



4th International Conference on Communication Systems

Rajasthan, India
18th - 19th October, 2019

Organized by:

B K Birla Institute of Engineering & Technology [BKBIET, Pilani]
&
Institute For Engineering Research and Publication [IFERP]



Rudra Bhanu Satpathy

Chief Executive Officer

Institute For Engineering Research and Publication.

On behalf of *Institute For Engineering Research and Publications (IFERP)* and in association with *B K Birla Institute of Engineering & Technology*, Rajasthan, India. I am delighted to welcome all the delegates and participants around the globe to *B K Birla Institute of Engineering & Technology, Rajasthan, India* for the “*4th International Conference on Communication Systems (ICCS -19)*” Which will take place from *18th - 19th October'19*

Transforming the importance of Engineering, the theme of this conference is “*4th International Conference on Communication Systems (ICCS -19)*”

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator (**IFERP & BKBIET**) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants a very pleasant stay at *Rajasthan, India*

Sincerely,



Rudra Bhanu Satpathy



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Girija Towers, Arumbakkam, Chennai - 600106

Preface

The “*4th International Conference on Communication Systems (ICCS-19)*” is being organized by *B K Birla Institute of Engineering & Technology*, Rajasthan, India in association with *IFERP-Institute for Engineering Research and Publications* on the *18th – 19th October, 2019*.

B K Birla Institute of Engineering & Technology has a sprawling student –friendly campus with modern infrastructure and facilities which complements the sanctity and serenity of the major city of Pilani in Rajasthan.

The “*4th International Conference on Communication Systems*” was a notable event which brings Academia, Researchers, Engineers, Industry experts and Students together.

The purpose of this conference is to discuss applications and development in area of “*Communication Systems*” which were given International values by *Institute for Engineering Research and Publication (IFERP)*.

The International Conference attracted over 175 submissions. Through rigorous peer reviews 50 high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.

Message from Director



Dr. S M Prasanna Kumar

Director

BKBIET, Pilani

I am extremely happy that our team is organizing the fourth International Conference on Communication Systems ICCS – 2019 at B K Birla Institute of Engineering & Technology, Pilani during 18-19 Oct. 2019.

The Science & Technology along with the evolution of Communication is bringing about a great change all over the world. To keep pace with these changes and understanding, it is necessary to get ourselves updated with these new technologies.

I am sure that ICCS 2019 will provide much needed and useful exposure to the young researchers and students. The outcome of the conference will surely help them take the technology to next level.

I welcome the galaxy of dignitaries from different parts of the country as well from abroad to grace the event.

I hope this conference will provide suitable platform to students, scientists and technologists to share their innovative ideas and knowledge to help in planning the future growth of the country.

I wish great success for ICCS 2019.

A handwritten signature in blue ink, appearing to read 'S M Prasanna Kumar', written in a cursive style.

Dr. S M Prasanna Kumar

Message from Principal (Academics)



Dr. L Solanki

Principal (Academics),
BKBIET Pilani

I am extremely happy to note that B K Birla Institute of Engineering & Technology (BKBIET), Pilani & Institute for Engineering Research & Publication (IFERP), Chennai are jointly organizing 4th International Conference on Communication Systems (ICCS-2019) during 18-19 October, 2019 at BKBIET Pilani.

In the era of rapidly changing technology in the field of Communication it becomes necessary for all of us to keep abreast with the latest development and emerging trends in the field of Digital Communication. We can attribute the communication systems as a revolution to the printing press of Gutenberg, which has further progressed exponentially due to the present chip revolution, advancement in memory, processors, computing power and above all the carrier communications in RF and optical domain.

I am proud to mention that BKBIET Pilani has close and fruitful ties with some of the leading French and Thai institutions in the educational sector, and I hope that such conference gives an opportunity to meet and discuss with eminent academicians, professionals and research enthusiasts across the globe.

In the capacity as the Program Chair, I would like to thank its committee members, sponsors and IFERP for extending their valuable support and contribution which will make this conference memorable and successful.

I am positive that the participating students and professors will make the best use of this opportunity. With best wishes

A handwritten signature in black ink, appearing to read 'L. Solanki', with a stylized flourish at the end.

Dr. L Solanki

Message from Principal (Administration)



Prof. Shridhar B. Dandin

Principal (Administration)

BKBIET – Pilani

At the outset, I would like to wish ‘Seasons Greetings to all the authors, participants and readers’ of the International Conference, ICCS-2019.

It is indeed a matter of great honour and pleasure to host 4th International Conference on Communication Systems during 18-19 October 2019 at BK Birla Institute of Engineering & Technology, Pilani.

I hope that we have met the objective of ICCS-2019 by presenting the latest research and 'results of scientists and researchers related to Electrical, Electronics & Communication Engineering and Computer Science & Engineering.

Our special thanks to IFERP for connecting engineers and developing research through this international conference.

Wish you all the very best for your future endeavours!

A handwritten signature in black ink, appearing to be 'S. D.' with a flourish.

Prof. Shridhar B. Dandin

Message from Principal B K Birla Institute of Higher Education



Dr R P Sharma

Principal

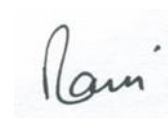
B K Birla Institute of Higher Education, Pilani

My warm greetings to all!

It is the time of the year when the 4th International Conference on Communication Systems 2019 is being organized at B K Birla Institute of Engineering and Technology on 18th and 19th of October 2019.

ICCS conference provides platform for our students and researchers to get experience in presenting and reporting their findings in acceptable manner to the scientific community. In this era of digital world and nano-scale integration where speedy communication is in great demand in day to day life, business, health care and space explore conference on communication systems help students transfer their classroom learning to action oriented research output. It provides an ideal opportunity for the researchers to share knowledge gained from the experiments and literature review. Designing and developing innovative and practical concepts, and sharing them with their fellow researchers is skill development which will contribute in the fields of engineering research and of course a tool for humanity.

I congratulate the team ICCS 2019 on their efforts and wish the event a grand success.
With warm regards,

A handwritten signature in black ink, appearing to read 'R P Sharma'.

Dr R P Sharma

Message from Principal BTTI(Diploma)



Manoj Kumar Gaur

Principal
BTTI(Diploma)

I am extremely happy that BKBIET, Pilani is organizing 4th International Conference on Communication Systems (ICCS-2019) during 18,19 October 2019. The conference is a flagship conference of BKBIET, and it is motivated by the grand success of ICCS2013, 2015 and 2017. Certainly, the conference will not only bring all the researchers, engineers and students at one platform but also inculcate the much-needed research culture among them. It provides an open forum for scientists, researchers, engineers and students to discuss nascent innovations and research advancements in the areas of next generation electronics, computers, communication architectures, protocols and algorithms, content systems, application and services. It will be a wonderful opportunity for delegates to gain quality input useful for their future research in this knowledge-based society.

I hope that the conference would certainly induce innovative ideas among the participants paving way for new inventions and technologies in Electronics, Computers and Communications. It is my humble wish that the professional dialogue among the researchers, scientists, engineers, students and educators continues beyond the event and that the friendships and collaborations forged will linger and prosper for many years to come.

I congratulate, Dr. Prasanna Kumar S M, Director, BKBIET, Pilani and his team for initiating the conduction of the conference.

I wish the conference a grand success.

A handwritten signature in blue ink, appearing to read 'Manoj Kumar Gaur'. The signature is written in a cursive style with a horizontal line underneath the name.

Manoj Kumar Gaur

Message from Principal Birla Technical Training Institute



Capt P Singh

Principal

Birla Technical Training Institute, Pilani

My warm greetings to all!

It is the time of the year when the 4th International Conference on Communication Systems 2019 is being organized at B K Birla Institute of Engineering and Technology on 18th and 19th of October 2019.

ICCS conference provides platform for our students and researchers to get experience in presenting and reporting their findings in acceptable manner to the scientific community. In this era of digital world and nano-scale integration where speedy communication is in great demand in day to day life, business, health care and space explore conference on communication systems help students transfer their classroom learning to action oriented research output. It provides an ideal opportunity for the researchers to share knowledge gained from the experiments and literature review. Designing and developing innovative and practical concepts, and sharing them with their fellow researchers is skill development which will contribute in the fields of engineering research and of course a tool for humanity.

I congratulate the team ICCS 2019 on their efforts and wish the event a grand success.
With warm regards,

A handwritten signature in blue ink, consisting of stylized initials 'PS' with a large loop at the top and a vertical line extending downwards.

Capt P Singh

ICCS-19

*4th International Conference on
Communication Systems*

**Keynote Speakers /
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Sr. Principal Scientist & Head Of Nano
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Professor And Area Director (Electronics &
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NIIT Neemrana, Raj



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(Entrepreneur | Maker)
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Dr. R K Sharma
Sr. Principal Scientist
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IIT Jodhpur



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ICCS-2019

4th INTERNATIONAL Conference on COMMUNICATION Systems

BKBIET Campus, Pilani, Rajasthan, India, 18th - 19th October, 2019

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ICCS-19

**4th International Conference on
COMMUNICATION Systems**

**Rajasthan, India
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ABSTRACTS

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A New Approach for Frequency Domain Equalizer against Channel impairment in Single-carrier Communications for Vehicle to Vehicle Communication

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Abstract:--

The use of vehicle-to-vehicle (V2V) communication will be an integral part of intelligent transport systems (ITSs) and lots of work has been done for ITS channel modeling. In order to establish communication between vehicles-to-vehicles and between vehicles and roadside stations for surveillance and proper navigation, a reliable wireless channel is needed. But the strength of the received signal can change significantly depending on the absorbing, diffracting and scattering effects from the surrounding environment and high Doppler velocity making channel estimation even more difficult. Frequency domain equalization (FDE) is a very effective tool to resist frequency selective fading in high speed communications system, but its performance will be greatly degraded when suffering serious Doppler impact due to rapidly time varying channel condition. Based on the single-carrier system with FDE (SC-FDE), a FDE scheme is proposed in this paper to resist high Doppler spreading effect.

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Malaria Detection from Cell Images Using Deep Learning

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Abstract:--

Malaria is a mosquito-borne infectious disease that affects the health of humans and other animals . Malaria causes symptoms that typically include fever, tiredness, vomiting and headache. In severe condition it can cause yellow skin, seizures, coma or death. According to the report submitted by World Health Organisation (WHO) around 219 million people all around the globe suffered from malaria last year. Malaria Detection from Cell Images is the problem on which we are focusing as manual diagnosis of blood smears is an intensive manual process that requires expertise in classifying and counting parasitized and uninfected cells and manual process takes a lot of time. Malaria detection is not an easy procedure, and the availability of qualified personnel around the globe is a serious concern in the diagnosis and treatment of cases. For this we have used Deep Learning models or more specifically Convolution Neural Network (CNNs), which have proven very effective for computer vision tasks. We have used various cell images and trained them using Convolution Neural Networks to give the desired output.

Keywords:

Convolution Neural Networks, Malaria Detection, Deep Learning model.

Design and Analysis of Flexible Polyethylene Terephthalate Substrate patch Antenna Using Printing Technique for Conformal Application

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Abstract:--

This intense research work represents a design of low cost inset feed rectangular microstrip patch antenna using PET substrate for 10 GHz frequency. It is focused on many applications, and high frequency RF device model explored and it demonstrates new fields of applications in communication and networking domains by its flexible behavior. This paper is dedicated to the enhancement of return loss, directivity and bandwidth at software generated resonant frequency 9.95GHz at given PET base design of conformal printed antenna & comparison in simulation and modeling with PET substrate. This design and simulation using High frequency structure simulator software (HFSS-15), the expansion of bendable concept provides the idea attaining different performance of EM radiations including better performance. Different Sections of research is described in broad way as followed the steps and achieved satisfactory results in the stream of flexible inset feed patch antenna for high frequency domain. A flexible Polyethylene terephthalate (PET) substrate highly mechanically robust, light weight, high bendability strength with well deformability property. The antenna is feed by inset feed method and it is easy and provides good impedance matching. Here proposed structure antenna has been designed on PET substrate and operating frequency of the antenna is $f=9.95$ GHz, dielectric constant is 2.8, rectangular microstrip patch has dimension $8.9\text{mm} \times 10.78\text{mm}$ and simulation results are illustrated for specific frequency allocated in particular application domain.

Keywords:--

Bandwidth, Directivity, Gain, HFSS, Inset feed patch antenna, PET substrate, and Return Loss

Solar PV Scenario in India

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Abstract:--

Among different sources of alternate energy, solar and wind are two prominent and promising alternatives to meet the future electricity needs for mankind. More specifically Solar photovoltaic rooftop has emerged as a potential green technology to address climate change issues by reducing reliance on conventional fossil fuel based energy. This review paper examines the environmental concerns, sustainable materials for thin film solar cells, trends in global growth in solar energy, present India scenario about its intent, issues, outlook & challenges in achieving the target in solar power capacity, renewable energy & economic growth and focuses on the solution to the main barriers for Solar photovoltaic installations, system efficiency and problems faced to common end users. It also mentions the advancement in solar technologies to boost the solar power capacity in India.

Index Terms:

Renewable energy; environment; solar; economic growth; outlook

Survey of Applications of Natural Language Processing: A Review

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Abstract:--

Natural language processing (NLP) has recently gained much attention for representing and analyzing text by computerized means. The primary goal of NLP is to implement within computers the skill to understand a normal human language. One of the motivations of NLP is for the society whose access to web information is obstructed simply by their inability to use the keyboard and operating system. It has spread its applications in various fields such as machine translation, email spam detection, information extraction, summarization, medical and question answering, etc.

Index Terms

Natural language processing, Phases of NLP, History and Future of NLP, Applications of NLP

Review of Ages of Data - Maintained through Big Data Analytics

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Abstract:--

As in the alarming ages we've been witnessed of the data crises all over the world in the last decade. Data has come to its hike as millions and trillions of people generated data in millions of terabytes and petabytes each day. And we have found all the evidence that it is definitely impossible to manage all the data with our traditional management system. All these data are generated from all modern technologies, digital processing which are structured, unstructured, semi-structured and which is merely possible for traditional management system to handle all that. Analysis of these voluminous data requires a lot of efforts at multiple levels to extract knowledge for decision making. Today we are in a serious need of big data solution and that is provided to them by Hadoop, Big data is the extremely large data set that may be analyzed computationally to reveal patterns, trends and association especially, relating to human behavior and interactions and this is the basic problem now-a-days. Hadoop and its properties makes it easier for an big data analyst to store the data, enormous processing power and the ability to handle virtually limitless, concurrent tasks or jobs via apache Hadoop. Managing big data through Hadoop is adopted by many researchers and developers to start work on. The basic objective of this paper is to explore the potential impact of big data in the concurrent life styles via analysis and its meaning.

Index Terms

Big Data Analytics, Hadoop, Structured Data, Semi Structured Data, Unstructured Data, Voluminous Data

Applications of Metamaterials: A Review

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Abstract:--

During the last few years, a great interest in the field of Metamaterials has been observed. The extra-ordinary properties of Metamaterials make these materials different from other natural materials. In electromagnetic field theory, the materials are classified in terms of permittivity (ϵ) and permeability (μ). Typical materials that occur in nature have a positive value of ϵ and μ . If the materials have a negative value of ϵ and μ they are known as Metamaterials or left-handed materials (LHM). This paper presents a review of the physical properties, types, and applications of metamaterials. Also in this paper a comparison of conventional materials with metamaterials in the field of antenna designing is presented with literature survey. Implementation of metamaterials in antennas help to enhance their radiation properties like gain and bandwidth and return loss get reduced.

Keywords:--

Left-handed materials (LHM); Metamaterials; Split-ring Resonator (SRR)

Text Summarization an Overview

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Abstract:--

In recent years, there has been a explosion in amount of text data from variety of sources and due to plenty of data on information server and 'information overloaded' is becoming an issue for people. It has always been a very difficult and time consuming task to summarize and sort mountains of documents keeping all semantics in consideration. Hence, automatic text summarization can be key solution for this problem. Text summarization is a process of extracting or collecting information from original text and presents that information in the form of summary. It has become necessity of many applications. We have many approaches of doing text summarization; some are extractive and abstractive techniques. This paper is provided with few of these approaches to obtain more efficient and accurate summary of original document.

Keywords:

Abstractive Text summarization, Automatic text summarization, Extractive text summarization

Static and Dynamic Analysis of Aircraft Wing Made by LM 25 and ALSiC Metal Matrix Composite

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Abstract:--

This paper discusses about the weight reduction in the wing structure that improves the productivity and performance of an aircraft wing. Decrease in the mass of the wings has higher significance compared all other air craft parts Aircraft wing structures are analyzed with LM25 and a metal matrix composite material which is a mix of LM25 and Silicon Carbide (SiC) where in aluminum is the base metal and silicon carbide is added in different weight proportions. By varying silicon carbide percentage in LM25 four types of samples are prepared utilizing stir casting process. The young's modulus, Poisson's ratio and thickness of every sample are determined cautiously by exposing the sample to tensile test and hardness test. By looking at the material properties acquired tentatively ideal level of silicon carbide in aluminum is found. Static basic investigation is completed in ANSYS by contributing the properties of the ideal example which are acquired tentatively. The outcomes acquired from ANSYS for pure AL25 and metal matrix composite (SiC) are compared. By looking at the outcomes it is discovered that composite material has preferred material properties and stresses over LM25.

Keywords:

Aircraft wing, Aluminum alloy (LM25), Silicon Carbide (SiC), stir casting.

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Automatic wireless Gesture based Robocart

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Rounak Agrawal, Secure Meters, Udaipur

Abstract:--

Modern age has evolved out of ancient one due to technological progress. We always have desire to ease the method of doing work using science and technology. Automation is also an emerging technology and in some aspects very rapidly growing concept for mankind. In many cases, the automation is related with some digital electronic circuitry like a microprocessor or a dedicated microcontroller of doing the same task that a human can do but in more efficient way and in very less time duration.

Humans have senses to perform the task but machines require some input to be acted upon and accomplish the task. Sensors in these machines are designed for the purpose of sensing the input conditions which are gathered from given circumstances or status of the environment. Many sensors are available in market according to applications, like temperature sensor, smoke sensor, and so on.

We have built an automatic wireless robocart controlled by gesture using accelerometer sensor. There is already in-built accelerometer in most smart phones that respond on gestures. Therefore, this project will discuss on the robocart with gesture-controlled by a smart phone, which is based on Arduino ATMEGA32 and Bluetooth using minimal power and very cost effective hardware.

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High Controllability & Frequency Selective Fast Ring Oscillator Using 22nm CMOS Technology

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Abstract:--

The Integrated circuits (IC) have entered the generation of System-on-a-Chip that is hundreds of thousands of transistors could be incorporated in to one chip [1]. Some of the major parameters the designers have to concentrate while designing an integrated circuit includes energy consumption, speed, silicon region and the delay associated with the circuit. The Complementary Metal Oxide Semiconductor structures has the major advantage of providing low electricity consumption as well as lesser area and because of this reason CMOS technology is used to construct the above integrated circuits. To put in force any virtual circuit, a pair of p-kind and n- kind transistors is required. Due to numerous benefits, CMOS technology is extensively used in commercial packages [6]. On the other hand, reliability becomes one of the most important parameter which is likewise needed for designing a low energy circuit. Among the most commonly used integrated circuits, one of the widely manufactured integrated circuit is a ring oscillator which is a structure made of an uneven count of delay inverting stages and produces clock signal as the output. This paper involves designing a fast CMOS ring oscillator circuit using 14nm Predictive Technology Model in SPICE tool and to analyze the corresponding temperature effects.

Index Terms

Integrated Circuit, NMOS, PMOS, CMOS ring oscillator, 14nm PTM technology, Spice tool, Temperature, and Voltage

Analysis of OMR Sheet Using Machine Learning Model

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Abstract:-

In today's world most of the competitive exams are based on MCQ (Multiple Choice Questions). The responses of these MCQ based exams are recorded in the Optical Mark Reader (OMR) sheet. Evaluation of the OMR sheet requires separate specialized machines for scanning and marking. The sheets used by these machines are special and costs more than a normal sheet. In this paper, we intend to implement a real-time automatically analyzing human marked OMR (Optical Mark Recognition) sheet and interpreting results using OpenCV. There are two ways by which we can analyze OMR is through Live Stream or Photos. In our Model we used both methods to interpret results. OpenCV is a machine learning software library which includes a library of programming functions used in real time computer vision.

Index Terms:-

OpenCV, OMR, Real Time Computer Vision, Machine Learning.

Hardware Implementation of basic building blocks of machine learning algorithms using FPGA

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Abstract:--

The advancement of information and communication technologies including automation and robotics are using artificial Intelligence (AI) algorithms including machine learning (ML) and deep learning (DL) algorithms for accurate analysis and prediction of various situations as per the application requirement. The implementation of complex ML algorithms is at present more in simulation and offline analysis. Real-time analysis and prediction is required to implement ML algorithms. The software implementation of the ML algorithms may not be able to meet the requirements of real-time execution, as they are complicated and fast arithmetic operations. This leads to Hardware implementation of ML algorithms either as hardware accelerators or standalone hardware arithmetic system. This work basically focuses on hardware implementation of basic building blocks which are required to implement any ML. The various algorithms have been studied and investigated for novel energy efficient algorithms for matrix multiplier, sum of product(SOP) and product of sums(POS) apart using existing the multiplier, divider and adder floating-point arithmetic operations. The system architecture has been designed and developed to implement matrix multiplication, SOP and POS arithmetic operations. Each basic building block of matrix multiplier, SOP, POS has been simulated and functional accuracy verified on the scale of percentage.

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An Optimized structure of 4H-SiC U-Shaped Trench-Gate MOSFET with Low on Resistance using TCAD Simulation

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Dr Kavindra Kandpal, Assistant Professor BITS Pilani

Abstract:--

In this Paper, an Optimized 4H-SiC U-Shaped trench gate metal oxide semiconductor field effect transistors (UMOSFETs) structure with less On-resistance (RON) is projected. Two types of power MOSFETs, i.e. planar MOSFETs and trench MOSFETs, have been simulated using industry-standard Technology Computer Aided Design (TCAD) tools. In the traditional structure of UMOSFET reduces On-resistance of the device considerably whereas maintaining the breakdown voltage (VBR). Simulations by Sentaurus TCAD used to reveal the operating mechanism of this improved structure. For the performance, the ON-resistance and therefore the Baliga's figure of merit (BFOM) of the optimized structure improved by some percentage, as compared to a standard trench MOSFET while not the adding n-type region and updated gate.

Keywords-

Breakdown voltage, ON-resistance, silicon carbide, figure of merit.

Power Electronics for Renewable Energy Systems: Current Approaches and Future Prospects

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Abstract:--

Power Electronics (PE) deals with the conversion and control of electric power in different energy systems. The PE topologies are found as a better option as compared to the mechanical techniques used earlier for Renewable Energy Systems (RES) due to the flexibility, sensitivity, bi-directional power flow control, fast switching capabilities and other important characteristics. This paper mainly reviews the current PE topological approaches used for the generation, transmission and distribution part. Generators used between generation and transmission part are mainly classified into Synchronous, Induction and Doubly-fed Induction Generators (DFIG). For the sustained and continuous output from these generators various control techniques (Scalar, Vector, and Matrix Controller) are used. For the distribution part grid integration techniques which include grid synchronization, control and microgrid are discussed in the paper. Further, the paper reviews the most recently proposed advancements for the development of these techniques. As a result, the study finds the issues and challenges in the modern PE systems and a future pathway is conceptualized.

Index Terms:-

Grid Integration, Power Electronics, Renewable Energy Systems, Synchronization.

Statistical Behaviour of Arc Instabilities with anode cooling as control parameter

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Abstract:--

Fluctuations in arc plasma occurs mainly due to the aero-dynamic and electromagnetic force as a result arc root position on the anode is not fixed, it moves upstream and downstream causing fluctuation in voltage with the increase or decrease in arc path and it causes the instability in arc plasma. These fluctuations in arc plasma can be investigated in the arc voltage fluctuations recorded from the terminals of “help torch” through an oscilloscope. The signals are recorded and further analysis of each signal under different condition are done. Chaotic nature of arc root behaviour has been reported through the analysis of voltages, acoustic and optical signals which are generated from a hollow copper electrode arc plasma torch. The growth of thermal plasma technologies is mainly hampered due to lack of control on these fluctuations. The experiments done up to date in the field of arc plasma reveals that these fluctuation are controllable in nature. Thus, the statistical analysis of instability in arc plasma with anode cooling as control parameter are performed at different variable parameter like gas flow rate(15lpm to 35lpm), current value(100A to 200A), water flow rate(4lpm to 8lpm) and corresponding arc voltage signal under each condition are observed to obtained the useful satisfactorily results.

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Risk Management and Mitigation Steps in Software Development – A Survey

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Abstract:--

Risk can be defined as the expectation of failure that can occur due to incomplete or inconsistency in requirements. This paper is concerned with the risks associated with software development and also give explanation of their mitigation steps. Risk management is a process to predict the uncertainties in the projects and minimize the occurrence or impact of these uncertainties. This improves the chance of successful project completion and reduces the consequences of those risks. It provides disciplined surroundings for intent decision-making to assess ceaselessly what will go wrong; determine what risks are important to cope with; and implement initiative to deal with those risks, this paper recognizes the expanding role of risk management in present software systems and aims at providing additional support in this area.

Keywords:

Risk, Software Development Process, Risk Management, Risk Mitigation Methods

Performance Evaluation and Comparison between Single/Multi Cycled Processors

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Abstract:--

A single cycle processor completes the execution of an instruction in only one clock cycle. In single cycle processor the length of the cycle must be long enough to accommodate the longest possible propagation delay in the processor. However, its clock period is usually rather long on the contrary clock frequency is higher in multi-cycle processor, it takes several clock cycles to finish an instruction. Therefore, their run-time efficiencies depends on which program is executed. The proposed work presents the comparison and the advantages of multi-cycle processor over single cycle processor. The multicycle implementation allows a functional unit to be used more than once per instruction, as long as it is used on different clock cycles. This sharing help in reducing the amount of hardware required and the execution time of an instruction.

Saturating Inductor for High Voltage Switching

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Abstract:--

Non-linear properties of ferromagnetic material are very attractive in pulsed power system for repetitive switching. It is known fact that ferromagnetic core saturates at increasing current with an apparent delay. The high permeability of the core provides high inductance in the beginning of the switch current. At saturation, the permeability changes to a very low value equal to that of the air resulting in a transition of inductance to several orders of magnitude. The low inductance provides fast energy transfer with a consequence of rapid current rise time capability of the switch. The delay in the current rise time has a considerable advantage during repetitive switching that reduces commutation loss and subsequently extends life time of high power or high voltage switches like spark gaps, thyatron and pseudospark switches.

This paper will discuss on the design of inductor based on different kind of magnetic core materials. The application of saturable inductor will be demonstrated for pulsed power system that involves repetitive switching at high voltage and high current.

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Viewshed Analysis using LiDAR Technology

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Abstract:--

The purpose of this research is to use LiDAR technology for effective, fast and simultaneous data transmission and reception in all the direction (throughout 360 degree) in harsh environment for analysis of sudden occurrence of natural disaster. Traditionally lighthouse or beacon towers were used to alert the civilian or nearby people regarding occurrence of enemy attacks, flood or upcoming tornadoes also for the location and direction identification for ships in deep oceans.

The same traditional methodology can be used to transmit the digital data in the form of light to overcome the transmission losses, data rates and coverage problems (terrain based).

Keywords:

Data Transmission, Reception, Disaster, Tornadoes

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Segmentation of human vertebral spine -FEA analysis

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Abstract:--

Back pain is one of the most common health problems facing people today. It is the second most common reason for a doctor's visit, behind only to the common cold. Billions of dollars are spent annually on treating back pain, which is also a very common cause of disability. More than 90% of people will experience an episode of debilitating back pain at some point in their lifetime. Once the chronic disc problem has been diagnosed, the conservative treatments like: specific rest, friction force medical aid or physiotherapy and exercise are followed. When correctly diagnosed, an excessive amount of medical/surgical treatments can be avoided. The aim of the study is to generate a mesh model and numerically simulate the biomechanical characteristics of the human spine, namely two vertebrae (L4 and L5) and inter vertebrae disc using finite element analysis (FEA) technique. In this process the bony areas of every MRI scanned image is segmented and the boundary lines are stacked into a smooth surface. Additionally, the technique generates the quantity mesh exploitation linear unit that is used to process the mesh for agreement. Moreover, L4 and L5 with disc were considered as linear materials with the exception of the ligaments. The contact behaviour of the two bones, simulation of disc and obtained displacements and stress describe about the pre-operation of human lumbar spine. The results depict that the potential fracture of the considered patient with respect to displacements. In this paper the implementation of bilateral filter technique is discussed . Using various edge detection algorithms namely, Canny edge detection, Sobel edge detection, Prewitt edge detection and Roberts edge detection, the results were compared. Among them, spine Canny edge detection algorithm produced effective output using MATLAB estimating the following parameters like total deformation, normal elastic strain, normal stress. With the help of these parameters, the human spine model was analyzed using the simulation software ANSYS. The implementation has done with MATLAB, whereas the stress and strain have been found at the plate bone of aspect joint of L4 and L5.

Keywords

Magnetic resonance imaging(MRI) , Bilateral filter , Canny edge detection, Finite element modeling, MATLAB ,ANSYS

Analysis of Wearable Textile Antennas for WBAN Applications

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Abstract:--

The emergence of Wireless Body Area Networks (WBAN) in recent times has diverted the attention of most researchers towards the field of wearable antennas. The WBAN has enabled communication between different devices by placing them on human body. This work is a review which intends to disclose the recent developments in the area of wearable Textile antennas for WBAN. Further the use of different textile materials has been studied and their performances have been evaluated. The results show that use of textile materials have not only increased the efficiency but also they are very flexible and make the antenna suitable for on/off body applications such as medical and military. The properties of antennas inside human body, on human body and finally at some distance from the human body have been studied. It has been noted that as the distance between human body and antenna reduces, the properties of antenna such as efficiency, directivity and gain degrade more and more. Also the resonant frequency of antenna shifts from its original position which is a very big issue and needs to be rectified. For textile materials the shift in resonant frequency is not too much and also the degradation in other properties of antenna such as efficiency, directivity and gain are insignificant

Keywords:—

In-body, ISM, MIMO, SAR, Textile antennas, Wearable antennas, WBAN

Patient Monitoring Using Pan of Wireless Intelligent Sensors

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Abstract:--

A wearable device for monitoring multiple physiological signals (polysomnograph) usually includes multiple wires connecting sensors and the monitoring device. In order to integrate information from intelligent sensors, all devices must be connected to a Personal Area Network (PAN). This system organization is unsuitable for longer and continuous monitoring, particularly during the normal activity. For instance, monitoring of athletes and computer assisted rehabilitation commonly involve unwieldy wires to arms and legs that restrain normal activity. We propose a wireless PAN of intelligent sensors as a system architecture of choice, and present a new design of wireless personal area network with physiological sensors for medical applications. Intelligent wireless sensors perform data acquisition and limited processing. Individual sensors monitor specific physiological signals (such as EEG, ECG, GSR, etc.) and communicate with each other and the personal server. Personal server integrates information from different sensors and communicates with the rest of telemedical system as a standard mobile unit. We present our prototype implementation of Wireless Intelligent SEnsor (WISE) based on a very low power consumption microcontroller and a DSP-based personal server. In future we expect all components of WISE integrated in a single chip for use in a variety of new medical applications and sophisticated human computer interfaces. Existing growth of wireless infrastructure will allow a range of new telemedical applications that will significantly improve the quality of health care.

Keywords:

personal area network, wireless, intelligent sensors, patient monitoring, telemedicine.

Use of WPA3 in Fog Nodes for Enhanced Security

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Abstract:

There are billions of IoT devices worldwide, and the number will exceed. All these devices will produce huge amounts of data that will have to be processed quickly and in a sustainable way. To meet the growing demand for IoT solutions, fog computing comes into action on par with cloud computing. Security is one of the key issues in fog computing. Security is not a one-size fits-all architecture. Rather, it describes all of the mechanisms that can be applied to make a fog node secure. Security implementations have many different descriptions and attributes such as privacy, anonymity, integrity, trust, attestation, verification and so on. Here we always asked a question to ourselves “what is new about fog computing security?” In this paper, we are going to discuss the security problems and their solutions with the help of technology which we are going to emerge into a fog network named WPA3.

KeyWords:

Cloud Computing, Fog Computing, Fog Nodes, IOT, Security, WPA3.

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Institute For Engineering Research and Publication (IFERP)

Investigations on Different Modulation Methods for Multi-Level Inverters

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Abstract:--

Topologies for Multilevel Inverter have an edge over topologies for conventional two level inverters in reducing or eliminating total harmonic distortion. This paper studies all MLI topologies and associated modulation strategy to choose the best control techniques and topology that can be suitable for a specific application.

Keywords

Multilevel inverters (MLI); Modulation Techniques; Pulse Width Modulation (PWM); Sine PWM (SPWM); Total Harmonic Distortion (THD).

A FPGA Approach of Coprocessor Designing Using RR4 Algorithm

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Abhilasha singrol, SSGI (FET), SSTC Bhilai, India

Abstract:--

Now a days as VLSI industry is growing fast the design of an efficient algorithm for designing compact functional circuits has led to a competition among various industries. Multiplication is basically a shift operation. However there is various methods for perform this operation. Some are more suitable for FPGA use than others. For implementing fast multiplication of binary numbers parallel schemes will be used. Algorithm for multiplication of two n-bit signed binary number needs $e2.71 \log_2 n + 3$ steps of bit by bit addition n`n systolic architecture that gives the best result along with the VLSI implementable scheme with $O(n)$ computational time and $O(n^2)$ hardware requirements. The algorithm proposed for multiplying numbers in ternary and redundant –radix-4 (RR-4) representations require minimum time with $2 \log_2 n + 2$ and $(1/2) \log_2 n + 1$ steps of single digit addition. Here we demonstrate the addition of numbers without any carry- propagation time causes significant decrease in the multiplication time. While comparing with conventional and other methods it will reduce power consumption up to 36 mW and also reduce the number of gates. In this proposed method the no of gates will be 456, which is minimum as compared to other methods.

Keywords

RR4, MULTIPLIER, COPROCESSOR, FPGA, XILINX, SPARTAN-3 AND SPARTAN 6 FAMILY.

Fetal Heart Rate Classification using Random Forest Classifier

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Abstract:--

Fetal distress refers to signs before childbirth indicating that if the fetus is under Distress or Normal condition due to various factors. Fetal distress is an uncommon complication of labour. It typically occurs when the fetus has not been receiving enough oxygen. We are using Machine Learning Model (Random Forest Classification) to predict the Fetal Distress condition. Dataset of Fetal Heart Distress Classifier based on monitored values of pregnant women in her intrapartum period has been used. We are using Fetal Heart Rate and Uterine Contraction values to predict the result. According to the values of these two parameters, the distress condition of fetus will be predicted as Normal or Distress Condition.

Keywords

Machine Learning Algorithm, Fetal Heart Rate, Uterine Contraction, Random Forest, Supervised Learning

Breast Cancer Classification using Random Forest Classification

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Harendra Kumar, BKBIET, Pilani, Rajasthan, India

Dr.Sonam Mittal, BKBIET, Pilani, Rajasthan, India

Abstract:--

Breast cancer has become the second important cause of cancer deaths in women today world. It is the most common type of cancer today found in the women today. Decision Tree is a most important technique in a Medical field. The use of machine learning techniques has changed the whole process of breast cancer Diagnosis. Breast Cancer Diagnosis using machine learning technique distinguishes benign from malignant breast lumps. We have used Random Forest Classification model which is commonly used in Classification category and applied prediction techniques assign patients to either a "benign" group that is non-cancerous or a "malignant" group that is cancerous.

Keywords-

Benign , Malignant , Machine Learning, Breast Cancer , Supervised Learning

Lab-on-Chip Technology: A Review on Future Scope in Biomedical Applications

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M.Gayathri, Department of Electronics and Communication Engineering, Sri sairam institute of technology, Chennai

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M.Manisha, Department of Electronics and Communication Engineering, Sri sairam institute of technology, Chennai

Abstract:--

Lab-on-Chip (LoC) integrates various analyses such as biochemical operations, chemical synthesis, DNA sequencing onto a single chip which otherwise would have been performed in laboratory taking sufficient amount of time. Due to the miniaturization of these biochemical operations, better diagnostic speed, cost efficiency, ergonomics, sensitivity and so on can be achieved. This paper gives the detailed description of Lab-on-Chip technology including its system components. Ongoing worldwide research projects based on LoC technology have been investigated and various constraints that need to be fulfilled for designing a LoC system are presented. The biomedical applications of LoC in different fields like in diagnostics, cellomics, in environmental studies to control the effect of pathogens, to check the food quality such as for the detection of various antibiotic families in raw milk have also been discussed. Finally, the current open research issues of this technology along with the possible future research scope in the biomedical area have been presented.

Keywords:

Biomedical Systems, Biosensor, MEMS, Microfluidics, Lab-on-Chip

Video-based learning Approach for the Development of English Language Attainment skill among the Graduate Students in the Kingdom of Saudi Arabia- Study on Cognitive Theory

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Sangita Babu, Department of Computer Science, King Khalid University, Kingdom of Saudi Arabia

Abstract:

This paper examines the effectiveness of learning English by Using video among Saudi university students. Accordingly, the study aims to investigate if this approach (learning English by using video) in university's English classes is effective and enough. To do so, study has been implemented during this semester of the academic year 2018 taking place in many Saudi universities. 100 university students were chosen to participate by answering a questionnaire, which uses as a tool of the research. The questionnaire has 20 questions of open answers and 30 questions of closed answers. Moreover, many interviews are conducted with students and teachers who experienced this new approach. Then, the collected data analyzed to evaluate the opinions of participants about using videos in learning English. To sum up, the researcher hopes that the results of the questionnaire can provide useful information for educators and students of this approach. At the end, the paper offers suggestions and some concluding remarks about the impact of learning English by using video.

Watchwords:

Video based learning, Cognitive theory, English language , development skills.

Automatic Smart city Power Consumption Control Unit

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Abstract:--

The probability of a transformer to get overloaded in the night times is very high due to high residential uses. In such case, one phase of transmission line is pulled off to protect the transformer due to which single phase users are affected more than who consume more electricity(3 phase users). In this project to avoid this conflict in smart cities and to maintain 24*7 power supply to high emergency areas the tripping of transformer load is prioritized into five. Initially when heating of transformer is detected alternate Street lights is switched off. If the overloading continues 3 phase supply of industrial lines are pulled off and 1 phase supply is given. If the sensor still indicates the transformer heat, 1 phase supply of 3 phase users who consume more power exceeding the tolerance limit is pulled off. If overloading still continues every 1 phase line from the transformer is tripped except the high emergency areas (hospitals, fire station and control rooms). The high emergency areas are to be supplied with 24*7 power supply and in worst case if the transformer fails to provide power supply, generator backup is provided for the high emergency areas and to alternate street lights. The switching of loads after the transformer reaching normal state is also automated based on priority from highest to lowest. The whole arrangement is automated, monitored and controlled by PLC and SCADA unit.

Keywords:

Priority based load switching, PLC, SCADA, 24/7 power supply for high emergency areas.

Trust Based Hybrid IDS for Rushing Attacks in Wireless Mesh Network

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Abstract:--

Securing Wireless Mesh Networks (WMNs) is more challenging and complex issue due to their inherent characteristics such as shared wireless medium, multi-hop and inter-network communication, highly dynamic network topology and decentralized architecture. These vulnerable features lead to several types of attacks like backhole, grayhole, wormhole and rushing attacks in the network layer. Out of all these attacks, rushing attacks are more difficult to detect due to the difficulty levels to find the exact processing delay at each node in WMNs. Existing security mechanisms to protect against the rushing attacks suffer from high false positives, false negatives and control overhead. In this paper, we proposed a trust based IDS for rushing attack. The key functionalities of the trust based IDS are 1) placing the optimal number of trust nodes and 2) Based on the node behavior, dynamic reputation is implemented on node independent and node dependant IDS approaches to identify and isolate the rushing attacks. Our Simulation results show that our proposed IDS secure the network performance such as throughput and packet delivery ratio even in the hostile environment.

Keywords:

Trust, IDS, dynamic reputation, rushing attack.

IP Creation for Reduced Wallace Tree Multiplier using Reversible Kogge Stone Adder

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Dr. Hema Chitra S, Asst. Professor, Dept. of ECE, PSG College of Technology.

Abstract:--

A multiplier is the most important block in the many cryptography and DSP applications. Multiplier is the main source of power dissipation in digital system. In order to improve the performance of DSP circuits and systems, an efficient multiplier is required. Multipliers based on Wallace reduction tree provide an area-efficient strategy for high speed multiplication. An efficient way to reduce area and power of Wallace tree multiplier is by use of reverse pyramid structure which reduces the number of half adders and full adders compared to Standard Wallace tree multiplier. In this paper, a Reduced Wallace tree multiplier with reversible logic based Kogge stone adder is proposed. The Kogge stone adder is a faster adder. The proposed Multiplier is synthesized, and an IP is created using Vivado 2016.2. The proposed design reduces 8% of power compared to Standard Wallace tree multiplier with Kogge Stone.

Key Words: -

Intellectual Property (IP), Wallace Tree, Reversible logic, Kogge Stone Adder, Reverse Pyramid Structure, Full Adders (FAs), Half Adders (HAs).

Smart Water Metering System - Using NB-IOT

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Abstract:--

The traditional way of manual water meter reading is more problematic and time consuming, and it wastes resources. A new method to accomplishment automated water meter reading for update of consumption information from field to the Utility office is described in this paper. The smart water metering has been proposed differs from present commercial methods by making use of low cost IOT hardware and software. This method permits both Meter Reader as well as individual domestic / industrial consumers to use regular smartphones to perform consumption of water and update the database at control room. This scheme is also unable to manage the justifiable water resources effectively since it requires efficient, precise and reliable monitoring techniques that enable the utilities sector and consumers to know the level of water consumption in real-time. The Real-time smart water meters that can be monitored by the consumer are essential and constitute a key component of the water management system. A smart water monitoring system will make consumer aware of their water consumption and help them to decrease their water usage. At the same time, consumer will be warned to abnormal water usage to reduce water loss. This method reduces overheads on Utilities in handling meter reading and billing for water distribution in urban and metropolitan cities.

Keywords:

IOT, water-meter, water distribution system, smart cities, software.

Effect of Temperature Annealing on Electrical and Optical Properties of Ni/Ag/ITO p-Type contacts to p-GaN for Blue Light-Emitting Diodes Applications

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Abstract:-

The transmittance of thin metal contacts on p-GaN plays a crucial role in the performance of conventional GaN based light emitting diodes (LEDs). In this paper, the effect of temperature annealing on electrical and optical properties of Ni/Ag/ITO (3/2/100 nm) contacts were studied and investigated. Ni/Ag/ITO multi layer metals were deposited on patterned TLM structures at average base pressure of $\sim 2 \times 10^{-6}$ torr on metal organic chemical vapor deposition (MOCVD) grown LED structure with top p-GaN ($2 \times 10^{17} \text{ cm}^{-3}$) by electron beam evaporation. The size of TLM pads were $200 \times 200 \mu\text{m}^2$ with a gap spacing of 5, 10, 15, 20, 25, 30 and 35 μm , respectively. The as-deposited Ni/Ag/ITO contacts show non-linear current-voltage (I-V) characteristics. However, the I-V characteristics of the annealed contacts in the temperature range of 500 °C to 600 °C in N_2+O_2 ambient for 5 min. in rapid thermal annealing system (RTA) become linear i.e. ohmic. The lowest specific contact resistance (ρ_c) was obtained $\sim 1.9 \times 10^{-2} \Omega\text{-cm}^2$ for contacts annealed at 500 °C and highest ($1.02 \times 10^{-1} \Omega\text{-cm}^2$) for as-deposited. The transparency of as-deposited Ni/Ag/ITO film was measured using spectrophotometer and found 0-3% in the wavelength range of 350-550 nm. The highest transparency of the contacts was 85.8 %, when the contact was annealed at 550 °C at wavelength of 460 nm. On the other hand, transparency was ~ 83.5 % and ~ 81 % for contacts annealed at 500 °C and 600 °C, respectively. High resolution X-ray diffraction (HRXRD) was performed to analyze the transmittance of the contacts. The increase in transparency of Ni/Ag/IT contacts is attributed to increase in the crystalline property of the contacts during annealing and confirmed by increase in intensity counts of diffraction peak ITO (222) in XRD measurements.

Index Terms: -

p-GaN, transparent contacts, rapid thermal annealing, transmittance and XRD.

Key Aggregate Cryptosystem in Data Sharing in Cloud: Performance Analysis

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Abstract:--

Sharing data using cloud storage has become a prominent part of a lives therefore, it is necessary to be able to share data to the people we choose and which data we choose. In this article, Key Aggregate Cryptosystem scheme, a public key encryption scheme which produces fixed-size cipher texts [1], is studied comprehensively along with its application in sharing data by users across cloud platform. KAC provides efficient and flexible delegation of keys for sharing selective data using single aggregated key without compromising on other data stored in cloud. The scheme is implemented using python file integrated in the backend of a website, which is in Django and the cloud storage used is Amazon S3. The data is stored in buckets and can be accessed using the website. Users can also upload and download their data from the website, or even share after uploading on the cloud.

Key Words: -

KAC, Cloud storage, Data sharing, Key aggregation, Public key cryptosystem

A New Sensitive Spectrophotometric Method for the Determination of Physiologically Bioactive Compound in Bulk and Pharmaceutical Formulations.

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Abstract:--

A new, remunerative, reproducible and spontaneous UV spectrophotometric method was developed and suggested for the ascertainment of Metformin hydrochloride in pure and pharmaceutical formulations. The vital drug solubility and maximum assay sensitivity was found when the primary amino group of Metformin hydrochloride reacts with potassium permanganate in alkaline medium to form a green coloured chromogen at $\lambda_{\max}=520\text{nm}$. The physicochemical factors responsible for the complex stability were related to the noticed data. There were no interferences from usual excipients and the drug complex formed did not interfere with the assay of Metformin hydrochloride. The results revealed by t- and F-values acquired concur well with the labelled contents. The optimized and validated method finds application in routine quality control Metformin hydrochloride in varied formulation forms.

Keywords:

Metformin hydrochloride, Alkaline Potassium permanganate and spectrophotometry.

An Analytical Approach for Quick Temperature Prediction of Helix Traveling-Wave Tubes

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Lavi Deval, Department of Physics, Banasthali Vidyapith, Banasthali- 304022, Rajasthan, India

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Abstract:--

An analytical approach has been presented in this paper to predict the helix temperature for slow-wave structure (SWS) to analysis the effective heat dissipation relative to helix. On the basis of this model, helix temperature is evaluated with comparison of analytically estimated helix temperature has been compared by ANSYS simulation results. Temperature of helix has been obtained at different power loss on helix.

Index Terms

Thermal analysis, slow-wave structure, traveling-wave tube, thermal contact resistance

A 2x1 Dual-Band MIMO Antenna using Complementary Split Ring Resonator for Wireless Applications

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Abstract:--

This paper presents a compact 2x1 dual-band MIMO antenna with complementary split ring resonator proposed for wireless applications resonate at two different frequencies 2.58GHz and 5.71GHz. Radiating elements are linearly polarized. The proposed MIMO covers 2.30-2.84GHz and 5.54-5.82GHz frequency bands with low return loss especially at lower band 40.20dBi. The antenna is designed by introducing Complementary Split Ring Resonator (CSRR) between radiating elements and inverted L-slot on partial ground. The whole layout is designed over low cost FR4 substrate having dielectric constant $\epsilon_r = 4.3$ with loss tangent 0.02. The size of proposed design is reduced to 29.16x34.39mm². The gain at the 2.58 GHz resonant frequency is 1.16dBi and at 5.71GHz resonant frequency gain is 1.01dBi. The simulated result shows the Envelope Correlation Coefficient (ECC) of 0.01 and more than 10 dB of in-band isolation. The proposed designed MIMO include the LTE and WLAN Band.

Keywords

MIMO, CSRR, ECC, Partial Ground

Content based Information Retrieval System with special reference to e- Governance

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Abstract:--

Knowledge integrity and sharing is a major challenge in corporate sector. Knowledge source is not possible without authentic and secure information in sectors like banks, research organizations, and health sectors. Due to constraints in knowledge sharing an organization limits the growth in different sectors creating loopholes in data centers and personal knowledge flow. Session management and data print technique applied helps in faster information retrieval. Information managed on different sectors like data center, cloud storage and local disks, minimizes the efforts during retrieval, enhancing personal and organizational growth with e-governance. Being knowledge and information sharing is still in its puberty in corporate sectors, e-governance shall contribute towards better prospects.

The paper focuses on human information storage and retrieval, e-governance, and challenges faced during information storage, precautions utilized prior to data storage, information retrieval process and conclusion including future enhancements.

Key words:

Data center, Cloud Storage, Knowledge Integrity, Data Print Technique.

Study of Micro strip Patch Antenna and its Applications for Communication systems

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Abstract:--

The study of microstrip patch antennas has made great progress in recent years. Compared with conventional antennas, microstrip patch antennas have more advantages and better prospects. They are lighter in weight, low volume, low cost, low profile, smaller in dimension and ease of fabrication and conformity. Moreover, the microstrip patch antennas can provide dual and circular polarizations, dual-frequency operation, frequency agility, broad band-width, feedline flexibility, beam scanning omnidirectional patterning. The paper suggests three areas for further research based on our previous works on microstrip antenna elements and arrays. One is exploring the variety of microstrip antenna topologies to meet the desired requirement such as ultra wide band (UWB), high gain, and miniaturization, circular polarization, multipolarized, and so on. Another is to apply microstrip antenna to form composite antenna which is more potent than the individual antenna.

Novel Metamaterial Loaded Patch Antenna for C Band Applications

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Harsha Prabha Paliwa, Student, CTAE, MPUAT, Udaipur

Minal Fegade, Student, CTAE, MPUAT, Udaipur

Abstract:--

This paper presents design of optimized dual frequency patch antenna for C band focusing on 5 and 8 GHz frequency band. Inclusion of slots with near about symmetrical distribution on conducting plane and notches in both plane and defected ground structure and also changing feed position for impedance matching. Simulation is done using IE3D software for various parameters. Return loss of final design was -16.34 dB for 5 GHz frequency and VSWR of 1.37 and -15.49dB and VSWR of for 8GHz frequency. Proposed antenna gives dual band operation and shows good bandwidth and simulated results for two frequencybands.

Index Terms

Patch, Slot, DGS, Feed line, Notch

Radial re-entrant gridded input resonant cavity for UHF band Inductive Output Tubes

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Ayan Kumar Bandyopadhyay, Microwave Tubes Division, CSIR-Central Electronics Engineering Research Institute, Pilani, Rajasthan, India

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Abstract:--

The Inductive Output Tube (IOT) is a vacuum electron tube which is capable of amplifying RF power with high efficiency. It is popularly used as high power source in communication transmitters and particle accelerators operating at ultra-high frequency (UHF) band. The major assemblies are the electron gun, two resonant cavities (input and output), input and output couplers, collector and focusing magnet. In IOT, a gridded electron gun is used to emit electron beam of desired specifications. The RF drive signal is applied between cathode and grid. The electron beam is thus velocity modulated within the gun itself. A negative DC bias voltage relative to cathode potential is applied to the grid. It shuts off the electrons whenever there is no drive signal present. The velocity and density-modulated beam is further accelerated through an aperture in the grounded anode towards the output section by the influence of DC beam voltage applied at the anode. Amplified output power is extracted via an output system. Focusing of electron beam is desirable to overcome the natural tendency of the beam to spread. It also facilitates the passage of beam through the anode aperture with minimum interception leading no harm to the device's efficiency. The electron beam is dissipated in a copper collector of traditional design, either air cooled or liquid cooled, depending on the power level involved.

Study of Nanotechnology in Science

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Abhay sharma, Parishkar College of Global Excellence, Jaipur

P.Poojitha, Parishkar College of Global Excellence, Jaipur

Abstract:--

In this paper, cybercrime activities have grown significantly, compromising device security and jeopardizing the normal activities of enterprises. The profits obtained through intimidation and the Limitations for tracking down the illegal transactions have created a lucrative business based on the of users' files. In this context, ransomware takes advantage of cryptography to compromise the user information or deny access to the operating system. Then, the attacker extorts the victim to pay a ransom in order to regain access, recover the data, or keep the information private. Nowadays, the adoption of Situational Awareness (SA) and cognitive approaches can facilitate the rapid identification of ransomware threats. SA allows knowing what is happening in compromised devices and network communications through monitoring, aggregation, correlation, and analysis tasks. The current literature provides some parameters that are monitored and analyzed in order to prevent these kinds of attacks at an early stage. However, there is no complete list of them. To the best of our knowledge, this paper is the first proposal that summarizes the parameters evaluated in this research field and considers the SA concept. Furthermore, there are several articles that tackle ransomware problems. However, there are few surveys that summarize the current situation in the area, not only regarding its evolution but also its issues and future challenges. This survey also provides a classification of ransomware articles based on detection and prevention approaches.

Key-words:

Information Security; Prediction; Ransomware; Situational Awareness

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Study of the Effect of Imprecise Size Foam Samples on Acoustic Measurements in Impedance Tube

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Abstract:--

Polymer foam materials are very commonly used acoustic materials for absorbing sound energy in noise control engineering, because of their higher porosity and light in weight. The acoustic characterization of these materials namely; absorption coefficient and transmission loss are measured using impedance tube, reverberation room method and intensity methods. Among these three impedance tube is the most popular method in laboratory condition. Here the sample size plays a main role in the accurate characterization acoustic materials by using the impedance tube. The present paper discusses effect of variation in the sample size on their acoustic measurements. The foam sample are prepared using Resistance wire foam cutter(RWFC). Their absorption coefficient and transmission loss for large and small samples with variations in sample dimensions are measured and compare with ideal dimension results. A detailed measured data and analysis are done to understand the effect of undersized and oversized foam samples on absorption coefficient and transmission loss results as a function of frequency. The results show that the variations in sample size has immense effect of measured results. The results presented in this study becomes a guideline for characterizing acoustic materials using impedance tube.

Keywords:-

Polymer foam, Foam cutter, Impedance tube, absorption coefficient and transmission loss

A Survey on Hierarchical Clustering Algorithms and Recommender Systems with HBase

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Abstract:--

Actually the service is nothing but the action of helping or doing work for someone. Cloud computing and service computing encouraged in increasing the number of services on the Internet.[1] As a result service-relevant data became too big and difficult to be analyze and process. In view of this challenge, An Agglomerative Hierarchical Clustering For Hybrid Recommender Systems using HBase has been proposed, which aims at recruiting similar services in the same clusters and then applying Hybrid Recommender systems.

Keywords:-

Clustering, Recommender Systems, HBase.

A low-cost RFID enabled Smart Shopping Cart using IoT

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M. Florance Mary, Asst. Professor, Dept. of EIE Pondicherry Engineering College

Abstract:--

Large grocery stores are nowadays used by millions of people for the acquisition of an enlarging number of products. Product acquisition represents a complex process that comprises time spent in corridors, product location and checkout queues. On the other hand, it is becoming increasingly difficult for retailers to keep their clients loyal and to predict their needs due to the influence of competition and the lack of tools that discriminate consumption patterns. In this paper the proposal of an architecture and solution of an innovative system for the acquisition of products in grocery stores using Intelligent Cart is presented. The Intelligent Cart explores emerging IoT and automatic identification technologies such as RFID as a way to improve the quality of services provided by retailers and to augment the consumer value thus allowing to save time and money.

Keywords:-

IoT, smart shopping, LPC2148

Multifactor Authentication Assist Secure Routing Protocol for Wireless Sensor Networks (MFA-WSNs)

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Abstract:--

The exponential rise of wireless transmission and internet technologies has broadened the horizon of communication systems engrossing multitude of applications and service domains. Wireless Sensor Network (WSN) being the native communication paradigm employs multiple sensor nodes cooperatively operating together. Enabling Quality-of-Service (QoS) in IoT system inevitably requires secure data transmission and resource access. WSN being distributed network with multiple sensor nodes requires optimal data security to facilitate secure and QoS sensitive communication. In major existing systems, the focus is made on employing classical cryptosystem or single layer security features that often possess vulnerability of getting attacked or breached. Classical approaches like public key cryptosystems; biometric features based standalone security systems etc are confined to meet optimal security provision. On the other hand, majority of existing approaches imposes huge computational overheads during key management and encryption-decryption that eventually forces nodes to undergo energy exhaustion thus affecting QoS provision. In this case, it is imperative and significant to develop a lightweight and robust security model for WSN enabled systems. To meet this demand, in this paper a novel multi-factor authentication system is developed using enhanced RSA-assisted Elliptic Curve Cryptography (ECC), Biometric features and time stamping methods. Furthermore, Fuzzy algorithm has been developed to perform user verification at the receiver that makes computation efficient in terms of computational overhead as well as latency. NS2 simulation based performance assessment has revealed that our proposed multifactor authentication and key management model can not only avoid security breaches like impersonation attack but can also assure maximum possible QoS provision in terms of higher packet delivery and minimum latency.

Keywords:-

Elliptic Curve Cryptography, RSA-assisted, Biometric, Fuzzy, QoS, WSN.

MIMO System Capacity using Circular Patch with Multimodes

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Abstract:--

The use of multiple antennas at both the transmitter and the receiver has recently been proposed to substantially increase the attainable data rate, i.e., the channel capacity, of future wireless communications systems. Impressive capacity gains can be achieved using these multiple input multiple output (MIMO) systems. Unfortunately, several practical aspects pose problems for achieving the predicted high data rates. Introducing antenna arrays at both the transmitter and receiver will undoubtedly increase the cost of producing the terminals, since it is expensive to manufacture, calibrate, and maintain antenna arrays with many elements. Practical problems with the feed and size requirements need to be overcome, while still providing an aesthetically pleasing design. An interesting antenna solution, which appears well suited for MIMO systems, is the multimode antenna. In a sense, the multimode antenna offers characteristics similar to those of an antenna array through multiple modes, but using only a single antenna element.

Keywords:-

microstrip, multimode, MIMO

Design of Frequency selective surface for Satellite Applications

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Abstract:--

Frequency selective surface (FSS) is used for filtering both passing and rejecting signals in multiple selected frequency bands and for use in contact with an antenna and in Satellite, or communication systems. The frequency selective surface can favourably be used to filter out signals at a certain frequency. In this paper Analysis of FSS elements on a flat surface i.e., to turn these elements to resonate at x-band frequency with cross slot elements with different thickness and the dielectric constant material of the substrate is Roger's RT5880. The complete analysis carried out on an effective electromagnetic simulator CST MICROWAVE STUDIO

Keywords:-

FSS, satellite, flat surface, CST microwave studio.

