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**PRINCIPAL  
SWARNA BHARATHI INSTITUTE  
OF SCIENCE & TECHNOLOGY  
KHAMMAM**

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## EDITORIAL

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Dear Associates

Welcome to each and every one of you congregated for the prestigious JST's 51<sup>st</sup> International Gathering - Proceedings of the International Conference on Women Entrepreneurship, E Commerce, Management, Law, Gender Studies, Humanities & Social Sciences 2017 organized by Journal of Science & Technology (JST), India which is considered to be one of the premierevents for the distinguished academic and research cult.

We know that an academic conference is a symposium for inventive academicians and imaginative researchers to give academics an opportunity to present their academic works, concepts and new discoveries and to exchange their ideas and develop their works and also to share idea in presenting for development in the new research and topics and so forth. Together with academic or scientific journals, conferences plausibly provide a central channel for exchange of information among earnest researchers.

JST, India and beyond (with its Academic Chapters in 8 Countries), since inception, has a great academic, research and social priorities to promote the spirit of values and orientations in multidisciplinary research functions of education by working out in dexterity required by the integrity of a sophisticated social world order duly transmitting central heritage with scientific bent of mind forming socialization process in respect of reformation of attitudes to confer a serene status for a rational being called man on this civilized planet, of course, from the threshold of Dr. D. Ravi Kishore Multidisciplinary Research and Educational Society, Vijayawada, India.

JST has left no stone unturned for the accomplishment of its vision and mission catering its influential services in the academic and research disciplines comprising the streams of *Human Rights, Social Sciences, Arts and Education, English Studies, Business Sciences, Engineering Sciences, Mathematical Sciences Life Sciences*, organizing *International Conferences* humbly witnessing the virtuous presence and innovative presentations of investigating pioneers, potential leaders, promising researchers, intellectual academicians, working faculty, industry magnates, advanced educationists, eminent scientists, rational thinkers, earnest scholars and superior students with their bonafide work of discovery from as many as 50 and more countries in the world (with their recurring presence) including home towards showcasing their professional performance with excellent communication skills based on their accumulated experience in the fields concerned successfully.

Globalization is a fact. Its internalization process integrates multidisciplinary fields to embark on an adventure in the realm of academics and research. As such, this conference by Internatioanl Multidisciplinary Research Foundation (JST). I am pleased to unveil the fact that this Copy of Proceedings marked with ISBN No 978-93-86435-03-3 presents an educative network of research with strength of quality, originality and contribution to knowledge of significant fields of multidisciplinary realms duly identified by the solemn research portals and academic destinations in the world.

While presenting you with this sonata of latest academics and research findings, I humbly place on record my loyal acknowledgement of sincere appreciation, due recognition and heart-felt thanks to all intellectual paper presenters, article contributors, members on the esteemed Editorial Board, centres of higher learning in collaboration with JST, foreign-national delegates, erudite plenary speakers, scholarly participants and all those who are directly or indirectly in conformity with this JST conferences from home and abroad for their righteous everlasting support in one and all aspects.

**With effusive thanks,**

**Dr. D. Ravi Kishore**  
**Conference Chairman**

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Note : Alphabetical Arranged

## International Conference on Engineering , Applied Science Technology - 2021-22

<b>30/03/2022 First Day Proceedings</b>				
09.00 to 09.30	<b>Registrations</b>			
09.30 to 11.15	<b>Inaugural Function</b>			
11.15	<b>Tea Break</b>			
11.30 to 12.30	<b>Key Note : Mr. David Sweeney</b> Coordinator, Abused Angels of India Chartered Accountant, United Kingdom			
12.30 to 13.15	<b>Plenary Talk : Dr.S.A.Mariadoss</b> Sahyadri College of Engineering and Management, Mangalore			
13.15 to 13.30	Special Talk : Dr. Hem Chandra Prof. & Head, Deptt.of Hospital Administration & Medical Superintendent Sanjay Gandhi Post Graduate Institute, of Medical Sciences, Lucknow, UP, India			
13.30	<b>Lunch</b>			
14.15 to 17.00	<b>Paper Presentations</b>			
	Track 1	Track 2	Track 3	Track 4
17.00	<b>Refreshments &amp; First Day Conference Closes</b>			
<b>31/03/2022 Second Day Proceedings</b>				
09.00 to 09.45	<b>Plenary Talk : Dr. Jeya Rani</b> Associate Professor, Dept of Economics, The American College Madurai, TN			
09.45 to 10.15	<b>Plenary Talk : Prof. Mrinalini B Chavan</b> HOD, Dept of English, Kirti College, Mumbai			
10.15 to 11.15	<b>Plenary Talk : Dr. Chai Ching Tan</b> Professor, School of Management, Mae Fah Luang University, Chiang Mai, Thailand			
11.15	<b>Tea Break</b>			
11.15 to 13.30	<b>Paper Presentations</b>			
	Track 1	Track 2	Track 3	Track 4
13.30	<b>Lunch</b>			
14.15 to 15.00	<b>Mr. David Sweeney</b> Coordinator, Abused Angels of India Chartered Accountant, United Kingdom			
15.00 to 16.00	<b>Valedictory Function</b>			
16.30	<b>Post Conference Refreshments</b>			
17.00	<b>Conference Academic Sessions Close</b>			

1. Two Days Attendance is compulsory.
2. Paper Presentation Session Track Details will be given at the Registration Desk only
3. Delegates can present by Power Point Presentation (PPT) 12 min including queries.
4. Systems & Projectors will be made available.
5. Foreign Delegates are requested to come on Conference VISA to India , Foreign Delegates are requested to write to the Conference Chairman for Govt of India Approvals for Conference VISA
6. Foreign Students & Scholars studying in India has to submit their Valid Visa before Conference itself
7. Those who are Joining for Tourism(Optional) on 01/04/2017 with respective fee/cost

  
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- 4) Analysis of a Two-Fuel Diesel Engine Numerically and Experimentally
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# PLENARY TALKS



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## 1) Analyzing the State of the Art in Metering Systems

*T.Charan Singh<sup>1</sup>,G. Praveen Kumar<sup>2</sup>,R.Sandeep<sup>3</sup>, U.Nagulmeera<sup>4</sup>,T. Ramesh<sup>5</sup>  
Associate Professeor<sup>1,2</sup>,Assistant Professor<sup>3,4,5</sup>,  
Mail Id : charanphd734@gmail.com, Mail Id : praveensbit@gmail.com,  
Mail id : sandeeprg232@gmail.com, Mail Id : urimallalaxmikumari62, Mail Id : tramesh238@gmail.com,  
Department of EEE,  
Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street,Khammam TS, India-507002*

### Abstract

This article is a summary of a larger research project on Smart Grid (SG) and the function of AMI in SG. The poll was taken as part of research on the viability of establishing a Net-Zero neighbourhood in a city in Ontario, Canada. SG is not just one kind of technology but rather an amalgam of several disciplines across engineering, communication, and management. As the backbone of SG, which is in charge of gathering all the data and information from loads and consumers, this article presents AMI technology and its current position. Along with DSM, AMI is in charge of creating control signals and directives to carry out the required control activities. In this work, we provide an overview of SG and its characteristics, clarify the connection between SG and AMI, describe the three primary components of AMI, and address relevant security concerns.

## 2) Creating a computer program to measure standalone Hybrid photovoltaic-wind power generation

*J.Kotaiah<sup>1</sup>,D. Ramu<sup>2</sup>, A. Manikyam<sup>3</sup>, B. Naresh<sup>4</sup>, N. Venkatesh<sup>5</sup>,  
Assistant Professor<sup>1,2,3,4,5</sup>,  
Mail Id : jupellikotaiah@gmail.com,Mail Id : ram.eee26@gmail.com,  
Mail id : rajaraao8200@gmail.com, Mail Id : naresh.basavoju@gmail.com, Mail Id : venkatesh.nallamothu1@gmail.com,  
Department of EEE,  
Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street,Khammam TS, India-507002.*

### Abstract

New options for power production based on renewable energy, such as photovoltaic energy systems, wind energy systems, and their combination in a hybrid photovoltaic-wind system, have emerged as a result of the depletion and all the downsides of fossil fuels. In this research, we suggested a method for determining the ideal technical and economic configuration of standalone Photovoltaic-Wind systems via the evaluation of a computer program built primarily on the Loss of Power Supply Probability (LPSP) algorithm. Sizing a combined photovoltaic and wind power facility is shown and discussed.

### 3) Frequency Synthesis with an FPGA Using a Partial Reconfiguration-Based Method

*Y. Pratap Kumar<sup>1</sup>, Sd. Shakeera Sulthana<sup>2</sup>, Y. Santhosh Kumar<sup>3</sup>, K. Suresh<sup>4</sup>,  
Assistant Professor 1<sup>2,3,4,5</sup>,  
Mail Id : prathapkumar231@gmail.com, Mail Id : shakirasulthana.sayed@gmail.com\_  
Mail id : santhonani@gmail.com Mail Id : sssureshk1@gmail.com  
Department of EEE,  
Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street, Khammam TS, India-507002.*

#### Abstract

Dedicated FPGA clock managers are increasingly required to get clocks for high-speed, high-density devices. The variety of uses they may serve is directly proportional to their adaptability and programmability. Modern FPGA designs, like the Xilinx Vertex Series, provide partial and dynamic reconfiguration at run time. Because the FPGA fabric's configuration data is mutable at runtime, the system may be tailored to the requirements of an application by swapping out individual pieces of an existing hardware design. A novel method of Digital Frequency Synthesis using FPGA clock management is described in this paper. In the suggested approach, a DCM primitive's frequency synthesis is performed by way of the Fabric's reconfigurable module and its Dynamic Reconfiguration Port (DRP). The design draws attention to Partial Reconfiguration based design techniques, which allow a DCM's clock frequency to be reconfigured dynamically to meet the changing requirements of a running application. On-the-fly frequency and phase adjustments are both quick and accurate. First, a Virtex-5 FPGA board is used to mimic the proposed design before it is really developed and tested in the lab.

### 4) Analysis of a Two-Fuel Diesel Engine Numerically and Experimentally

*Dr.G.Raja Kumar<sup>1</sup>, Dr.B.Ravi<sup>2</sup>, K.Rambabu<sup>3</sup>, B.Shankar<sup>4</sup>, G.Ravi<sup>5</sup>,  
Professor<sup>1</sup>, Associate Professor<sup>2</sup>, Assistant Professor<sup>3,4,5</sup>,  
Mail Id : rajkumardotcom@gmail.com, bravi1234@gmail.com,  
Department of Mechanical,  
Swarna Bharathi Institute of Science and Technology (SBIT), Khammam TS, India-507002.*

#### Abstract

This research examines the impact of varying fuel ratios on the efficiency and emissions of a common rail diesel engine fed both natural gas and diesel oil. In a dual-fuel engine, the diesel pilot injection ignites the NG/air mixture pre-mixed at the intake port. The dual-fuel system was analyzed using both computational and experimental methods. The work on a diesel engine presented here is an attempt to gauge how well CFD can anticipate the key aspects of that engine's functioning. Validating such potential and simultaneously drawing attention to the most pressing issues that occur from real engine running with varying NG / diesel oil fuel ratios are two goals of the experimental research.

## 5) Charging Pile Deployment Plan that Takes Into Account Distribution Network Capacity and End-User Demand

*G.Ravi, K.Ramesh, Ch.Bhagyamani, B.Bhadru, G.Sateesh*  
Assistant Professor<sup>1,2,3,4,5</sup>,

Mail Id : [ravi1747@gmail.com](mailto:ravi1747@gmail.com),

Department of Mechanical Engineering,  
Swarna Bharathi Institute of Science and Technology (SBIT), Khammam TS, India-507002.

### ABSTRACT:

Electric vehicles are the most promising mode of transportation in the future. However, multiple charging stations will have a major impact on GIRD. Research on the construction of charging facilities is needed. Based on the characteristics of electric vehicle charging power consumption, distribution network capacity, charging system performance and other aspects, this article mainly explores the charging pile deployment strategy. First, the author built a model that reflects the charging power demand characteristics of electric vehicles and a charging service system model. Characterize the daily load curve. Second, based on these works, the authors developed a strategy development process. Finally, we validated our progress with real use cases.

## 6) On-line Capacitor Equipment Monitoring Using a Synthetic Relative Measuring Method

*Dr.B. Ravi, Dr. G. Raja Kumar, G.Ravi, K.Rambabu, A.Sunil*

Associate Professor<sup>1</sup>, sProfessor<sup>2</sup>, Assistant Professor<sup>3,4,5</sup>,

Mail id : [bravi1234@gmail.com](mailto:bravi1234@gmail.com),

Department of Mechanical Engineering,  
Swarna Bharathi Institute of Science and Technology (SBIT), Khammam, TS, India-507002

### Abstract

Capacitive equipment in a power system's insulation may be successfully monitored using on-line measurements for dielectric loss angle. The synthetic relative measuring approach not only fixes the problems with the old absolute measuring method, but it also significantly boosts the precision of determining the dielectric loss angle. However, modern studies only discuss the use of a synthetic relative measurement approach based on two or three pieces of capacitive equipment, which lacks the property of universality but is what is being used in practice. The article explains how the synthetic relative measurement concept works. To illustrate the failure judgment matrix for N pieces of equipment, we use an example of application based on three and four pieces of capacitive equipment operating in the same phase as an illustration. These matrices provide for a more generic method of monitoring the failure state of N separate pieces of capacitive equipment. Finally, the study puts out a few issues that need to be addressed and two diagnostic approaches utilized in diagnostic systems to help direct the usage of synthetic relative measurement on local.



## 7) A Radio-Broadcast System for Inter-Train Communication

*Dr. K. AMIT BINDAJ, Mr.D.VEERANNA, Mr.Ch.GOPALA RAO, Mrs.J.RAJYALAXMI,Ms.K.SUNITHA  
PROFESSOR<sup>1</sup>, Assistant Professor<sup>2,3,4,5</sup>.*

*Mail Id : karpurapu.gavasj@gmail.com, Mail Id : dev.veer57@gmail.com, Mail id : chintala.gopal4@gmail.com,  
Mail Id : rajyalakshmiarshini@gmail.com, Mail Id : sunitha.sunitha250@gmail.com,  
Department of ECE, Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street,Khammam TS, India-507002.*

### ABSTRACT

Despite massive expenditures in infrastructure-based safety mechanisms, the current state of railway transportation data shows that the frequency of accidents is still too high. Using direct communication in mobile ad hoc networks (MANETs), exchanging location and other relevant context information provided by multiple sensors in the trains, and other hallmarks of pervasive computing, we demonstrate that an infrastructure-free cross-layer train-to-train communication system can reveal dangerous situations. While infrastructure-free communications have proven useful for maritime and aviation transportation, and comparable apps built on top of car-to-car communications may soon be accessible for road users, no such thing currently exists for rail transport systems. A six-stage process of work is carried out in order to create such a system: Each layer of the system—from the initial study and frequency band selection to the detailed characterization of the propagation channel to the development of the media access control (MAC) layer, the implementation of the physical layer, and finally the verification of the system—must be carefully considered. During this procedure, navigation systems and other sensors are used to offer context information, such as location, time, and speed, that is used to enhance the conversation.

## 8) An innovative design for a small, broad-band, and radiation-efficient antenna used in a healthcare IoT system

*Dr.A.VENKATESWARLU, Mr.GANDHAM SRINIVASA RAO, Mrs.K.YOJANA, Mr.T.GANGADHAR, Mrs.N.BHAVANI  
Associate Professor<sup>1,2</sup>, Assistant Professor<sup>3,4,5</sup>.*

*Mail Id : venkateswarlu@gmail.com Id : gandham.ece@gmail.com,  
Mail id : yojanak5@gmail.com , Mail Id : gangadhar4vlsi@gmail.com Id : bhavani1142@gmail.com ,  
Department of ECE, Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street,Khammam TS, India-507002.*

### Abstract:

This paper investigates and develops a novel compact broad band and radiation efficient antenna design for the medical internet of things (M-IoT) healthcare system. The proposed antenna comprises of an umbrella-shaped metallic ground plane (UsMGP) and an improved radiator. A hybrid approach is employed to obtain the optimal results of antenna. The proposed solution is primarily based on the utilization of etchings lots and a loaded stub on the ground plane and rectangular patch. The antenna consists of a simple rectangular patch, a 50Ω micro strip feed line, and a portion of the ground plane printed on a relatively inexpensive flame retardant material (FR4) thick substrate with an overall compact dimension of 22×28×1.5mm<sup>3</sup>. The proposed antenna offers compact, broadband and radiation efficient features. The antenna is carefully designed by employing the approximate calculation formulae extracted from the transmission line model. Besides, the parameters study of important variables involved in the antenna design and its influence on impedance matching performance are analyzed. The antenna shows high performance, including impedance bandwidth of 7.76 GHz with a range of 3.65–11.41 GHz results in 103% wider relative bandwidth at 10 dB return loss, 82% optimal radiation efficiency in the operating band, reasonable gain performance, stable monopole-shaped radiation patterns and strong current distribution across the

antenna lattice. The suggested antenna is manufactured, and simulation experiments evaluate its performance. The findings indicate that the antenna is well suited for medical IoT healthcare systems applications.

## 9) An Internet of Things-Friendly, Plug-and-Play Module for Gathering and Sending Data from Nodes

*Mr. GANDHAM SRINIVASA RAO, Dr.K.AMIT BINDAJ, Mr.D.VEERANNA, Mr.T.GANGADHAR, Ms.P.NAGALAXMI*  
*Professor,<sup>2</sup> Associate Professor<sup>1</sup>, Assistant Professor,<sup>3,4,5</sup>*  
*Mail Id : gandham.ece@gmail.com, Mail Id : karpurapu.gavasj@gmail.com, Mail id : dev.veer57@gmail.com,*  
*Mail Id : gangadhar4vlsi@gmail.com, Mail Id : nagalaxmi.sbit@gmail.com ,*  
*Department of ECE, Swarna Bharati Institute of Science and Technology (SBIT),*  
*Pakabanda Street, Khammam TS, India-507002.*

### Abstract

The creation of a commercial, reconfigurable module for simple node data gathering and transmission in IoT applications is essential in this era of IoT technology breakthroughs. The majority of the systems on offer are application-specific. The goal of this project is to create a plug-and-play module for node data transfer and acquisition in Internet of Things-based applications. It was created a general framework for IoT sensors and controllers. In this study, a plug-and-play device was created to enable the usage of non-IoT sensors and controllers in IoT applications. It was created a software programme to implement the model. The work underwent online validation using an open-source server. Any remote site with a GPRS network can be utilised to collect data using the node. Therefore. The system proposed in this research will reduce the design to market time for IoT systems to two hours. This work will help in the standardization of the backend of remote IoT nodes for easy integration in the larger IoT ecosystem. The work can be commercially produced as generic configurable IoT controller modules by original equipment manufacturers (OEMs) thereby making it simpler to apply IoT technology in several fields of endeavours.

## 10) Analysis of Crypto-Hardware for Affordable Internet of Things

*Dr.K.AMIT BINDAJ, Mr.T.GANGADHAR, Mrs.J.RAJYALAXMI, Mrs.K.YOJANA, N.SRINIVAS RAO*  
*PROFESSOR<sup>1</sup>, Assistant Professor,<sup>2,3,4,5</sup>*  
*Mail Id : karpurapu.gavasj@gmail.com,Mail Id : gangadhar4vlsi@gmail.com,*  
*Mail id : rajyalakshmiarshini@gmail.com, Mail Id : yojanak5@gmail.com, Mail Id : nomula09@gmail.com ,*  
*Department of ECE, Swarna Bharati Institute of Science and Technology (SBIT),*  
*Pakabanda Street,Khammam TS, India-507002.*

### Abstract

In this article, we quantify the performance effect of crypto-hardware by doing a complete resource analysis of commonly used cryptographic primitives on a variety of commercially available IoT systems. The foundation of this study is the recently developed crypto-subsystem of the RIOT IoT operating system, which enables cross-component crypto support. I Hardware-based cryptography provides far better performance than software-based cryptography, as shown by our tests; this is critical for node longevity. However, moderate memory enhancements are the norm. (ii)There are several factors that influence resource efficiency, including hardware variety, driver design, and software implementations. Even if they are inefficient for symmetric crypto operations, external crypto-chips do provide secure write-only memory for private credentials—something that is lacking in many other systems.

## 11) Hardware/software partitioning in reconfigurable embedded systems: a new approach

*Mr. N.SRINIVAS RAO, Dr.A.VENKATESWARLU, Ms.Y.ANITHA, J. Rajyalaxmi, Ms.K.Sunitha*  
*Associate Professor<sup>2</sup>, Assistant Professor,<sup>1,3,4,5</sup>*

*Mail Id : normula09@gmail.com, Mail Id : wenkateswarlu@gmail.com, Mail id : yerasangianitha478@gmail.com, Mail Id : rajyalakshmiarshini@gmail.com, Mail Id : sunitha.sunitha250@gmail.com ,*  
*Department of ECE, Swarna Bharati Institute of Science and Technology (SBIT),*  
*Pakabanda Street, Khammam TS, India-507002.*

### **Abstract—**

The separation of hardware and software is a vital aspect in developing a flexible embedded system. In order to reach the high performance of dedicated hardware, computer architectures that can change their hardware to each application are being designed, and reconfigurable computing is a potential way to resolving the conventional trade-off between flexibility and performance. In this research, we first review and describe existing hardware and software partitioning techniques before proposing a novel approach for task division and scheduling that takes use of the dynamic reconfiguration and delay of reconfigurable hardware. The suggested method divides a massive programme into smaller, more manageable jobs, each of which is related to the others through constraints. And based on the sequence in which the activities were carried out, a directed acyclic graph (DAG) was created to illustrate the connections between them. Then, a method called GATS, which combines the Genetic Algorithm and the Tabu Search algorithm, is used to map the particular application described in the DAG to the hardware and software platform. Priority-based scheduling allows for the quickest possible assignment and execution sequence of tasks. The testing results demonstrate the method's strong performance and its ability to transfer the application task to the reconfigurable system.

## 12) Condition-based maintenance strategy development using vibration analysis

*N.Srinivas Rao, S.Nagamani, D.Kumar, K.Nagamani, K.Sindhu*  
*Associate Professor<sup>1,2</sup>, Assistant Professor,<sup>3,4,5</sup>*

*Mail Id : srinivas.nune@gmail.com, Mail Id : maniramesh2004@gmail.com,*  
*Mail id : dh26kmr@gmail.com, Mail Id : cse.nagamani@gmail.com, Mail Id : karlapudisindhu516@gmail.com,*  
*Department of CSE,*  
*Swarna Bharati Institute of Science and Technology (SBIT),*  
*Pakabanda Street, Khammam TS, India-507002.*

### **Abstract**

When it comes to tracking rotating equipment, vibration analysis is a highly effective and commonly used method. Vibration Based Analysis (VBM) organizations perform below expectations in terms of machine availability, despite the opportunities afforded by the measurement equipment of vibration thanks to technical advancement. Then it is our responsibility to create a strategy for rolling out the VBM that considers success factors and sidesteps pitfalls. Using a collaborative strategy known as DCA (in French, "applied short diagnosis") and a survey among national and international specialists in the area of VBM, we analysed 30 years of VBM practice inside a significant Moroccan firm in the chemical sector. Based on the findings of these investigations, we suggest a five-stage process that includes an inventory, feasibility studies, a preparation phase, an implementation phase, an evaluation and improvement phase, and a last step of assessment and refinement.



## 13) Dynamic distributed flow scheduling and load balancing in data center networks

*\* N.Savitha, S.Saritha, Asra Anjum, Sk.Apsar Pasha, N.Srinivas Rao  
Associate Professor<sup>5</sup>, Assistant Professor,<sup>1,2,3,4</sup>  
Mail Id : savitha.natuva@gmail.com, Mail Id : sarithanune@gmail.com,  
Mail id : asraanju@gmail.com, Mail Id : afserpasha@gmail.com, Mail Id :srinivas.nune@gmail.com,  
Department of CSE,  
Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street, Khammam TS, India-507002.*

### Abstract

Inefficient or unused connections are the outcome of the current methods of flow scheduling used in DCNs. Static flow scheduling methods, such as ECMP and VLB, use hashing algorithms to determine the order in which the flows are processed. When a hash value is equal to another, the system selects the first matching route, which may lead to overuse and congestion. The existence of other routes. Techniques for scheduling dynamic flows, such as global first fit, use a centralized scheduler to pick the best available scheduling route from all possible candidates. Since flows are not planned on the optimal candidate route, single-point-of-failure and overall link usage continue to be issues. In order to achieve equitable link use in the widely deployed fat-tree architecture of DCN, this study first introduces a Dynamic Distributed Flow Scheduling (DDFS) technique. Second, it provides a means for pushing flow scheduling choices down to lower levels, where they may be handled more efficiently, preventing the overloading of core switches. Collared Petri Nets are used to model the full DCN (CPN). Load factors at the aggregate switches in DCN fluctuate by no more than 0.11 for different flow patterns, indicating that links are being used fairly.

## 14) FPGA-based digital filter implementation using LINUX as the operating system

*S.Jothishri, M.Srinivas, T.Ravi Kumar, S.Nagamani, S.Saritha  
Associate Professor<sup>1,2,3,4</sup>, Assistant Professor,<sup>5</sup>  
Mail Id : sri.sankar6@gmail.com, Mail Id : ssnivas77@yahoo.com,  
Mail id : trkumar5@gmail.com, Mail Id : maniramesh2004@gmail.com, Mail Id :sarithanune@gmail.com,  
Department of CSE,  
Swarna Bharati Institute of Science and Technology (SBIT),  
Pakabanda Street, Khammam TS, India-507002*

### Abstract

The embedded processors on FPGA's are a good tool to specific propose works. In this work we present how the FPGA is used to apply a Sobel filter to a set of images, also the step needed to set-up the entire system is described. An embedded processor, with a Linux distribution implemented is used to run a special compilation of C filter program, the filter is compared with the results obtained with a PC running the same filter, in the embedded system all the process runs in the FPGA and the exit file can be accessed by ftp or http server embedded into the Linux system.

## 15) Teaching Thematic Vocabulary Words and Their Contexts Through Hyperlinks

*V.Sitharamulu, Minumula Srinivas, M.Senthil, N.Savitha, N.Srinivas Rao*

*Associate Professor<sup>1,3,5</sup>, Assistant Professor,<sup>2,4</sup>*

*Mail Id : vsitaramu.1234@gmail.com, Mail Id : minumula@yahoo.com,*

*Mail id : senthilmresearch@gmail.com, Mail Id : savitha.natuva@gmail.com, Mail Id : srinivas.nune@gmail.com,*

*Department of CSE,*

*Swarna Bharati Institute of Science and Technology (SBIT),*

*Pakabanda Street, Khammam TS, India-507002.*

### Abstract

In this follow-up research, we used PowerPoint to analyze how different tactics affected the vocabulary retention of 75 intermediate-level Iranian students. There were a total of three organizations involved in this investigation. Seventy new thematically-related terms were taught directly in context, and all of them had hyperlinks. Vocabulary was learned in two different experimental groups; one employed L1 translation via hyperlinks, while the other did not. The same manner that group learned the English term. The untreated group was given a leaflet and taught the terms the old-fashioned way. Compared to the control group, the experimental groups showed considerable improvement, but there was no difference between the experimental groups themselves. Some theoretical and pedagogical considerations are raised by the research.

## 16) The B+ Tree and Consistent Hashing-Based Distributed Real-Time Database Index Algorithm

*Dr M.Manohar, Dr. KB Jagadish, Dr.V.V Sunil Kumar, Dr.B.Vamsi Mohan*

*Associate Professor<sup>1,2</sup> Professor<sup>3,4</sup>*

*Department of CSE,*

*Aditya Engineering College, Surampalem <sup>1,2</sup>*

*PBR visvodya institute of technology and science, Kavali<sup>3,4</sup>*

### Abstract

This study proposes a novel Distributed real-time database index method based on B+ Tree and consistent hash. To begin, a distributed system uses a circular hash space to index all of the storage nodes and TAG points. This enables us to pinpoint the precise location of every TAG data point. Second, build a hash table for TAG points that records the node indexes for each TAG point. The next step is to construct a B+ Tree index to store the whole history of a single TAG node. The success of the proposed technique is supported by both theoretical and experimental data.





## 17) Sessions of Internet Explorer Users Are Grouped Together To Preserve Their Natural Logical Flow

*Dr.B. Vamsi Mohan, Dr.V.V Sunil Kumar, Dr. KB Jagadish, Dr M.Manohar*  
*Professor<sup>1,2</sup> Associate Professor<sup>3,4</sup>*  
*Department of CSE,*  
*PBR visvodya institute of technology and science, Kavali<sup>1,2</sup>*  
*Aditya Engineering College, Surampalem <sup>3,4</sup>*

### Abstract

Web server log data may be useful for user segmentation and personalization. The abundance of information included in web log data might make it difficult to examine. We provide an innovative approach to pre-processing online log data, which may be utilized to discover sequences of occurrence and navigation patterns for predictive purposes. Tokens may be retrieved by parsing each URL in the web server's log data. Tokens, which may be tracked individually, can be used to classify URLs. A session is the sum of a user's URL hits during a 30-minute time frame. The term "session" is used to describe a user's normal online experience. The frequency with which various patterns emerge throughout several users' sessions may be examined with the use of a hierarchical agglomerative clustering method. One session is chosen to represent the whole cluster since it has a greater number of sequence pages. When compared to the sample session, all subsequent sessions seem to be smaller in scope. Site recommendation based on current session navigation history is a helpful activity. We put the suggested model through its paces with help from NASA and Eng resources.

## 18) AN INTELLIGENT VISUAL ASSISTANCE WEARABLE FOR THE BLIND

*M.S Navya, P.Brahmaiah, Dr.KB Jagadeesh, Dr Souda Sravan Varhan*  
*Associate Professor<sup>1,2</sup> Associate Professor<sup>3,4</sup>*  
*Department of ECE,*  
*Aditya Engineering College, Surampalem <sup>1,2,3,4</sup>*

### Abstract:

The goal of the "Smart Wearable Guiding Device for the Visually Impaired People" is to allow blind people to navigate their environment with the aid of their other senses, such as hearing and touch, rather than their eyes. It uses sound and vibration to warn the blind user of impending danger. The World Health Organization estimates that thirty-nine million people worldwide are blind. They have significant challenges in conducting their regular activities. Because of this, the project's primary objective is to develop a low-cost, high-efficiency approach to aiding the visually impaired in traveling with a modicum of comfort, swiftness, and confidence. This Arduino-based device will help the visually impaired find their way around without having to rely on a stick, which can be a hindrance. They may just wear it as a band or piece of cloth on their wrist, and it will give them accurate results with no or no training. The system also has a ringer that may play an alarm or vibrate to draw attention. The user is alerted to potential threats through aural and tactile alerts. The sound and vibration messages are more frequent the closer the elastic glove is to the barriers. The device may deliver alerts to the relevant person in the case of an emergency and has a buzzer that makes an auditory alarm and a motor that provides vibration signals. The purpose of this research is to develop a cost-effective strategy for facilitating independent travel for the visually impaired. For paths where a fast response time is obvious, this design offers a low-priced, sturdy, transportable option.



## 19) System for gestural control of autonomous vehicles

*M.S Navya, P.Brahmaiah, Dr.KB Jagadeesh, Dr Souda sravan varhan*  
*Associate Professor<sup>1,2</sup> Associate Professor<sup>3,4</sup>*  
*Department of ECE,*  
*Aditya Engineering College, Surampalem <sup>1,2,3,4</sup>*

### ABSTRACT

By removing the human element from driving, autonomous cars would make roadways safer in the future. However, if the degree of human control is diminished, the perception that some motorists have when driving. For this reason, we presented in this research a technique of interaction between the driver and autonomous vehicle by giving the driver some agency over the vehicle's side-to-side and forward-and-backward movements. We decided to employ hand gestures as the primary mode of input to lessen the mental and visual load on drivers. In order to enhance the driving experience, we first identified seven core motions and associated them with seven distinct hand gestures. We then developed a Leap Motion-based gesture interface for controlling an autonomous car. To examine the efficacy of this interface for vehicle control, we performed driving trials with twenty participants in a virtual reality driving simulator. We polled drivers to find out what they thought of using the gesture-based interface while driving. The findings showed that drivers felt far less stress while utilizing the hand gesture interface for semi-autonomous operation.

## 20) Trust Management in Wireless Sensor Networks: A Reliable Bayesian Approach

*M.S Ravi Teja, Dr.A Bhargav, V.Harish Kumar, Munwar Khan*  
*Associate Professor<sup>1,3,4</sup> Associate Professor<sup>2</sup>*  
*Department of MECH,*  
*Aditya Engineering College, Surampalem<sup>1,3,4</sup>*  
*Svr engineering college, Nandyala<sup>2</sup>*

### Abstract

Since wireless sensor networks (WSNs) are becoming more common, protecting them from malicious actors is a pressing concern. It is a tough but worthwhile endeavour to design a decent trust management method that can appropriately assess the trust connections among sensor nodes. This study presents a trustworthy trust management framework based on the Bayesian model. We advocate for (BTMS). Both direct and indirect trust data contribute to the total trust value. The former is determined using a Bayesian equation with modifications and a sliding window to reflect new information. The latter is determined by outside advice. Furthermore, the uncertainty of direct trust computed using Entropy Theory is used to conditionally execute the indirect trust calculation, so excluding harmful feedbacks. At the same time, various suggestions are given the right amount of weight according to the credibility of the recommenders who made them. The suggested trust model is tested through simulation, and the findings reveal that it is more effective at fending off assaults than prior methods.

## 21) Hybrid air compressors' integrated monitoring system layout

*M.S Ravi Teja, Dr.A Bhargav, V.Harish Kumar, Munwar Khan*  
*Associate Professor<sup>1,3,4</sup> Associate Professor<sup>2</sup>*  
*Department of MECH,*  
*Aditya Engineering College, Surampalem<sup>1,3,4</sup>*  
*Svr engineering college, Nandyala<sup>2</sup>*

### **Abstract**

Based on the refit of the air-compressor control system in a specific Shandong province mine, a hybrid air-compressors integrated monitoring system was designed. This system uses Industrial Ethernet for its communication network and is based on the air pressure concept and the same operating load rate theory. And the Provirus-DP business network. One drive, two controls of a screw air compressor group through high-voltage soft starter; one drive, three controls of piston air-compressors via inverter and cooling water circulation system; local, remote, and network monitoring via PC and PLC. This system achieves adaptable air supply by automated regulation of air compressor operation in response to input air volume. Coal mine production safety is now guaranteed, and mechanical wear on the air compressor has been greatly decreased. Using a distributed control of a hybrid air processor group is a wonderful way to improve the efficiency of a control system for a group of air compressors.

