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Department of **Electronics and Communications Engineering** Presents

International conference on

" Modernistic in Electronics and Communication " on 28th & 29th March 2022

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Dr.P.Santosh Kumar Patra

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Ranked 3rd by Competition Success Review

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National ranking by ARIIA

NIRF ranked

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(ICSMEC-22)

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Departments of Electronics and Communication Engineering

Online International Conference
"Smart Modernistic in Electronics and Communication" (ICSMEC–22)

ISBN No: 978-81- 953918-6-8

Sri. M. LAXMAN REDDY
CHAIRMAN

MESSAGE

I am extremely pleased to know that the Department of Electronics and Communication Engineering of SMEC is organizing Online International Conference on **"Smart Modernistic in Electronics and Communication" (ICSMEC-22)** on 28th and 29th of March, 2022. I understand that the large number of researchers has submitted their research papers for presentation in the conference and for publication. The response to this conference from all over India and Foreign countries is most encouraging. I am sure all the participants will be benefitted by their interaction with their fellow researchers and engineers which will help for their research work and subsequently to the society at large.

I wish the conference meets its objective and confident that it will be a grand success.

M. Laxman Reddy

M. LAXMAN REDDY
Chairman

Sri. G. CHANDRASEKHAR YADAV

EXECUTIVE DIRECTOR

MESSAGE

I am pleased to state that the Department of Electronics and Communication Engineering of SMEC is organizing Online International Conference on **"Smart Modernistic in Electronics and Communication" (ICSMEC-22)** on 28th and 29th of March 2022. For strengthening the "MAKE IN INDIA" concept many innovations need to be translated into workable product. Concept to commissioning is a long route. The academicians can play a major role in bringing out new products through innovations.

I am delighted to know that there are large number of researchers have submitted the papers on Interdisciplinary streams. I wish all the best to the participants of the conference additional in sight to their subjects of interest.

I wish the organizers of the conference to have great success.

G.CHANDRASEKHAR YADAV
Executive Director

Dr. P. SANTOSH KUMAR PATRA
PRINCIPAL

I am delighted to be the Patron & Program Chair for the Online International Conference on "Smart Modernistic in Electronics and Communication" (ICSMEC-22) organized by the Department of Electronics and Communication Engineering on 28th and 29th of March 2022. I have strong desire that the conference to unfold new domains of research among the Electronics and Communication Engineering fraternity and will boost the knowledge level of many participating budding scholars throughout the world by opening a plethora of future developments in the field of Electronics and Communication Engineering.

The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas, to establish research relations and to find many more global partners for future collaboration. About 400 research papers have been submitted to this conference, this itself is a great achievement and I wish the conference a grand success.

I appreciate the faculties, coordinators and Department Head of Electronics and Communication Engineering for their continuous untiring contribution in making the conference a reality.

(Dr. P. Santosh Kumar Patra)
Principal

CONVENERS

The world is always poised to move towards new and progressive engineering solutions that results in cleaner, safer and sustainable products for the use of mankind. India too is emerging as a big production center for world class quality. Computer Science, Electronics, Information Technology and Electrical Engineering plays a vital role in this endeavor.

The aim of the Online International Conference on "Smart Modernistic in Electronics and Communication" (ICSMEC-22) being conducted by the Department of Electronics and Communication Engineering of SMEC, is to create a platform for academicians and researchers to exchange their innovative ideas and interact with researchers of the same field of interest. This will enable to accelerate the work to progress faster to achieve the individuals end goals, which will ultimately benefit the larger society of India.

We, the organizers of the conference are glad to note that more than 300 papers have been received for presentation during the online conference. After scrutiny by expert reviewers 117 papers have been selected, and the authors have been informed to be there at the online platform for presentations. All the accepted papers publish with ISBN number in the Conference Proceedings and all the selected papers will be published in Scopus/UGC recognized reputed journals.

The editorial Committee and the organizers express their sincere to all authors who have shown interest and contributed their knowledge in the form of technical papers. We are delighted and happy to state that the conference is moving towards a grand success with the untiring effort of the faculties of Department Head of Electronics and Communication Engineering and with the blessing of the Principal and Management of SMEC.

Dr. B. Harikrishna, Professor & HOD, ECE.
Dr. A. Anand, Professor, ECE.

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Ms. K. Anitha, Assistant Professor, Dept. of ECE.

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PAPER ID: ICSMEC22-EC0001

IoT Based Coal Mine Safety Monitoring and Alerting System

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Abstract:

Due to many people died in mine accident, the mine safety play a key role in mine produce process. By virtual of recent advancements in the Internet of Things, this paper proposes an intelligent monitoring system for coal mines, which aims at monitoring the coal mine produce process. The proposed sense network architecture is completed based on Arduino and cloud technology. The sense nodes work cycle, powered by batteries, is extended by specific work model. Position of miners can be obtained through inquiry routing tables of network nodes. Manage system is designed to provide services for mine managers. The proposed system can monitor the process of mining intelligently and warn miners and managers immediately when dangerous issues emerge, such as gas leaking and sudden temperatures rise.

Keywords: Raspberry Pi, GPS Module, GSM Module.

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PAPER ID: ICSMEC22-EC0002

IoT Based Controlling Multiple Streetlights with Cloud with Failure Light Indication via SMS

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Abstract:

The IoT (Internet of Things) is a blooming technology that mainly concentrates on the interconnection of devices or components to one another and the people. The primary goal of the project is to provide control and identification of the damaged street light automatically. The lighting system which targets the energy and automatic operation on economical affordable for the streets and immediate information response about the street light fault. The total project is based on Esp-8266 chip and the IOT cloud. The street light which is fault is identified and will be indicated by SMS using the cloud.

Keywords: ESP-8266 CHIP, LED, LDR SENSORS, IOT, CLOUD.

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PAPER ID: ICSMEC22-EC0003

COVID-19 AI-Enabled Social Distancing Detector Using Open CV

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Abstract:
The world we lived in a few months prior is completely different from what it is now. The lack of any antidotes and the absence of immunity, capable of fighting off the virus have made humans more undefended. Hence, Social Distancing is the only best option for us to protect ourselves from diseases, not limited to COVID-19 that may be transmitted through human contact. Social distancing is a technique that may be used to reduce the rate of new cases during a pandemic outbreak.
This paper is focusing on surveillance of public places and detecting whether the people are maintaining social distancing or not. It explains the development of technology through the use of AI- based procedures to detect whether the social distancing norm is followed or not, in any public video stream. The software embedded can distinguish between a person maintaining social distance and a person who is not and will also keep a count of incidents where social distancing was not followed.

Keywords: COVID-19, CV, AI.

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PAPER ID: ICSMEC22-EC0004

Implementation of SHA Algorithm Based Advanced Encryption Standard to Detect IP

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Abstract :
The data which is being communicated can be protected in different ways. For securing sensitive data in various industries Modified Advanced Encryption Standard (MAES) is used. To address issues, an automated key generation, power reduction, optimization of hardware resources techniques and mathematically less operation involved methods are proposed and analyzed in this work by employing modified substitution box algorithms for more security in present communication systems. The new S-box is developed by using the galois field using the affine transformation properties. By using this S-box, the pipelining mechanism was applied to the various stages of MAES. The pipelining mechanism effectively applied to the mix-columns, shift rows and key expansion modules respectively. As these blocks run parallel, it will reduces the time consumption for encryption process, the reduction in time causes to effectively reduces the power consumption for MAES system. The experiments conducted using Xilinx ise environment, the simulation results shows that the proposed method consumes lows hardware recourse utilization as well as power reduction compared to the conventional approaches.

Keywords: MAES, Galois field, S-box

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PAPER ID: ICSMEC22-EC0005

Industrial Protection Safety System

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Abstract:
Today, smart grid, smart homes, smart water networks, intelligent transportation, are infrastructure systems that connect our world more than we ever thought possible. The common vision of such systems is usually associated with one single concept, the Internet of Things (IoT), where through the use of sensors, the entire physical infrastructure is closely coupled with information and communication technologies; where intelligent monitoring and management can be achieved via the usage of networked embedded devices. These devices will connect to internet to share different types of data. We have proposed an Industrial Monitoring System using WIFI module and sensing based applications for internet of things. By detecting the values of sensors it can easily find out the Temperature, Fire, humidity, and gas present in the industrial area and display values on LCD.

Keywords: Sensors, IOT, microcontroller, API codes, WIFI modem**.**

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PAPER ID: ICSMEC22-EC0006

Implementation of Quadruple Adjacent Error Detection and Correction System

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Abstract:
Every communication system requires an error detection and correction systems, which can be achieved by implementing the advanced Error Correction Codes (ECC). The conventional hamming codes are used to correct only one bit error at a time and consuming more hardware resources. Thus, this paper focuses on implementation of Quadruple Adjacent Error-Correction (QAEC) codes with higher correction capacity at the system level to protect memory from Multiple Bit Upsets (MBU'S). As a result, developing ECC with enhanced error correction and less repetition, particularly for adjoining ECC, has become a key challenge. Previous approaches are no longer adequate to meet the accuracy requirements of applications in harsh environments. A method for increasing multiple bit burst error-correction coding with QAEC is provided in this paper. This paper can be implemented in the XILINX ISE 14.2 software with VERILOG programming language.

Keywords: Error Correction Codes(ECC), Multiple Bit Upsets(MBU's),Error Correction, Quadruple Adjacent Error Correction(QAEC)

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PAPER ID: ICSMEC22-EC0007

Chip Design for Turbo Encoder Module for In-Vehicle System

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Abstract:
In this work turbo encoder module for in-vehicle system has been proposed. Hamming encoder and decoder are previously used for communication in IVS modem. It has less error correction capability, high power requirement and high resource utilization for IVS modem. Turbo coders has higher error correction coders when compared with existing correction coders. Turbo coders provides high security, low error rates, high speed data communication support and less hardware resources utilization. The Turbo encoder module is designed and simulated using Xilinx ISE 14.2 software and verilog program is implemented.

Keywords: IVS modem, Turbo coders

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PAPER ID: ICSMEC22-EC0008

Smart Dustbin Container Using IoT Notification

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Abstract:
Nowadays certain actions are taken to improve the level of cleanliness in the country. People are getting more active in doing all the things possible to clean their surroundings. Various movements are also started by the government to increase cleanliness. We will try to build a system which will notify the corporations to empty the bin on time. In this system, we will put a sensor on top of the garbage bin which will detect the total level of garbage inside it according to the total size of the bin. When the garbage will reach the maximum level, a notification will be sent to the corporation's office, then the employees can take further actions to empty the bin. This system will help in cleaning the city in a better way. By using this system people do not have to check all the systems manually but they will get a notification when the bin will get filled. Thus, any object in the physical world which can be provided with an IP address to enable data transmission over a network can be made part of IoT system by embedding them with electronic hardware such as sensors, software and networking gear.

Keywords: Garbage bin, sensor

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PAPER ID: ICSMEC22-EC0009

Satellite Image Enhancement Using Hybrid Wavelet Transform With Interpolation Algorithm

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Abstract:

Satellite Images, enhancement plays a dynamic research topic in image processing. The aim of enhancement is to process an image so that the result is more suitable than original image for specific remote sensing application. Satellite image enhancement techniques provide a lot of choices for improving the visual quality of remotely sensed images. The satellite image enhancement is the process of adjusting digital images so that the results are more suitable for display or further image analysis. The Bilinear and Bicubic interpolation is the existing method used to improve the quality of image. The drawbacks of Bilinear and Bicubic interpolation are visibility, haze i.e white fog, low light, noises, error and atmospheric conditions. The methods that we use in our project are Discrete Wavelet Transform(DWT), Stationary Wavelet Transform(SWT) and interpolation algorithm. The advantages of DWT and interpolation algorithm are perfect visibility enhancement, low noises, errors and improved PSNR and less MSE. The image enhancement is used in satellite, mobile communications and in ISRO and NASA. The MATLAB software is used for execution of the program.

Keywords: Hybrid Wavelet Transform, Interpolation, Peak Signal To Noise Ratio, Mean Square Error.

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PAPER ID: ICSMEC22-EC00010

Visibility Enhancement of Images Captured in Dusty Weather

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Abstract:
This paper mainly concentrates on the visibility of an image captured in dusty weather. An inclement dusty weather can significantly reduce the visual quality of captured images and this consequently leads to hamper the observation of meaningful image details. Capturing images in such weather often leads to poor contrast, deficient colors or color cast. The existing method is "Histogram equalization". Drawbacks of this method is improper dust removal, Image pixels are corrupted, increasing the contrast of its background ,low clarity. Proposed method is "Fuzzy Tristate Mechanism". Advantage's of this method is Improved clarity, peak signal to noise ratio (PSNR) increases , high noise removal and histogram is equally balanced with contrast , color cast and brightness level. Accuracy between existing and proposed method is approximately 86%. Software used is "MATLAB-2016a".

Keywords: Histogram equalization, Fuzzy Tristate Mechanism, Peak signal to noise ratio, Accuracy.

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PAPER ID: ICSMEC22-EC00011

Voice Integrated Speed and Direction Control of DC Motor

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Abstract:
In this project, a system is being proposed, which focuses on the concept of how a robot can be controlled by the human voice. Voice control robot is just a practical example of controlling motions of a simple robot by giving daily used voice commands. In this system, an android app is used as a medium for the transmission of human commands to microcontroller. A controller can be interfaced with the Bluetooth module through the UART protocol. The speech is received by the android app and processed by the voice module. Voice is then converted to text. The microcontroller will further process this text, which will take suitable action to regulate the robot. The objective is to design a robotic car whose basic movements such as moving forward, turning to left or right can be controlled by the human voice. The Hardware Development board used here is the AT mega Arduino board. The software part is done in Arduino IDE using Embedded C. Hardware is implemented, and software porting is done. Generally, recognition of human voice using module cost way too much. After performing an ample number of studies on controlling robots, we concluded that yes, there exists a simple and very efficient way to manipulate robots through our voice. This is an ergonomic approach for the ease of robotic application. Such types of robots will provide great helping hands while performing multiple tasks. The result of our studies also shows that there still exists plenty of space for further research and development.

Keywords : Arduino UNO, Bluetooth, Android phone, DC Motor.

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PAPER ID: ICSMEC21-EC00012

Barcode Detection in Video using Python

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Abstract:
The linear 1D barcode is the important tagging gadget for billions of merchandise offered every day. Barcodes have many blessings however require a laser scanner for speedy and sturdy scanning. Solutions exist to examine barcodes from phone telephones however they count on a cautiously framed photograph inside the discipline of view.
This undermines the genuine viable of barcodes in a huge vary of scenarios. In this paper we existing an actual time method to realize barcodes in the wild from video streams. Our method outperforms the modern day passive methods each in accuracy and speed. Potential industrial functions enabled with the aid of such passive scanning machine are additionally mentioned in this paper.

Keywords: Barcode Detection, Python, Open CV, Computer Vision, Image Processing.

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PAPER ID: ICSMEC22-EC00013

Advance Smart Fire Extinguisher and Alerting System

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Abstract:
Fire outbreak is a major concern at homes, offices, industries etc. It is dangerous and requires high security and control to avoid destruction of lives and property. One of the preventive measures to avoid the danger is to install an automatic fire detector at vulnerable, hence fire extinguisher and alerting system was proposed. It is capable of automatically detecting heat in a given environment, sound an alarm, switch off mains of the building and also spray water to reduce the intensity of fire. The system uses a DHT 11 sensor, a buzzer, 5v DC motor and a LCD screen 16X2 and Node MCU Microcontroller. At the end, the objectives of this project were achieved and the system worked effectively.

Keywords: Node MCU, LCD, Buzzer, Pump, DHT11 Sensor, Fire Sensor.

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PAPER ID: ICSMEC21-EC0014

Design of 16-bit Vedic Multiplier Using FPGA

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Abstract:
A Multiplier is an electronic circuit used in digital circuits, such as a computer, to multiply two binary numbers. It is built using binary adders. A variety of computer arithmetic techniques can be used to implement a digital multiplier. In digital circuits multiplying two binary numbers is done using repeated addition using full adders and half adders. We propose the implementation of an efficient 16-bit Vedic multiplier. It is implemented in Xilinx using Verilog language. The design is done by using structural modeling using components such as half adders, AND gate, and OR gate, which is port mapped to the inputs and outputs accordingly.

Keywords: Multiplier, binary adders, AND gate, OR gate, Xilinx, Verilog language.

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PAPER ID: ICSMEC22-EC0015

IoT Based LCD Scrolling Digital Notice Board

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Abstract:
The paper aim is designing a digital notice board with display on LCD scrolling board using a IOT modem. We can access info directly on LCD scrolling board monitor instead of getting it from the notice board. We can implement this technology in schools collages and banks etc , after accessing every message it automatically resets and display the latest message on LCD scrolling board. This system consists of micro controllers which has number of inputs and output ports and they are interfaced with different input and outputs based on the requirements. Here micro controllers acts as communication medium for all the modules.

Keywords: Internet-of-Things, LCD, Arduino Uno Atmega328 microcontroller

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PAPER ID: ICSMEC21-EC0016

WSN Based Child Live Tracking System Using Arduino UNO

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Abstract:
Now-a-days the chances of missing children are going in rampant. So one of the solution for this problem can be Child Live Tracking System, we are presenting a project on WSN Based Child Live Tracking System Using Arduino UNO. This system is used for tracking the information of the lost child using Google Map along with the position and location of that child through GPS. This process operates simply by keeping the "tracking system device" into the bag and pulse sensor in to the tag of that particular child, who is going to school or outside world and now if in case that particular child is lost or in danger automatically a message is sent to the parents depending upon his pulse rate. In this way the parents get the real time location by receiving the exact position of the child along with the longitude and latitude of that place. Now the parents of that particular child can simply track him/her by entering the latitude and longitude coordinates that have been received from the tracking system device which has been kept in the bag of that particular child and the location of the child can easily be accessed.

Key words : Global System for Mobile Communication (GSM) module, Global Positioning System(GPS), Arduino Uno Atmega328 microcontroller, Sensor.

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PAPER ID: ICSMEC22-EC00017

Design of Miniature Antennas for IoT Applications

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Abstract:
This paper discusses the design of miniature antennas for internet-of-things (IoT) applications. Differently from other communication systems, IoT devices have almost no bandwidth requirements, allowing for strong antenna miniaturization. However, several related aspects must be carefully considered during the antenna design phase. As a representative example, numerical and experimental results concerning the design of a miniature dual-band antenna for IoT geo-location application are presented.
Internet-of-Things (IoT) is going to spread the digital revolution to our ambient environment. This technology will be disruptive by changing the way people interact with their environment, such as at home, at work, in transportation and at sport, in cities or rural areas, in hospital or at school, etc.
The word IoT identifies everything that is connected to the internet and that goes beyond classical computers or mobile phones. A report by Cisco has recently indicated that over 50 billion objects will be connected to the internet by 2020. Such an unprecedented growth is creating new opportunities for industries, businesses and people. Cisco itself has invested $100 million in the creation of an Internet of Everything research center in Toronto, The French startup Sigfox is developing a completely new network dedicated to IoT applications in San Francisco area [3], while the French mobile operator Bouygues Telecom has recently announced the national deployment of an IoT network based on LoRa technology,

Keywords : Internet-Of-Things, Miniature Antennas, Dual- Band Antennas, GPS.

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PAPER ID: ICSMEC22-EC00018

A Low Latency and Low Power Hybrid Scheme for On Chip Networks.

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Abstract:
The code division multiple accesses (CDMA) technique has been recently applied to networks on chip (NOCs) and system on chip (SOC) applications. The design of CDMA system should be done carefully to meet the low area, power, and delay properties with high error detection & correction capacities. But the conventional Hamming codes for CDMA system failed to meet these specifications. Thus, this project work is focused on implementation of a new Walsh basis and Standard basis encoding/decoding method to leverage the performance and cost of CDMA NOCs in area, power assumption, and network throughput. In the transmitter module, source data from different senders are separately encoded with an orthogonal code of a Standard basis and these coded data are mixed by an AND operation. Then, the sums of data can be transmitted to their destinations through the on-chip communication infrastructure. In the walsh basis receiver module, a sequence of chips is retrieved by taking a data selection operation between the sums of data and the corresponding orthogonal code. After a simple accumulation of these chips, original data can be reconstructed. This work will be implemented using XILINX ISE software with Verilog programming language.

Keywords: Code Division Multiple Access (CDMA), Xilinx, Orthogonal Code, Network On Chip (NOC), System On Chip (SOC).

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PAPER ID: ICSMEC22-EC00019

RFID Fastag with Security

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Abstract:
Fastag is a simple, reloadable tag which allows for faster and automatic deduction of toll charges. This tag is fixed on the vehicles windscreen and works on the Radio Frequency Identification (RFID) technology. Since each RFID tag is unique, it represents unique identification number for the vehicle. RFID reader can detect or sense the RFID tags and send the information to the controller (Arduino). Sensed information can be looked into the database for getting the balance in the owner's prepaid account and then the toll tax can be automatically deducted. This system not only deals with toll payments , but also verifies the driving license of person who is driving the vehicle and allows only the authorized person by using Security card ,If he not authorized will get indication through alarm.

Keywords: RFID(Radio Frequency Identification), Arduino.

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PAPER ID: ICSMEC22-EC00020

Design of Dual Port SRAM Using Verilog

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Abstract:
Dual port memory cell is the multiport memory cell that provides required access to multi-processor applications. It uses two additional pass transistors, bit line pair and a word line to provide much needed simultaneous access. Each SRAM cell is accessed by dual ports with devoted word and bit lines to each. Single port SRAM allows access to only single address of a memory cell at a time during each clock pulse but dual port overcomes this drawback and allows concurrent read or write access at different addresses. Thus the efficiency is almost doubled by using dual port RAM. The most important benefit of dual port RAM is that they will not have limitations of access between the two ports, as each processor can be made to operate at different clock frequencies.

Keywords: SRAM, Dual Port, Efficiency.

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PAPER ID: ICSMEC22-EC0021

MR & CT Image Fusion Using Non-Linear Anisotropic Difusion

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Abstract:
In medical science it has been commonly used for computer-aided brain surgery, Alzheimer's therapy, tumor identification & other medical assessment. Accurate fusion algorithms can be made to ensure proper detection of diseases. The mechanism of fusion is incredibly insightful, since it transforms information from a single picture from two or more pictures into a single picture. In addition, the most common application is the use of images of the magnet resonance (MR) & the computed tomography image (CT). The objects in the source images must be reduced. A new algorithm is introduced here for image fusion. In the principal component analysis (PCA) domain, the nonlinear anisotropic filtering (NLAF) most efficiently preserves texture features of the segmented image. The source images are broken down into estimation & information layers by NLAF. The PCA support is used to measure the actual detail & approximation layers. Fusional images are eventually generated by last detail and approximation layers linear combination. The algorithm suggested efficiency & quantitative output is evaluated by image consistency parameters, including the PSNR, entropy (E), square-root (RMS) & structural similitude (SSIM) indices.

Keywords: PCA, NLAF, SSIM.

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PAPER ID: ICSMEC22-EC0022

A New Lossless Encryption of Colour Images for Security Applications

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Abstract:
We live in a digital era in which communication is largely based on the exchange of digital information on data networks. Communication is often pictured as a sender that transmits a digital file to a receiver. This file travels from a source to a destination and, to have a quick and immediate communication, we need an encoding strategy that should be efficient and easy yet secure. In order to protect valuable data from undesirable readers or against illegal reproduction and modifications, there have been various data encryption techniques. Many methods are developed to perform image encryption. Image encryption is used to protect the images and transform into different format. In this paper, lossless encryption for colour images using binary key images has been proposed. In proposed method, the key image size is same as the original image. The key image is either a bit plane or an edge map generated from another image. The method is discussed against common attacks such as the plaintext attacks, brute force attack and cipher text attacks. The experimental results shows that the lossless encryption of all types of images. The software used is MATLAB 2016-a.

Keywords: Data Encryption Techniques, Key Image, Lossless Encryption

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PAPER ID: ICSMEC22-EC0023

IoT Surveillance Robot

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Abstract:
The main objective behind this paper is to develop a robot to perform the act of surveillance in industrial areas. Robots can be manually controlled or can be automatic based on the requirement. The purpose of this robot is to roam around and provide information from the given environment and to send that obtained information to the user. In this project, one can control the robot with the help of mobile or laptop through Internet of Things (IoT). This robot will collect data from remote place and able to send those data to a remote IoT cloud database. This robot will be controlled via android mobile phone. We can control the movement of the robot by sending instructions via IOT telnet app from our android phone, a multipurpose robotic vehicle that detects gas and fire alerts in industry. Each sensor which can be constrained by Arduino dependent on IoT .Each gadget is extraordinarily recognizable by the controlling programming which is the central idea of IoT. In proposed system we are going to design a low-cost Microcontroller Based Android controlled Robot. The robot will move forward, backward, left and right direction by following the instructions given from the mobile. This system can be helpful for various purpose.

Keywords: IoT, Robot ,Telnet App , Microcontroller.

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PAPER ID: ICSMEC22-EC0024

Fake Person Authentication Using Biometric (Face, Iris, Palm)

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ABSTRACT

This process presents fusion of three biometric traits, i.e., iris, face and fingerprint, at matching score level architecture using weighted sum of score technique. The features are extracted from the pre-processed images of iris, face and fingerprint. These features of a query image are compared with those of a database image to obtain matching scores. The individual scores generated after matching are passed to the fusion module. This module consists of three major steps i.e., Pre-Processing, DWT Segmentation and Image fusion. The final fusion is then used to declare the person as Authenticate or Un-Authenticate with Secret Key Analysis.

Keywords: Edge detection, Edge Filtering, Feature Matching, NN Classification.

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PAPER ID: ICSMEC22-EC0025

Real Time Secure Text Transmission Using Video Steganography

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Abstract:
Image and video are the two most basic forms of transmitting information. With the help of Image and video encryption methods any set of images or videos can be transmitted without worrying about security. In the proposed paper a very simple and real time algorithm, using pixel mapping, is used for the encryption of the images which are the basic building blocks of any video file. In the proposed research paper, the video is distributed into the photo frames using a MATLAB code and all the frames are sequentially stored. Each such frame contains a combination of red, blue, and green layers. If we consider a pixel as an 8-bit value than each pixel has the value in the range of 0 to 255. In the proposed work for each frame the text image will be inserted using the LSB approach. After the completion of the pixel value changing all the images is placed in a sequential manner and then all the frames are cascaded for generation of the original video file with encryption. This new video is almost like the original video file with no changes visible to the naked eye.

Keywords: Video Steganography, Data security, LSB technique, MATLAB.

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PAPER ID: ICSMEC22-EC0026

Self-Localization for IoT Wireless Sensor Networks based on Optimization

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Abstract:
In this paper we are using range measurements from ultra-wideband (UWB) signals, we offer an embedded optimization framework for the simultaneous self-localization of all sensors in wireless sensor networks. Low-power UWB radios have been increasingly envisioned for real-time localisation of IoT devices in GPS-denied situations and massive sensor networks, as they give time-of-arrival data with decimeter accuracy across long distances. As a result, we investigate several non-linear least-squares optimization issues to design the localization challenge based on UWB range measurements in this paper. We use non-linear programming algorithms to address the resulting optimization issues directly, ensuring convergence to locally optimal solutions. This optimization framework enables a consistent comparison of multiple sensor localization optimization strategies. The optimum optimization strategy for self-localization of sensors equipped with GPS is proposed and shown. Allowing plug-and-play deployment of the optimal localization algorithm on off-the-shelf microcontrollers using state-of-the-art code generating techniques In comparison to existing iterative algorithms, numerical findings show that the suggested strategy increases localization accuracy and reduces calculation times.

Keywords: Localization, Ultra-Wideband Ranging, Non Linear Embedded Optimization, Wireless Sensor Networks

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PAPER ID: ICSMEC22-EC0027

Polyphase Codes Using Modified Genetic Algorithm

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Abstract:
Radar applications require series with individually drawn auto correlation. Finding such series is a combinatorial problem. Thus, the problematic part of this signal design is a stimulating problem for which various global optimization algorithms such as genetic algorithm, simulated annealing, etc. were described in the literature. The task aims at execution of an efficient VLSI System Development for the organization of optimal set of phase sequences that are useful for various presentations. The main benefit of execution using Hardware based Modified Genetic Algorithm is quickness over Software based methods. The speed lead makes the hardware dependent Modified Genetic Algorithm (MGA) a major candidate for real time applications. The Planned architecture is an efficient design as it identifies the optimal set of eight phase sequences. The Suggested Algorithm is blend of Genetic Algorithm and Hamming Scan algorithm.

Keywords: Modified Genetic Algorithm, Hamming Scan Algorithm

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PAPER ID: ICSMEC22-EC0028

Design of Traffic Light Controller Using Task

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Abstract:
Traffic light control unit can be designed as a synchronous sequential machine with finite number of states. Explicit finite state model is used to design the necessary coding for control system using Verilog HDL. The machine is modelled with only six states and these states are chosen based on the traffic control algorithm. In each state necessary delay is provided and for that delay the necessary traffic lights are set ON and OFF. For illustration just only two roads are chosen, and control algorithm controls the traffic lights of that roads. This paper proposes a flexible framework which provides a delay in particular state using clock divider, also discusses the issue of modelling the state machine in a synthesis friendly manner.

Keywords: Verilog HDL, Traffic Lights

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PAPER ID: ICSMEC22-EC0029

Acoustic Echo Cancellation Algorithm for Mobile Communication

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Abstract:
Acoustic Echo Cancellation (AEC) is a necessary feature for mobile devices when the acoustic coupling between the microphone and the loudspeaker affects the communication quality. In mobile communication receivers, loudspeakers and their amplifiers cause significant nonlinear distortion in the echo path, resulting in a degradation of the performance of linear echo cancellers. In order to cope with this type of nonlinear echo path, this project work discuss an orthogonalized version of hybrid filter that can be considered as a parallelized realization of the cascade of a memory less polynomial followed by a linear filter. As, in the echo cancellation context, the statistics of the speech input are non-stationary and not known in advance, the orthogonalization follows the signal statistics. The performance of the resulting nonlinear structure is evaluated by experiments using MATLAB software.

Keywords: AEC, MATLAB

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PAPER ID: ICSMEC22-EC00030

Real time Detection and Abstraction of Image to text and Speech Using Open CV

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Abstract:
An image to text and speech converter is an application that recognizes text in scene images and synthesizes the text recognized into speech. The image is preprocessed and rectified before text recognition. The recognized text is converted to speech using Digital Signal Processing (DSP).The extraction of text from a natural image is a challenging task. Image to text to speech converter which will be useful in digitization as well as for differently abled people with poor eyesight, dyslexia etc. Core idea for image to text and speech conversion is to overcome the challenges faced by a blind person in real life. The techniques of image segmentation and edge detection play an important role in implementing this system.

Keywords: Text to speech and speech converter, Image Segmentation , Edge Detection , DSP

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PAPER ID: ICSMEC22-EC00031

De-convoluting Multispectral Satellite Images Using ACS Algorithm with Wiener Filter

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Abstract:

Satellite image denoising is essential for enhancing the visual quality of images and for facilitating further image processing and analysis tasks. Designing of self-tunable 2-D finite-impulse response (FIR) filters attracted researchers to explore its usefulness in various domains. Furthermore, 2-D FIR Wiener filters which estimate the desired signal using its statistical parameters became a standard method employed for signal restoration applications. In this paper, we propose a 2-D FIR Wiener filter driven by the adaptive cuckoo search (ACS) algorithm for denoising multispectral satellite images contaminated with the Gaussian noise of different variance levels. The ACS algorithm is proposed to optimize the Wiener weights for obtaining the best possible estimate of the desired uncorrupted image.

Keywords : Designing, 2-D finite-impulse response, adaptive cuckoo search (ACS).

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PAPER ID: ICSMEC21-EC00032

Performance Analysis of Alamouti STBC for MIMO OFDM System

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Abstract:
Multiple-input, multiple-output orthogonal frequency-division multiplexing (MIMO-OFDM) is the dominant air interface for 4G and 5G broadband wireless communications. It combines MIMO technology, which multiplies capacity by transmitting different signals over multiple antennas, and OFDM which divides a radio channel into a large number of closely spaced sub-channels to provide more reliable communications at high speeds. Nevertheless, MIMO system experiences the inter symbol interference (ISI) effects particularly in high data rate transmissions in which the system performance is extremely degraded. Thus far, Space Time Block coded (STBC) orthogonal frequency division multiplexing is a most reliable technique to attain bandwidth efficiency and ISI suppression ability. In our present work, the performance of different adaptive modulation scheme is analyzed. Also the theoretical and simulated result of BER (Bit error rate) is analyzed for different antenna configuration and finally it is investigated that the simulation result for MIMO-OFDM configuration with Alamouti STBC gives better performance where the SNR gain is 10dB at the BER value 10-4 and 7dB at the BER value of 10-3. The effective SNR gain increases with increasing number of receiving antenna**.**

Keywords: MIMO-OFDM, inter symbol interference (ISI), Space Time Block coded, with Alamouti STBC.

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PAPER ID: ICSMEC22-EC00033

Accident Preventional Smart Railway

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Abstract:
The main aim of our project is to operate and control the unmanned Railway Gate in the proper manner in order to avoid the accidents in the unmanned railway crossing. The railway gate can be operated to prevent the accidents at the level crossing. This system uses ATmega328P microcontroller with the help of obstacle sensors. It has two obstacle sensors which is used to detect arrival and departure of the train. Obstacle sensors are the input components while buzzer, DC Servo motor and LCD display are the output components. The microcontroller forms the main unit of the system. It receives input signal from the sensors and sends information to the gate motor driver for opening and closing the gate. Besides, the output signal microcontroller will activate the alarm. The first obstacle sensor is fixed at a certain distance from the gate and the second sensor is fixed at the same certain distance after the gate. The gate is closed, when the train crosses the first and the gate is opened, when the train crosses the second obstacle sensor. This system deals about one of the efficient methods to avoid the train accident.

Keywords: Microcontroller, IR Sensors, Liquid Crystal Display, Buzzer, DC Servo Motor, Regulated Power Supply, IOT.

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PAPER ID: ICSMEC21-EC0034

Reduction of Timing Jitter in High Speed OFDM Systems

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Abstract:

Timing jitter is emerging as an important factor in determining the performance of high speed Orthogonal Frequency Division Multiplexing Systems. Advanced communications require the high speed transmission of the data over the channel. But, the channel is corrupting due to Timing jitter, frequency mismatches, which are emerging as an important factor to be considered in 3G, 4G and 5G communications. Further, In 3G communications, basic frequency division multiplexing technique was used, which is suffering with the higher frequency and time jitter (mismatch), carrier frequency synchronization issues, higher bit error rates, mean square errors and high power consumption problems. To overcome these drawbacks, this project work is focused on implementation of 4G communications based high speed orthogonal frequency division multiplexing systems. Further, the proposed method utilizes the novel channel synchronization methods to reduce the various kinds of jitters. In addition, this work will be implemented in MATLAB R2016a software using digital signal processing toolbox.

Keywords: OFDM, Jitter, MATLAB.

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PAPER ID: ICSMEC22-EC0035

IOT Based Weather Monitoring and Reporting System

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Abstract:

Here we propose a smart weather reporting system over the internet. Our proposed system allows for weather parameter reporting over the internet. It allows the people to directly check the weather status online without the need of a weather forecasting agency. System uses temperature, humidity, pollution monitor weather and provide live reporting and alerting of the weather statistics. The system constantly monitors temperature using DHT11, Weather pollution is monitor by CO pollution sensor. The system constantly transmits this data to the microcontroller, which now processes this data and keeps on transmitting it to the online web server over a wifi connection. This data is live updated to be viewed on the online server system. Also system allows user to set alerts for particular instances, the system provides alerts to user if the weather parameters cross those values. Thus the IOT based weather reporting system provides an efficient internet based weather reporting system for users

Keywords: Internet-of-Things, LCD, Arduino Uno Atmega328 microcontroller, DHT11

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PAPERID: ICSMEC21-EC0036

Intelligent system for hazardous gas, human detection and temperature monitoring using GSM

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Abstract:
The Industrial security monitoring is one of the most important factors in the natural green world which influences not only the human life but also concerns the ecosystem. So, it is necessary to monitor the Industrial parameters like emissions and temperature in real-time to maintain security. The industrial sensor monitoring is very important for employee security and today's technology enhances the security system to next level. In the proposed system we monitor the Industrial security parameters and provide alerting system to prevent the over damage in case of emergency. Proposed system uses temperature sensor, gas sensor, object detection sensor in restricted areas for security monitoring and the data will be processed by Arduino Micro-controller. All the sensor data will be posted into LCD which is interfaced with Arduino. Buzzer module along with the GSM module is used for alerting the authorized person. The GSM modem provides the communication interface, and it transports device protocols transparently over the network through a serial interface. It allows for applications like SMS Control, data transfer, remote control and logging to be developed easily. This proposed system will enhance the security of people and reduce manual monitoring concerns about the dangers in Industry.

Key words: GSM Module, Arduino.

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PAPER ID: ICSMEC22-EC00037

Analysis of Performance And Energy Consumption Of Wearable Devices and Mobile Gateways In IoT Applications

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Abstract:
Smart phones and wearable devices, such as smart watches, can act as mobile gateways and sensor nodes in IoT applications, respectively. In conventional IoT systems, wearable devices gather and transmit data to mobile gateways where most of computations are performed. However, the improvement of wearable devices, in recent years, has decreased the gap in terms of computation capability with mobile gateways. For this reason, some recent works present offloading schemes to utilize wearable devices and hence reducing the burden of mobile gateways for specific applications. However, a comprehensive study of offloading methods on wearable devices has not been conducted. In this paper, nine applications from the LOCUS's benchmark have been utilized and tested on different boards having hardware specification close to wearable devices and mobile gateways. The execution time and energy consumption results of running the benchmark on the boards are measured. The results are then used for providing insights for system designers when designing and choosing a suitable computation method for IoT systems to achieve a high quality of service (QoS). The results show that depending on the application, offloading methods can be used for achieving certain improvements in energy efficiency. In addition, the paper compares energy consumption of a mobile gateway when running the applications in both serial and multithreading fashions,

Keywords : Internet-Of-Things, QoS,

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PAPER ID: ICSMEC22-EC00038

Multiplexer Design In Multiple Logic Gates Using Tanner Tool

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Abstract:
The comparative analysis of 2:1 multiplexer using different logic styles (transmission gate, pass transistor and CMOS logic), with three different technologies i.e. 32nm. Simulation is done using Synopsys Tanner tool at 1.5V power supply. As a result, it is found that the least power is consumed by 2:1 multiplexer implemented using TGL. It consumes less power than pass transistor logic and PTL consumes more power than CMOS. Since multiplexer implemented by PTL utilizes minimum number of transistors, i.e., 2 , therefore it is the area efficient logic circuit for 2:1 MUX but its performance is low as its output is somewhat distorted. Power consumption comparisons and delay of various designs of 2:1 Multiplexer. CMOS logic and NMOS Logic, these designs are analyzed using the Tanner EDA tool. The NMOS Logic design demonstrates its superiority against other styles of 2:1 multiplexer design in terms of power consumption.

Keywords: CMOS, EDA tool, NMOS

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PAPER ID: ICSMEC22-EC00039

RF Based Smart Zone for Accident Prevention

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Abstract:

Nowadays in fast moving world people do not have self control, which leads to accidents so it is difficult for the police to monitor all the accidents. So to overcome this our project is introduced to control the speed of any vehicle automatically in cities and also in restricted areas such as schools, parks, hospitals, and in speed limited areas. In this project we use RF for indicating the speed limit areas it is placed at the starting and end points of the restricted zones. Here the transmitter will transmits the signal and the receiver receives the signal in predetermined area only. Every time the vehicle speed is decreased to some cutoff and kept constant until the vehicle moves out of the zone, and then vehicle can get accelerated by itself. The authorized person by using Security card ,If he not authorized will get indication through alarm.

Keywords: RFID(Radio Frequency Identification), Arduino.

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PAPER ID: ICSMEC22-EC00040

Image Filtering For Restoration Using Matlab

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Abstract:
Image enhancement technology is one of the basic technologies in image processing field. The aim of image enhancement is to improve the interpretability or perception of information in images for human viewers, or to provide `better' input for other automated image processing techniques. Image Segmentation is one of the vital steps satellite Image processing for gathering information from the satellite images. To study the effectiveness of noise in satellite images, different type of noise like Gaussian, poisson, salt & pepper and speckle noise are added to the original image. The discrete wavelet transform (DWT) and Bayes Shrink soft thresholding is then applied for the removal of noisy pixels and smoothen the image. The proposed technique, computationally more efficient than the spatial domain based method, is found to provide better enhancement compared to other compressed domain based approaches. In the final stage, the fuzzy based modified FCM clustering is performed on the denoised images to produce clusters or segmented result.

Keywords: DWT, FCM, fuzzy.

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PAPER ID: ICSMEC22-EC0041

VLSI Implementation Of 4x4 Crossbar Switching

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Abstract:
Crossbar switching plays the major role in multiple applications like routers, Wi-Fi device's. So, the efficient design of crossbar switch can reduce the hardware resources.
A crossbar switch is an assembly of individual switches between a set of inputs and a set of outputs. We can listen to protocol exchanges between routers, it is also possible for real monitoring, mapping, and routing diagnostics.

The existing multiplexer based switches using the high delay with high power consumption. Thus, This project is implementing the 4 × 4 crossbar switching mechanism with route computation, route analysis and route triggering methods. This project work will be implemented in XILINX ISE software with Verilog programming language.

Keywords: Crossbar switching, Route computation, Route analysis, Route triggering.

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PAPER ID: ICSMEC22-EC0042

Chest X-Ray Image Denoising For Covid-19 Detection And Application

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Abstract:
COVID-19 is considered to be the most dangerous & deadly disease for the human body caused by the novel corona virus. In December 2019, the corona virus spread rapidly around the world and is responsible for a large number of deaths. Earlier detection of the COVID-19 through accurate diagnosis, particularly for the cases with no obvious symptoms, may decrease the patient's death rate. Chest X-ray images are primarily used for the diagnosis of this disease. Existing system uses mean filters and median filters to remove the noise which is already present in the x-ray. But the accuracy of the noise removal from the x-ray is inadequate. In the proposed system a non-local median filter algorithm is used to acquire the maximum efficiency in removing the unwanted noise from the x-ray using MATLAB software. The advantages of this proposed system are Removal of high noise thereby improving the image quality and image metrics.

Keywords: Chest X-Ray, NLM Filter, Mean filter , Median filter , MATLAB2016a software.

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PAPER ID: ICSMEC22-EC0043

An Embedded Systems Based Proximity Detector and Monitoring Device for Security Enhancement

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Abstract:
The article presents an optimal proximity detector and monitoring device based on embedded system principally designed to address the problem of insecurity in many parts of the world. The device architectural components were simulated using the Fritzing software and the Proteus design suite 8. The programming of the microcontroller was done in C programming language using the Arduino integrated development environment(IDE). The system design uses an integrated network of an Arduino uno microcontroller, HC-SR04 ultrasonic sensor, Liquid crystal display (LCD), Light emitting diodes (LED's) and a GSM module for both detection and monitoring purposes, all enclosed in a customized plastic casing of dimension 17cm 13.5cmx7.5cm.The design was tested using an oscilloscope and the output wave forms obtained agree closely with the expected theoretical results. The output result provides an in expensive and multi-functional security system powered with a 7Volt dc battery.

Keywords: Embedded, Oscilloscope, Waveforms, Security multifunctional,

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PAPER ID: ICSMEC22-EC0044

Road Sign Recognition System for the Smart Car using Machine Learning

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Abstract:
Road sign recognition is one of the important tasks of intelligent transportation systems (ITS). The research aims at implementation of road sign detection and control of an autonomous vehicle using K-Means Clustering algorithm. In this proposed work, the system automatically detects the road signs, controls the vehicle and commands certain actions. The system consists of Raspberry Pi 3 Model B+ and Pi camera which automatically captures the video data and converts the min to number of frames which are processed by the proposed algorithm in Open CV to detect the road sign and control the vehicle. Based on the detected sign, the vehicle is controlled by two DC motors interfaced withRaspberryPi3.

Keywords: Raspberry Pi, K-Means Clustering, Open CV

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PAPERID: ICSMEC22-EC0045

Implementation of SHA Algorithm Based Advanced Encryption Standard to Detect IP Theft

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Abstract:
Today all organizations generally rely on wireless networks for ease of movement and less expensive than wired networks but also wireless networks suffer from some of the disadvantages is the presence of some of the threats to the security of networks penetrate through IP address by hacker and this is a big problem and resolve this issue and during the development and improvement of some of the algorithms used encryption in wireless networks and increase protection and help to the difficulty of penetrating passwords, at the present time there are different types of encryption algorithms to provide protection for wireless networks as well as the help of these algorithms to provide information security and the health of the user, and operate these algorithms to achieve three priorities encryption such as integrity, confidentiality and authentication. The conventional advanced encryption standards are consuming the higher area, power and delay with more error rates. Thus, the conventional works are not suitable for the IP theft detection applications. Thus, this project is mainly focusing on VLSI implementation of SHA (secured hash algorithm) for implementing the AES, which can give the high security with low hardware resource utilizations. This work will be implemented using Xilinx ISE software with VERILOG programming language.

Keywords: Integrity, Confidentiality, Authentication, SHA, AES, Xilinx ISE

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Design Approach for Fault Tolerance in FPGA Architecture

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Abstract:
Defects in nano-metric technologies and failures due to compression process tolerances significant challenges to IC testing. In recent years there has been an application space for reusable devices developed to include many platforms that have a strong need for fault tolerance. These systems are frequent though has hardware redundancy to allow continuous operation in the presence of functional errors defective hardware must be restored and restored to full functionality quickly and efficiently. In addition to providing functional density, FPGAs usually provide undetected fault tolerance levels by incorporating the ability to reconfigure around functional errors on mask-programmable devices field. Reliability and process diversity are serious issues for FPGAs in the future. With progress process technology, feature size decreasing, which leads to higher error concentrations, more advanced methods are required with increased costs to avoid errors. If nano-technology is fiction if applied, the yield may drop to zero as it is not possible to avoid the error during fabrication since the choice, the feature architecture must be tolerant of errors. In general structure such as FPGA, redundancy commonly used for fault tolerance. In this work we will demonstrate a solution in the configuration bit-stream Modified by the FPGA chip-based hardware controller. Uses technology unnecessary device to replace defective device and increase yield.

Keywords: Fault Tolerance, FPGA, Hardware Controller, Redundancy.

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PAPER ID: ICSMEC22-EC0047

Design and Characterization of parallel prefix adder using FPGA

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Abstract:
Adders are an important part of digital systems. In VLSI digital circuits, such adders should satisfy certain design constraints like low power and high speed. Parallel-Prefix Adders (PPA) are known to have the best performance in VLSI designs. These designs of varied bit-widths. Due to the presence of a carry-chain, the RCA designs exhibit delay in performance. The PPA's are expected to have a speed advantage over the RCA as bit widths approach. The design is done by using full adders, gray cells, black cells It is implemented on a Xilinx using Verilog language.

Keywords: Adder, Full Adder, Digital System, Carry-Chain.

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PAPER ID: ICSMEC22-EC0048

IOT Management System for Smart City

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Abstract:
The goal of our project is to provide a comprehensive concept of the smart city besides their different applications, benefits and advantages by interconnecting digital devices through the internet of things. Thus, the realization of smart city concept has been presented in this project through the internet of things. This framework comprises the urban information system from the sensory level, data management using networking support structure and integration of respective systems and services using cloud and forms a transformational part of the existing cyber – physical system. To illustrate the new method for existing operations this IoT vision for the smart city is applied so that this system can be adapted for enhancement and delivery of important city services. To address the specific features of each application Different technologies have been applied. By using the system people do not have to check all the system manually but they will get a notification.

Keywords: Internet of Things (IoT), Node MCU, IR sensor, ultrasonic sensor, Temperature sensor (LM35), Rain Sensor.

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PAPER ID: ICSMEC22-EC0049

Monitoring and Sensing activities in Forest

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Abstract:
Nowadays there are numerous occurrences about pirating of trees like Sandal, Sagwan and so forth. These trees are expensive and pitiful. They are utilized in the medicinal sciences, beautifying agents. To limit their sneaking and to spare woodlands around the world some preventive estimates should be conveyed. We have built up a framework which can be utilized to limit sneaking. The structure framework utilizes three sensors IR sensor (to detect the object of surroundings), temperature sensor (to identify timberland fires), fire sensor (to identify forest fires). Information created from these sensors is constantly observed with the page. For IR sensor, a Buzzer is enacted and for temperature sensor, fire sensor a water pump is actuated. Created information is put away in cloud Server over the Wi-Fi module. Woods authorities are advised when any occasion happens so proper move can be made.

Keywords: IR sensor, Temperature sensor, Fire sensor, Cloud server, Wi-Fi module

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PAPER ID: ICSMEC22-EC0050

Extracting and Detecting Text Using Open CV and Python

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Abstract:

The recognition system of using image processing has to improve little bit. Nowadays text recognition system is required to detect the different types of texts and fonts. This will give problem to security reasons. In this paper we are implementing the text recognition process by using different types of algorithms and techniques. Neural network will give the extraordinary performance to classify images, the images which have the content of our requirements. We are having the database images with different types of writing styles and different types of fonts. Along with this technique we have been used Convolutional neural network (CNN).

Keywords: Image Processing, Text Recognition, Neural Network, CNN

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PAPER ID: ICSMEC22-EC0051

Detection of Black Coffee Beans for Quality and Industrial Profit

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Abstract:
Production process from green beans to coffee bean packages, the defective bean removal is one of most labor-consuming stages, and many companies are willing to adapt the automation of this stage for minimizing human efforts. Earlier this work has been accomplished by using MATLAB and ANN. In our project we propose CNN(Convolution Neural Network). The primary impact here is to inspect all classes of defective beans categorized by the SCAA(Specialty Coffee Association).

Keywords: MATLAB, ANN, CNN, SCAA

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PAPER ID: ICSMEC22-EC00052

IoT Based Agriculture Monitoring & Controller System

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Abstract:

In earlier days farmers used to calculate the readiness of soil and impacted doubts to create which to sort of yield. They didn't consider the stickiness, level of water and particularly atmosphere condition which was difficult to a Farmer, progressively The Internet of things (IOT) is renovating the agribusiness engaging the agriculturists through the broad scope of methodologies, for instance, exactness just as useful cultivating to manage difficulties in the field. IOT modernization helps in get together data on conditions like atmosphere, protection, temperature and productivity of soil, Harvest online assessment enables disclosure of wild plant, level of water, cultivation area, animal break in to the field, trim turn of events, agriculture. IOT use farmers interaction to get related with his living arrangement from any place and at whatever point. Distant sensor structures are used for watching the residence conditions and smaller scope controllers are used to control and motorize the field. To see distantly the conditions as picture and video, far off cameras have been utilized. IOT improvement can decrease the expense and update the efficiency of standard creating for farmers.

Keywords: IOT, Distant sensor, Harvest online assessment

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PAPER ID: ICSMEC22-EC0053

Early Detection of Alzheimer's disease using Improved Deep Learning Algorithm and fMRI.

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Abstract:
The development of computerized healthcare has been powered by diagnostic imaging and machine learning techniques. In particular, recent advances in deep learning have opened a new era in support of multimedia healthcare distribution. For earlier detection of Alzheimer's disease, the study suggested the Improved Deep Learning Algorithm (IDLA) and statistically significant text information. The specific information in clinical text includes the age, sex and genes of the person and apolipo protein E; the brain function is established using resting-state functional data (MRI) for the measurement of connectivity in the brain regions. A specialized network of auto encoders is used in earlier diagnosis to distinguish between natural aging and disorder progression. The suggested approach incorporates effectively biased neural network functionality and allows a reliable Alzheimer's disease recognition. In comparison with conventional classifiers depends on time series R-fMRI results, the proposed deep learning algorithm has improved significantly and, in the best cases, the standard deviation reduced by 45%, indicating the forecast model is more reliable and efficient in relation to conventional methodologies. The work examines the benefits of improved deep learning algorithms from recognizing high-dimensional information in healthcare and can lead to the early diagnosis and prevention of Alzheimer's disease.

Keywords: Alzheimer's disease, auto encoder network, improved deep learning algorithm (IDLA),R-fMRI data.

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PAPER ID: ICSMEC22-EC0054

IoT Based Smart Car Parking System and its Technology

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Abstract:
The growing population in today's modern cities is leading to huge vehicle density, the problems for car parking has become an unending question. Here the use of IOT based parking management system technology allows the efficient parking space utilization. The system detects the parking slots that are occupied/available using IR sensors and updates data with the cloud server to allow the checking of parking slot availability online. Thus the system solves the parking issue for cities and gets the users an efficient IOT based parking management system.

Keywords: IoT, IR sensors, parking management system

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PAPER ID: ICSMEC22-EC0055

Clock Gating Aware Low Power ALU Design and Implementation

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Abstract:
The design and implementation of a Clock Gating Aware Low Power Arithmetic and Logic Unit that has been developed as part of low power processor design in the platform Xilinx ISE 14.2. Clock power contributes 45-60 percent of total dynamic power. Hence, clock power reduction is necessary in low power design. In this paper, we analyze theoretical 93.75% clock power reduction in ALU using clock gating techniques. On simulator, we achieved 88.23% clock power reduction using latch-based clock gating and 70.58% clock power reduction using latch free clock gating. A continuous increase in the number of transistors mounted on a single chip brings about the need for power optimization. In this era, where technologies such as smart grid are developed, scope for power optimization is increasing. Smart grid is an integration of essential building blocks such as sensor system, control units into existing power systems which could be implemented as a Silicon on Chip (SoC) in Very Large- Scale Integration (VLSI) circuits The technique of clock gating is used to reduce the clock power consumption by cutting off the idle clock cycles. In this paper, we propose a VHDL- based technique, to insert clock gating circuit and also the dynamic power due to this is estimated.

Keywords: Clock Gating, Xilinx, Smart Grid, SOC, VHDL

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PAPER ID: ICSMEC22-EC0056

Health Care Monitoring System

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Abstract:
The main concept of this project is to create a low cost affordable health monitoring system for people in remote locations where availability of specialist doctors is not possible. This system is portable. Low cost and can be easily operated by anyone with limited knowledge. Also this concept is developed using IOT, so that we can send the data to a remote server from which it can be accessed by doctors. Among the panoply of applications enabled by the Internet of Things (IOT), smart and connected health care is a particularly important one. Networked sensors, either worn on the body or embedded in our living environments, make possible the gathering of rich information indicative of our physical and mental health.In this project observe the heart beat and temperature of the patient by the doctor, we use thing speak free cloud we collect the data from the patient and send the data to thing speak through cloud this helps to the patient get the precipitation easily without visiting the hospital.

Keywords: IOT, health care, network sensor.

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PAPER ID: ICSMEC22-EC0057

CBIR System using Redundant Discrete Wavelet Transform & GLCM

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Abstract:
Today, modern technology led to a faster growth of digital media collection, and it contains both still images and videos. Storage devices contain large amount of digital images, increasing the response time of a system to retrieve images required from such collections, which degrades the performance. The annotations are given manually for images by describing with the set of keywords. By doing so, the contents of an image retrieve images of interest, but it is time-consuming. To overcome all these reasons, content-based imageretrieval (CBIR) is the area which is used for extracting images. The technique gray-level co-occurrence matrix(GLCM) is discussed and analyzed for retrieval of image. It considers the various features such as color histogram, texture, and edge density.

Keywords: CBIR , GLCM, Discrete Wavelet Transform, Image Retrieval

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PAPER ID: ICSMEC22-EC0058

Smart Dustbin using IoT

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Abstract:
Nowadays certain actions are taken to improve the level of cleanliness in the country. People are getting more active in doing all the things possible to clean their surroundings. Various movements are also started by the government to increase cleanliness. We will try to build a system which will notify the corporations to empty the bin on time. In this system, we will put a sensor on top of the garbage bin which will detect the total level of garbage inside it according to the total size of the bin. When the garbage will reach the maximum level, a notification will be sent to the corporation's office, then the employees can take further actions to empty the bin. This system will help in cleaning the city in a better way. By using this system people do not have to check all the systems manually but they will get a notification when the bin will get filled. Thus, any object in the physical world which can be provided with an IP address to enable data transmission over a network can be made part of IoT system by embedding them with electronic hardware such as sensors, software and networking gear.

Keywords: Sensor, IOT, Embedded Systems, Networking Gear

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PAPER ID: ICSMEC22-EC0059

IoT Based Online Weather Report Streaming

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Abstract:
In IOT enabled weather monitoring system project, Node MS measures 4 weather parameters using respective 4 sensors. These sensors are temperature sensor, humidity sensor, light sensor and rain level sensor. Then the Node MS sends these parameters to the Internet using IOT techniques. The process of sending data to the internet using cloud is repeated after constant time intervals. Then the user needs to visit a particular website to view this data. The project connects and stores the data on a web server. Thus the user gets Live reporting of weather conditions. Internet connectivity or Internet connection is compulsory in this IOT weather monitoring project.

Keywords: Node MS, sensors, IOT, weather monitoring

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PAPER ID: ICSMEC22-EC0060

Chronic Kidney Stone Disease Detection Analysis using MATLAB

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Abstract:
Back Propagation Network with image and data processing techniques was employed to implement an automated kidney stone classification. The conventional method for medical resonance kidney images classification and stone detection is by human inspection. Operator-assisted classification methods are impractical for large amounts of data and are also non-reproducible. Medical Resonance images contain a noise caused by operator performance which can lead to serious inaccuracies classification. Artificial intelligent techniques through neural networks and feature extraction are shown great potential in this field. Hence, in this paper the Back Propagation Network was applied for the purposes. Decision making was performed in two stages: feature extraction using the principal component analysis and the classification using Back Propagation Network (BPN). This project presents a segmentation method, Fuzzy C-Mean (FCM) clustering algorithm, for segmenting computed tomography images to detect the lung cancer in its early stages. The performance of the BPN classifier was evaluated in terms of training performance and classification accuracies. Back Propagation Network gives fast and accurate classification than other neural networks and it is a promising tool for classification of the Cancers.

Keywords: Back Propagation Network, Image Classification, Artificial Intelligence, Fuzzy C-Mean

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PAPER ID: ICSMEC22-EC0061

Identification of Fake Money Using MATLAB And NN Algorithm

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Abstract:
This project propose an image processing technique to extract paper currency denomination .Automatic detection and recognition of Indian currency note has gained a lot of research attention in recent years particularly due to its vast potential applications. It is shown that Indian currencies can be classified based on a set of unique non discriminating features. First we acquire the image by simple flat scanner on fix DIP with a particular size, the pixels level is set to obtain image. The dominant colour and the aspect ratio of the note are extracted. After this extracted the portion of the note containing the unique shape, number, emblem, etc. This technique is used to match or find currency denomination of paper currency.For proposed method of project is neural network algorithm used

Keywords: Automatic Detection, currency denomination

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PAPER ID: ICSMEC22-EC0062

Modern Ration Card Security System

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Abstract:
India's Public Distribution System (PDS) is the largest retail system in the world. Public distribution system provides a ration card issued under an order or authority of the State Government for the purchase of essential consumer materials like rice, wheat, kerosene and oil. Public Distribution System is one of the widely controversial issues that involve malpractice. The manual intervention in weighing of the materials leads to inaccurate measurements and/or it may happen, the ration shop owner illegally uses consumer materials without prior knowledge of ration card holders. The proposed system aids to control malpractices which are present in ration shop by replacing manual work with automatic system based on RFID. Every consumer i.e., family head provided RFID card which acts as ration card. The RFID card has unique identification number. The consumer scans the card on RFID reader which is interfaced with microcontroller kept at ration shop. Once consumer is validated by details, the system shows customer's product and cost. Based on material chosen by consumer, appropriate circuitry will be activated and consumer gets material through dummy Payment gateway.

Keywords: RFID card reader, RFID tag, Micro Controller

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PAPER ID: ICSMEC22-EC0063

A New Robust Video Watermarking For Security Applications

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Abstract:
In recent years, technology is not the rocket science, but it cut both ways in terms of fast transmission and manipulation. Manipulation of data raises online data vulnerability and copyright issues. Digital watermarking comes out as one of the best solutions to deal with these issues. The conventional video watermarking schemes are utilizing the stationary wavelet transformation. But these methods are resulted in poor robustness and accuracy. Thus, this project is focused on implementation of discrete wavelet transformation with singular value decomposition for implementing the advanced video watermarking system. This project will be implemented in MATLAB R2016a software with digital video processing toolbox.

Keywords: DSPs: Digital Signal Processors, Digital watermarking

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PAPER ID: ICSMEC22-EC0064

Video Enhancement Using Spatial Filtering

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Abstract:
Video processing is the major field of applications in the field of satellite communications and mobile communications. But, due to the noise presenting the channel, the transmitted videos are corrupting. Further, the conventional methods are using the basic mean and median filters to remove the noise from the videos, but they are failed to remove the noise effectively. Thus, this work is focusing on the implementation of advanced spatial filtering methods to remove all types of noise. Further, the proposed method also enhances the visible quality of the video, respectively. In our project, we are going to use a spatial domain where the image pixels are transformed from pixel to pixel increasing the intensity and features of a video frame. This work will be implemented using MATLAB R 2016a a software using image processing and video processing toolboxes.

Keywords: Mobile communication, MATLAB, Video Processing

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PAPER ID: ICSMEC22-EC0065

Alcohol Sensing Alert with Safety System Using IoT

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Abstract:

Alcohol driving is the leading cause of road accidents. Drunken driver are not in stable condition, so their driving causes inconvenience and is also risk to their life and for others too. In this project, we are developing a system which will lock the engine when the driverisdrunk.Theinputforthesystemintheformofdetectionofalcoholinvehicle,the alcohol sensor is attached to the controller. The alcohol sensor will be near the driver from where it can detect the presence of alcohol by analyzing the breath of the driver. If any trace of alcohol is found above the set limit, the system displays alcohol detection note on LCD screen and also stops the engine or controls the speed of the vehicle and also permits an alert to the owner on his mobile phone in form of SMS and also to the emergency contacts in the owner's phone. There by, this project presents away to avoid drunken drive accidents.

Key Words: Sensor, LCD Screen

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PAPER ID: ICSMEC21-EC0066

An Onchip Circular Sierpinski Shaped Fractal Antenna with Defected Ground Structure for Ku-Band Applications

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Abstract:
In this paper, a circular Sierpinski shaped on-chip fractal antenna is presented for Ku-band applications. The fractal and defected ground structure are employed to achieve higher bandwidth for the entire Ku-band(1218GHz). The proposed onchip antenna(OCA) with a footprint area of 4πmm2 offers wide bandwidth of 7.22GHz (11.9419.13GHz) with the resonating frequency of 15GHz. At the resonating frequency, the signed antenna shows a peak gain of −19.76dBi and a radiation efficiency of 55.6%. The co-polarization(CP), cross polarization(×P) characteristics of the proposed OC A shows good isolation of 18.05dBi and 17.44dBi in the two principal planes with ϕ=0° and 90° cuts respectively. The measured result of the designed OC A prototype shows a good performance over the desired frequency band

Key words: KU Band, OCA Prototype

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PAPER ID: ICSMEC22-EC0067

Driver Drowsiness Detection System using Deep Learning Technique based on State of Eyes of the Driver

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Abstract:

Driver drowsiness is one of the reasons for large number of road accidents these days. A sleepy driver is arguably much more dangerous on the road than the one who is speeding as he is a victim of micro sleeps. Automotive researchers and manufacturers are trying to curb this problem with several technological solutions that will avert such a crisis. With the advancement in Computer Vision technologies, smart/intelligent cameras are developed to identify drowsiness in drivers, thereby alerting drivers which in turn reduce accidents when they are in fatigue. In this work, a new framework is proposed using deep learning to detect driver drowsiness based on Eye state while driving the vehicle. Our previous work in this field involved using machine learning with multi-layer perceptron to detect the same. In this paper, accuracy was increased by utilizing facial landmarks which are detected by the camera and that is passed to a Convolutional Neural Network (CNN) to classify drowsiness. This system alerts driver with an alarm when the driver is in sleepy mood. The achievement with this work is the capability to provide a lightweight alternative to heavier classification models with more than 88% for the category without glasses, more than 85% for the category night without glasses. On average, more than 83% of accuracy was achieved in all categories. The proposed CNN based model can be used to build a real-time driver drowsiness detection system for embedded systems and Android devices with high accuracy and ease of use.

Keywords: Computer Vision, Smart/Intelligent Cameras, multi-layer perceptron, convolutional neural network (CNN),

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Projecting smart home system using Virtual Wall Mounted Switches and Arduino

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Abstract:
Virtual reality is the human-computer interactions and it can be used in wide range of applications. Wall mounted buttons are used as physical user interface for room lights, elevators and so on. Changing the installation locations, labels and types of wall mounted buttons are not easy. The user experience will be improved by changing the installations, types and labels of wall mounted buttons. To predict the human motion, Redirected walking algorithms are required to steer users away from the boundaries of physical space. While straight lines are used to represent virtual trajectory, user behavior is not represented accurately by using this simple model. We proposed this project which can be used to create smart home system in the physical and virtual environments. Under varying conditions, it can be used for evaluation of redirected parameters. In this proposed system, based on user's height, the vertical positions of the buttons are changed and also the labels and types of buttons are changed. The problems occurred in wall mounted buttons are solved by projecting virtual reality system of wall mounted switches and smart home system.

Keywords: Smart home system, virtual reality, interface, wall mounted switches

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PAPER ID: ICSMEC22-EC0069

Palm Print Authentication System for Biometric Applications

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Abstract:
Biometrics become the major concern in variety of applications like Real Time Industries, Household Applications, Cyber Crime detection to provide the maximum security. But, the security system gets opened if the matching is successful and remains unopened if it is a mismatch. The conventional fingerprint-based systems are providing the low security. This project is based on Palmprint based Biometric Authentication, here a verification approach using hand palm biological features inherent in everyone. The proposed method has the following stages, Palm print, Preprocessing, Feature extraction and Feature matching. In the palm print stage, the palm samples of an individual are collected and processed in the pre-processing level where the noise removal of an image is processed. Later in the feature extraction stage features of palm print are extracted from the pre-processed data. In final feature matching stage, it matches the processed features with the data collected. The major advantages of this project are High security, High immune to noise and detailed feature extraction. The existing method is fingerprint-based authentication and here we advance it by palm print authentication using MATLAB R2016a software.

KEY WORDS: Biometric, MATLAB

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PAPER ID: ICSMEC22-EC0070

Design of Parity Generator and Parity Checker Using Qca

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Abstract:

Quantum-dot Cellular Automata (QCA) has emerged as a possible alternative to CMOS in recent era of nanotechnology. It includes extremely low power consumption and dissipation, high device packing density, high speed (in order of THz).Parity generator and parity checker circuits play important role in error detection and hence, act as essential components in communication circuits. However, very few efforts have been made for efficient design of QCA based parity generator and checker circuits so far. These existing designs lack in practical reliability as they compromise a lot with commonly accepted design metrics such as area, delay, complexity, and cost of fabrication. The proposed designs can also be easily extended to handle large number of inputs with a linear increase in area and latency

Keywords: Quantum-dot Cellular Automata (QCA), CMOS

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PAPER ID: ICSMEC22-EC0071

An Effective Approach for Text Detection In Natural Scene Images

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Abstract:

Text detection in natural scene images is an important prerequisite for many content-based image analysis task. In this project we propose an accurate method for detecting text in natural scene images. The existing method for text detection is Canny edge detection, in this method edges of the text are detected but the downside of this method is that the edge detection is inaccurate. The proposed work is on implementation of efficient text detection method using Maximally Stable External Region (MSER). The proposed algorithm extracts from an image a number of co-variant region, called MSER, it is based on the idea of taking regions which stay nearly same through a wide range. This algorithm has highest accuracy in detection with low overlapping using MATLAB 2016a software.

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Keywords: MATLAB Software, Personal Computer with Operating System.

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PAPER ID: ICSMEC22-EC0072

Chip Design for Turbo Encoder Module for In-Vehicle System

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Abstract:
In this work turbo encoder module for in-vehicle system has been proposed. Hamming encoder and decoder are previously used for communication in IVS modem. It has less error correction capability, high power requirement and high resource utilization for IVS modem. Turbo coders has higher error correction coders when compared with existing correction coders. Turbo coders provides high security, low error rates, high speed data communication support and less hardware resources utilization. The Turbo encoder module is designed and simulated using Xilinx ISE 14.2 software and Verilog program is implemented**.**

Keywords: Hamming code, Turbo encoder and decoder, MAP Algorithm

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PAPER ID: ICSMEC22-EC0073

Text Dependent Speaker Verification System

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Abstract:
Text-dependent speaker recognition is a speaker recognition task such as verification or identification of speeches. In the past decade, interest in using biometric technologies for person authentication in security system has been improved. Voice is one of the most promising and mature biometric modalities for access control. The raw audio signal as input to the model can't be used because there will be a lot of noise in the audio signal. It is observed that extracting features from the audio signal and using it as input to the base model will produce much better performance than directly considering raw audio signal as input. In this module the methods used for text dependent speaker recognition system is combination of Discrete Wavelet Transform (DWT),Relative Spectral Algorithm (RASTA) and Linear Predictive Coding (LPC).This work can significantly improve the recognition accuracy and this work will be implemented using MATLAB R2016a software.

Key words: Speaker verification, Text dependent, RASTA, DWT, LPC.

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PAPER ID: ICSMEC21-EC0074

Passenger BUS Alert System for Easy Navigation of Blind

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ABSTRACT:
Talking signs, guide cane, echolocations are all useful in navigating the visually challenged people to reach their destination, but the main objective is not reached that it fails to join them with traffic. In this project we propose a bus system using wireless sensor networks (WSNs). The blind people in the bus station are provided with a ZigBee unit which is recognized by the ZigBee in the bus and the indication is made in the bus that the blind people is present in the station. So the bus stops at the particular station. The desired bus that the blind want to take is notified to him with the help of speech recognition system HM2007. The blind gives the input about the place he has to reach using microphones and the voice recognition system recognizes it. The input is then analysed by the microcontroller which generates the bus numbers corresponding to the location provided by the blind. These bus numbers are converted into audio output using the voice synthesizer APR 9600. The ZigBee transceiver in the bus sends the bus number to the transceiver with the blind and the bus number is announced to the blind through the headphones. The blind takes the right bus parked in front of him and when the destination is reached it is announced by means of the GPS-634R which is connected with the controller and voice synthesizer which produces the audio output. This project is also aimed at helping the elder people for independent navigation.

Keywords: Wireless sensor networks (WSN), Zigbee, HM2007, APR 9600, GPS-634R.

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PAPER D: ICSMEC22-EC0075

Smart Garbage Level Monitor and Alert Through Wireless Technology IoT

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Abstracty:

Nowadays certain actions are taken to improve the level of cleanliness in the country. People are getting or active in doing all the things possible to clean their surroundings. We will try to build a system which will notify the corporations to empty the bin on time. In this system, we will put a Ultrasonic sensor on top of the garbage bin which will detect the total level of garbage inside it. When the garbage will reach the maximum level, a notification will be sent to the corporation's office, and then the employees can take further actions to empty the bin. This system will help in cleaning the city in a better way. By using this system people do not have to check all the systems manually but they will get a notification when the bin will get filled. This work introduces the design and development of smart green environment of garbage monitoring system by measuring the garbage level in real time and to alert the municipality where never the bin is full based on the types of garbage. The proposed system consisted the ultrasonic sensors which measure the garbage level, moisture sensor which measure the type of the garbage weather dry/wet. An ARDUINO microcontroller which controls system operation whereas everything will be connected to Thing speak. It is expected that this system can create greener environment by monitoring and controlling the collection of garbage smartly through Internet-of-Things.

Keywords: Smart City, IOT, ESP2866,Ultrasonic sensor, IR sensor, DC Motor.

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PAPER ID: ICSMEC22-EC0076

Real Time Speech Steganography using Discrete Wavelet Transform

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Abstract:
Recently, Speech Steganography draws more attention in the field of civil and military applications. The conventional speech Steganography methods utilizing the basic Fast Fourier Transform, which resulted in low accuracy. Thus, this project work implementing a new method to secure speech communication using the discrete wavelet transforms (DWT). In the first phase of the hiding technique, the speech components are separated on the basis of high and low frequency using the DWT. In a second phase, the low-pass spectral properties of the speech spectrum are exploited to hide another secret speech signal in the low-amplitude high-frequency regions of the cover speech signal. The proposed method allows hiding a large amount of secret information while rendering the steganalysis complexity.

Keywords : Steganography, Discrete Wavelet Transform, Steganalysis.

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PAPER ID: ICSMEC22-EC0077

Telugu off-line Handwritten Character Recognition Using Superimposed Matrices

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Abstract:
Telugu is one of the richest languages of the world. More then 200 million people use Telugu as their medium of communication. So, scientists all over the world are trying to computerize the Telugu language. And in this trend character recognition plays an important role. Although printed Telugu character and numerals recognition is on its way to being solved, producing excellent recognition rates, researchers concentrating on the recognition of handwritten words cannot boast the same success. This paper presents an off-line recognition system for Telugu handwritten characters using superimposed matrices. It is observed that, in all cases, the same character written by different individuals shows at least a minimum level of similarity. In this system, the Telugu text, accepted as an image file, is first segmented into lines and words and then each word is segmented into characters. Then the boundary of each character is determined. The characters are scaled to a standard size using an image scaling algorithm and are stored in a 32X32 matrix. This matrix is then compared with a knowledge base where all recognized characters given by various persons are stored in superimposed form. Finally, depending on the similarity of the character with the stored one, the system recognizes the character to use in the output. This system is suitable to convert handwritten texts into printed documents.

Keywords: Text segmentation, character recognition, superimposed matrices, pattern recognition, water reservoir principal.

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PAPER ID: ICSMEC21-EC0078

Prepaid Energy Meter Using IOT

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Abstract:

The aim of the project is to develop a prepaid energy meter system which helps in monitoring the readings from an energy meter and controlling the switching of energy meter. This system helps in illegal removal of energy meter cabinet and alerts the authorities in the form of text message. This also sends data to webpage in real-time over consumption alert status too. The controlling device is a Microcontroller. IOT modem, Relay, LCD, and energy meter are interfaced to Microcontroller. The microcontroller is programmed, so that it sends the energy readings to the authorities by when it exceed the threshold level of consuming energy. It helps controlling the energy meter along with tampering proof facility. The readings are displayed on LCD. The Microcontroller is loaded with intelligent program for written Embedded 'C' language. The modules in the project are: IOT modem for establishing communication between system at house and electricity department, Energy meter which continuously gives usage details, LCD to display current reading of meter, Relay to disconnect the power in case of nonpayment of bill.

Keywords: Prepaid Energy Meter, IoT, ESP2866, Relay, LCD.

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PAPER ID: ICSMEC22-EC0079

MR & CT Image Fusion Using Non-Linear Anisotropic Difusion.

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Abstract :
In medical science it has been commonly used for computer-aided brain surgery, Alzheimer's therapy, tumor identification & other medical assessment. Accurate fusion algorithms can be made to ensure proper detection of diseases. The mechanism of fusion is incredibly insightful, since it transforms information from a single picture from two or more pictures into a single picture. In addition, the most common application is the use of images of the magnet resonance (MR) & the computed tomography image (CT). The objects in the source images must be reduced. A new algorithm is introduced here for image fusion. In the principal component analysis (PCA) domain, the nonlinear anisotropic filtering (NLAF) most efficiently preserves texture features of the segmented image. The source images are broken down into estimation & information layers by NLAF. The PCA support is used to measure the actual detail & approximation layers. Fusional images are eventually generated by last detail and approximation layers linear combination. The algorithm suggested efficiency & quantitative output is evaluated by image consistency parameters, including the PSNR, entropy (E), square-root (RMS) & structural similitude (SSIM) indices.

Key words : Non-Linear anisotropic filtering (NLAF) , principal component analysis (PCA)

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PAPER ID: ICSMEC22-EC0080

Embedded System Based Radio Detection and Ranging (RADAR) System Using Arduino and Ultra-sonic Sensor

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Abstract :
The applications of the radio detection and ranging (RADAR) systems in military installations as well as scientific and commercial facilities is powered by the ability of the RADAR systems to use electro-magnetic waves to determine the speed, range, altitude or direction of objects, either fixed or in motion. In the years since RADAR systems came into prominence, incalculable developments have occurred. Some of these are in the fields of navigation and positioning, target detection and tracking, energy optimization, and other applications. In this research, existing radar technologies are examined and an Arduino based RADAR system is proposed. The advantage of this is to drastically reduce power consumption and allow the designers to have access to a wide range of online communities of Arduino programmers and open source reusable code. The system consists of an ultra-sonic sensor, an Arduino micro-controller, a servo motor and a java application for mapping the electro-magnetic waves. A prototype system is built by connecting the ultra-sonic sensors to the Arduino micro- controller's digital input/output pins and the servo motor also connected to the digital input/output pins. Both the ulta-sonic sensor and the servo motor are then clipped together so that as the servo motor sweeps from right to left through an angle of 1800 the servo will rotate alongside.

Key words: RADAR Systems, Arduino

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PAPER ID: ICSMEC22-0081

Finding Person without Helmet to Avoid Accidents Using Deep Learning

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Abstract:
There is a need for an intelligent transportation infrastructure and now there are technologies which could help us. Artificial Intelligence (deep learning in particular)could help with a lot of solutions to increase the efficiency of the current systems. The ability to detect and classify vehicles accurately is of paramount importance for the intelligent systems to succeed. The aim is to detect and classify vehicles efficiently on areal time basis. This sets the base for further actions to be taken. For example, these actions can be detecting helmet, detecting triples, detecting seat-belt etc... This system could potentially help reduce traffic violations and also improve upon the safety of those using the road network.

Keywords: Deep learning, Artificial Intelligence, Helmet.

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PAPER ID: ICSMEC22-0082

Blind Channel Equalization using LMS, NLMS And RLS Algorithms

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Abstract:
Future services demand high data rate and quality. Thus, it is necessary to define new and robust algorithms to equalize channels and reduce noise in communications. Nowadays new equalization algorithms are being developed to optimize the channel bandwidth and reduce noise namely, blind channel equalization. Considering the fact that blind equalizers do not require pilot signals to recover the transmitter data. The conventional channel equalization method were used the least mean square error based equalizers, which resulted in more errors with high transmitter to receiver synchronization issues. To overcome the drawback in Least Mean Square (LMS) algorithm, this work used Normalized Least Mean Square(NLMS) algorithm, Recursive Least Square(RLS) algorithm for blind channel equalization, which can result in lower bit error rate and mean square error. This work will be implemented using MATLAB R2016a software with signal processing toolbox.

Keywords: LMS, RLS, NLMS.

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PAPER ID: ICSMEC22-0083

Analysis of trapping set-in Low-density parity check codes

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Abstract:
LDPC has a vital role in channel coding and error correction capability, especially in short length codes. If the length of the code word is infinite then only the bit error rate approach the Shannon limit. Perhaps, using trapping set calculation we can reduce bit error rate to the short length code also. So the Trapping set formation should be less at the time of encoding the LDPC. Mostly Progressive growth LDPC system, we can predict and modify the structure of generator and parity of the encoding system. In this paper, the trapping set avoidance and its methodology can be detailed by Dynamic scheduling method. The main advantage of this proposed method is its giving less bit error rate at waterfall region and error floor region of Bit error rate. This method can apply for Binary symmetric channel and Binary erasure channel also. Hence, the trapping set reduction will increase the performance of short length LDPC codes

Keywords: LDPC, Trapping set, Progressive Edge growth, Error floor region.

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PAPER ID: ICSMEC22-0084

Smart helmet Using Arduino Uno

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Abstract:

Currently, accidents are a serious problem for everyone. Accidents are increasing day by day, so efforts are made to avoid them to minimize their consequences. We live in a world where the rules of the road have no importance for people and they are regularly violated. In addition, its human nature to resist what is imposed on them. Thus, using a different perspective, we provide safety with luxurious and intelligent features using a smart helmet. Smart Helmet is a microcontroller-based project. It is a helmet with some smart features to improve driving experience and to make drive safer. This smart helmet has three main features and each feature has its own purpose like the purpose of first feature is to encourage or force rider to wear helmet, similarly the purpose of second feature is to prevent rider to drink and drive, and third feature is to save lives as many as possible when accidents by sharing the live location after the rider met with an accident using telnet application. The microcontroller gets the information regarding the alcohol through the alcohol sensor which is interfaced to the ignition of the vehicle receives the data and controls the vehicle using DC motor. By this way we can take the prevention steps before the major accidents occur and we can avoid the human losses and financial losses.

Keywords: Arduino, Microcontroller, DC motor.

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PAPER ID: ICSMEC22-0085

Indore Positioning System for Indore Navigation Mobile Application

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Abstract:
This paper deals with Liquid Level Monitoring System Using Ultrasonic Sensor is a very innovative system which will inform the users about the level of liquid and will prevent it from overflowing. To demonstrate this the system makes use of 4 containers. For this the system uses ultrasonic sensors placed over the containers to detect the liquid level and compare it with the container's depth. The system makes use of AVR family microcontroller, LCD screen, WIFI modem for sending data and a buzzer. The LCD screen is used to display the status of the level of liquid in the containers. Whereas a web page is built to show the status to the user monitoring it. The web page gives a graphical view of the containers and highlights the liquid level in color in order to show the level of liquid. The LCD screen shows the status of the liquid level. The system puts on the buzzer when the level of liquid collected crosses the set limit. Thus, this system helps to prevent the wastage of water by informing about the liquid levels of the containers by providing graphical image of the containers via a web page.

Keywords: Beacons, Indoor Atlas , Indoor Navigation , Indoor Positioning System, Magnetic localization, Way Finding.

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PAPER ID: ICSMEC22-0086

Solar Energy Harvesting From Solar Power Satellite

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Abstract:
Electronic circuits are now commonly used and the need for power in the future will increase. Solar energy may be considered as substitute for conventional energy resources because of its renewability nature. But the earth receives only 1/100th of complete solar power. There are numerous satellites in space aimed at serving many applications on earth. A Satellite with a specific application for generating electricity from solar radiation is proposed, which is used to transmit the stored energy to the ground station in the form of microwaves (RF signal). These satellites are placed in LEO/MEO so the solar panels of satellite are towards the sun most part of the day and harvests solar energy.
The Solar panels in the satellite collects heat energy and transforms to DC power and stores in a battery reserve. This DC power from the battery reserve is transformed to RF energy of required frequency using a device called Magnetron and the converted power is transmitted to earth station antenna, which is coupled to rectifier circuits that are arranged as array. Rectifier converts received power (RF) to energy (DC) that is stored in battery. The motive behind the proposed solar powered satellites is to get completely through environmental pollution which is because of the emission of harmful gases from thermal power plants. The proposed work also provides solution for global warming and easy energy generation using natural resource (Solar Energy).

Keywords: Rectenna, Solar Power Satellites, Photo Voltaic System, Rectifier, Microwave Wireless Power Transmission Technology, Free space loss

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PAPER ID: ICSMEC22-0087

A Polynomial Subset-Based Efficient Key Management System for WSN in IoT: Related Challenges and Issues

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Abstract:
However, due to distributed nature and their deployment in remote areas, these networks are vulnerable to numerous security threats that can adversely affect their performance. This problem is more critical if the network is deployed for some mission-critical applications such as in a tactical battlefield. Random failure of nodes is also very likely in real-life deployment scenarios. Due to resource constraints in the sensor nodes, traditional security mechanisms with large overhead of computation and communication are infeasible in WSNs. Key establishment is a fundamental security issue in wireless sensor networks (WSN). It is the basis to establish the secure communication using crypto graphic technologies between sensor nodes. Due to the current resource constraints on sensors, it is infeasible to use traditional key management techniques such as public key cryptography or key distribution center based protocols. Therefore, the key pre distribution schemes are paid most attention in key management of WSN. In this paper, we study an enhanced polynomial-based key establishment scheme (EPKES) for WSN. In EPKMS, it introduced an auxiliary set to improve the security level compared to previous schemes.

Keywords: sensor network, sensor authentication, IoT authentication, symmetric, polynomial

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PAPER ID: ICSMEC22-0088

Distributed Conjecture Approach on Large-Scaled at a sets using Map Reduce

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Abstract:
Contemporary computer systems and applications generate high volume of data every day. Gaining knowledge from this ever-growing high velocity and high volume data is crucial tohaveinsightsandbusinessintelligence.Usingsemanticwebapproachesforgeneratinginferencestoga inknowledgehavebeen quite successful. However, having a centralized processing scheme fo identifying inferences in ontologies will not be efficient when high volume data is to be processed. So, a distributed approach is required to address this issue. The major challenges onlarge scale data are the difficulty in deriving suitable triples for appropriate inferences, to reduce the time pent in processing of inference and the requirement of scalable computation capabilities for large dataset. Also, storage space for increasing data must be addressed efficiently. This paper proposes a distributed conjecture approach to address the above issues by construction of SIM (Sparse Index Method) and ATC(Assertional Triples Construction) and to efficiently process the users' queries.

Keywords: Bigdata, Semantic Web, Map Reduce, ontology reasoning, RDF

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PAPER ID: ICSMEC22-0089

Energy Factor Modeling Tuned Adaptive PID Controller for Mitigating Conducted EMI in Automated Dc-Dc Power Converters

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Abstract:

Power converters are suggested to produce EMI as a usual occurrence and its worst with high-speed switching devices. Since, the high dv/dt and di/dt outputs from power devices in a DC/DC converter in electric vehicles can always introduce the unwanted conducted Electromagnetic interference (EMI) emission. In a typical automotive powertrain, a wide input front end DC-DC converters converts the battery voltage to a regulated voltage. The power requirement may vary depending upon the applications. In order to protect the device against the voltage transients and the need to meet the stringent Electromagnetic Compatibility (EMC) standards, an advanced EMI mitigation techniques for automated converters are required. The traditional mathematical modeling is not available for complex structure converters, since the differential equation order increases very high. Hence, Energy factor (EF) mathematical modelling for power dc–dc converters attracted much attention in recent years. This paper offers EF modelling to mitigate EMI issues. The outcome of this work suggests that high of the EMI as well as its harmonics is decreased in this proposed method. The control scheme outlined in this article offers mitigation of EMI across the wide operating region.

Keywords: Electromagnetic interference, Electromagnetic Compatibility, Energy factor, Proportional-Integral-Derivative.

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PAPER ID: ICSMEC22-0090

Speaking Device for Deaf and Dumb Using Microcontroller And Switching Device

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Abstract:
Microcontroller based speaking equipment for dumb and deaf is designed to give the signs, which are preloaded in the device. It is microcontroller based device, which gives the alert sounds just by using Hand gesture sensor, which is given some predefined messages like asking for water, food, washroom, etc. Here the person can just give the predefined gesture which indicates the sign of water (example) then the device sounds the same with some output volume. Microcontroller is the heart of the device. It stores the data of needs of the person so that it can make use of data stored whenever the person uses the device. This device helps deaf and dumb people to announce their requirements. By this the person who is near can understand their need and help them. This saves the time to understand each other and ease in communication. This device is designed to provide with a greater advantage producing voice based announcement for the users i.e., the user gets the voice which pronounces his need as and when it is required. The hand gesture sensor used here is MEMS. MEMS (Micro Electro Mechanical Sensor) is the device often used as position displacement sensor, Micro Electro Mechanical Systems (MEMS) is the integration of the mechanical elements, sensors, actuators and electronics on a common silicon substrate through micro fabrication technology. The broadest requirement for these very small devices is ability to sense the environment, to collect necessary data and to create a signal or action to make desired changes to the environment. Depending on the MEMS movement i.e., forward, backward, right and left directions, the controller activates the appropriate channels in the voice chip that will be played back from the speaker.

Keywords: MEMS, Microcontroller.

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PAPER ID: ICSMEC22-0091

Dual Tone Multi Frequency Automated Surveillance System

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Abstract:
This paper proposed a method to make a base for the monitoring of systems. The monitoring of systems could be from monitoring of movements in any particular area to the monitoring of any external electrical, mechanical device. The goal is to find an improvement over the previous surveillance systems. The facilities provided by it such as easy handling, a secrecy support, an immediate action are granted. A prototype is built in the Windows platform using C# to demonstrate the functioning of the entire system. The methodology of DTMF (Dual Tone Multi-Frequency) with GSM module is used for designing our robot. Robot is controlled by a mobile, through this we can make our robot communicate on a large scale over a large distance even from different cities or place. Various home automation technologies considered in our work include context-aware home automation systems, central controller-based home automation systems, Bluetooth-based home automation systems, Global System for Mobile communication or mobile-based home automation systems, Short Messaging Service-based home automation systems, General Packet Radio Service-based home automation systems, Dual Tone Multi Frequency-based home automation systems, and Internet-based home automation systems.

Keyword: GSM, surveillance, automated, DTMF technology, and modem.

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PAPER ID: ICSMEC22-0092

Pre-Processing Techniques for Digital Mammograms

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Abstract:
Breast cancer is very common disease all over the world due to its death rate especially to women's. if the detection is early enough, it can reduce the mortality rate. Detection of breast cancer can be done by using digital mammography. The initial and fundamental step for breast cancer detection in image processing is pre-processing. In this paper, some of the pre-processing techniques are applied to the digital mammograms. Those methods are haar transform, median filter and adaptive median filter. The best method is selected according to the condition of MSE (mean square error), PSNR (peak signal to noise ratio) and SSIM (structural similarity index measure) values. MIAS dataset is taken for MATLAB simulation.

Keywords: Mammogram, Haar transform, Median filter, Adaptive median filter, PSNR, MSE, SSIM.

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PAPER ID: ICSMEC22-0093

Automated Machine for Cutting and Folding Of Industry Woven Cloths

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Abstract:
As the woven clothes cutting and folding is always a tedious process and also involves more time in doing so for almost all the small scale industries. Hence it is a good idea to invent or discover the machine to reduce the work, man power and time in all the three sections namely cutting, folding and pressing woven clothes. The design process and results of an automated system for cutting and folding of garment manufacturing industry woven cloths folding. The finally obtained product is designed for industrial use and is intended to compete against the similar existing products. The system which is presented comprises of the following parts: cutting of garment, three stages of folding accompanied by pressing through high tension rollers. The design process includes research in background information and relevant standards, needs specification, concept generation and selection, and engineering analysis

The prototype was built based on calculations and simulations in PTC's CREO CAD software and PROTEUSDESIGN suite. The design make use of several combinations of servomotors, stepper motors, proximity sensors and the automated system is controlled by Arduino Mega 2560 along with ESP8266 Wi-Fi module enabling IoT implementation to control and share information over the cloud. It is predicted that by utilizing this automated system, work time and man power can be reduced to a great extent compared to the traditional method.

Keywords: Woven cloths, Cutting, folding, Pressing, High Tension Rollers, Cloud, Manpower.

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PAPER ID: ICSMEC22-0094

ESP8266 Based Wi-Fi Controllable Biped Robot

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Abstract:
In this paper we present a Wi-Fi controllable Biped Robot, A Biped Robot is a type of humanoid robot which mimics like human being and can be programmed to perform some tasks as required. In this paper, a prototype robot is built to provide a test bed for the physical locomotion that is used to control the robot movements such as moving forward, backward, turn left and right, get up from front and back, rollover from left and right. The paper also describes how the Biped Robot is built, how the movement steps are obtained. The movement of the robot also can be controlled by using a webpage. Here to constructed this robot we used ESP8266 Node MCU Board for Processing and wi-fi connectivity, Stepper motors for movement of robot. This biped robot can assist human to carry out the tasks or activities in hazardous environment. This could eliminate human's risk of injury or life casualty.

Keywords: WI-FI, NODE MCU, BIPED ROBOT, STEPPER MOTORS

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PAPER ID: ICSMEC22-0095

Automated Drone Transportation System Incooperating Medical Emergency Supplies

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Abstract:
As medical sector has seen a big advancement and the awareness among people and government to have a proper infrastructure and a supply chain has increased since Covid-19. The availability of drugs and transportation has a good supply chain but at emergency situation the delay in the availability of treatment is also a big concern. Once big factor is the traffic congestion in the country and this leads to the delay in the transportation and causes several lives. Advancement in Drone technology can play a huge role in this system. As 30% of accident deaths and 50% of heart attack deaths are due to delay in treatment caused by traffic congestions and Ambulance cannot reach on time. The proposed drone in this project is designed in a way to carry the medicinal requirements for first aid treatment, can carry all types of blood components for blood transfusion and is designed with a special defibrillator equipment that can provide electric shocks and used to initially treat heart attack patients. The designed medical drone can provide the initial treatment by reaching them through airways as soon as possible and this initial treatment can prevent the patient from getting into critical conditions and get the valuable time to transport them to the hospital post the first aid treatment. The design and infrastructure of the model drone is made with advanced and light weight components with the carrying capacity of 3-5kg so that the medical equipment can be carried. The system is automated using Mission Planner software to make the drone reach the precise location automatically. The GPS module reads the location and travel to the destination. They can be manually controlled with remote controller and viewed by the camera fixed over the drone. They can trace back to the location automatically. The display over the drone instruct and demonstrate the video of operation of the equipment. This makes the operation of the equipment easy and do not require a trained professional.

Keywords: Meical Drone, Automated transportation, First aid treatment, Easy operation, Reduces the risk due to delay of ambulance, Life-saving, Air way transporation.

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PAPER ID: ICSMEC22-0096

Dynamic Inventory Management Based On Deep Learning Technique in Textile Industry

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Abstract:
Inventory management plays an important role to enhance the efficiency and competitiveness among manufacturing industries. The main aim of this work is to apply dynamic inventory management approaches to improve the performance of a textile industry. The ratio of Inventory turnover is used to determine the inventory conversion period for the different stocks of Fabric. The seasonal trends of silk sarees which were widely used among people has been collected and processed using the MobileSENet and the type of fabric classification has been further used for Dynamic inventory application. The proposed dual stream process consists of Inventory Classifier model and query updation model. This paper mainly focuses on finding the texture of sarees with five different classes which is used for inventory management. Recent developments in deep learning have greatly improved the accuracy of image classification. The proposed technique uses MobileSENet (Squeeze and Excitation) and when the experimental results were compared with the DenseNet and DenseNet-SE, a high accuracy of 97% was obtained.

Keywords: Dynamic inventory, MobileSENet, DenseNet, Deep learning.

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PAPER ID: ICSMEC22-0097

Time Quantum Scheduling Algorithm

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Abstract:
Round Robin scheduling algorithm is a preemptive CPU scheduling algorithm which switches between the processes when static time quantum expires. In Round Robin scheduling algorithm the time quantum is fixed and process are scheduled in such a way that no process get CPU time more than one time quantum in one go. Round Robin scheduling algorithm is designed especially for time sharing operating system but it has its disadvantages that are its Longer Average Waiting Time, Higher Context Switches and Higher Turnaround Time. In this scheduling algorithm the main idea is to adjust the time quantum dynamically so that (AMMRR) perform better performance than Round Robin scheduling algorithm.

Keywords: Operating System, Round Robin, Average Mid Max Round Robin, Turnaround time, waiting time, Context Switch.

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PAPER ID: ICSMEC22-0098

Predicting and Optimizing the Solar Photovoltaic Power under Progressive Shading using Reconfigurations

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Abstract:
Renewable energy is in very much demand in current time due to its many favorable environment effect. There are various sources of renewable energy such as wind power, hydro power, and solar energy. Solar energy is one of the frontline sources of renewable energy. Solar photovoltaic converts the solar light into electricity. The performance of the solar photovoltaic depends on various parameters and one of such parameter is shading behavior. Further, the shading pattern and the progress of the shading are also important for predicting the solar performance. The interconnections of solar cells also impact the performance of solar photovoltaic. Therefore, a 4x4 module with various interconnections such as series-parallel (SP), total cross tied (TCT), bridge-link (BL), honeycomb (HC) and triple tied (TT) are studied under the row wise shading pattern. Shading pattern on a 4x4 module is increased cell by cell in horizontal direction, both from left to right and right to left. This shading pattern progresses from first row to the last. The power-voltage and current-voltage characteristics of solar photovoltaic are investigated for the mentioned shading patterns using various reconfigurations. The power output is identical when all cells in a row are shaded. On the other hand, if only few cells are shaded in row then the power output with TCT connection is highest among all connections. The theoretical simulated results can ensure better implementation of interconnection in hardware set-up based on the shading pattern

Keywords: Cell, Modules, Solar Photovoltaic, Partial Shading, Series, series-parallel (SP), total-cross-tied (TCT), BL (bridge link), HC (honey comb) and TT (triple tied)

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PAPER ID: ICSMEC22-0099

Enhancement of Distance Relay Operation Using an Adaptive Protection Strategy

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Abstract:
This approach models the reaction of FACTS devices to various fault conditions and system conditions. Due to some unique features of the FACTS devices, this approach brings out some interesting issues that would be faced by the distance relays. This project work suggested a new algorithm that uses synchronized phasors measurement (SPM) to improve the activity in many aspects of the distance protection region. The proposed method is being tested with the Bergeron transmission line model for a 132 kV system simulated in EMTDC/PSCAD.

Keywords: SVC, STATCOM, UPFC, Adaptive distance protection.

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PAPER ID: ICSMEC22-0100

Enhancement of Reliable Operation in AC Transmission Systems with midpoint VSC-HVDC using an Adaptive Protection Strategy

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Abstract:
This paper introduces the impact of VSC-HVDC on protection system of AC Grid. The results reveal that the apparent impedance does not change when the distance relay is tested without VSC-HVDC under different locations of faults. As VSC-HVDC is used to elevate the midpoint power transfer capability of AC Grid, the apparent impedance changes due to incoming power from the VSC-HVDC system. The results illustrate effect of the VSC-HVDC system on distance relay and simulation result show how under reach and overreach can be avoided by changing the relay characteristics.

Keywords: VSC-HVDC, Adaptive distance protection, AC Grid..

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PAPER ID: ICSMEC22-EC0101

Successive Interference Cancellation for MIMO-OFDM Systems

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Abstract:
Recently 4G and 5G Communication are continuously developing to meet the user requirements like data rate, throughput. In the existing Basic FDM (Frequency Division Multiplexing) based MIMO (Multiple-Input and Multiple-Output) systems are consuming the higher power consumptions and increasing the error rates. To overcome those problems, this project is focusing on implementation of MIMO OFDM (Orthogonal Frequency Division Multiplexing) system with SIC (Successive Interference Cancellation), which can reduce the various data error, frame errors occurring. This project will be implemented using MATLAB R2016A software with the help of Digital Signal Processing Toolbox.

Keywords: SVC, STATCOM, UPFC, Adaptive distance protection.

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PAPER ID: ICSMEC22-EC0102

RIS supported Future Generation Super Speed Train Communications

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Abstract:
Super-speed train communication is a very challenging scenario in wireless communication systems due to its fast time-varying channels and significant penetration loss. Important factor is its low cost and smart channel reconfiguration ability, the reconfigurable intelligent surface (RIS) has been proposed as a prominent technology to solve the aforementioned challenges cost effectively and achieves high spectral and energy efficiency in the next-generation HST communication systems. In this article, we first provide a novel RIS-aided HST wireless communication paradigm, including its main challenges and application scenarios. Furthermore, practical solutions are provided to realize efficient signal processing and resource management in the considered system. Promising research directions of RIS-aided HST communication systems are pointed out to inspire further investigation in future work.

Keywords: Reconfigurable Intelligent Surface (RIS), HST communication systems.

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PAPER ID: ICSMEC22-EC0103

6G Wireless Communication Vision and Potential Techniques

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Abstract:
The demand for wireless connectivity has grown exponentially over the last few decades. With the fast development of smart terminals and emerging new applications (e.g., real- time and interactive services), wireless data traffic has drastically increased, and current cellular networks (even the forthcoming 5G) cannot completely match the quickly rising technical requirements. To meet the coming challenges, the sixth generation (6G) mobile network is expected to cast the high technical standard of new spectrum and energy-efficient transmission techniques. In this Project, we sketch the potential requirements and present an overview of the latest research on the promising techniques evolving to 6G, which have recently attracted considerable attention. Moreover, we outline a number of key technical challenges as well as the potential solutions associated with 6G, including physical-layer transmission techniques, network designs, security approaches, and testbed developments.

Keywords: Massive MIMO, 5G, signal detection, bit error rate, computational complexity.

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PAPER ID: ICSMEC22-EC0104

Exploration on Optimization of 4G-LTE Wireless Network Cells Anomaly Opinion Algorithm grounded on Multidimensional Time Series Data

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Abstract:
With the continuous increase of network terminal equipment, the operation scenarios of 4G-LTE wireless networks are becoming more and more complex. The traditional manual method of analysis and screen- ing of network cell equipment can no longer meet the needs of production. Therefore, an efficient wireless network cell abnormality diagnosis algorithm is needed to screen abnormalities of equipment to improve operation and maintenance efficiency. In view of the fact that the existing single-dimensional anomaly diagnosis algorithm cannot achieve fully automated detection and the existing multidimensional anomaly diagnosis algorithm has low detection efficiency on multidimensional time series data, there are a large number of errors and omissions. This paper proposes a multidimensional time series data based on 4G-LTE wireless network cell anomaly diagnosis optimization algorithm uses small-sample supervised algorithms to assist the training of massive-sample unsupervised algorithms, thereby improving the detection performance of unsupervised learning algorithms. This paper verifies the effectiveness of the optimization algorithm through experiments, and has a great improvement in the four commonly used unsupervised algorithms, which can well improve the anomaly detection capabilities of the existing algorithms.

Keywords: Multidimensional Time Series Data, Anomaly Detection, Unsupervised Learning.

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PAPER ID: ICSMEC22-EC0105

Minimum Time Delay and More Efficient Image Filtering Brain Tumor Detection

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Abstract:
Brain tumour detection is one of the intriguing task in the medical field still now. Earlier the technologies pneumoencephalography and cerebral angiography were used but they had drawbacks. The next technologies such as CT and MRI scan techniques with the help of surgeons came into use to provide a higher quality result in image processing. However it is difficult in distinguishing between brain tumour tissue and normal tissue because it they are similar in colour. Hence Brain tumour must be analysed more precisely in order to cure it. In this paper Tumour Detection with help of MATLAB image processing catches three stages Pre-processing, Processing and Post-processing in morphological detection. After the getting MRI report first stage is pre-processing which is converting the original RGB image to gray-scale image and then using a Gaussian high pass filter for noise reduction. In the second stage processing for pixel enhancement we use Median filter and in third stage i.e. the post-processing where different filters such as Entropy Filter., Standard Deviation Filter (SDF), Weiner Filter, Gradient Magnitude, Regional Maxima are used for various different-different results. In this post processing which is followed by algorithm not only creates the report automatically, but has very less delay time and gives the output more efficiently.

Keywors: Gray scale, Gaussian HPF, Weiner Filter, Gradient Magnitude, Regional Maxima.

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PAPER ID: ICSMEC22-EC0106

A Novel BIST Scheme For Low Power Testing

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Abstract:
In a BIST architecture, power consumption in test mode is usually higher than that in normal mode, and it has been shown that power consumption during test mode can be as high as 200% of the power consumed in the normal mode. The main reason is that the circuit under test has much more switching activities. Thus special care must be taken to ensure that the power rating of circuits is not exceeded during test application.

. This paper deals with design of different test pattern generators using Linear Feedback Shift Register (LFSR), and applying them to one common Circuit Under Test (CUT), which is present in the BIST architecture. Power dissipation due to these generators have been evaluated and compared. First one is normal Linear Feedback Shift Register. Second one is Modified Linear Feedback Shift Register which can generate three intermediate patterns between two consecutive test patterns have been designed. And the third one is Single Input Change Generator, which includes an n-bit counter and a Gray code encoder and a seed generator (LFSR). Single input change test pattern is generated by a counter and a gray encoder. The patterns which are generated by the gray code encoder, exclusive-ORed with seeds, generated by the LFSR. Thus the switching activities of test vectors are greatly reduced in test mode without compromising fault coverage. Experiments conducted on ISCAS'89 benchmark circuits demonstrate that, the comparison between above three schemes, and conclude that, the Single Input Change Generator has less power dissipation. Simulation will be done in ModelSim tool, and synthesis will be done in Xilinx tool.

Keywords: BIST, Low Power, LFSR, CUT, SICG, Gray Code Encoder.

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PAPER ID: ICSMEC22-EC0107

Device to Device Communication Underlaying Cellular Networks Using Energy Efficiency Optimization

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Abstract:
In this paper we discuss about the D2D communication which is used to improve the communication rapidly. To maximize the EE, we use D2D in 5g networks which is key in D2D. It also reduces the throughput latency. We use D2D in overlay or underlay, in this we choose underlaid over overlaid because of high spectral efficiency. However, we give much attention to single cell scenario to which are existing technologies and we give less attention to maximize the EE of whole cellular network underlaid with D2D communication. By using successful transmission probability and AVSR reduces the interference problem which is introduced by D2D and cellular. The optimization problem is formulated with algorithms they are Branch and Bound and proposed derivative algorithm. To solve non-convex problem, we proposed a derivative algorithm, compare both algorithms which shows the propose derivative is lower than the BB. Finally, we perform simulation results by using MATLAB software which demonstrated that the EE with much better performance.

Keywords: AVSR, D2D, EE, 5G Networks

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PAPER ID: ICSMEC22-EC0108

Dual Image Based Reversible Data Hiding Scheme Using PVD

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Abstract:

Data hiding is to conceal the secret message into cover objects without distortion. A new data hiding method is proposed to provide high embedding capacity in dual images combining Steganography and Pseudo random scheme. The proposed method generates two stego images after embedding the secret bits into a cover image. A sub-block of two consecutive pixels is used to have different length of embedding bits by applying the difference value of two pixels. The location and the order of the image pixels chosen for information embedding are randomly selected using pseudo-random generator. Spreading the message all over the pixels of the cover image using pseudo random generator that generates random locations of pixels in an image and embedding with Pixel Value Differencing algorithm to make it highly indiscernible.

Keywords: Pixel , Pseudo random scheme , Stego images

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PAPER ID: ICSMEC22-EC0109

Performance Evaluation of Compact Planner Dual Band Antenna

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Abstract:
A planar, compact, dual-band microstrip patch antenna on a semi-flexible substrate is proposed for 2.4/5.8 GHz wireless local-area network (WLAN) applications. The proposed antenna composed of a single patch and a defected ground structure (DGS). The patch is C-shaped stub on the top of the substrate which excites the lower resonant mode at 2.4 GHz. The defected ground structure excites the higher resonant mode at 5.8 GHz band. The antenna was designed on a semi-flexible Rogers RT/Duroid 5880 material with dielectric constant of 2.2 and thickness of 0.5 mm. The simulation of the proposed antenna has been carried out in HFSS 15.0 software, and the results are evaluated. The proposed antenna is then fabricated on the basis of simulated design and measured using vector network analyzer (VNA) to carry out return loss and VSWR result. Measured return loss is compared to simulated results for better understanding.

Keywords: Wireless Area Network, planar antenna, microstrip patch antenna, VSWR

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PAPER ID: ICSMEC22-EC0110

Projecting smart home system using Virtual Wall Mounted Switches and Arduino

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Abstract:
Virtual reality is the human-computer interactions and it can be used in wide range of applications. Wall mounted buttons are used as physical user interface for room lights, elevators and so on. Changing the installation locations, labels and types of wall mounted buttons are not easy. The user experience will be improved by changing the installations, types and labels of wall mounted buttons. To predict the human motion, Redirected walking algorithms are required to steer users away from the boundaries of physical space. While straight lines are used to represent virtual trajectory, user behavior is not represented accurately by using this simple model. We proposed this project which can be used to create smart home system in the physical and virtual environments. Under varying conditions, it can be used for evaluation of redirected parameters. In this proposed system, based on user's height, the vertical positions of the buttons are changed and also the labels and types of buttons are changed. The problems occurred in wall mounted buttons are solved by projecting virtual reality system of wall mounted switches and smart home system.

Keywords: Smart home system, virtual reality, interface, wall mounted switches

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PAPER ID: ICSMEC22-EC0111

Design of Dual-Band Microstrip Antenna for WLAN Application

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Abstract:
Wireless local area network (WLAN) is a technology that combines computer network with wireless communication technology. The 2.4 GHz and 5 GHz frequency bands in the Industrial Scientific Medical (ISM) band can be used in the WLAN environment. Because of the development of wireless communication technology and the use of the frequency bands without the need for authorization, the application of WLAN is becoming more and more extensive. As the key part of the WLAN system, the antenna must also be adapted to the development of WLAN communication technology. This paper designs two new dual-frequency microstrip antennas with the use of electromagnetic simulation software—High Frequency Structure Simulator (HFSS). The two antennas adopt ordinary FR4 material as a dielectric substrate, with the advantages of low cost and small size. The first antenna adopts microstrip line feeding, and the antenna radiation patch is composed of a folded T-shaped radiating dipole which reduces the antenna size, and two symmetrical rectangular patches located on both sides of the T-shaped radiating patch. The second antenna is a microstrip patch antenna fed by coaxial line, and the size of the antenna is diminished by opening a stepped groove on the two edges of the patch and a folded slot inside the patch. Simulation experiments prove that the two designed antennas have a higher gain and a favourable transmission characteristic in the working frequency range, which is in accordance with the requirements of WLAN communication.

Keywords: WLAN, microstrip antenna; dual-frequency; HFSS.

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PAPER ID: ICSMEC22-EC0112

Monitoring and Controlling the Intensity of Light Using Embedded System

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Abstract:
Each and every part of our life is somehow linked with the embedded products. Embedded systems are the product of hardware and software co-design. Embedded system is becoming an integral part of engineering design process for efficient analysis and effective operation. From data analysis to hardware work, every where embedded products are the main interest, because of its reliability and time bound perfection. There is not much time with anyone now a day to give enough in all aspects, so demand of embedded products which serve as we want is high on demand. The present paper describes the design of an embedded system for continuous monitoring the intensity of light in a single system using sensors, microcontroller and LCD. It describes the controlling action incorporated in the hardware to control any device connected when specific conditions are met. Further, the set up is designed in such a way that the data can be stored for future offline analysis.

Keywords: Embedded System, Microcontroller 8051, Data-Logger, Sensor.

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PAPER ID: ICSMEC22-EC0113

Design of Noise Free Filter for Serial Data Communication Using Majority Voter Concept

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Abstract:
This paper describes a novel architecture of Universal Asynchronous Receiver Transmitter (UART) based on Recursive Running Sum (RRS) filter. UARTs are used for asynchronous serial data communication between remote embedded systems. If physical channel is noisy then, serial data bits get corrupted during transmission. The robust UART core described here, utilizes recursive running sum filter to remove noisy samples. Input data signal is directly sampled with system clock and samples are accumulated over a window size. The window size is user programmable and it should be set to one fifth of required bit period. The intermediate data bit is decoded using magnitude comparator.
A majority voter is used to decode actual data bit from five intermediate data bits. The advantage of this architecture is that baud rate is decided by the window size so there is no need of any external "timer module" which is normally required for standard UARTs. The Recursive Running Sum (RRS) filter architecture with programmable window size of M is designed and modules are implemented with VHDL language. This project implementation includes many applications in wireless data communication Systems like RF, Blue tooth, WIFI, Zig Bee wireless sensor applications. Total coding written in VHDL language. Simulation in ISE Simulator, Synthesis done by XILINX ISE 9.2i. Synthesis result is verified by the Chip scope. Input signal given from the keyboard and output is seen by the help of HyperTerminal.

Keywords: Serial data, Clock, Samples, Baud Rate, Noise.

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PAPER ID: ICSMEC22-EC0114

Downlink user selection for massive MIMO-OFDM-im systems using ZF precoding

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Abstract: By the use of a large number of M antennas in the base station side, makes it possible to beam form different signals to different users, so the signals add up constructively at the desired user and destructively everywhere else, that is why massive MIMO-ODFM combining with beam forming is a promising technology for next-generation wireless communication network (5G). Indeed, the performance of Massive MIMO systems is systematically dependent on users' selection method especially when the number of users is huge in the cell. In this project, we focus on the performance of such a system in terms of max rate using the zero-forcing precoding method.

Keywords: MATLAB, MIMO-OFDM-IM System, Transmitter, Receiver, AWGN Channel,

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PAPER ID: ICSMEC22-EC0115

Analysis of Big Bio Medical Data using Parallel Processing

Mr.K.N.V.Rao[1], Mrs. G Vinatha[2], Mr. S. Santosh Reddy[3]
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Abstract:
An analysis of large sets of fundus images for automatic diagnosis of diabetes retinopathy was performed using the proposed method based on CUDA computation. A high-performance algorithm that calculates effective textural characteristics for medical image analysis has been developed. During the automatic image diagnosis, the following classes were distinguished: thin vessels, thick vessels, exudates, and a healthy area. Several images of 500x500-1000x1000 pixels were used to qualify the algorithm's efficiency using a square 12x12 dimension window. The acceleration relationship between the developed algorithm and varying data sizes was demonstrated. According to the study, certain characteristics of the image can affect the algorithm's effectiveness, for instance, the image's clarity, exudate zone shape, variability of blood vessels, and the optic disc's position.

Keywords: CUDA, Biomedical, Diabetes.

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PAPER ID: ICSMEC22-EC0116

Embedded Website for Real Time Remote Control and Monitoring Of an FPGA Based Mobile Computer

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Abstract:
Many FPGA-based embedded systems in space applications, automobiles, medical and industrial fields use an on-board computer system that needs remote emulation, monitoring, control and update. This paper describes an approach for the development of a real-time remote control and monitoring system using an embedded web server implemented in a Micro Blaze processor based software design, which takes Xilkernel as real-time operating system. We used the open source Lightweight IP (lwIP) standalone TCP/IP protocol stack to implement networking capability. The embedded web server will enable remote access to the on-board computer system by using a web browser for receive the downlink data, send the uplink commands or update the system. The embedded platform was implemented in Xilinx Spartan-6 FPGA SP605 Evaluation Kit.

Keywords: Embedded WebServer; lwIP; Xilkernel; RTOS; FPGA; MicroBlaze; HTTP; On-Board Computer

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PAPER ID: ICSMEC22-EC0117

Electronic Smart Trolly Using Arduino

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Abstract:
In metro cities we can see you a huge rush at shopping malls on holidays and weekends. This becomes even more when there are huge offers and discounts. Now a day's people purchase a variety of items and put them in the trolley. After total purchasing one should approach counter for billing purpose. By using Barcode reader, the cashier prepares the bill which is a time-consuming process. This results in long queues at the billing counters. This project presents an idea to develop a system in shopping malls to overcome the above problem. To achieve this all products in the mall should be equipped with RFID tags and all trolleys should be equipped with a RFID reader and LCD screen .When one puts any product in the trolley its code will be detected automatically, the item name and cost will be displayed on the LCD, thereby the cost gets added to the total bill. If we wish to remove the product from the trolley, you can take away the product and the amount of that specific product gets deducted from total amount and the same information passes to the central billing unit via Bluetooth module. Hence the billing can be done in the trolley itself thereby saving a lot of time to the customers.

Keywords: RFID, LCD, Arduino

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ABOUT CONFERENCE

Online International conference on "Smart Modernistic in Electronics and Communication" (ICSMEC-22) will be organized by St. Martin's Engineering College, Secunderabad, Telangana, India, during 28th & 29th March, 2022. ICSMEC-22 will serve as a colloquy for sharing the proficiency among academicians, researchers, scientist and industrial personnel from all over the world in the areas of engineering and technology for estimation and prevention of complex situation. All papers will be reviewed by eminent researchers and all accepted papers will be sent to UGC care/ Scopus journal publication.All the abstracts will be published in conference proceedings with ISBN & UGC Care Journal. Participants will present papers online mode.

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