on these thoughts. Social insurance industry is one where part of upgrades is occurring. The proposed framework comprises of an IOT empowered drug box which gives opportune messages for the patients about their drug time. It alarms the patients to take medications at the appropriate time. The medication subtleties can be recorded in the portable application by the quiet himself or by the guardian of the quiet. The framework jelly track of prescription admission, load of medication, etc.



VOICE CALLS SIGNAL EQUALIZATION USING DISCRETE METHOD

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Abstract

The Proposed system we are proposing mobile cellular network and gaining signal efficiency. A cellular network is a mobile network that provides services by using a large number of under stations with finite power, each covering only a limited area. This area is called a cell. The limited power makes it possible to re-use the same frequency a few cells away from the base station without causing interference. In this way a geographic broad area can be enclosed with only a limited set of frequencies. A cellular network is a very effective manner of utilizing the scarce frequency resources". By observing channel effective and cellular network, here we are finding signal strength and its weakness by applying conference call with five nodes or five members. Here we are the cellular network for rectification of signal strength and their weaknesses then we are approach carrier signal modulated technique in Data circuit-terminating equipment (DCE) side. "A DCE is a device that sits between the data terminal equipment (DTE) and a data transmission circuit (DTC). It is also called data Transmission equipment and information carrier equipment. Generally, the DTE device is the terminal, and the DCE is a modem". In this proposed system we approach signal noise removing by Lynn's filter and gaining the signal efficiency by DWT method. Also, we are approach equal voice clarity without any errors and noise.



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DICOM MEDICAL IMAGE RETRIEVAL USING DEEP LEARNING ARCHUTECTURE

Menaka K¹ and Dr. P. D. R. Vijayakumar²

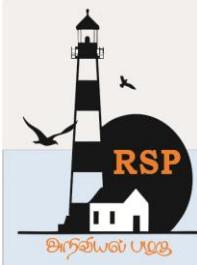
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Abstract

Medical services play an important role in the society. There is a large need of service in medical field in our daily life. Here a system is presented that locates reference tag sand image processing for DCM image retrieval. This technique performs the tag matching directly in the images by passing parameter recognition and using classes as queries. First, it makes use of DCM image processing techniques, in order to extract powerful features for the description of the tag of the images. The features used for the comparison are capable of capturing the general shape of the query and its classes based on tags of the image. In order to demonstrate the effectiveness of our system, we used a collection of 22 classes in the data base and we trained all classes by tags and image classification by deep learning algorithm used to gain the rate of retrieval in the MATLAB GUI.



AN ARDUINO BASED AUTOMATIC BABY SWING CRADLE FOR RURAL AND ECONOMICALLY LOWER PEOPLES

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Abstract

Nowadays parents are busy in their professional life, so they do not get sufficient time to take care of their babies. Moreover, in today's lifestyle, all the woman's has to manage home along with their office work simultaneously. After long working hours, they have to take care of the home along with the baby. They may not get enough time to swing the cradle manually and calm the baby. Also it is very difficult even for the house wives to sit near by their babies and set them whenever they cry. This paper presents about the baby cradle is used to make sleep and soothe to the baby, especially for rural area and economically lower peoples. We did one solution for to automate the baby cradle with two axis movement. In this arduino based automated baby swing cradle, we used servomotor, soundsensor, and dry or wet condition of the baby bed and the information is sent to a registered GSM based mobile number. If the baby is sleeping in the cradle that time baby is crying means the sound sensor is found the baby crying sound. If a baby is crying means parents or guardian of the baby comes and soothe the cradle. But in the solution when the sound sensor found the crying sound at the same time automatically cradle is relaxing for the baby how means the servomotor operated with a two axis movement with different speed. The rain sensor is used to find the dry and/or wet condition on the baby bed. This arduino based automated baby swing cradle is the most cost effective and user friendly for baby care.



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ARDUINO BASED AUTOMATED DOSAGE PRESCRIPTOR USING LOAD CELL

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Abstract

Anesthesia remains the backbone of pain control in most survey. At Present in clinical practice an anesthetist employs manual system of anesthesia administration to the patient. Anesthesia are entitled to work of calculation of several parameters to prescribe the dosage level required for patients. Medication error is major cause in medical profession, critical care and anesthesia are no exceptions to it. The higher or lower level dosage of anesthesia during surgery to the patient causes adverse effects. To overcome such tedious problem, the paramount goal of the project is to design an effective automatic dosage prescriptor. In the proposed Automatic dosage prescriptor, dosage level is determined by patient weight and height. Patient weight is taken as an input from weight sensor (or) load cell. HX711 ADC is interface between microcontroller and load cell, it convert analog to digital signal. Obtaining weight of a patient as an input, dosage level will be viewed in the monitor.



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DIAGNOSIS OF LIVER DISEASE USING MACHINE LEARNING

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Abstract

Liver disease account for over 2.4% of Indian deaths per annum. Diagnosis of liver disease at a preliminary stage is important for better treatment. It is a very challenging task for Medical researchers to predict the disease in early stages owing to subtle symptoms. To overcome this issue, this project aims to improve liver disease diagnosis using machine learning approach by predicting the percentage of chances of a person being affected by the liver disease. The algorithm used in this project is Support Vector Machine (SVM) as it gives more accuracy than other algorithms such as Artificial Neural Network (ANN), Logistic Regression, K-Nearest Neighbor (KNN).



IMAGE ENHANCEMENT ALGORITHM FOR UNDERWATER IMAGES

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Abstract

To monitor the sedimentary process and morphological evolution in the Sea, free-ascending deep-sea tripod (FDT) has been developed. This FDT was equipped with a deep-sea camera and landed on the sea floor at a depth of 2100 m. Although the FDT was equipped with an artificial light, the battery capacity limited the duration and intensity of light. Therefore, enhancing such low-illumination images to obtain clear visual effects is an important advancement for analyzing the geological evolution process. Owing to refraction, absorption, and scattering of light by suspended particles in water, raw underwater images have low contrast, blurred details, and color distortion. This paper proposes an enhancement method to improve the deep sea photographs. In this method, RGB Image is converted to HSV color model. Hue is a pure component of the module. Saturation is an expression for how the spectrum color added with white color. Intensity refers to brightness of the color. To improve the contrast in saturation component the Contrast Limited Adaptive Histogram Equalization (CLAHE) is applied. In the Image, noise present as a low frequency component so to remove this low frequency component, High frequency Emphasis Butterworth filter in frequency domain is used and contrast stretching also applied for improving the contrast of the image. From the observed result, this proposed algorithm enhances the visibility of underwater images.



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SMART BORDER ALERTING SYSTEM

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Abstract

In day-to-day life, we hear about the many fishermen being caught due to lack of knowledge that has crossed the international border and put under Sri Lankan naval force and even killed. The sea border between the countries is not easily identifiable, which is the main reason for crossing the border. Here we have designed a system using the Microcontroller unit which protects the fishermen by notifying the country border to them. By using the Global Positioning System (GPS receiver) the latitude and longitude values of the boat at its current location are identified and sent to the Microcontroller Unit. It compares current values with predefined values. The area is divided into four zones- normal zone, warning zone, a zone near to restricted zone and finally the restricted zone. If the boat is in a normal area, then the LCD displays a normal zone. In case it moves further and reaches the warning zone, the LCD displays a warning zone. If the fisherman fails to see the display and moves further the boat enters nearer to the restricted zone the alarm will turn on and the speed of the boat engine automatically gets controlled and gets reversed. With the help of GSM, the information is sent to the Coastal Authority and Third-party. By this method, we can alert the fishermen to remain at safe distance from the border and monitor them by preventing illegal activities such as smuggling, intruders.



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IMAGE COMPRESSION USING MIRROR ADDER

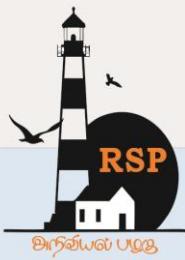
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Abstract

Low power is an imperative requirement for portable multimedia devices employing various signal processing algorithms and architectures. In most multimedia applications, human beings can gather useful information from slightly erroneous outputs .This paper explains design architectures that can be used for image compression algorithms using mirror adder approximations .Reduction at the transistor level is the technique used and the advantage of this technology is relaxation of numerical accuracy, reduction in switched capacitance, shorter critical paths, voltage scaling and reduced power consumption. Since low power is the basic requirement of digital systems, while regulating the power consumption the optimum performance of the system will be maintained. Mirror adders are used for quick and approximate operation of a digital system .The possibility of image compression is presented through the approximate adders.



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RETAINING SERVO BASED ROBOT ARM

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Abstract

This paper represents the development of retaining the action using remotely controlled robotic arm based on servo motors. Nowadays the application of robot arm is widely used in research laboratories and industries to automate processes and reduce human errors. This paper tells us about the stepwise development of wirelessly controlled moving robotic arm with many specialized features. In Industries automation operation is to be done by the robotic arm which can do a variety of work with recurrence. The proposed system consists of the robotic arm with 5-Degrees Of Freedom (DOF) with servo motors for each joint movement, microcontroller-based control unit for control of arm motion with Mechanical User Interface for providing a user-friendly environment for controlling the end to end of robot arm remotely. The specialization of the robotic arm is that it can memorize the action of the master robotic arm, which is interfaced wirelessly with the slave robot arm and retain the action of the master robotic arm. The Master robotic arm is attached with the potentiometer to provide feedback to the microcontroller and slave robotic arm follows the instruction of the master robot arm and operates repeatedly. This robot arm interfaced with the robotic vehicles and is used for many applications and the robotic vehicle is also operated by the master robotic arm. In the future, by giving artificial intelligence, it will be more powerful and help people from many problems.



HYBRID CUCKOO SEARCH WITH GENETIC ALGORITHM FOR TRICLUSTERING TIME SERIES GENE EXPRESSION DATA

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Abstract

Bioinformatics serves as a computational tool for addressing large scale biological problems that carry intensive data. Analyzing a time series microarray dataset is a challenging task due to its three dimensional characteristic which measures the expression value of the genes under different experimental conditions and across different time points. Clustering techniques are applied to analyze gene expression data to extract group of genes under the tested samples based on a similarity measure. Triclustering extracts subset of genes that contains information related to the behavior of some genes from under some conditions over certain time periods. In this work, hybrid cuckoo search with genetic algorithm is proposed to extract co-expressed genes over samples and times with triclustering solution. The performance is compared using the evaluation indices Mean Square Residue and Average correlation value. The biological significance of the resultant genes that are clustered is analyzed by performing gene ontology, transcription factor binding site analysis and gene enrichment analysis.



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POWER GENERATION FROM SOLAR AND WIND ENERGY

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Abstract

Demand of electricity is growing very rapidly for industrialization & urbanization of India. Renewable energy sources being available abundantly in nature can be considered as a better option over conventional energy sources. Solar-Wind hybrid systems combine two of the fastest growing renewable energy technologies. Due to this inherent nature of wind and solar, power production can be levelled out all throughout the day with solar-wind hybrid system. This system is used to generate and maximize power from solar and wind energy with MPPT using incremental conductance algorithm and it is given to inverter circuit to run the load and also battery is used for storage purpose. Simulation result demonstrate accurate operation of the PIC16F877A controller and functionality of the maximum power point tracking algorithm in each operating condition both for solar and for wind power.



IMPLEMENTATION OF DRONE WITH AUTOMATIC REFILLING MECHANISM AND GESTURE CONTROL MODE FOR TREE PLANTING APPLICATION

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Abstract

In this paper, the implementation of drone using image processing and the seeds are shoted using quadcopter. With the never-ending growth of the internet and applications, there is much potential and scope for remote access and control and monitoring of such network. Drone sows the seeds as much as possible, depending upon the distance and battery capacity and can plant millions of trees within a year which help to protect OZONE layer as well as helps to reduce air pollution. It confirms fast reforestation which will help to make our planet green. The effort targeted on this concept of where the controlling and monitoring operations are expediting through smart devices. Drones are equipped with different states of the art technology such as infrared cameras, GPS and laser. Wide-ranging home automation systems and technologies considered in review with central controller Raspberry pi, OpenCV, solar PV panels-based, motion controller-based and internet with performance.

Index Terms – Photo Voltaic (PV), Open Source Computer Vision Library (OpenCV), Global Positioning System (GPS).

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