

# 3<sup>rd</sup> International Conference on Green Computing and Engineering Technologies (ICGCET)

**08-10 August 2017**

The Killaloe Hotel, Kincora Harbour, Killaloe, County Clare, Ireland

## TECHNICAL SPONSOR



## ORGANIZER

**Prof Dil Muhammad Akbar Hussain**  
Chair of ICGCET 2017  
Aalborg University, Denmark

**Prof Thomas Newe**  
Chair of ICGCET 2017  
University of Limerick, Ireland

## NEWS of ICGCET-2016 in Danish News Paper:

# Institut i Esbjerg samler forskere fra hele verden

DEL   Af [Edmund Jacobsen](#) 15. august 2016 kl. 05:31

40 forskere og studerende fra hele verden samles på Institut for Energiteknik, Aalborg Universitet Esbjerg, i tre dage i denne uge, når der afvikles en international konference, der handler om at gøre computerteknologi mere grøn.

D.M. Akbar Hussain, lektor ved Institut for Energiteknik på Aalborg Universitet Esbjerg, har sammen med en kollega fra Indien arrangeret konferencen International

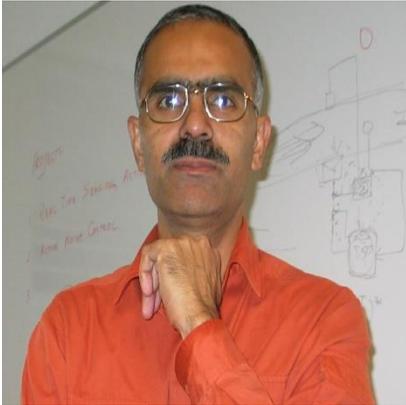
Conference on Green Computing and Engineering Technologies.

Det er planen, at disse konferencer skal afvikles i Esbjerg hvert andet år – ganske enkelt fordi Institut for Energiteknik i Esbjerg er internationalt anerkendt.

## Snapshot of NEWS of ICGCET-2016 in Danish TV Channel:



## Chair Message by Prof D M Akbar Hussain



**Dr. D. M. Akbar Hussain,**

**Department of Energy Technology, Section for  
Power Electronics Systems , Aalborg University**

Ladies and Gentlemen it is indeed great honor for me as a chair to welcome you with great respect and enthusiasm to the International Conference on Green Computing and Engineering Technology ICGCET-2017 to be held at Killaloe Hotel, Kincora Harbour, Killaloe, County Clare, Ireland 08 – 10 August 2017. It is the third conference hosted by Gyancity Research Lab and as a founder member, I hope that we will continue to provide such forums in future as well. ICGCET intended to attract innovative technical and scientific work in the field of Green Computing Engineering Technology. The response to the conference was over whelming and I am proud to state that we have some high-quality contributions and I am sure as a participant you will share the same sentiment later.

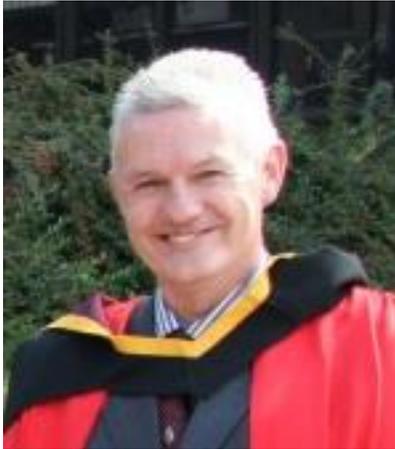
As a chair and on behalf of the organizing committee I sincerely hope that ICGCET will offer a great venue at this beautiful city of Ireland to the participants coming from different parts of the world to share and contribute in the area of Green Computing Engineering Technologies. We hope to provide a good platform to the participants of ICGCET where not only they meet together and share their vision and ideas but also fertilize their thoughts in the ever-growing field of Green Computing Engineering Technologies.

I am also confident that our keynote speakers will be able to enrich your knowledge during the conference and I wish you a very pleasant and enjoyable stay in Ireland.

Best wishes.

D. M. Akbar Hussain, Member IEEE, Aalborg University Denmark.

## Chair Message by Prof Thomas Newe



**Dr Thomas Newe,**

**Dept. of Electronic and Computer  
Engineering, University of Limerick,  
Ireland.**

On behalf of the Organising Committee of the 3rd International Conference on Green Computing and Engineering Technologies (ICGCET) it is a great honour and pleasure to welcome you at the beautiful Killaloe Hotel and Spa in County Clare, Ireland. For those of you that have never visited Ireland before, I encourage you to take this opportunity to see our beautiful country and in particular the West Coast which offers much beauty and unique scenery.

ICGCET brings together researchers, developers and practitioners from diverse fields and provides a unique opportunity to meet friends and colleagues both old and new. The keynote talks will be given by Professor Elfed Lewis of the University of Limerick, Dr Ian Grout also from the University of Limerick and Professor Preeta Sharan, of The Oxford College of Engineering, India.

We sincerely thank all authors for submitting their latest work, thus contributing to the excellent technical programme of the Conference. We all know that the success of the conference depends ultimately on the many people who have worked tirelessly in the background in planning and organizing the technical program. In particular, I would like to thank the Program Committee Chair Professor Bhawani Shankar Chowdhry and Conference Convener Mrs Lubna Luxmi Dhirani for their work and commitment in organizing the technical program.

To conclude I hope you all enjoy your stay in Ireland and that many of you will return in the future to holiday in our beautiful country.

Thomas Newe

*Conference Chair*



# ICGCET'17 Schedule



8<sup>th</sup> August 2017

- 09:00-13:00 PM** Skype Session Co-chair by **Prof Akbar Hussain & Prof Geetam Tomar**  
(Paper ID: 22, 24, 26, 28, 111,112, 114, 121, 126, 127, 148, 152, 153, 171, 174,176  
180,183, 185, 196, 197, 198, 205 224, 225, 227, 228, 229, 230, 240, 249, 253)
- 17:00-19:00 PM** Skype Session Co-chair by **Prof Preeta Sharan**  
(Paper ID: 87, 116, 120, 154, 158, 159, 166, 168, 226, 263)

9<sup>th</sup> August 2017

- 8:00-09:00 AM** Reporting at Registration Desk
- 09:00-09:45 AM** Inaugural Speech by Chair **Prof Thomas Newe** and First keynote speech by **Prof. Elfed Lewis**, University of Limerick, Ireland.
- 09:45-11:00AM** Paper Presentation (Paper ID 21, 30, 55, 59, 60, 61, 86, 115, 119, 226, 254, 255)
- 11:00-11:15 AM** Coffee Break
- 11:15-11:45 AM** Second Keynote by **Prof. Ian Grout**, University of Limerick, Ireland.
- 11:45-01:00 PM** Paper Presentation (Paper ID 16, 118, 120, 122, 143, 144, 145 ,147, 151, 155, 227)
- 13:00-14:00 PM** Lunch
- 14:00-14:30 PM** Third Keynote by Associate **Prof Preeta Sharan**, The oxford college of Engineering, India.
- 14:30-16:00 PM** Paper Presentation (Paper ID 169, 171, 173, 177, 196, 197, 204, 256, 257)
- 16:00-16:45 PM** PC Chair **Dr. BS Chowdhry** with Conference Convener **Mrs Lubna Luxmi Dhirani** will honor all the participants with Certificate of presentation.
- 16:45-17:00 PM** Vote of Thanks from **Prof. Akbar Hussain.**
- 17:00 -17:30 PM** Coffee Break

10<sup>th</sup> August 2017

- 11:00 -15:00 PM** Academic and Industrial Visit

Paper ID	Paper Title
16	<p style="text-align: center;"><b>Design of Data Processing Device on Low Power SPARTAN6 FPGA</b></p> <p style="text-align: center;">Nisha Pandey<sup>1</sup>, B S Chowdhary<sup>2</sup>, Bhagwan Das<sup>3</sup>, D M Akbar Husain<sup>4</sup>, Vishal Jain<sup>5</sup>, Tanesh Kumar<sup>6</sup>  <sup>1</sup>Bhim Rao Ambedkar Bihar University, Muzaffarpur, India  <sup>2</sup>Mehran University of Science and Technology, Sindh, Pakistan  <sup>3,6</sup>Gyancity Research Lab, Malaysia  <sup>4</sup>Aalborg University, Esbjerg, Denmark  <sup>5</sup>Bharati Vidyapeeth's, Institute of Computer Applications and Management (BVICAM), New Delhi, India  nisha@gyancity.com, c.bhawani@ieee.org, engr.bhagwandas@hotmail.com, akh@et.aau.dk,  vishaljain83@ymail.com, tanesh.nust@gmail.com</p> <p><b>Abstract:</b> Data processing is Technique which involves gathering of data and then process that data to produce useful information. The main function of a processing device is to handle the intermediate stage. In computer central processing unit, graphical processing unit etc can be considered as processing devices as they handle the intermediate stage to produce useful information. Design of data processing device is based on Low Power SPARTAN6 Field Programmable Gate Array. The main focus is on making this device low power that more efficient. Different IO standards LVCMOS_25, LVCMOS_18, LVCMOS_33 and PCI3_33 are used to follow up the approach using Xilinx ISE Design Suite 12.1. Frequency Scaling is done for calculating total power consumption.</p> <p><b>Keywords:</b> Data Processing, FPGA, Power Consumption, SPARTAN6, Frequency Scaling.</p>
21	<p style="text-align: center;"><b>Geometrical Interruption in the Nerve Anatomical Model of the Foot to Simulate Small Fiber Neuropathy</b></p> <p style="text-align: center;">M. Z. Ul Haque<sup>1,2*</sup>, Peng Du<sup>2</sup>, and Leo K. Cheng<sup>2</sup>  <sup>1</sup>Biomedical Engineering Department, Sir Syed University of Engineering and Technology, Karachi, Pakistan  <sup>2</sup>Auckland Bioengineering Institute, University of Auckland, Auckland, New Zealand  *mulhaque@ssuet.edu.pk</p> <p><b>Abstract:</b> Diabetic foot ulceration is a type of small fiber neuropathy (SFN) which usually arises in the unmyelinated smaller intra-epidermal nerve fibers (IENF) of the human foot. Skin biopsy is a diagnostic method to examine quantitatively IENF in the foot but examination is limited to the specific positions of the body. Computational models may provide an alternative approach to examine SFN. Formerly, an anatomical model of normal IENF (NIENF), based on IENF density (IENFD) at various locations in the human foot was presented. Therefore, in this study, a geometrically interrupted IENF (IENFD) model is developed using reduced IENFD, to simulate SFN at different regions of the human foot. This IENFD model was then compared with the NIENF model for the same location of the foot and observed reduced IENF network in this IENFD model as compared to NIENF model. Furthermore, approximately 96% of the realistic IENF terminals at the skin were generated using the modified Monte Carlo algorithm and the reduced empirical IENFD at the diverse positions of the foot. This IENFD model provides a starting platform for evaluating diabetic foot ulceration. The IENFD model may be used in future studies for functional consequences by stimulating the most distal sensory IENF foot's skin.</p> <p><b>Keywords:</b> Diabetic foot ulceration, small fiber neuropathy, intra-epidermal nerve fiber, skin biopsy, computational model, Monte Carlo algorithm.</p>
22	<p style="text-align: center;"><b>Design of Energy Efficient Sinusoidal PWM Waveform Generator on FPGA</b></p> <p style="text-align: center;">Sujeet Pandey<sup>1</sup>, Puneet Tomar<sup>2</sup>, Lubna Luxmi Dhirani<sup>3</sup>, D M Akbar Hussain<sup>4</sup>, Vishal Jain<sup>5</sup>, Nisha Pandey<sup>2</sup>  <sup>1</sup>Jain University, Bangalore, India  <sup>2,6</sup>Gyancity Research Lab, Gurgaon, India  <sup>3</sup>University of Limerick, Ireland  <sup>4</sup>Aalborg University, Esbjerg, Denmark  <sup>5</sup>Bharati Vidyapeeth's, Institute of Computer Applications and Management, India  welcomesujeet@gmail.com, puneettomar91@gmail.com, lubna.luxmi@ul.ie, akh@et.aau.dk,  vishaljain83@ymail.com, nisha@gyancity.com</p>

	<p><b>Abstract:</b> This is an approach to design Energy Efficient Sinusoidal PWM Waveform Generator on FPGA that consumes low amount of power. This is done by varying Ambient Temperature to different level and checking corresponding amount of energy consumed. There is a reduction of Leakage power in the percentage of 60.86 %, 52.17 %, 39.13 % and 21.73 % when we scaled down Ambient Temperature from 50 (C) to 0, 12.5, 25, 37.5 (C) respectively. SPARTAN-6 FPGA family is used to implement sinusoidal PWM waveform Generator.</p> <p><b>Keywords:</b> Energy Efficient, Sinusoidal PWM Waveform Generator, FPGA, VHDL.</p>
24	<p style="text-align: center;"><b>Comparative Investigation of Remote Tracking Devices for Aging Care</b></p> <p style="text-align: center;">M. W. Munir<sup>1, 2</sup>, N. Shahid<sup>3</sup>, S. M. Omair<sup>3</sup>, G. Munir<sup>1</sup> and M. Z. Ul Haque<sup>1</sup></p> <p style="text-align: center;"><sup>1</sup>Department of Biomedical Engineering, Barrett Hodgson University, Karachi, Pakistan</p> <p style="text-align: center;"><sup>2</sup>Biomedical Sciences and Engineering, Tampere University of Technology, Finland</p> <p style="text-align: center;"><sup>3</sup>Biomedical Engineering Department, Sir Syed University of Engineering and Technology, Karachi, Pakistan Email: wasim.munir@bhu.edu.pk</p> <p><b>Abstract</b> Tracking devices help the elderly patients to remain safe, secure and traceable in case of getting lost or in an emergency. This research work was conducted to evaluate the appropriateness of few commercially available tracking devices for aging people, by identifying their usefulness, efficiency, limitations and further improvements. Research involved two steps; literature review about two existing tracking devices simply termed Device A and Device B, followed by a performance and comparative analysis of the aforementioned devices by applying basic statistics on the results obtained from a questionnaire survey. Devices were used by two groups of people: aging (&gt;70 year old) and middle-aged patients (less than 70 years old) who reported their satisfaction levels about the said devices on a scale of one to five. These devices were found helpful in reducing the dependency of the elderly on others and raised their privacy values. However, these were not recommended for severe memory loss or later stage of dementia patients because learning and memorizing the process of handling these devices can be difficult for them. Overall, the performance of device B outplayed device A while comparing all considered device parameters. The calling feature of device B appeared to be an appealing characteristic with mean satisfaction levels of 4.9±0.32 and 4.7±0.48 as reported by the middle-aged and aging groups respectively. These devices will be helpful in decreasing unnecessary rush at health care centers or lost person reporting in police. In upcoming years, these devices can be developed to remotely monitor the movement of the patient.</p> <p><b>Keywords:</b> Aging Care, Tracking Devices, Remote Monitoring, Global Position System (GPS)</p>
26	<p style="text-align: center;"><b>Framework for Smart E-health Monitoring System</b></p> <p style="text-align: center;">Muhammad Imran Saleem<sup>1</sup>, Abdul Moid Khan<sup>2</sup>, Shaheena Noor<sup>1</sup>, and Dr. Muhammad Aamir<sup>3</sup></p> <p style="text-align: center;"><sup>1</sup>Department of Computer Engineering, Sir Syed University of Engineering &amp; Technology</p> <p style="text-align: center;"><sup>2</sup>Department of Electronic Engineering, Sir Syed University of Engineering &amp; Technology</p> <p style="text-align: center;"><sup>3</sup>Department of Telecommunication Engineering, Sir Syed University of Engineering &amp; Technology {saleem, amkhan, shanoor, maamir}@ssuet.edu.pk</p> <p><b>Abstract</b>—The Smart e health monitoring system is the today's emerging technology system which try to provide us risk free environment. The factors which are major for our health problem must be addressed first and make the life risk free. An Internet of things (IoT) industry is making modern health care with promising technological and social aspects. This smart Health system is based on state-of-the-art network architectures and applications in IoT-based health care solutions. The modern ehealth monitoring system is based on real time by using IoT and which is developed by considering the low cost, ease of application, accuracy, and data security. By using wearable sensors while holding an Android device . The proposed system is reliable and helpful due to good bandwidth based. It is convenient and reliable and low cost with data security in all aspects. Smart health care are future needs which can be use in robotic ruse assistant,artificial retinas,advances in prosthetics,remote patient monitoring,electronic underwear preventing bed sores. This system monitoring the patient heart condition, blood pressure and pulse. The user give pressure in on his smart wearable device he will be monitored through sensor network system. It will be easy for doctor to check patient health remotely. In this paper, we discuss the proposed model and the opportunities and challenges for smart e health in realizing this vision of the future of health care.</p> <p><b>Index Terms</b>—Tracking, Internet of Things (IoT), Sensor Integrated Shoe, Plantar Pressure Measuring.</p>
28	<p style="text-align: center;"><b>A Mathematical Framework Simulating Nerve Fiber Physiology</b></p> <p style="text-align: center;">M. Z. Ul Haque<sup>1, 2*</sup>, Peng Du<sup>2</sup>, and Leo K. Cheng<sup>2</sup></p>

	<p><sup>1</sup>Department of Biomedical Engineering Department, Barrett Hodgson University, Karachi, Pakistan  <sup>2</sup>Auckland Bioengineering Institute, University of Auckland, Auckland, New Zealand;  Email: muhammad.zeeshan@bhu.edu.pk</p> <p><b>Abstract:</b> Nerves are an important part in human body which not only controls the movement and locomotion of the body but also contains sensory receptors from other parts of the body which provide continuous feedback to the brain and spinal cord. Various diagnostic methods are used to detect the specific damage response of the nerve but they do not identify the precise location of the nerve damage. A computational nerve model may help to identify the exact location of nerve damage. Therefore, in this study the organization of a onedimensional (1D) synthetic single element structural and functional model which typify the anatomy and physiology of the nerve is proposed. The geometrical model was developed using 1D linear Lagrange basis function while the functional model was developed by applying external stimulus and solving the bidomain model. The unmyelinated and myelinated nerve electrophysiological models were used to generate and propagate the action potential in this 1D synthetic single element model (SSEM). The nerve conduction velocity (NCV) was also computed in this proposed model and found that the myelinated nerve model has a higher NCV in contrast to unmyelinated model. This model will provide a platform for the development of the complete anatomical and functional model of the nerves in the various location of the body and may be helpful for clinician and physiologists in the evaluation and diagnosis of the structural as well as functional consequences of diabetic neuropathy in its initial stages.</p> <p><b>Keywords:</b> Action potential, computational model, diagnostic method, electrophysiological nerve model, Lagrange basis function, nerve conduction velocity</p>
30	<p style="text-align: center;"><b>REVIEW OF SOME ASPECTS OF LAUNCH VEHICLE COMPONENTS RECOVERY</b></p> <p style="text-align: center;"><sup>1</sup>Kamarkhan Tileu, <sup>1</sup>Wang Zhijin, <sup>2</sup>Zain Anwar Ali and <sup>3</sup>Murat Nauryzbayev.  1627078163@qq.com, zhijin@nuaa.edu.cn, zainanwar86@hotmail.com and 2539455207@qq.com.</p> <p><sup>1</sup>Department of Flight Vehicle Engineering, College of Aerospace Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China.  <sup>2</sup>College of Automation Engineering, Nanjing University of Aeronautics &amp; Astronautics, Nanjing, China.  <sup>3</sup>Institute of Space Technique and Technology, NUA, China.</p> <p><b>Abstract:</b> This paper describes some aspects related to the salvation of individual elements of the launch vehicle. It also takes into consideration the economic feasibility of the operation. It emphasizes the importance of influence factor of series production to assess the effectiveness of the use of reusable elements. To this purpose, the model used by the competitive environment in which the product competes with its analog counterpart upgraded with finite capacity on the market.</p> <p><b>Keywords:</b> LV – launch Vehicle; SLWT – Super Lightweight External; RSRM – Reusable Solid Rocket Motor</p>
55	<p style="text-align: center;"><b>CROP MONITORING USING WIRELESS SENSOR NETWORK</b></p> <p style="text-align: center;">Nadia Ansari and Arsalan Nisar  Dawood university of engineering &amp; technology, Pakistan  E-mail: nadia.ansari@duet.edu.pk, arsalannisar13@gmail.com</p> <p><b>Abstract:</b> "Agriculture is the of process of cultivation of land or soil for production purpose". Agriculture plays a very vital role for economy of Pakistan and its development. About 70% of population is relates to agriculture directly or indirectly. Its contribution towards GDP is about 25% which is higher than contribution of any other sector. Issues concerning agriculture have been always hindering the development of the country. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. The purpose of this paper is to produce agriculture application of wireless sensor network that can monitor the environment in which crops are being changes that take place. These changes are unpredictable by the system and are in a sense random. The nodes in the system can measure temperature, humidity and soil moisture. The problem of excess water supply can be removed by measuring soil moisture. Crops need of water can be predict through temperature monitoring. Healthy air quality can be maintaining through monitoring air quality. Sensor node consisting AVR microcontroller and sensors. The Raspberry Pi perform as a central hub for all sensor nodes. Monitoring of crop field using WSN represents the class of network applications with more benefits to the farmers.</p> <p><b>Keywords:</b> Wireless sensor network, TinyOS, sensor node design, internet of things, Precision agriculture</p>

59	<p style="text-align: center;"><b>Fast Hardware Implementation of AES-128 Algorithm in Streaming Output Feedback Mode for Real Time Ciphering</b></p> <p style="text-align: center;">Dr. Syed Izhar Hussain Zaidi, Dr. Samreen Amir Dawood University of Engineering and Technology, Karachi izhar_hussain@hotmail.com, samreen.amir4@gmail.com</p> <p><b>Abstract</b>— Information security is the main challenge today. Many ciphering schemes are available that provide data encryption. But the strength of stream ciphers is very low as compared to block ciphers. To ensure better security, block ciphers are used in various ways for streaming application at the cost of increased computational load. This paper discusses the implementation of AES-128 in output feedback (OFB) mode for real-time streaming applications. The target performance parameter for the implementation of the algorithm is speed as well as reduced memory resources. Implementation techniques for various blocks of the algorithm have been discussed for achieving the target performance. The implementation is functionally tested on Virtex – 6 FPGA. The performance achieved in terms of latency, speed, memory resources and other logic resources is also presented. This shows the effectiveness of the proposed hardware implementation for real-time streaming cipher applications.</p> <p><b>Keywords</b>— AES-128, streaming encryption, OFB mode, FPGA, block Cipher</p>
60	<p style="text-align: center;"><b>Development of a New Tool for Better Imaging of High BMI Patients</b></p> <p style="text-align: center;">Samreen Amir<sup>1</sup>, M. Fasih Uddin Butt<sup>2</sup>, Ezzah Shoukat<sup>2</sup>, Humda Noor<sup>2</sup>, Zainab Nadeem<sup>2</sup>, Nida Zamir<sup>2</sup>, <sup>1</sup>Ziauddin University, Karachi <sup>2</sup>COMSATS Institute of Information Technology, Islamabad samreen.amir4@gmail.com</p> <p><b>Abstract</b>- Ultrasound of obese patients does not produce clearer image results as compared to that of patients with normal body mass index (BMI). This is because the fat molecules are tightly packed and do not leave much space for anything to pass through. The aim of our study is to tackle this fat temporarily via external ultrasound assisted liposuction (XUAL) technique and make room for ultrasound waves to pass as much as possible. An ultrasound signal was fed to 3 different types of medium having the properties of: soft tissue, solid human body fat, and liquefied fat. The signal strength in fat decreases considerably throughout the wave propagation as compared to soft tissue. Whereas in liquefied fat, the signal strength does not reduce to such level rather it resembles to soft tissue. Thus it was shown virtually that when, practically, a transducer probe with both the ultrasound and XUAL properties will be made, it will yield better results for high BMI patients.</p> <p><b>Keywords</b>- Ultrasound, Obese, BMI, Fat, External ultrasound assisted liposuction, Soft tissue, Liquefied fat, Signal, Wave, Transducer, k-wave</p>
61	<p style="text-align: center;"><b>A survey on Cognitive Radio Network using Artificial Neural Network</b></p> <p style="text-align: center;">Adnan Waqar<sup>1</sup>, Dr. Aamir Zeb<sup>2</sup>, Saima Khadim<sup>1</sup>, Dr. Samreen Amir<sup>1</sup>, Imran Khan<sup>1</sup> <sup>1</sup>Dawood University of Engineering and Technology, Karachi <sup>2</sup>NED University of Engineering and Technology, Karachi</p> <p><b>Abstract:</b> The emergence of Internet of Things and other applications of wireless communication has resulted in increase of air interference among various wireless devices. In upcoming time we will be connecting more and more devices wirelessly. In addition to an increase in number of devices, many devices also demand higher bandwidth. We have a limited spectrum available for communication and as the demand increases it creates more and more congestion in the available spectrum. Besides this scarcity of spectrum, it has been observed that all available frequencies in this spectrum are not efficiently utilized. Some frequency bands face congestion while others are underutilized. The solution of all these issues is Cognitive Radio. The fundamental theory of cognitive radio deals with the issues mentioned above and provides efficient utilization of available spectrum. In cognitive radio when a frequency is not utilized by primary user (Licensed user), it is allocated to secondary user (Unlicensed user) who can use the frequency until there is no primary user. For searching primary and secondary user we use spectrum sensing. Depending on the type of users and the environment, this spectrum sensing can be a time consuming task which can severely impact the QoS. To deal with this critical issue we use machine learning techniques, which predict spectrum holes in an available frequency band. This in turn reduces spectrum sensing time and power consumed in sensing. Among various Machine learning techniques, Artificial Neural Networks is one of the most popular and widely used technique. Unlike other Machine learning Techniques, Neural Network doesn't require prior knowledge of the system and in most cases it doesn't require the model to be retrained an every instance. These advantages makes it one of the most popular technique for cognitive radios. So far a lot of work has been done on implementing Artificial Neural Network models for predicting the most suitable frequency for a secondary user. In this paper a comprehensive survey has been</p>

	<p>conducted on various ANN techniques, its comparison with other machine learning techniques and discussion on various learning models to increase the decision making ability of cognitive radio's cognitive engine. ANN uses supervised learning and this paper compares it with other supervised learning techniques (like SVM) and also unsupervised learning techniques and statistical models. The paper provides detailed knowledge about what factors influence the use of ANN in cognitive engines and under certain conditions which ANN technique is most suitable.</p> <p><b>Keywords:</b> Cognitive Radio Network, Spectrum Prediction, Artificial Neural Network, Machine Learning</p>
86	<p style="text-align: center;"><b>Smart Cognitive Cellular Network</b></p> <p style="text-align: center;">Saima Khadim<sup>1</sup>, Adnan Waqar<sup>1</sup>, Dr. Aamir Zeb<sup>2</sup>, Imran Khan<sup>1</sup>, Dr. Izhar Hussain<sup>1</sup>  <sup>1</sup>Dawood University of Engineering and Technology, Karachi  <sup>2</sup>NED University of Engineering and Technology, Karachi</p> <p><b>Abstract:</b> The number of wireless devices are increasing rapidly with the advent of Technological innovation. Many of these devices require large bandwidth, hence as a consequence spectrum scarcity is also increasing rapidly. Cognitive radio is a promising technology that can provide solution to spectrum scarcity by dynamic frequency allocation. So far, frequency allocation has been static. Dynamic spectrum allocation allows secondary users to use frequencies assigned to primary (licensed) users without causing interference to primary users. In this paper, we have developed a dataset utilization of different frequencies by spectrum sensing. This data is used as an input to machine learning algorithm in order to predict white spaces and transmission levels at which secondary users can transmit without creating any interference with primary users. For creation of the database we have performed spectrum sensing on different frequency bands. After analysing the data we found out spectrum holes (white spaces, where primary user isn't transmitting) and transmission levels of primary user so that secondary user can transmit without creating interference. From this dataset, we trained our machine learning algorithm to accurately predict spectrum holes and transmission levels for secondary users. Using machine learning we were able to predict accurately within a fraction of time. Our proposed methodology increases accuracy and at the same time reduces interference, power consumption and frequency allocation time</p>
87	<p style="text-align: center;"><b>Improved Delta operator based Discrete Sliding Mode Fuzzy Controller for Buck Converter</b></p> <p style="text-align: center;">Viji.K<sup>1</sup>, Dr. Anil Kumar<sup>2</sup>, Dr. Nagaraj.R<sup>3</sup>  <sup>1</sup> Assistant Professor, Department of Electrical and Electronics Engineering, The Oxford College of Engineering, Bangalore, India  <sup>2</sup>Director, Amity School of Engineering and Technology, Lucknow, India  <sup>3</sup>Director, Dhirubhai Ambani Institute of Information and Communication Technology, India  <sup>1</sup>kvijiperumal@gmail.com, <sup>2</sup>akumar3@lko.amity.edu, <sup>3</sup>nagaraj.ramrao@gmail.com</p> <p><b>Abstract:</b> A delta operator based Discrete Sliding Mode Fuzzy controller (DSMFC) for dc-dc buck Converter is described. The discrete systems by means of shift operator turns into mathematically disordered at an unexpected sampling rates. In order to face this difficulty, the delta operator is introduced. The delta operator can be able to convert continuous-time system into discrete-time system and vice-versa. The main aim is to increase the rate of response, develop efficiency, to get excellent Robustness &amp; chattering phenomenon inhibition. This method is easy to implement and the overall system is efficient &amp; cost-effective. During discretization, to circumvent any data damage quick sampling has to be done which can be achieved with the help of delta operator because of its well defined mathematical properties even at rapid sampling.</p> <p><b>Keywords:</b> Discrete Sliding Mode Controller, Discrete Fuzzy Sliding Mode Controller, Fuzzy logic controllers, Sliding Mode Controller, DC-DC Converter, Delta Operator.</p>
111	<p style="text-align: center;"><b>Impact of Qos Mechanisms on the Performance of Dynamic Web Services in Heterogeneous Wireless Networks (802.11e and 802.16e)</b></p> <p style="text-align: center;">Azeddine KHIAT<sup>†</sup>, Ayoub BAHNASSE<sup>††</sup>, Mohamed EL KHAILI<sup>†</sup>, and Jamila BAKKOURY<sup>†</sup>  <sup>†</sup>Laboratory SSDIA, ENSET Mohammedia, University Hassan II, Casablanca, 9167 Morocco  <sup>††</sup>Laboratory LTI, Faculty of Sciences Ben M'sik, University Hassan II, Casablanca, 9167 Morocco  azeddine.khiat@univh2m.ma, ayoub.bahnasse-etu@univh2m.ma, elkhailimed@gmail.com  jamila.bakkoury@gmail.com</p> <p><b>Abstract:</b> This paper studies and evaluates the impact of quality of service and the improvements induced on web-oriented services. The heterogeneous wireless networks studied in this paper are: 802.11e and 802.16e. Several</p>

	<p>scientific research work has been conducted evaluating the performance of heterogeneous wireless networks taking into account the quality of service. According to our research, no work has been done taking into account the convergence of two networks with mobility constraints. The evaluation was conducted on five different scenarios: The first without QoS, the second set by the PCF mode, the third by the EDCA mode, the fourth with DCF and nRTPS in WiMax and the last with EDCA and nRTPS. The results obtained showed that the first scenario offers a high delay, but a number of retransmissions partially lower than the other scenarios, on the one hand, on the other, scenarios including QoS deployed WiMax are very favorable. This study carried out under OPNET Modeler 14.5, varying the 802.11e QoS mechanisms (DCF, PCF, HCCA, EDCA) and 802.16e (Best Effort, nRTPS). The criteria of evaluation are TCP delay, TCP retransmission count, HTTP Response and Database Page Response Time.</p> <p><b>Keywords:</b> 802.16e; 802.11e; Web-Based; QoS; OPNET Modeler</p>
112	<p align="center"><b>Application of the turbulence models at low Reynolds number for Horizontal-Axis Wind Turbine design by using Computational Fluid Dynamics (CFD)</b></p> <p align="center">M. H. Ouahabi <sup>a*</sup>, M. M. Ichenial<sup>b</sup>, A. El Hajjaji<sup>b</sup>, F. Benabdelouahab<sup>a</sup></p> <p align="center"><sup>a</sup>Department of Physics, Laboratory of Condensed Matter and Radiation, Faculty of Sciences Tetouan, Abdelmalek Essaadi University, 93030, Morocco</p> <p align="center"><sup>b</sup>Department of Physics, Faculty of Sciences at Tetouan, Abdelmalek Essaadi University, 93030, Morocco</p> <p align="center">*Corresponding author: Email: ouahabitim.gc@gmail.com</p> <p><b>Abstract:</b> In the present paper, the aerodynamic analysis of two dimensional model of NACA 0012 airfoil is presented to improve their aerodynamic characteristics such as lift, drag coefficients and the lift to drag ratio for shape design of Horizontal-Axis Wind Turbine (HAWT). The Reynolds-averaged Navier Stokes (RANS) in conjunction with three turbulence models, namely, the Spalart Allmaras, the Transition k<math>\omega</math> and the k-<math>\omega</math> shear stress transport (SST) are solved by using the commercial code ANSYS-FLUENT, a widely used finite-element method (FEM) based software in computational fluid dynamics (CFD). The computational domain was structured with 'C' topology block-structured mesh and the steady solver was used to capture the dynamic stall phenomena. Both grid and time step were optimized to reach independent solutions. Particularly a high quality 2D mesh was obtained using the ANSYS Meshing tool. Spatial discretization algorithm, interpolation scheme, pressure - velocity coupling and turbulence boundary condition were also optimized. The 2D CFD model was calibrated and validated comparing the numerical results with experimental data, available in scientific literature from National Advisory Committee for Aeronautics (NACA). As a result, a good agreement between numerical and experimental data was found. Then the blade element momentum method (BEM) which divides the blade into several blade elements used to calculate ideal geometry for a turbine blade. The present work represents the basis to develop an accurate three dimensional Horizontal-Axis Wind Turbine (HAWT) model and may be used to support wind tunnel experiments.</p> <p><b>Keywords:</b> Computational fluid dynamics (CFD), airfoil, aerodynamic coefficients, drag coefficient, lift coefficient</p>
114	<p align="center"><b>Design of IIR filter using PSO algorithm &amp; its implementation in FPGA</b></p> <p align="center">Umema Tasleem Shaikh Mehran University of Engineering and Technology umematasleem@hotmail.com Dr. Tayab Din Memon Mehran University of Engineering and Technology tayabdin82@gmail.com Dr. Imtiaz Hussain Kalwar Mehran University of Engineering and Technology imtiaz.hussain@faculty.muett.edu.pk Faiza Shaikh Mehran University of Engineering and Technology shaikhfaiza30@gmail.com</p> <p><b>Abstract:</b> In this paper, Particle Swarm Optimization (PSO) algorithm based Adaptive Infinite Impulse Response (IIR) filter is designed. PSO algorithm is inspired by bird or fish swarm movement. PSO as global optimization technique provides advantages of simple implementation, quickly convergence providing better results and robustness for avoiding local minima problem. The designed PSO based Adaptive filter is then implemented to work as a noise canceller. Simulation results shows that the designed filter is effective with good noise suppression. The PSO based filter is also synthesized in FPGA and run fittings in small commercial devices Stratix-II and cyclone-II</p> <p><b>Keywords:</b> Particle Swarm Optimization, Adaptive Infinite Impulse Response (IIR) filter, FPGA implementation, VHDL</p>
115	<p align="center"><b>Comparative Analysis of Level Shifted PWM Techniques for Conventional and Modified Cascaded Seven Level Inverters</b></p> <p align="center">Jahangeer Soomro*, Erum A. Qasmi*, Tayab D Memon**, Faheem A. Chachar*, Jamshed A. Ansari**</p>

	<p>*Department of Electrical Engineering, Sukkur IBA, Airport Road, 65200, Sindh, Pakistan  **Department of Electronics Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan  jahangir.soomro@iba-suk.edu.pk, erum.ee@iba-suk.edu.pk</p> <p><b>Abstract</b> Researchers are attracted to multilevel inverters now days due to their better power quality and low total harmonic distortions as compared to bipolar inverters. In this work, study of total harmonic distortions of various level shifted PWM techniques such as In Phase Disposition, Phase Opposition Disposition and Alternate Phase Opposition Disposition PWM techniques on traditional and modified seven level inverter is done in MATLAB/SIMULINK environment. Also it has been observed that traditional seven level inverter utilizes twelve switches, whereas, modified topology only uses six switches. Hence, modified topology is suggested to better choice due to less number of switches, reduced switching complexity and cost of the system. The study of total harmonic distortions on various modulation index (m) for level shifted modulation is also done in detail.</p> <p><b>Keywords:</b> Pulse Width Modulation; Total Harmonic Distortion; Conventional Multilevel Inverters; Modified Multilevel Inverters, Level Shifted Modulation.</p>
116	<p style="text-align: center;"><b>PERFORMANCE ANALYSIS OF REVERSIBLE ALU IN QCA</b></p> <p style="text-align: center;"><sup>1</sup>Rajinder Tiwari, <sup>2</sup>Deepika Bastawade, <sup>3</sup>Dr. Preeti Sharan, <sup>4</sup>Anil Kumar  <sup>1,4</sup>Dept. of ECE, ASET, Amity University, Lucknow, Lucknow  <sup>2,3</sup>Dept. of ECE, The Oxford College of Engineering, Bengaluru  <sup>1</sup>rtiwari@amity.edu <sup>2</sup>deepikabastawade14@gmail.com , <sup>3</sup>sharanpreeta@gmail.com, <sup>4</sup>akumar3@lko.amity.edu</p> <p><b>Abstract:</b> Design and Implementation of 1-bit Reversible ALU using QCA tool. Methods/Statistical Analysis: The basic methodology that has been used is to design the 1-bit ALU using the QCA tool, undergo simulation with the proposed logic, obtain the results and compare them with that of CMOS technology. While comparing the results of the two different approaches, the parameters considered are mainly no. of cells, area, power dissipation, delay, etc. Findings: Quantum spot cell automata (QCA) based reversible method of reasoning is the foundations of creating nanotechnology based figuring structures. The programmable reversible method of reasoning is ascending as an arrangement style for execution of the circuit. Now a days, nanotechnology and quantum preparing with unimportant impact on circuit warm period. This work focuses on a plan of a powerful reversible ALU (Arithmetic Logic Unit) and its affirmation in QCA. We have considered existing <math>3 \times 3</math> M-R Gate as the essential building block, a <math>4 \times 4</math> reversible method of reasoning entryways (M-R Gate with immaterial delay and orchestrated to convey a grouping of genuine relies on settled yield lines in perspective of programmable select data lines. We similarly display QCA utilization of M-R passage with slightest cell check. The proposed ALU requires only 6 entryways, which is more locale capable than the present work. The results obtained from the proposed 1-bit ALU circuit has been compared with that of designed in CMOS technology and has been better.  Application/Improvements: The main application of proposed 1-bit ALU is in the Quantum Processors. This ALU circuit can be enhanced to 4-bit or more from enhancement side.</p> <p><b>Keywords:</b> Quantum Dot Cellular Automata, Marrison - Ranganathan, Arithmetic and Logical Unit, Reversible logic</p>
118	<p style="text-align: center;"><b>Application of big data analysis with decision Tree for road accident</b></p> <p style="text-align: center;">Addi Ait-Mlouk, Fatima Gharnati, Tarik Agouti  Laboratory of Intelligent Energy Management and Information Systems, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco.  aitmlouk@gmail.com, gharnati@ucam.ma, t.agouti@uca.ma</p> <p><b>Abstract</b> In transportation field, a huge amount of data collected by IoT systems, remote sensing and other data collection tools brings new challenges, the size of this data becomes extremely big and more complex for traditional techniques of data mining. To deal with this challenge, Apache Spark stand as a powerful large scale distributed computing platform that can be used successfully for machine learning against very large databases. This work employed large-scale machine learning techniques especially Decision Tree with Apache Spark framework for big data analysis to build a model that can predict the factors lead to road accidents based on several input variables related to traffic accidents. Based on this, the predicting model first preprocesses the big accident data and analyze it to create data for a learning system. Empirical results show that the proposed model could provide new information that can assist the decision makers to analyze and improve road safety.</p> <p><b>Keywords:</b> Data mining, Big Data, Road accident, Decision Tree, Apache Spark, Mllib</p>

119	<p style="text-align: center;"><b>Structure Design of Photonic Crystal Based MOEMS Accelerometer Sensor for Supplemental Restraint System in Automobile Passenger Safety</b></p> <p style="text-align: center;">Sundar Subramanian<sup>1</sup>, Anup M Upadhyaya<sup>2</sup>, Dr. Preeta Sharan<sup>3</sup>  <sup>1</sup>Research Scholar, Centre for Emerging Technologies, Jain University, Bangalore, India  <sup>2</sup>Assistant Professor, Department of Mechanical Engineering, The Oxford College of Engineering, Bangalore, India  <sup>3</sup>Professor and R&amp;D Head, Department of Electronics and Communication Engineering, The Oxford College of Engineering, Bangalore, India  <sup>1</sup> sundar3172@gmail.com, <sup>2</sup> upadhyayaanup74@gmail.com, <sup>3</sup> sharanpreeta@gmail.com</p> <p><b>Abstract:</b> Leading cause of human death in most of country is roadway crashes. Supplemental restraint system playing vital role in preventing and protecting the passengers and drivers in case of accidents thereby providing chance of last line of defence against serious injuries. So there is need of sensor which sense the signals precisely with high sensitivity, low energy consumption and EMI insensitivity in harsh conditions which modifies the technology involved in present sensors used in automobile crash sensing. Work which is carried out here is designing structure of PhC stationed optical approach accelerometer sensor for supplemental restraint system or Airbag for vehicle passenger safety. Functionality of MOEMS device achieved through four free ends of slab is fixed and horizontal displacement of main slab using MEEP software for rods in air configuration. As the main slab displaces there will be change in spacing which alters the electromagnetic waves and which shift the transmission spectrum wavelength. Shift in wavelength of 0.001 for each micro displacement from 0 to 0.6 micrometre, prove the design methodologies and its validation. Interrelation between optical and mechanical system discussed here will measure the acceleration of vehicle. Q factor of 6000 observed for each submicron displacement representing accuracy level of proposed design for fabrication of device in future.</p> <p><b>Keyword:</b> Supplemental Restraint System (SRS), Passenger safety, Accelerometer, MOEMS, Stiffness, Photonic crystal (PhC), Electro Magnetic Interference (EMI)</p>
120	<p style="text-align: center;"><b>OPTICS BASED BIOSENSOR FOR MEDICAL DIAGNOSIS</b></p> <p style="text-align: center;">Rashmi Priyadarshini<sup>1</sup>, C K Narayanappa<sup>2</sup>, Veena.C<sup>3</sup>  <sup>1</sup> Research Scholar, School of ECE, Reva university, India  <sup>2</sup>Associate Professor ,Department of Medical Electronics, MSRIT ,India Department of ECE, The Oxford College of Engineering, India  <sup>1</sup> rashmi4priya@gmail.com, <sup>2</sup>c_k_narayanappa@msrit.edu <sup>3</sup>veenachander@outlook.com</p> <p><b>Abstract:</b> Biosensors have played a major role in diagnosis of various diseases and are also associated with detection of micro-organisms and other biological components. There are various types of biosensors available in the field, each having benefits one over the other. This paper explains the basic theory and operational setup of SPR based biosensors which are fast in their performances and are real time implemented. These plasmonic based biosensors includes waveguide arrangements along with a Au/Ag bimetallic enhancement concept. One of the benefits of coupling of light source with surface electrons will give raise to surface Plasmon which is very efficient in recognition of biomolecules without any external biomarkers. Placing a second metal layer above the dielectric layer as well as below, metalinsulator-metal (MIM) waveguide had been developed. These structures allow extremely high model confinement of light.Using this structure biological analysis of blood components have been performed and the resultant signature graphs are obtained in terms of resonant frequency and wavelengths. These numerical simulation outcome shows the resonance dips of the structure, high resonant transmission contrast ratio and the resonance wavelength has a linear relationship with the refractive index of dielectric material therefore the aperture.. The numerical simulation results obtained from the transmission spectra are used to analyze the sensing characteristic of the structure.The sensitivity of the biosensor is also calculated.</p> <p><b>Keywords:</b> Plasmonics; blood components; Resonant frequency; wavelengths; sensitivity; Biosensor; SPR; Hemoglobin; Blood Plasma; Platelets</p>
121	<p style="text-align: center;"><b>DESIGN &amp; IMPLEMENTATION OF PLC BASED AUTOMATIC LIQUID DISTILLATION SYSTEM</b></p> <p style="text-align: center;">Muhammad Farrukh<sup>1</sup>, Irfan Ahmed Halepoto<sup>2</sup>, Bhawani Shankar Chowdhry<sup>2</sup>, Hameedullah Kazi<sup>1</sup>, Bharat Lal<sup>1</sup>  <sup>1</sup>Department of Electrical Engineering, ISRA University, Hyderabad, Pakistan  <sup>2</sup>Department of Electronics Engineering, Mehran UET, Jamshoro, Pakistan  muhammad.farrukh@isra.edu.pk</p>

	<p><b>Abstract:</b> This paper proposes the design and implementation of an automatic liquid distillation system. The prototype is designed for mainly two functions: liquid distillation &amp; tank level. Methods/Statistical Analysis: Prototype presented involves a process of separating the mixture (Methanol &amp; water) and improves the production by managing the whole system automatically. The prototype designed gives a simple controlling &amp; monitoring i.e. data acquisition of fluid level with the help of PLC S7200. Distillation is the main theme behind this research work that plays a vital role in many industries in dealing with boiling of liquids and liquid levels. Findings: At initial stage the implementation of a robust mechanical design is constructed to sustain excessive temperature; besides this a console panel is made to manually control and indicate the state of actuators. At final stage PLC interfacing and programming with electrical components (level detector circuit, thermocouple, pump, heater, solenoid valve etc.) is done for achieving the efficient and fast automatic process. In the last design was experimented with actual solution, it was found that 90% of the methanol was retrieved in condensation chamber; also temperature linearization was observed during the process. Applications: Error free mechanism and fast actuation makes this model significant for many industries which deal with huge boilers where engineers tackle with controlling &amp; monitoring of liquids i.e. sugar mills, milk factories etc.</p> <p><b>Keywords:</b> PLC S7200, Tank Level Controlling, Liquid Distillation, Step 7 Micro-Win, Analog Module EM235</p>
122	<p style="text-align: center;"><b>Intelligent transport system for road safety based data mining approach</b></p> <p style="text-align: center;">Addi Ait-Mlouk<sup>1</sup>, Imane Kamsa<sup>2</sup>, Fatima Gharnati<sup>1</sup>, Tarik Agouti<sup>1</sup></p> <p style="text-align: center;"><sup>1</sup>Laboratory of Intelligent Energy Management and Information Systems, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco.</p> <p style="text-align: center;"><sup>2</sup>Department of Mathematics and Computer Science, Faculty of Sciences, Moulay Ismail University, Meknes, Morocco</p> <p style="text-align: center;">aitmlouk@gmail.com, i.kamsa@edu.umi.ac.ma, gharnati@ucam.ma, t.agouti@uca.ma</p> <p><b>Abstract:</b> Recently, road accidents considered a major public health problem worldwide, the aim of many studies is to identify the main factors that contribute to crash severity. To identify those factors this paper shows a large scale intelligent techniques, such as intelligent agents that can detect drivers' cognitive state and analyze the data in a central system, the intelligent agents use data mining techniques, especially association rules mining to identify future accident in advance and giving chance to drivers to avoid the dangers. However, the association rule technique produces a huge amount of decision rules, which does not allow the decision makers to make their own selection of the most relevant rules. In this context, we believe that the visualization techniques would be particularly useful for decision makers who are suffering from the redundancy and quantity of extracted rules. An analysis of accidents on highways in the province of Marrakech (Morocco) between 2004 and 2014 showed that the proposed approach serves our purpose and may provide meaningful information that can help to develop suitable prevention policies to improve road safety.</p> <p><b>Keywords:</b> data mining, association rules, road accident, intelligent agents, visualization</p>
124	<p style="text-align: center;"><b>Towards Ad hoc Testing Technique Effectiveness in Software Testing Life Cycle</b></p> <p style="text-align: center;">Imran Bhatti Sukkur IBA imran.bhatti@ibasuk.edu.pk Jawaid Ahmed Sukkur IBA jawaid@iba-suk.edu.pk Abdul Moiz Sukkur IBA moiz.msse14@ibasuk.edu.pk</p> <p><b>Abstract</b> Software testing is the most important aspect of the system development. This process helps to identify the bugs, errors, faults and failures in a system which ultimately ensures the quality of system. There are several testing techniques and strategies which determines the quality of a system. Ad hoc testing technique is the free form testing technique which does not require the pre-planned documentation and test cases. This is an informal and creative software testing technique which requires the prior knowledge about the system functionality. This article focuses on the Ad hoc testing, its types, advantages, disadvantages, challenges, how to use it more effectively and when and where to use it in the testing process.</p> <p><b>Keywords:</b> Ad hoc testing, Exploratory testing, Monkey testing, Buddy testing, Pair testing, Ad hoc testing challenges.</p>
126	<p style="text-align: center;"><b>Harmonic Minimization in a Modified Cascaded Multilevel Inverter for Islanded Microgrid using two Switching Techniques</b></p> <p style="text-align: center;">Mamatha Sandhu, Dr. Tilak Thakur</p>

	<p>Chitkara university,Punjab Campus, PEC University of Technology, Chandigarh mamatha.sandhu@chitkara.edu.in, tilak20042005@yahoo.co.in</p> <p><b>Abstract:</b> Renewable energy sources are playing very wide role for their abundant availability. Photovoltaic systems are widely used for their cleanliness and less maintenance. Multilevel inverter technology has become an emerging technology with renewable energy sources and are playing a wide role in designing various topologies. In this paper, an islanded microgrid from a remote area fed from solar PV system through a modified topology of 7 level 6 switches cascaded H bridge multilevel inverter using two different switching techniques are presented. A solar photovoltaic (PV) system and an energy storage is fed through DC-DC boost converter which is equipped with incremental conductance maximum power point tracking (MPPT) algorithm to extract maximum solar energy is considered in the islanded microgrid. A comparison of Sinusoidal Pulse Width Modulation (SPWM) using Particle Swarm Optimization (PSO) and Artificial Neural Network (ANN) switching techniques which leads to the improvement of total harmonic distortion (THD) for power quality applications is carried out. Due to modified topology reductions in the number of power switches, losses are obtained. To verify the performance of the switching techniques simulations are carried out using MATLAB/SIMULINK and the total harmonic distortion is calculated.</p> <p><b>Keywords:</b> PV ,SPWM, CHBMLI, MPPT, ANN, PSO, THD</p>
127	<p><b>Determining the Best-Fit Model for Oil Palm Yield and Planted Area in Malaysia</b></p> <p>Norzaida, Abas* Kamariah, Aliman Shafrina, A.Halim  UTM Razak School of Engineering And Advanced Technology, Universiti Teknologi Malaysia, K.Lumpur, Malaysia. *zaida.kl@utm.my  UTM Razak School of Engineering And Advanced Technology, Universiti Teknologi Malaysia, K.Lumpur, Malaysia. Kemm2009@live.com  Department of Science in Engineering, Kuliyyah of Engineering, International Islamic University of Malaysia, Selangor, Malaysia. syafrinaabdulhalim@iiu.edu.my</p> <p><b>Abstract</b> Accurate information on agricultural production pattern is critical for foresighted and informed planning. Mathematical models have been successfully used to analyse and forecast a variety of agricultural data. In this study, time series models are employed for analysing and predicting the production and total planted area of oil palm, a significant agricultural crop export of Malaysia. Forecasting models, namely Linear Trend Model, Double Exponential Smoothing and Auto Regressive Integrated Moving Average (ARIMA) models are individually fitted to the 1974-2016 data to determine suitable models for forecasting purposes. Performances of the models are evaluated and compared using mean absolute percentage error (MAPE) and mean absolute deviation (MAD). The overall results demonstrated that ARIMA models are the best goodness-of-fit to represent production and total planted area, indicating the presence of significant autocorrelation for both data set. In particular, ARIMA (2,2,3) is the best model to represent total planted area. Forecasted values of ten years show total planted land area will be gradually increasing, with an anticipated increase of 0.14% to 1.98% per annum. Meanwhile, ARIMA (0,1,1) has the lowest MAPE and MAD value, suggesting that the model is most suitable to represent oil palm production. The forecasted values show a consistent increase of about 0.12% per annum for the next ten years. Predicted results in this study could be used by relevant parties, such as policy makers to foresee ahead of time the future requirement of import/export of palm production in Malaysia for a better strategic planning. This would indirectly contribute towards strengthening the position of oil palm industry in Malaysia and the world.</p> <p><b>Keywords:</b> Oil Palm, Yield, Planted Area, Time Series, ARIMA</p>
143	<p><b>An Improved Version of LEACH Protocol based on ELECTRE I Method for Large Scale Wireless Sensor Networks</b></p> <p>Layla AZIZ<sup>1</sup>, Said RAGHAY<sup>1</sup>, Hanane AZNAOUI<sup>1</sup>  <sup>1</sup>:Laboratory LAMAI Cadi Ayyad University Marrakech, Morocco (Layla.az1, s.rghay, h.aznaoui@gmail.com  Abdellah JAMALI<sup>2</sup>  <sup>2</sup>:Laboratory RI2M Hassan 1 st University Berchid, Morocco j.abdullah@gmail.com</p> <p><b>Abstract</b>—The entire world, the emerging technologies attract the research community; by the way, Wireless Sensor Networks (WSNs) considered one of them. In different applications: such as transportation, automation home, military field, monitoring, health care and agriculture, WSNs fully used and exploited. Sensor nodes have a limited energy which is among the constraints in WSN, it is the major issue as it affects stability and the lifetime of the network. The objective of this work is to reduce the energy consumed in the network and prolong the network lifetime. The multi-criteria analysis method (ELECTRE I) was been exploited for improving LEACH (Low Energy Adaptive Hierarchy) protocol. The novel idea aims at reducing network energy consumption and extending its lifetime. The new approach</p>

	<p>based on ELECTRE I method controls the distance separating the Clusters from Base Station, using the multihop communication between Cluster Heads. It integrates this method, for selecting the next hop (Cluster Head) considering the distance metric and the energy of Cluster Heads at each hop. Simulation results confirmed that the new improved protocol reduces significantly nodes energy, which improves the network lifetime. The new approach was been evaluated using different scenarios, it was concluded that the new protocol enhances LEACH protocol' performances.</p> <p><b>Keywords</b>—WSN; energy efficiency; style; styling; insert (key words)</p>
144	<p><b>Efficient Weighted GAF routing protocol using data aggregation in WSN</b></p> <p>Hanane AZNAOUI /Said RAGHAY /Layla AZIZ /Anouar BENLOGHFYRY LAMAI Laboratory Faculty of sciences and technology, Cadi Ayyad University, Marrakech, Morocco h.aznaoui@gmail.com, s.raghay@gmail.com, laylaa.az@gmail.com, anwarbenloghfry@gmail.com</p> <p>Claude DUVALLET LITIS Laboratory, Le Havre University, France claude.duvallet@gmail.com</p> <p><b>Abstract</b>—Technology becomes very used and very important in our daily life, Wireless Sensor Network WSN is one of those technologies that affect all fields. A great number of nodes is dispersed in an area of interest for collecting specific events. This technology makes life easier and it has responded to many critical needs. However, it still limited due to the sensor nodes energy. So that a lot of researchers were focused work on how to use the energy of these sensors as efficiently as possible to prolong the network lifetime. We present in this paper a new improved version of the basic GAF, using a weighted sum approach to select the predefined active node for each grid, focusing on choosing the shortest distance for routing data and extending the network lifetime. Moreover, our protocol integrated the aggregation concept by clustering to the predefined grids. Detailed study results prove that the proposed enhanced scheme is a new efficient method where the sensor nodes can communicate without spent of high power.</p> <p><b>Keywords</b>—Location-based, GAF, Weighted Sum, clustering Algorithm, Aggregation</p>
145	<p><b>Improved Energy-Efficient Algorithm in Wireless communication systems using PSO Method</b></p> <p>Samira Achki <sup>1</sup> and Fatima Gharnati <sup>2</sup> <sup>1,2</sup>Computer Science Science Department Faculty of Science Semlalia, Cadi Ayyad University, Marrakech, Mocco <sup>1</sup>S.ichki@gmail.com <sup>2</sup>F.gharnati@uca.ac.ma</p> <p>Abdellah Ait Ouahman Physics Departement, Faculty of Science Semlalia, Cadi Ayyad University, Marrakech, Morocco a.aouhman@uca.ma</p> <p><b>Abstract</b>— Wireless cellular communications have seen an increased development in last years. With the appearance of the smartphone, the desire for higher data rates has grown rapidly, for that Energy efficient EE of wireless systems, communication is an important goal among designed wireless cellular networks, which received more attention. Recently, researchers provide a renewed focus on energy-efficiency in wireless networks that comes from the different perspectives of reducing. In this paper, we are interested in reducing the energy consumption using a new algorithm, which focuses on several parameters such as mobility, distance, location and the base station selection. Therefore, our objective is to locate each user after detection in the BS area, taking into account its speed using the particle optimization algorithm (PSO) for minimizing the energy consumed by each user. The position estimation at several moments in the cell allows an important maximization of the energy efficiency that was proven by the simulation results.</p> <p><b>Keywords</b>—Energy Efficient; algorithm PSO; wireless cellular network; base station</p>
146	<p><b>FPGA-based On-line Fault Diagnostic of Induction Motors using Electrical Signature Analysis</b></p> <p>Dr. Tayab Din Memon **Department of Electronic Engineering, Mehran University of Engineering &amp; Technology Jamshoro, Sindh, Pakistan Tayabuddin.memon@faculty.muett.edu.pk Erum Karim *Post Graduate Student, Institute of Information &amp; Communication Technologies (IICT), Mehran University of Engineering &amp; Technology Jamshoro, Sindh, Pakistan erum_es73@yahoo.com Dr. Imtiaz Hussain Kalwar ***Department of Electronic Engineering, Mehran University of Engineering &amp; Technology Jamshoro, Sindh, Pakistan imtiaz.hussain@faculty.muett.edu.pk</p>

	<p><b>Abstract</b>—Preventive maintenance is one of the main concerns in modern industry, in which early failure detection increases the lifecycle of machines. In this paper, Electrical signature analysis is employed to indicate the development or existence of faults within the proposed system and this is achieved by embedding a real-time frequency analysis of the motor current within the FPGA. The fault is detected through Fast Fourier Transform (FFT) algorithm. Experimental results are provided to validate the proposed control and fault diagnosis. The designed algorithm was synthesized in Xilinx ISE 14.2 software with small commercial FPGA device i.e. SPARTAN-3E</p> <p><b>Keywords</b>— Bearing, Fault diagnosis, FFT, Field programmable gate array (FPGA), Induction motor.</p>
147	<p align="center"><b>2D DOA Estimation Algorithm for Massive MIMO using Propagator Method</b></p> <p align="center">Basit Iqbal<sup>1</sup>, *Rahim Umar<sup>2</sup>  College of Electronic and Information Engineering  Nanjing University of Aeronautics and Astronautics, Nanjing 211106, China  <sup>1</sup> basitiqbal01@hotmail.com, <sup>2</sup> rahim_nuaa@hotmail.com</p> <p><b>Abstract</b> In this paper, a 2D propagator method (PM) algorithm for DOA estimation has been proposed and its performance is analyzed for the large number of antennas which constitutes massive (MIMO) antennas. The eigenvalue decomposition (EVD) of the signal's covariance matrix is an additional requirement in the previous DOA estimation algorithms which increases its computational complexity. But in the proposed algorithm it contains very low amount of computational complexity because there is no need of EVD for its autocorrelation matrix. The performance of this 2D PM algorithm is evaluated on the basis of RMSE criteria and the Monte Carlo simulated result which indicates that the proposed algorithm has much lower complexity than the ESPRIT and MUSIC algorithms as well as its performance is equivalent with the ESPRIT algorithm at the higher values of SNR.</p> <p><b>Keywords:</b> Direction of Arrival (DOA), Massive MIMO, Propagator Method (PM), Eigenvalue decomposition (EVD), Estimation of Signal Parameters via Rotational Invariance Techniques algorithm (ESPRIT). Multiple Signal Classification (MUSIC).</p>
148	<p align="center"><b>Economic Analysis for HVDC Transmission System in Pakistan</b></p> <p align="center">Ali Raza<sup>1,2</sup>, Armughan Shakeel<sup>1</sup>, Hafiz Tahzeeb ul Hassan<sup>1</sup>, Mohsin Jamil<sup>1</sup>, Syed Omer Gillani<sup>1</sup>  <sup>1</sup>National University of Science and Technology, Pakistan  <sup>2</sup> The University of Lahore, Pakistan  aliraza4446@gmail.com</p> <p><b>Abstract</b> Electricity is being generated from mega sized power plants based on conventional and non-conventional sources of energy, located in remote areas. Two possible choices are high voltage dc (HVDC) and high voltage ac (HVAC) to transmit bulk power from the remote generation sites to the load centers. This paper aims to present techno-economic comparison of both transmission systems for 4000MW power plants installed 878km far from load centers. Discounted cash flow (DCF) technique is used for economic analysis. A soft tool is devised in Microsoft Excel to study the quick insight in the variation of input parameters. <b>Keywords:</b> Discounted cash flow, economic analysis, VSC-HVDC, HVAC, transmission system.</p>
150	<p align="center"><b>A novel algorithm for determining the Norton's equivalent model of Power System for stability analysis</b></p> <p align="center">Sunny Katyara, Mehran University of Engineering and Technology Jamshoro, Pakistan, 11elattitude@gmail.com</p> <p><b>Abstract:</b> Load flow studies are important while designing and commissioning any power system. Since the power system is a complex network of different components. In order to ensure simplicity during calculations, many approximations have been proposed for finding the system's parameters i.e. Voltage, active and reactive powers and load angle, more efficiently and accurately. This research presents an algorithm for finding the Norton's equivalent model of power system, considering from receiving end. Norton's equivalency reduces the complexity of network, resulting in single current sources and parallel equivalent impedance of entire power system. Norton's model of power system can be determined either from its configuration diagram or through algorithm using system's voltage and current profiles. The algorithm involves the determination of derivative of apparent power against the current (dS/dIL) of system. This work also verifies the accuracy of proposed algorithm according to the relative variations in the phase angle of system's impedance. This research also considers the varying states of power system due to switching and other disconnections, therefore the Norton's model needs to be updated according. The efficacy of proposed algorithm is assured through MATLAB Simulink.</p>

151	<p><b>Keywords:</b> Load Flow, Norton's model, stability margin, Power System, dS/dIL algorithm.</p> <p style="text-align: center;"><b>Rapid Detection of Drugs Abuse by Adapting Surface Plasmonic Micro Ring Resonator</b></p> <p style="text-align: center;"><b>A Raganna<sup>1</sup>, Dr. Bharathi S H<sup>2</sup>, Sandip Kumar Roy<sup>3</sup>, Dr. Preeta Sharan<sup>4</sup></b></p> <p style="text-align: center;"><sup>1,2</sup>School of ECE, REVA University, Yelahanka, Bangalore, 560064, India  <sup>3</sup>Department of ECE, AMET University, Chennai, Tamil Nadu 603112, India;  <sup>4</sup>Department of ECE, Bangalore, Karnataka, 560068, India;  <a href="mailto:raganna@revainstitution.org">raganna@revainstitution.org</a>, <a href="mailto:bharathish@reva.edu.in">bharathish@reva.edu.in</a>,  <a href="mailto:sandipr@hotmail.com">sandipr@hotmail.com</a>, <a href="mailto:sharanpreeta@gmail.com">sharanpreeta@gmail.com</a></p> <p><b>Abstract</b> Recent developments in the compact low cost optical sensors have led to a new generation of technology adaptation for low cost instruments, called lab-on-chip which are accessible for use in diverse field of science. While there are research being carried out using different field of optical sensing, current work involve Surface Plasmon Resonance (SPR). SPR is a quantum optical-electrical phenomenon that occurs as a result of the interaction of light (photons) with a metal surface (typically gold or silver). SPR based instruments for qualitative analysis has been in use. Using physical optical device which are very bulky and require skill to achieve precision in their usefulness for quantitative analysis. SPR is labelfree technique hence less cumbersome and not so effort intensive compared to fluorescencebased technique. Our work is aimed at miniaturization of the bulky instrument to a nano scale level so that the same can be integrated in an integrated optical chip. As a result the device could be used extensively by patrolling police and other law enforcement agencies. We described the design and development of an optical sensor for the rapid detection of drugs abuse using the sample containing cocaine and heroin mixed in alcohol. Each constituent of the sample has unique Refractive Index (RI) and the method involves use of this unique RI as signature of the constituents of the sample. Matching of signature of cocaine and heroin in the sample confirm the presence of the drug in the sample. The final method was simulated using the proposed design parameters and sample solution of cocaine and heroin mixed in alcohol. The accuracy and reliability of the method were demonstrated using the MEEP simulation tools. The result obtained shows sensitivity of 3000 nm /RIU and a Q factor of 2456. The result is much higher than previously published result of 250 nm/RIU for MachZehnder type optical sensor implementation.</p> <p><b>Keywords:</b> SPR, Biosensor, FDTD, Lab-On-Chip, Refractive Index, Drug abuse</p>
152	<p style="text-align: center;"><b>AUTOMATIC AMBULANCE DISPATCH SYSTEM VIA ONECLICK SMARTPHONE APPLICATION</b></p> <p style="text-align: center;">Vijdan Khaliq*,Shafaque Shaikh**, Murlee Dass**, Syed Muhammad Shehram Shah*, Munazza Zaib***  *Department of Software Engineering, Mehran University of Engineering &amp; Technology, Jamshoro  **Department of Computer Science, SZABIST. Hyderabad  ***Department of Software Engineering, Mehran University of Engineering &amp; Technology, SZAB, Campus  Khairpur Mirs  vijdan.khaliq@faculty.muet.edu.pk, shafaqueshaiikh94@gmail.com, dass.murlee@gmail.com,  shehram.shah@faculty.muet.edu.pk, munazza-zaib@muetkhp.edu.pk</p> <p><b>Abstract</b> Emergencies such as accidents require immediate medical attention where patients need to be transported from the place of incident to hospital. In such situations, emergency systems are crucial in saving precious lives. The importance of taking a patient to hospital can be judged by the fact that if the arrival of an ambulance is delayed due to any problem, it can worsen the patient medical state and even cause death. The delays can occur due to time consumed for dialing emergency numbers and carrying out conversation for guiding the address to the place of incident to the ambulance dispatch service provider representative. The immense need of automation of ambulance dispatch system is necessary for solving this problem. This research work provides a comprehensive system that tackles this problem of manual ambulance dispatching by replacing it with Automatic Ambulance Dispatch System AADS. AADS comprises of android based application where the user (victim or the caretaker of the victim) have to press a simple "help" button on the AADS android application to signal and buzz any ambulance near the place of incident along with the victim's geographical location just on one click. The objective of this research is to minimize the time consumed for the arrival of ambulance through automation.</p> <p><b>Keywords:</b> Ambulance Dispatch System, Automatic Emergency Alert System, Smart phone application</p>

153	<p style="text-align: center;"><b>Scalability Evaluation of VOIP over Various MPLS Tunneling under OPNET Modeler</b></p> <p style="text-align: center;">Faycal Bensalah<sup>1</sup> , Najib EL Kamoun<sup>1</sup> , Ayoub BAHNASSE<sup>2</sup>  <sup>1</sup>Lab STIC, Faculty of Sciences El Jadida, University Chouaib Doukkali  <sup>1</sup>Lab LTI, Faculty of Sciences BEN M'SIK, University Hassan II of Casablanca f.bensalah@ucd.ac.ma ,  elkamoun.n@ucd.ac.ma , a.bahnasse@gmail.com</p> <p><b>Abstract</b> This paper studies and evaluate Scalability of Voice Over IP (VOIP) on various MPLS Tunneling technologies. Several works have been carried out to evaluate the performances of VOIP in different IP and MPLS architectures. According to our research, no scientific work has been done analyzing scalability by increasing the load of VOIP packets in different MPLS tunneling technologies. This was a motivation for us to propose a scalability study of the VOIP technology in the various scenarios (IP, MPLS, MPLS VPN and MPLS VPN protected by IPsec). The study was conducted on 64 different scenarios by changing MPLS tunneling technology and rising the packet load to the order of <math>2^n</math> ranging from 64 to 475000. The obtained results showed that the IP network is affected by a high latency and a bad MOS score. While MPLS remains scalable even in high load scenario (475000 bytes). IPsec on MPLS VPN isn't a good choice to add additional security level, from results it's shown clearly that from scenario of 46875 bytes on load, VOIP become unusable. This study carried out under OPNET Modeler 14.5, the evaluation criteria are jitter, latency, loss rate and MOS score.  <b>Keywords:</b> MPLS, MPLS VPN, VOIP, Scalability VOIP</p>
154	<p style="text-align: center;"><b>DESIGN AND IMPLEMENTAION OF SCAN FLIPFLOP FOR PROCESSOR USING QCA TECHNOLOGY</b></p> <p style="text-align: center;"><sup>1</sup>Shanthala.G.M, <sup>2</sup>Riazini, <sup>3</sup>Dr. Karthik.P  <sup>1</sup>Dept. Of ECE, K.S.School of Engineering &amp; Management, Bangalore  <sup>2</sup>Dept. Of ECE, The Oxford College of Engineering, Bangalore  <sup>3</sup>Dept. Of ECE, K.S.S.E.M, Bangalore</p> <p><b>ABSTRACT</b> The present day technology is more improved. Many devices like processors ,digital circuits, controllers etc can be designed with good performance like high speed operation, less power consumes and reduction in sizes . In this paper a scan flipflop is designed using 2:1 Mux and D flipflop. A scan flipflop is being used in processors for built in self test. They can scan the internal chip and detect their fault before fabrication. So this helps to reduce time and cost. At the time of testing after fabrication if any fault is detected , it leads to waste of money and effort of our work. Quantum Cellular Automata is a encouraging nanotechnology that has accepted as one of the top six incipient technology in imminent computers. We have urbanized a new methodology in QCA design of 2:1 MUX, D flip-flop and a Scan flip-flop using efficient MUX and D flip-flop. These circuits designed by QCA , evidenced to have better area proficiency and less input to output delay compared to CMOS design. QCA Designer simulator tool is used to test the proposed design.  General Terms QCA, Multiplexer</p> <p><b>Keywords</b> Majority voter Circuit, majority gate, QCA Designer, QCA Cell, QCA 4:1 MUX.</p>
155	<p style="text-align: center;"><b>Power Quality Analysis of Phase Controlled Bidirectional and Unidirectional AC Voltage Controllers and Their Impacts on Power Systems</b></p> <p style="text-align: center;">Jahangeer Soomro*, Muhammad Usman Tahir*, Erum A Qasmi*, Faheem A. Chachar*, Sunny Katyara*  *Deapartment of Electrical Engineering, Sukkur IBA, Airport Road, 65200, Sindh, Pakistan jahangir.soomro@iba-suk.edu.pk</p> <p><b>Abstract</b> This paper introduces the power quality analysis of phase controlled unidirectional and bidirectional ac voltages controllers. An AC voltage regulator coupled between the power supply and the load is a device having major components of two thyristors which are connected in inverse parallel manner and by varying the firing angle of thyristors power flow is controlled. For each configuration, the experimental setup is implemented and simulation is done using MATLAB/SIMULINK software. The simulated and experimental waveforms of current and voltage are obtained by taking different firing angles with both resistive and inductive loads and they are correlated which demonstrate the effectiveness of model and its configurations. Also, effect of increasing the firing angle on input power factor is noted in case of resistive and inductive loads. The switching operations of power electronic converters contain nonlinearities which generate harmonics which not only interfere with the efficiency of converters but also quality of input power network is greatly affected. The power quality factor is observed by Fluke</p>

	<p>Power Quality Analyzer that can troubleshoot the cost of energy waste due to poor quality. In this research, the performance evaluation of controller with industrial inductive loads under different delaying angle is investigated and detailed comparative analysis is done by experimental readings and simulation results. Total Harmonic Distortion (THD) analysis for different waveforms of voltage and current, its calculation and comparison for change in loads have been presented in this paper.</p> <p><b>Keywords:</b> AC Voltage Controllers, Power Quality Analyzer, Total Harmonic Distortion</p>
158	<p style="text-align: center;"><b>Design and Analysis of High Sensitive PhC based Sensor for Methane Gas Detection</b></p> <p style="text-align: center;">Harshada J Patil<sup>1</sup>, Indumathi T S<sup>2</sup> Preeta Sharan<sup>3</sup>  <sup>1</sup>Vemana Institute of Technology, Bangalore  <sup>2</sup>VTU PG Center, Muddenhalli, Bangalore  <sup>3</sup>The Oxford College of Engineering, Bangalore</p> <p><b>Abstract</b> Inhaling toxic gases can lead to numerous respiratory problems in human. Since methane displaces oxygen as the percentage of oxygen reduces below 10 will be major drawback for human's lives. So there is need of sensor which will be able to detect poisonous methane gas. In this manuscript we provide a prototype of 2D Photonic crystal (PhC) oriented sensor for the methane gas recognition in real time. The scope of this sensor is to monitor the environment for the concentration occurrence of methane. The respective existence of the same described by plotting the relative wavelength shifts. The prototype has been tested for the air and air- methane mixture in the ratio of 10:1 and relative wavelength shifts are recorded. The obtained curves had distinct shifts. The analysis of transmission spectrum is done by using a simulation tool called Rsoft. The wavelength and amplitude observed for air without methane is 1835.1 nm and 0.6740 whereas the wavelength and observed for air with methane is observed as 1835.2 nm and 0.6691 respectively. Thus keeping these values as signatures one can easily detect methane gas in coal mines. Quality factor (Q-factor) for the presented prototype is calculated of value 134837 with exhibiting the sensitivity of the order of 2888nm/RIU.</p> <p><b>Keywords:</b> PhC (Photonic crystal), Q factor, Toxic gas, R soft.</p>
159	<p style="text-align: center;"><b>CQI Classification Based Method to Improve Throughput in Wireless LTE Systems</b></p> <p style="text-align: center;">Suganya.S Ph.D.Scholar VTU- Belagavi India suganya.senthil2005@gmail.com  Dr.Ramesh Ph.D. Guide VTU, Belagavi India</p> <p><b>Abstract</b> Advanced wireless networks such as 4G LTE have effective ways of reporting channel quality through CQI values of the time and frequency varying channel whether it is fast fading or slow fading. The main objective of using CQI values is to schedule the resource blocks and maintain proper SNR by adjusting signal power or modulation. In doing so, one must precisely be able to map CQI values to SNR values so that the objectives can be fulfilled properly where an imperfect mapping can hamper the performance of wireless system as packet scheduling can become difficult and unmanageable. In this work, a detailed study of variation of channel SNR is presented and a classification based method for scheduling packets is proposed for varying SNR. The proposed method is shown to improve performance at link level and packet level throughput. Our future work is to create a fine grain system considering various channel models and incorporate same in the proposed model.</p> <p><b>Keywords:</b> LTE, Imperfect CQI, packet scheduling, fair queuing, proportional fair, channel allocation, resource blocks</p>
166	<p style="text-align: center;"><b>Performance analysis of FFT based OFDM and DWT based OFDM for Underwater Acoustic Communication</b></p> <p style="text-align: center;">Naveen H<sup>1</sup>, Dr. Sreerama Reddy G M<sup>2</sup>  Research Scholar<sup>1</sup>, Visveswarayya Technological University, Belgaum, India  Professor and HOD<sup>2</sup>, C Byre Gowda Institute of Technology, Kolar, India</p> <p><b>Abstract</b> The underwater acoustic communication demands high data rate with low power. One of the very important techniques for the requirement is Orthogonal Frequency Division Multiplexing (OFDM). The OFDM systems implemented is a conventional OFDM which has Fast Fourier Transform (FFT) blocks in their receivers and Inverse FFT (IFFT) blocks in their transmitters. Now the research shows the use of Discrete Wavelet Transform (DWT) in place of FFT and Inverse DWT (IDWT) in place of IFFT renders the increased system performance. The major reasons</p>

	<p>for the performance degradation in the conventional FFT OFDM compared to The DWT OFDM are Carrier frequency offset (CFO), Multipath effect and Doppler Effect which need to be tested. The paper discusses about the BER (Bit Error Rate) performance of the DWT OFDM in presence of Channel and without channel individually and the results are compared with that of the conventional OFDM. For this, The Channel estimation is carried over in both DWT OFDM and FFT OFDM using same procedure and their BER performance are simulated using MATLAB and Simulink. In both, for the given channel condition the DWT OFDM fairly outperforms the FFT OFDM.</p> <p><b>Keywords:</b> Underwater Acoustic Communication, Discrete wavelet Transform (DWT), Fast Fourier Transform (FFT), Multipath Effect, Carrier Frequency offset (CFO)</p>
168	<p style="text-align: center;"><b>Performance Analysis of Modified Architecture of DA-DWT and Lifting based Scheme DWT for Image Compression.</b></p> <p style="text-align: center;">Chetan H<sup>1</sup>, Dr. Indumathi G<sup>2</sup>  <sup>1</sup>Visveswarayya Technological University, Belgaum, India  <sup>2</sup>Cambridge Institute of Technology, Bengaluru</p> <p><b>Abstract</b> The purpose of this study is performance analysis of modified DA DWT1- architecture and Advance Lifting scheme architecture for Image Compression techniques. The information of the form image or video are transmitted as an array of data in terms of signal. Due to limited channel bandwidth, the data is compressed which in return reduces the quality of the image. An algorithmic concept of encoding information is given by wavelets in a manner that is layered according to level of detail. The analysis of this implementation includes speed optimization, accuracy, and power reduction. This study uses modified DA and optimized lifting based scheme, and architectures are modeled using digital systems, which is used for studying different performance on compressed image data. The study was done using signal simulation tool and VLSI cad tools. By implementing the proposed algorithm and modelling the architecture for image compression using DWT, we analyzed the timing wrt clock speed, area consumed and power consumed by both the architectures. Our study shows higher speed can be achieved by using DWT and better encoders for image compression and system can be modeled using digital systems, the study can be optimized to any further extent.</p> <p><b>Keywords:</b> IDWT, DWT, Lifting algorithm, Low power, compression, DA- Distributive Arithmetic</p>
169	<p style="text-align: center;"><b>Dye sensitized solar power generating window: towards environmentally sustainable energy efficiency in ICT</b></p> <p style="text-align: center;">Mehboob Khatani1,2, Norani Muti Mohamed2 , Nor Hisham Hamid2 , Bhawani Shankar Chowdhary1 , Z. A. Umrani1 ,  Adel Eskandar2  mkhatani@hotmail.com</p> <p style="text-align: center;">1Mehran University of Engg: &amp; Technology, Pakistan, 2University Technology PETRONAS, Malaysia</p> <p><b>Abstract</b> Reduction in Green House Gas emissions generated by the information communication technology (ICT) sector is necessary for the sustainability of its development. There is a need for ICT to first standardize, how energy consumption and emissions information can be traced across different processes beyond the ICT sector's own products and services. The electricity consumption which dominates the direct carbon footprint of the ICT sector can be reduced by using renewable energy sources. Solar cells that operate efficiently under diffuse lighting are one of great practical interest as they can serve as electric power sources for portable electronics and devices for wireless sensor networks or Internet of Things. The dye sensitized solar cell (DSC) is a green and renewable energy device that works well in low light conditions. The transparent characteristic of DSCs makes it suitable for building integration photovoltaic (BIPV) application such as window system. In this study, we fabricated and assembled a transparent power generating window of active area 0.228 m<sup>2</sup> based on dye sensitized nanocrystalline TiO<sub>2</sub> solar module that generate ~1.4A current and 5.8V open circuit voltage at 60 mW/cm<sup>2</sup> and ~0.5 A short circuit current and 5.3 V at 33 mW/cm<sup>2</sup> that was installed in a building environment to power up the ICT products for its sustainable energy consumption.</p> <p><b>Keywords:</b> ICT, dye sensitized solar cells, sustainability, Building integrated photovoltaics</p>
171	<p style="text-align: center;"><b>Feasibility of LiFi in The Contemporary World – A Survey on the Dichotomy of its Production and Distribution Mechanisms</b></p> <p style="text-align: center;">Ahsan Memon, Department of Computing, SZABIST Hyderabad  ahsan.memon@hyd.szabist.edu.pk</p>

	<p>Faisal Karim Shaikh, Department of Telecommunication Engineering, MUET Jamshoro faisal.shaikh@faculty.muett.edu.pk</p> <p>Nafeesa Bohra, Department of Telecommunication Engineering, MUET Jamshoro nafeesa.zaki@faculty.muett.edu.pk</p> <p>Mamta Bachani, Department of Telecommunication Engineering, MUET Jamshoro mamtabachani70@gmail.com</p> <p><b>Abstract</b> LiFi is expected to garner a market share of US \$14.91 Billion by 2022. Our research is an endeavor to finding out whether the dichotomy of production and distribution of LiFi systems would bring positive change in the future of this nascent technology. To undertake it, we analyze the standardization efforts, the consumer market acceptance and the trends in the production of the components of LiFi. Partly, because the technology forwards the Green Communication Goal, and eradicates the Radio Frequency Bottleneck.</p> <p><b>Keywords:</b> LiFi, Visible Light Communication, Market Trends, LED Market, Consumer Market, Feasibility, Light Fidelity, Optical Wireless Communication</p>
173	<p><b>Enhancing the Security of Vehicle to Road Side Unit (RSU) Communication with Key Generation and Advanced Encryption Procedure in Vehicular AdHoc Network (VANET)</b></p> <p>Farheen Qazi<sup>1</sup>, Fozia Hanif Khan<sup>2*</sup>, Khurram Nawaz Kiani<sup>3</sup>, Sadiq Ali Khan<sup>4</sup></p> <p><sup>1</sup>Department of Computer Engineering, Sir Syed University of Engineering and Technology Karachi, Pakistan <sup>2</sup>Department of Mathematics, University of Karachi, Pakistan <sup>3</sup>Trafix LLC Karachi, Pakistan <sup>4</sup>Department of Computer Science, University of Karachi, Pakistan enr.fq@gmail.com, ms_khans2011@hotmail.com, kkiani@trafix.com, msakhan@uok.edu.pk</p> <p><b>Abstract</b> Traffic security using vehicle to road side unit communication has thrown many security challenges that should be overcome in order to achieve the security scenarios. VANET (Vehicular Ad-hoc Network) deals with the communication of vehicles as well as with the road side unit infrastructure for the multiple applications such as transit safety to derive, public security, roadside facility locator, toll collection, traffic control and efficiency of freeway system. This is a type of mobile ad-Hoc network that uses the roadside equipment. This manuscript is intended to provide a secure protocol for the vehicular Ad-Hoc network for the roadside communication. The proposed study will not only generate the key as an orthogonal matrix with the very secure procedure, but also provided the new way of encryption and decryption procedure to enhance the communication between vehicle and road side unit. Instead of sending the key the receiver will generate the key by making the linear equation with the help of car registration number. The provided scheme will be beneficial for the real identity of the vehicles where security is major issue.</p> <p><b>Keywords:</b> encryption, decryption, vehicular ad-hoc network (VANET), road side unit (RSU), communication</p>
174	<p><b>Security Enhancing by using ASCII values and Substitution Technique for Symmetric Key Cryptography</b></p> <p>Dur-e-Shawar Agha<sup>1*</sup>, Dr. Sadiq Ali Khan<sup>2</sup>, Huzefa Fakhruddin<sup>3</sup>, Huma Hasan Rizvi<sup>4</sup></p> <p><sup>1,4</sup>Department of Computer Engineering, Sir Syed University of Engineering and Technology Karachi <sup>2</sup>Department of Computer Science, University of Karachi, Pakistan <sup>3</sup>Trafix LLC Karachi enr.dureshawaragha@gmail.com, msakhan@uok.edu.pk, huzaiifa@trafixglobal.com, humahrizvi@yahoo.com</p> <p><b>Abstract</b> Exchanging the secret information between organizations or in a corporate sector is a today's world necessity. But the risk in such secret conversation has increased day by day. Hackers from all over the world trying to get the information of many places, due to this the transfer of knowledge is getting more complex in recent days. Encryption is the process in which scramble data has to be sent so that only authorized recipient can access it. Cryptographic system will be protected through the strong algorithm that can encrypt and decrypt the data in such a way that to make unreadable for external or unauthorized person. Different encryption algorithms are designed to secure the data by using different techniques and methodologies. This study is designing a symmetric key algorithm for both encryption and decryption procedure. Proposed algorithm applying ASCII codes together with the substitution method and the merging of XOR operation to enhance the process more secure. Experimental Results will show the efficiency of the proposed technique for encryption and decryption.</p> <p><b>Keywords:</b> ASCII values, ROT13, Encryption, Decryption, Cryptography, XOR operation, Plain Text, Cipher Text.</p>

176	<p style="text-align: center;"><b>Big Data Management in connected world of Internet of Things</b></p> <p style="text-align: center;">M.Sadiq Ali Khan University of Karachi msakhan@uok.edu.pk  Huma Jamsheed University of Karachi humajamsheed@yahoo.com  Sumreena Bano Sir Syed University of Engineering and Technology sum_bano@yahoo.com  Muhammad Navaid Anwar Sir Syed University of Engineering and Technology sunny.engr@hotmail.com</p> <p><b>Abstract:</b> The Internet of Things (IoT) and Big Data have made the leap to turn into a mainstream issue and maintains board level priorities. Both IoT and big data are continuously creating headlines all over, drawing a huge amount of research interest and highlighting unique challenges. This growing recognition is due the intersection of both technologies with tremendous scope for business analytics and the prospective that still remains unexploited. Every day, industrial machine, health monitoring systems, sensors, and devices etc. connect to the Internet and exchange information. The future IoT will be extremely populated by huge quantity of heterogeneous networked embedded devices, which will be producing deluge of data. As businesses gets on new IoT project and tries to extract valuable information from enormous data volumes, a novel data management approach is called for. Conventional database management techniques and analytics methods fail to provide precise facilities to handle diverse data constantly flooding from numerous numbers of sources which are untold. This paper inspects the complex and fast moving data of IoT, and the existing position of data management techniques and challenges in storing and analyzing it.</p> <p><b>Keywords:</b> Internet of Things, Data Analytics, Big Data Technology, Smart and Connected things.</p>
177	<p style="text-align: center;"><b>Reducing Network Computing By Adopting Intelligent Approach</b></p> <p style="text-align: center;">Waqar Azeem ; Muhammad Sadiq Ali Khan; Muhammad Naeem Khan  MPhil Student DCS; Department of Computer Science UoK; Urdu University  Waqarazeem_79@yahoo.com;msakhan@uok.edu.pk;naeemtc@yahoo.com</p> <p><b>Abstract</b> Large amount of calculations over a server typically needs maximum resources that a server can support, this becomes mandatory when organization needs efficient processing to avoid bottleneck to the server and network resources. The payroll processing is one of the best examples which needs large amount of calculations to prepare salaries of the employees. Payroll processing time is typically at the end of the payroll period, this payroll period can be monthly, semi-monthly and weekly or it may be defined according to organization's needs. A normal payroll process includes systematically as Payroll Run, Pre Payments, Payments (check writer, Magnetic tape, Cash, External/Manual Payments) costing and transfer to GL. There is a defined sequence of processing when it comes to Payroll Run; therefore if any correction or rollback is required than the rollback process will be in reverse order. As the organizations are growing in size, resulting in increase in assignments, the payroll processing is becoming difficult as it demands high resources and a server with best configuration. In this respect this research is conducted to reduce the server load by processing the overtime of the employees on a separate sever which will be responsible for maintaining the attendance and total working hours of individual employees. This database is integrated with the ERP server by defining data link between the two databases.</p> <p><b>Keywords:</b> ERP, SMEs, SOP, KPO's, Pay Value</p>
180	<p style="text-align: center;"><b>Parallel Computing Application in GPU Architectures; an Implication of Data-Parallel Problems</b></p> <p style="text-align: center;">Humera Bashir<sup>1</sup> , Dr. Sadiq Ali Khan<sup>2</sup> , Muhammad Azam<sup>3</sup>  <sup>1</sup>Lecturer, University of Karachi, humera.azam@uok.edu.pk  <sup>2</sup>University of Karachi, msakhan@uok.edu.pk</p> <p><b>Abstract</b> Parallel Computing has become very important as over last 40 years, it has proven its critical value in the discourse of computing. The emergence of concept of multi core computing demanded algorithms that could increase processing speed. This led the emergence of concept of parallel algorithms. Parallel algorithms are used to break bigger problems into smaller sub-problems. Such sub-problems can be run parallel and in segregation. At the end, result of all sub-problems can be synchronized in order to make the complete picture of the solution to the problem in hand. The purpose of this paper is to see how come use of GPU based parallel algorithms are advantageous over simple algorithms of CPU. Parallel computing has brought the world to use "super-computers" within desktop computers. The inception of parallel computing is paradigmatic shift in the discourse of computing. There are number of technical restrictions which may confound the utility of parallel computing. In this paper, theoretical and technical concepts i.e. PRAM, PHM and BSP are provided in order to understand the algorithmic requirements and processing of GPU.</p>

	<p><b>Keywords:</b> Parallel Computing, GPU, Parallel Algorithms.</p>
183	<p><b>Scientometric Mapping of Social Science Studies in East Asia and the Philippines</b></p> <p>Paula Antoinette G. Acuña, Alfonso Carlo J. Ellasos, Jethro A. Bautista, Madhavi Devaraj* School of Information Technology, Mapúa University, Manila, Philippines</p> <p><b>Abstract</b> This paper presents a scientometric analysis of research efforts done in the field of Social Sciences (SS) in the region of East Asia and the Philippines during the last 18 years for comparison. With the records indexed in Scopus, the researchers performed a computational analysis of textual data and bibliometric for publications originating in East Asia and the Philippines. The analysis performed measures and produces results in find out the total SS research output of the East Asian Region and the Philippines, global share and rank, impact and growth trends, collaboration levels within the East Asian Region and a text-based keyword research topic trend. The analytical results provide insightful mapping of SS research work in the East Asian Region as well as the Philippines. The results found find connections with other economic and demographic indicators in East Asian countries as well as the Philippines. The analytic results presently made inferences of this paper will be useful in gauging the performance of professionals within academic institutions within the East Asian region and the Philippines and may provide opportunities for research and improve collaboration within the said countries in the Social Science field of study.</p> <p><b>Keywords:</b> Scientometrics, Citation analysis, social science research, research impact, research collaboration, East Asia, Philippines</p>
185	<p><b>Power Efficient Telugu Unicode Reader Design on FPGA</b></p> <p>*Savita<sup>1</sup>, **Amanpreet Kaur<sup>2</sup>, Amanpreet Sandhu<sup>3</sup>, Isha Gupta<sup>4</sup>, Amandeep Bhullar<sup>5</sup> Sonam Dhingra<sup>6</sup> <sup>1, 2, 3, 4</sup>Department of Electronics and Communication Engineering <sup>5</sup>Department of Computer Science Engineering, Chitkara University Institute of Engineering &amp; Technology. Chitkara University Chandigarh, Punjab. <sup>6</sup>Kurukshetra University *savita@chitkara.edu.in, **amanpreet.kaur@chitkara.edu.in</p> <p><b>Abstract</b> An energy efficient Telugu Unicode Reader has been designed in the following research paper. Telugu Unicode reader design has range of characters from 0C00- 0C7F. It is most spoken script for Telugu people. This script is also used for writing Sanskrit texts. Telugu script shares many similarities with the Kannada script and is derived from old Kannada script. In the following paper Telugu Unicode reader code has been implemented on Xilinx ISE design suit 14.2. and is synthesized on Virtex-6 and Artix-7 FPGA technology by applying frequency scaling technique. This Unicode reader design is synthesized on different frequencies of 1THz, 100GHz, 10GHz, 10MHz, 1GHz, 100MHz, 10MHz, 1MHz. This Telugu Unicode reader can detect vowel, consonants, digit etc of Telugu language.</p> <p><b>Keywords:</b> Telugu Unicode Reader, Frequency Scaling, Energy efficient hardware design, FPGA technology, Xilinx.</p>
186	<p><b>Autonomous Hexapod Spider Robot</b></p> <p><sup>1</sup>Puja Rai, <sup>2</sup>Bhavana Chauhan, <sup>3</sup>Anoop Kumar, <sup>4</sup>Parth Pandey, <sup>5</sup>Vaibhav Karnail, <sup>6</sup>Gaurav Verma Department of Electronics &amp; Communication Engineering, Jaypee Institute of Information Technology, A-10, Sector-62, Noida (U.P.), India. Email: <sup>1</sup>pujarai2013@gmail.com, <sup>2</sup>bhavanachauhan.38@gmail.com, <sup>3</sup>anoopkanyan@gmail.com, <sup>4</sup>parthpandey5494@gmail.com, <sup>5</sup>vaibhavkarnail1997@gmail.com, <sup>6</sup>gaurav.iitkg@gmail.com</p> <p><b>Abstract:</b> Robotics world is changing very rapidly in today's scenario. One of its unique applications is hexapod robots (walking leg robots). These types of robots can walk on uneven surfaces and can be used for spying purpose in various forms of industries. This paper represents the autonomous feature of a hexapod robot. It is controlled through Arduino-unoR3 based SSC servo control module. Servos of torque 2.5kg-cm are used in robot to show different working movements including back and forth movement and sitting posture. Another trending technology i.e. Bluetooth is used to control autonomous feature using Hc-05 module. Software application is used to control the angle of rotation, position and movement of servos. The result shows successful implementation of various movements and autonomous feature.</p> <p><b>Keywords:</b> Arduino unoR3, (SSC module), Servo (MG -90), Spider kit.</p>

196	<p style="text-align: center;"><b>Low Resolution Brain Source Localization Using EEG Signals</b></p> <p style="text-align: center;">Munsif Ali Jatoi<sup>1</sup>, Nidal Kamel<sup>2</sup>, Syed Hyder Abbas Musavi<sup>1</sup>, Muhammad Suhail Shaikh<sup>1</sup>, Chandar Kumar<sup>1</sup>  <sup>1</sup> Faculty of Engineering, Science and Technology, Indus University, Karachi, Sindh, Pakistan  <sup>2</sup> Department of Electrical and Electronic Engineering, Universiti Teknologi PETRONAS, Perak, Malaysia  munsif.jatoui@gmail.com</p> <p><b>Abstract</b>—Each mental or physical task gives rise to generate electromagnetic activity in the brain. These electrical signals are analysed by using various neuroimaging techniques which include electroencephalography (EEG), magnetoencephalography (MEG), positron emission tomography (PET) and functional magnetic resonance imaging (fMRI). However, when the brain sources which are responsible for such electrical activity are localized, then it's called brain source localization or source estimation. This information is utilized to comprehend brain's physiological, pathological, mental, functional abnormalities. Also, the information is used to diagnose cognitive behaviour of the brain. Various methodologies based upon EEG signals are adopted to localize the active sources such as minimum norm estimation (MNE), low resolution brain electromagnetic tomography (LORETA), standardized LORETA, exact LORETA, multiple signal classification (MUSIC), focal underdetermined system solution (FOCUSS) etc. This research discusses localizing ability of low resolution techniques (LORETA and sLORETA) for various head models (finite difference model and concentric model). The simulations are carried out by using NETSTATION software. The results are compared in terms of activations for same EEG data with the same stimulus provided to subjects. However, it is observed that the combination of finite difference method (FDM) with sLORETA produced best results in terms of source intensity level (nA). Hence, the combination of inverse method sLORETA with FDM produces better source localization.</p> <p><b>Index Terms</b>— Electroencephalography, Inverse Problem, Finite Difference Method, LORETA, Standardized LORETA</p>
197	<p style="text-align: center;"><b>Viable Solution for Next Generation Passive Optical Network 2 (NG-PON 2) supporting 40Gbps Downstream DQPSK and 10Gbps Upstream OOK</b></p> <p style="text-align: center;"><sup>1</sup>Areez Khalil Memon, <sup>2</sup>Ahmed Muddassir Khan, <sup>3</sup>Syed Hyder Abbas Musavi, <sup>4</sup>Anwar Ali Gaho  <sup>1234</sup> FEST, Indus University, Karachi, Pakistan  areez.memon@indus.edu.pk, ahmed.muddassir@indus.edu.pk, dean@indus.edu.pk, anwar.a.gaho@gmail.com</p> <p><b>Abstract:</b> This paper demonstrates a simple and viable solution for high data rates challenge in access network by supporting 40Gbps in the downstream with Differential Quadrature Phase Shift Keying (DQPSK) and 10Gbps in the upstream with ON-OFF Keying (OOK) modulated signal. Channel dispersion is compensated by using fiber Bragg grating (FBG) dispersion compensation. The proposed system is analyzed through optisys software with standard values and recommendations of Next Generation Passive Optical Network 2 (NG-PON 2) for high data rate. Transmission performance of the proposed system has been investigated and simulation results shows the BER and power of downstream and upstream are quite better as the power at standard receiver sensitivity BER i.e. <math>1 \times 10^{-9}</math> is -32.5dB at downstream and -42.5dB at upstream.</p> <p><b>Keywords:</b> Differential Quadrature Phase Shift Keying (DQPSK), ON-OFF Keying (OOK), fiber Bragg grating (FBG), Next Generation Passive Optical Network-2 (NGPON-2), Bit Error Rate (BER), High data rate</p>
198	<p style="text-align: center;"><b>Scientometric Survey of Human Heart Disease related Publications in ASEAN, the Philippines and Singapore</b></p> <p style="text-align: center;">Christian Derrick Q. Lapuz, Carl Adrian M. San Jose, Athos Jacob M. Marasigan, Madhavi Devaraj* School of Information Technology, Mapúa University, Manila, Philippines</p> <p><b>Abstract</b> This paper presents a scientometric survey of heart disease related publications in ASEAN countries from 2000-2017. Scopus database is used to complete the survey successfully. This survey includes the prominent findings such as research output of ASEAN countries, comparison of cited and uncitedSome of the prominent d publications, growth trend and impact of each country and finding out research trend analysis by key word search.</p> <p><b>Keywords:</b> Citation analysis, Health related research, Research Impact, ASEAN, Scientometrics, Mapping, Research Competitiveness, Philippines, Singapore</p>
204	<p style="text-align: center;"><b>Using Non-Linear Support Vector Machines for detection of Activities of daily living</b></p>

	<p>Muhammad Ahmer<sup>1</sup>, M. Z. Abbas Shah<sup>2</sup>, Syed M. Zafi S. Shah<sup>3</sup>, Syed. , Syed. M. Shehram Shah<sup>4</sup> Dr. Bhawani Shankar Chowdhry<sup>5</sup>, Aunsa Shah<sup>6</sup></p> <p>Institute of Information and Communication Technologies (IICT), Department of {, <sup>3</sup>Telecommunication Engineering, <sup>2,5,6</sup>Electronic Engineering,, <sup>3</sup>Software Engineering }, Mehran University of Engineering and Technology, Pakistan.</p> <p>lahmer.srk23@gmail.com, {<sup>2</sup>shehram.shah, <sup>3</sup>zafisherhan.shah, <sup>4</sup>zaigham.shah, <sup>5</sup>bhawani.chowdhry}@faculty.muet.edu.pk} , <sup>6</sup>aunsa_shah@yahoo.com</p> <p><b>Abstract</b> Activities of daily living (ADL) refers to different daily routine type activities which includes walking, running, jogging, standing, sitting etc. Recognition of ADLs has been of considerable interest to researchers for health assessment purposes. Furthermore, since more and more people choose to live alone in their house. ADL recognition serves as the first step towards developing a monitoring system for such people. This work proposes an algorithm that can be used to perform ADL detection using three types of data from inertial sensors (accelerometer, gyroscope and orientation) captured using a smart phone using non-linear Support Vector Machines. We have used a representative dataset named MobiACT and extracting sensor readings for a 10s window, Autoregression modeling has been used to model the sensor readings and we have detected six types of ADLs using a Support Vector Machine. We achieve an overall detection accuracy of 97.45%. The given method has been tested and proven to outperform other algorithms for the purpose of activity recognition.</p> <p><b>Keywords:</b> Activities of daily living, Inertial sensor, MobiAct, Autoregressive, Machine Learning</p>
205	<p style="text-align: center;"><b>S2N: Safe Satellite Navigator</b></p> <p style="text-align: center;">Shahzad Nizamani* Mohsin Memon* Muhammad Akram Sheikh** Areej Fatemah*</p> <p style="text-align: center;">*Department of Software Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan **Pakistan Scientific and Technological Information Center (PASTIC)</p> <p><b>Abstract</b> Satellite navigation (SatNav) systems have revolutionized the way we travel as no longer does one need to remember the routes or to ask for directions. Majority of such systems use A* algorithm to identify the shortest route. The issue with current systems is: “Is the shortest route the best route?”. As in case of Iraq, Syria, Yemen, Afghanistan, Columbia, Mexico, Somalia, Pakistan and numerous other countries choosing a route can simply be the difference between life and death itself. This paper proposes the Safe Satellite Navigator (S2N), which will identify the safest and the shortest route. The selection process would be based on data from online (news/social media/blog), traffic, and crime data sources. The paper identifies an extensive list of parameters which affect the route selection process. The paper also proposes mechanisms for extracting, storing and processing such information. The system architecture of the proposed S2N framework is also incorporated in the paper. The selection process is subdivided into three steps, step1 identifies the shortest route. The second step involves evaluating each street on the selected route for security concerns. The third step involves the final selection. If the selected route does not meet the minimum security requirements an alternative would be selected by repeating the first two steps.</p>
212	<p style="text-align: center;"><b>Variable structure-model reference adaptive control for stabilization the attitude of UAV</b></p> <p style="text-align: center;">Zain Anwar Ali<sup>1</sup>, †, Bishwajeet Kumar Panday<sup>2</sup> and <sup>1</sup>Fahad Farooq</p> <p><sup>1</sup>Electronic Engineering Department, Sir Syed University of Engineering &amp; Technology, Karachi, Sindh, Pakistan. <sup>2</sup>Gyancity Research Lab, India.</p> <p style="text-align: center;">* Correspondence: zainanwar86@hotmail.com; Tel.: +92-3343639570, bishwajeet@gyancity.com and fahadjee786@hotmail.com.</p> <p><b>Abstract:</b> In this article, Variable Structure – Model Reference Adaptive Control (VS-MRAC) algorithm with integrator in the feedback loop is proposed called as (VS-MRACI), for stabilization the attitude of the tri-rotor Unmanned Aerial Vehicle (UAV). The proposed controller uses control input as a reference, such that translation and rotational velocities which are used to derive the model of the UAV. The stability of the proposed scheme is presented using Lyapunov candidate function. The validity of the proposed algorithm for stabilizing the attitude of UAV is simulated on Simulink/Matlab. The effectiveness of the proposed algorithm is compared with MRAC. It shows that the proposed algorithm have fast error convergence, robustness and a zero steady state error in the presence of model uncertainties.</p> <p style="text-align: center;"><b>Keywords:</b> Variable structure, model reference adaptive control, the dual controller and UAV.</p>
224	<p style="text-align: center;"><b>Design &amp; Analysis of Noise-Resilient Mix Data Rate Passive Optical Network Supporting Simultaneous Transmission of Both NGPON Standards</b></p> <p style="text-align: center;"><sup>1</sup>Ahmed Muddassir Khan, <sup>2</sup>Syed Hyder Abbas Musavi, <sup>3</sup>Areez Khalil Memon, <sup>4</sup>Munsif Ali Jatoi, <sup>5</sup>Syed Shahzeb Sami, <sup>6</sup>Faizan-ur-Rehman</p>

	<p><sup>123456</sup> Faculty of Engineering, Science &amp; Technology (FEST), Indus University, Karachi, Pakistan  ahmed.muddassir@indus.edu.pk, dean@indus.edu.pk, areez.memon@indus.edu.pk, munsif.ali@indus.edu.pk,  shahzeb.sami@indus.edu.pk, faizan.rehman@indus.edu.pk</p> <p><b>Abstract:</b> In this paper, we have designed and investigated high data rate supported Wavelength Division Multiplexing Passive Optical Network (WDM-PON) architecture having 16 channels. In this proposed technique, Differential Quadrature Phase Shift Keying (DQPSK) modulated signal having 40 and 10 Gbps in downstream and Inverse Return-to-zero (IRZ) modulated upstream is used with 20, 10 and 2.5 Gbps data rate. Transmission performance of proposed system has been compared on the basis of Bit error rate (BER) analysis at 10 Km fiber length in both directions. Simulation results validate that proposed technique can simultaneously support high data rates for both next generation passive optical networks (NGPON) standards with good receiver sensitivity and noiseresilient transmission of all 16 high capacity WDM channels.</p> <p><b>Keywords:</b> Next Generation-Passive Optical Network (NGPON), Differential Quadrature Phase Shift Keying (DQPSK), Inverse Returnto-Zero (IRZ) and Bit error rate (BER)</p>
226	<p style="text-align: center;"><b>DTCWT-MBOFDM with Reconfigurable Down Converter for Smart Grid Communication</b></p> <p style="text-align: center;">Duney D Sam,  New Horizon College of Engineering, Bangalore, India. duneydsam@gmail.com  Dr. D. Jayadevappa  Dep of E &amp; I, JSSATE, Bangalore, India. devappa.22@gmail.com  Dr. Cyril Prasanna Raj P  MS Engineering College, Bangalore. India. cyrilyahoo@gmail.com</p> <p><b>Abstract:</b> Smart meters in smart grid provide services such as meter information for billing, health monitor, phasor measurement, weather sensing and load characterization with outage detection and restoration. Communication between the load and the base station over smart grid is undertaken or monitored by smart meter. OFDM based communication module is an integral part of smart meter. In this paper, Dual Tree Complex Wavelet Transform (DTCWT) based Multi Band Orthogonal Frequency Division Multiplexing (MBOFDM) is designed to demonstrate the advantages of dual tree wavelet over that of wavelets for orthogonal multiplexing in terms of BER. Software reference model based on DTCWT, DWT, FFT and NCO are developed for comparison. The proposed DTCWT-OFDM model achieves 17dB improvement at 10<sup>-4</sup> BER over that of other OFDM schemes. The time invariant property of dual tree wavelet also ensures improvement in BER performances. The reconfigurable down convert and up converter is reconfigurable and hence is designed for MBOFDM.</p> <p><b>Keywords:</b> DTCWT, OFDM, power line communication, digital down converter</p>
228	<p style="text-align: center;"><b>Arthritis Identification from multiple Regions by XRay Image Processing</b></p> <p style="text-align: center;">Hunza Hayat <sup>1</sup>, Syed Omer Gilani<sup>1</sup>, Mohsin Jamil<sup>2</sup>  <sup>1</sup> Department of Biomedical Engineering and Sciences  <sup>2</sup> Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME)  National University of Science and Technology (NUST), Islamabad Pakistan  hunza.hayat@gmail.com, omer@smme.nust.edu.pk, mohsin@smme.edu.pk</p> <p><b>Abstract</b>—the x-ray image processing is an effective technique to distinguish the between the major types of arthritis: Osteoarthritis Arthritis (OA) and rheumatoid Arthritis (RA). The classification is done on the basis of differentiation in the region properties that can be distinguished using MATLAB. These properties were used to better understanding the variation in the knee, hands and neck region. The study holds potential as a diagnostic tool for arthritis identification through x-rays. It could pave way to differential diagnosis in future. <b>Keywords</b>— x-ray image processing; Osteoarthritis Arthritis (OA); rheumatoid Arthritis (RA); region properties; MATLAB</p>
229	<p style="text-align: center;"><b>Emotion Detection through Facial Feature Recognition</b></p> <p style="text-align: center;">Maliha Asad <sup>1</sup>, Syed Omer Gilani<sup>1</sup>, Mohsin Jamil<sup>2</sup>  <sup>1</sup> Department of Biomedical Engineering and Sciences  <sup>2</sup> Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME)  National University of Science and Technology (NUST), Islamabad Pakistan</p>

	<p style="text-align: center;">maokhan7@gmail.com , omer@smme.nust.edu.pk, mohsin@smme.edu.pk</p> <p>Abstract: Humans share a universal and fundamental set of emotions which are exhibited through consistent facial expressions. An algorithm that performs detection, extraction, and evaluation of these facial expressions will allow for automatic recognition of human emotion in images and videos. Presented here is a hybrid feature extraction and facial expression recognition method that utilizes Viola-Jones cascade object detectors and Harris corner keypoints to extract faces and facial features from images and uses principal component analysis, linear discriminant analysis, histogram-of-oriented-gradients (HOG) feature extraction, and support vector machines (SVM) to train a multi-class predictor for classifying the seven fundamental human facial expressions. The hybrid approach allows for quick initial classification via projection of a testing image onto a calculated eigenvector, of a basis that has been specifically calculated to emphasize the separation of a specific emotion from others. This initial step works well for five of the seven emotions which are easier to distinguish. If further prediction is needed, then the computationally slower HOG feature extraction is performed and a class prediction is made with a trained SVM. Reasonable accuracy is achieved with the predictor, dependent on the testing set and test emotions. Accuracy is 81% with contempt, a very difficult-to-distinguish emotion, included as a target emotion and the run-time of the hybrid approach is 20% faster than using the HOG approach exclusively.</p>
230	<p style="text-align: center;"><b>Brain tumor extraction from MRI images using MATLAB</b></p> <p style="text-align: center;">Rabia Ijaz<sup>1</sup>, Mohsin Jamil<sup>2</sup>, Syed Omer Gilani<sup>1</sup>  <sup>1</sup>Department of Biomedical Engineering and Sciences  <sup>2</sup>Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME),  National University of Science and Technology (NUST), Islamabad Pakistan Rabiaejaz28@hotmail.com,  mohsin@smme.edu.pk , omer@smme.nust.edu.pk</p> <p><b>Abstract</b> Image segmentation is one of the most challenging techniques in the field of medical image processing. Brain tumor segmentation is emerging technique in this field. This paper refers to the brain tumor segmentation from MR images of patients taken from 'Brain web'. Hybrid methodology is used to extract and detect tumor from MR images using basic concepts of digital image processing. MATLAB is used for this purpose in this paper for applying the proposed algorithm</p>
240	<p style="text-align: center;"><b>On the Performance of Hybrid RF/FSO Relay Algorithms for 5G Wireless Communication Systems</b></p> <p style="text-align: center;">V.K. Tonk, Research Scholar Uttarakhand Technical University, Dehradun, Uttarakhand (U.K.) India.  (Email:vjkrtonk@yahoo.com)  P.K. Yadav Central Building Research Institute, Roorkee, Uttarakhand(U.K.), India (Email:  prd_yadav@rediffmail.com)</p> <p><b>Abstract:</b> Currently, Free space optical (FSO) communication systems have become very popular because of its high achievable optical bandwidth, greater security against eavesdropping, low power consumption. In this paper, the authors have considered decode and forward (DF) Relay based dual hop hybrid radio frequency (RF) and FSO (RF/FSO) system. Where, RF link is modeled as Rayleigh faded distribution and FSO link is modeled as distributed channel. A closed form expression of outage probability is derived for the proposed system. The effect of the channel parameters on the outage performance is also studied.</p>
249	<p style="text-align: center;"><b>Security Alarm Systems : Modeling and Analysis of SIA protocol</b></p> <p style="text-align: center;">Shankar Raman Ravindran  Amrita University, Amritapuri campus, India  shankaraman.r@gmail.com</p> <p><b>Abstract:</b> Modeling network specific parameters and conducting analysis on the alarm system protocols helps in predicting an event loss during communication failures. The analysis and the experiment results were conducted on one of the alarm system protocol, Security Industry Association (SIA) protocol. The contribution includes our approach to model the alarm system parameters, a tool that can help in simulation (PE Simulator) and experiment results on the retransmission mechanism deployed by the protocol. This analysis and the results can help a user to tune the device or network in order to prevent the event loss.</p> <p><b>Keywords:</b> Monitoring Station, Premises Equipment, Alarm Systems.</p>

253	<p style="text-align: center;"><b>CDF-ARTIFICIAL NEURAL NETWORK MODEL FOR ELEARNING DATA ANALYSES: Is Future Generation Communication Model Smart E-Learning System</b></p> <p style="text-align: center;">M.R.M. VeeraManickam<sup>1</sup>, Dr.M. Mohanapriya<sup>2</sup>, Bishwajeet K Pandey<sup>3</sup>, Gajanan P Arsalwad<sup>4</sup>, Senthil Kumar Janahan<sup>5</sup>, Vigneshwar .M<sup>6</sup></p> <p style="text-align: center;"><sup>1</sup> PhD Scholar, Dept. of CSE, Karpagam University, Coimbatore, INDIA.  <sup>2</sup> Professor &amp; Head, Dept. of CSE, Karpagam University, Coimbatore, INDIA.  <sup>3</sup> Director, Gyancity Research Lab, INDIA.  <sup>4</sup> Assistant Professor, Dept. of I.T, Trinity College of Engineering &amp; Research, Pune, INDIA.  <sup>5</sup> Assistant Professor, Dept. of CSE, Vels University, Pallavaram, Chennai, INDIA.  <sup>6</sup> Assistant Professor, Dept. of CSE, Karpagam University, Coimbatore, INDIA</p> <p style="text-align: center;">manic.veera@gmail.com<sup>1</sup>, mohanapriyaasaitambi@gmail.com<sup>2</sup>, gyancity@gyancity.com<sup>3</sup>, gajanansggs@gmail.com<sup>4</sup>, senthil.jenahan@gmail.com<sup>5</sup></p> <p><b>Abstract</b> In this article, the importance of smart eLearning system with the neural network are suggested as future communication among varies entities which can be part of training and analysis of eLearning system students data in terms of qualitative outcomes among enormous definite datasets. In this direction, a Cumulative Dragonfly algorithm neural network (CDF) model was established to predict student’s marks in eLearning datasets for defines students’ exams assessments examination results. The research study indicates that using CDF model in evaluating and predicting students marks scoring patterns from dataset to figure out using neural network weight prediction factors of dragonfly behaviors of swarms particles analysis which bring to acquire complete results of data analyzed and hence predicted final results useful to every learner. The future generation smart e learning system most demanded feature in terms of integrating neural network learning system for eLearning applications in terms analyzing the dataset. This article enhances all features need in future for better communication and efficient smart eLearning system network.</p> <p><b>Keywords:</b> eLearning system, artificial neural networks; qualitative data analysis;</p>
254	<p style="text-align: center;"><b>Prevalence of Early Childhood Caries and associated Risk Factors from 1 to 12 years old children</b></p> <p style="text-align: center;">Sadia Ghazal 1, Syed Omer Gilani1, Talha Ashar2, Mohsin Jamil3</p> <p style="text-align: center;">1 Department of Biomedical Engineering and Sciences  3 Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME),  National University of Science and Technology (NUST), Islamabad Pakistan 2Department of Dentistry, Nishtar Institute of Dentistry, Multan, Pakistan</p> <p style="text-align: center;">sadiagazal@yahoo.com, omer@smme.nust.edu.pk, talhaashar@hotmail.com, mohsin@smme.nust.edu.pk</p> <p><b>ABSTRACT:</b> The aim of this study was to assess the prevalence of early childhood caries in children of age 1 to 12 years old and to assess the risk factors and pattern of caries. A descriptive cross-sectional study was conducted in the department of paedodontics, Nishtar Institute of Dentistry, Multan. A questionnaire was prepared to ask the questions to caregivers. Different diagnostic tools were used to detect caries in children. Different statistical test like chi-square and ANOVA is performed to analyse the significant results. Out of 500 children, 320 were experienced early childhood caries. When results were analysed on gender basis, it was concluded that female have more carries lesion than male child. Bottle feeding and sweet consumption were observed in children who have the high score in caries. When we examined tooth pattern, more caries lesion found on maxillary anterior teeth (incisor) and mandibular molars. The prevalence of early childhood caries is high in the city of saints (Multan). Baby bottle feeding prevalence is 64 %. Caries is generally associated with plaque accumulation, tooth brushing, malocclusion, bottle feeding and sweet consumption.</p> <p><b>Key Words:</b> Rampant Caries, Risk Factors, Baby bottle caries, Oral Hygiene, Incisor Caries</p>
255	<p style="text-align: center;"><b>Assistive Diagnostic Tool in CT scans of Lungs anomalies by Utilizing Various Imaging Techniques</b></p> <p style="text-align: center;">Saroosh Bilal<sup>1</sup>, Syed Omer Gilani<sup>1</sup>, Mohsin Jamil<sup>2</sup></p>

	<p style="text-align: center;"><sup>1</sup>Department of Biomedical Engineering &amp; Sciences  <sup>2</sup>Department of Robotics &amp; Artificial Intelligence School of Mechanical &amp; Manufacturing Engineering (SMME)  National University of Sciences &amp; Technology (NUST) Islamabad, Pakistan</p> <p style="text-align: center;">saroosbilal.bms@smme.edu.pk , omer@smme.nust.edu.pk, mohsin@smme.nust.edu.pk</p> <p><b>Abstract</b> Lung cancer is one of the most prevalent cause of death among cancer patients. However, patients have a higher chance of survival if it can be diagnosed in the primary stages. No one can reject the importance of CT, CT-PET &amp; PET modalities in the diagnosis of pulmonary problems. Modalities mentioned above have their own limitations. Digital Image Processing Techniques can be helpful in detection of lung nodule. Utilization of various imaging techniques is helpful in ruling out the area of anomaly. Contrast Adjustment, Segmentation, Thresholding of image are such techniques which enhance the acuity of the visibility of the defected region, however the feature extraction methodologies are helpful in ruling out the specificity of the defected region. Utilization of such methods in daily practices can as a helping hand to clinicians, as they will be able to take decision of treatment earlier with early detection of anomalies.</p> <p><b>Keywords:</b> PET, PET-CT, CT, lungs, tool</p>
256	<p style="text-align: center;"><b>High Throughput Multimodal Neuroimaging for Alzheimer’s Disease (AD)</b></p> <p style="text-align: center;">Shiza Fatima<sup>1</sup> , Mohsin Jamil<sup>2</sup> , Syed Omer Gilani<sup>1</sup>  <sup>1</sup> Department of Biomedical Engineering and Sciences  <sup>2</sup> Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME),  National University of Science and Technology (NUST), Islamabad Pakistan</p> <p style="text-align: center;">shizzafatimasyed@gmail.com , mohsin@smme.edu.pk, <a href="mailto:omer@smme.nust.edu.pk">omer@smme.nust.edu.pk</a>,</p> <p><b>Abstract</b> Alzheimer’s disease (AD) is a neurodegenerative disorder characterized by the development of plaques and neurofibrillary tangles in nerve cells leading to their death, and dementia. With advancements in medical imaging processing, over the past few decades, neuro-imaging has surfaced as an essential component in assessment and diagnosis of neural disorders. Integration of correlation analysis, between control and AD’s and MRI dataset, can be used to develop a reference, to which new patient’s data can be compared for initial diagnosis of AD. By implementing proposed framework, it is possible to acquire, simultaneously, enhanced images and dataset for comparing data of existing AD patients and incoming/new patients. Thus, we propose to develop a reference dataset against which other images can be compared.</p> <p><b>Keywords:</b> Alzheimer’s disease (AD), MRI, noise reduction, image enhancement</p>
257	<p style="text-align: center;"><b>A Review on Structural Analysis of Human Retinal Vessels: Blood Vessels, Optic Nerve, Fovea Centralis and Related Diseases</b></p> <p style="text-align: center;">Tooba Shafa<sup>1</sup> , Mohsin Jamil<sup>2</sup> , Syed Omer Gilani<sup>1</sup>  <sup>1</sup> Department of Biomedical Engineering and Sciences  <sup>2</sup> Department of Robotics and Artificial Intelligence.  School of Mechanical and Manufacture Engineering (SMME),  National University of Science and Technology (NUST), Islamabad Pakistan</p> <p style="text-align: center;">tooba.shafa@yahoo.com, mohsin@smme.nust.edu.pk, omer@smme.nust.edu.pk</p> <p><b>Abstract</b> This review describes different automated methods to locate the optic nerve in eye images. These tools are beneficial for eye specialists for the treatment evaluation and screening of patient and clinical study. These experiments done for the better results as first method by Adam Hoover et al. includes threshold probing to estimate the halting conditions of images with improvement of 15 times than previous work. Second work of Adam Hoover et al in 2003 describe method in which 31 images of retinas showing good condition and 50 images of retinas with disease were used, having such various symptoms as twisted vessels, choroid Neovascularization, and hemorrhages that make hard to define actual nerve, but this method achieved 89% correct detection. Above all previous work most significant work done by the Alia Abdel Haleim et al in 2008, they done fuzzy convergence with illumination equalization and adaptive histogram equalization on retinal vessel images, these images were segmented by Gaussian matched filter. The proposed technique was assessed by STARE project’s dataset, which contain 81 fundus images of both normal and diseased retinas, the OD center was detected correctly in 80 out of the 81 images (success rate of</p>

	<p>98.77%). Automatic diagnosis of blood vessels in the retina will help medical practitioner in detection of different eye diseases.</p> <p><b>Keywords:</b> Image processing, optic nerve, matched filters, thresholding, segmentation</p>
263	<p style="text-align: center;"><b>Utilization statistics based Optimal Assignment of wavelength converters with Self Adaptive Differential evolution</b></p> <p style="text-align: center;">Ramya.S  Dept. of Electronics &amp; Communication Engineering, R.V.College of Engineering, Bengaluru, India  ramyas@rvce.edu.in  Dr Indumathi T.S,  Dept. of Digital electronics and communication system, V.I.A.T, V.T.U, Mudenahalli, Chickaballapur, India  indumathi_ts@yahoo.co.in</p> <p><b>Abstract:</b> In this work, optimal assignment of full range wavelength converters have done over available nodes in wavelength division multiplexing optical network to maximize the total utilization of deployed converters. This will increase the performance by cost ratio by keeping the deployed converters busy maximally. The optimization model has solved by heuristic method to search the solution space efficiently through self adaptive form of differential evolution. A mechanism has also proposed to handle the dynamic utilization under the same network through maintaining the diversity in the population by insertion of a new member in each generation.</p> <p><b>Keywords:</b> WDM optical networks, optimal wavelength converter allocation, Differential evolutionary algorithm, Utilization matrix, Wavelength converter allocation matrix.</p>

# NOTES

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## HIGHLIGHTS OF ICGCET-2015 DUBAI, UAE



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### Highlight of RTCSE-2017



### ABOUT RTCSE-2018

The conference will be held on 02-03 January 2018 in Radisson Blu Plaza, Bangkok, Thailand. This is 7th International Conference being organised by Gyancity Research Lab. This RTCSE conference is a sister conference of IMCES conference and ICGCET conference. The 1st International conference on Green Computing and Engineering Technology (ICGCET) ([www.icgcet.org](http://www.icgcet.org)) was organised in July 2015, Dubai and 2nd was in Denmark, 3rd was in Ireland. RTCSE'16, RTCSE'17 and IMCES'17 was in collaboration with UTHM Malaysia. The main objective of RTCSE 2018 is to present the research from different areas of science and technology. This conference provides a platform for researchers and scientists across the world to exchange and share their experiences and research results about all aspects of electronics and information technology. This conference also provides an opportunity to interact and establish professional relations for future collaboration. The conference aims to promote innovations and work of researchers, engineers, students and scientists from across the world on Advancement in electronic and computer systems. The basic idea of the conference is what more can be done using the existing technology. In Today's world electronic and computer systems plays an important role for future's innovation. These systems involve a very wide area for research. We are pleased to invite prospective authors to submit their original manuscripts to RTCSE 2018. Gyancity Research Lab organize 3 conferences in 3 continents: ICGCET in Europe, RTCSE in Asia and ICEES in North America continent. ICGCET was organized in Dubai, Denmark in 2015 and 2016 respectively. It was organized in Ireland in 2017.

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