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Impulse

The Half Yearly Newsletter of ECE,Jan 2015.

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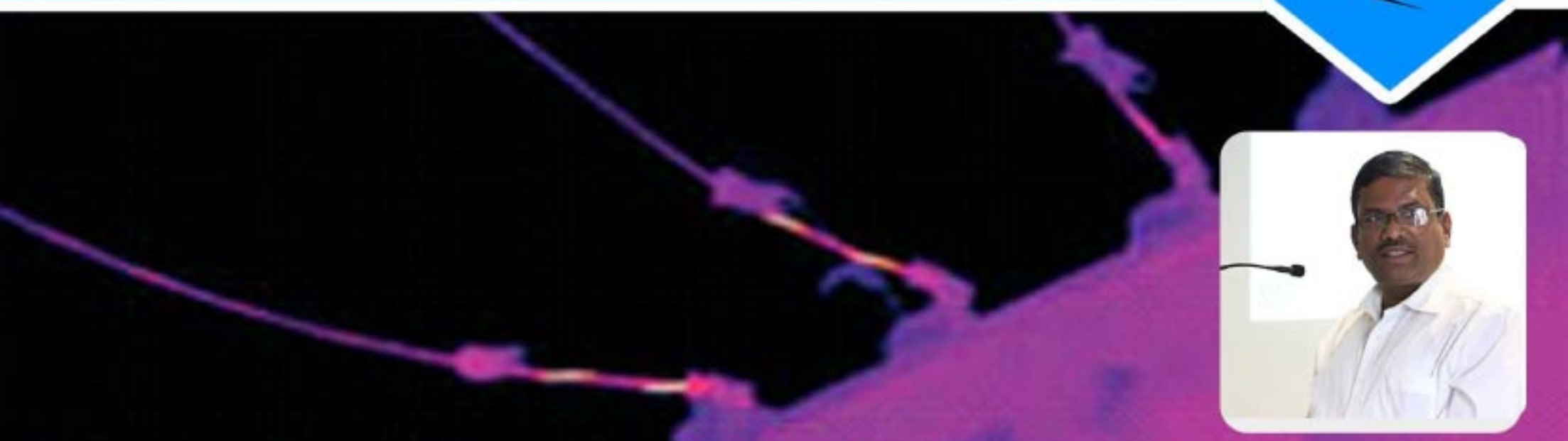
HIGHLIGHTS



FACULTY CORNER

INVITED ARTICLE BY **DR. N. VENKATESWARAN**

DIGITAL INFRARED THERMAL IMAGE PROCESSING

Infrared (IR) thermal imaging also called as thermography is a rapidly evolving field in science as well as in engineering thanks to the developments in IR detectors and electronics. Infrared thermal imaging is an excellent tool for visualization of all physical phenomena related to energy transfer. Thermal imaging systems extend our vision beyond the short-wavelength red into the far infrared. Infrared is the part of the electromagnetic spectrum, the wavelength of IR energy is between 0.7 and 1000 μm.

Infrared Thermal image processing is a nondestructive, nonintrusive, noncontact technique that allows the mapping of thermal patterns, on the surface of the object, bodies or systems through the use of an infrared imaging instrument, such as an infrared camera so as to understand the characteristics of the object under study.

Everybody above zero degree Kelvin temperature will produce the molecular vibration and lattice vibration, launch infrared waves outward voluntarily and form IR radiation, and it is this infrared radiation which is captured by the infrared camera for further analysis.

The basic theory of infrared detection is a method based on Planck's Law and Stephen-Boltzmann Law that uses the relationship between radiatied energy and temperature. Planck's Law gives a distribution of radiated emission that peaks, at a certain wavelength. The peak shifts to shorter wavelengths for higher temperatures, and the area under the curve grows rapidly with increasing temperature.Stephen-Boltzmann Law states when the surface emissivity is constant, the radiation power is proportional to the fourth power of its temperature.

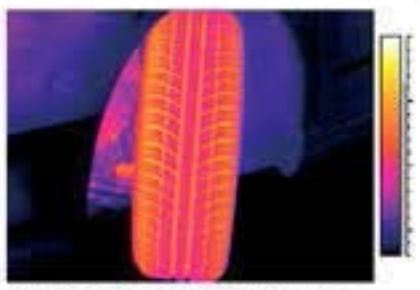
Compared to natural visual spectrum images that are produced primarily by reflection and by reflectivity differences, thermal images are produced primarily by self-emission and by emissivity differences. There are two approaches in Thermal Imaging.

Passive: The passive thermography is when own radiation of the investigated object is measured and recalculated to the temperature. It maps the natural temperature distribution of the object. Basic Image Processing methods like Image Subtraction, Image Enhancement, Image Fusion and Image Derivative in the Spatial Domain as well as some advanced Methods of Image Processing like Preprocessing, Geometrical Transformations, Segmentation, Feature Extraction and Pattern Recognition can be performed with passive IR Images.

Active: In active dynamic IR thermal imaging, external or internal excitations are applied to an object to force heat flows and measure the thermal response. For active IR image processing generally transform domain methods like Fast Fourier and Wavelet transform are widely used to analyze the thermal parameters of the anisotropic image sample to understand the defects.

Specialized thermal imaging cameras use focal plane arrays (FPAs) that respond to longer wavelengths. The newest technologies use low-cost, uncooled microbolometers as FPA sensors. Generally, the resolution of IR images is considerably lower than that of optical cameras.

IR image showing the temperature distributions of bare foot walk



IR image can be used to investigate tyre surface after driving to understand the homogeneity

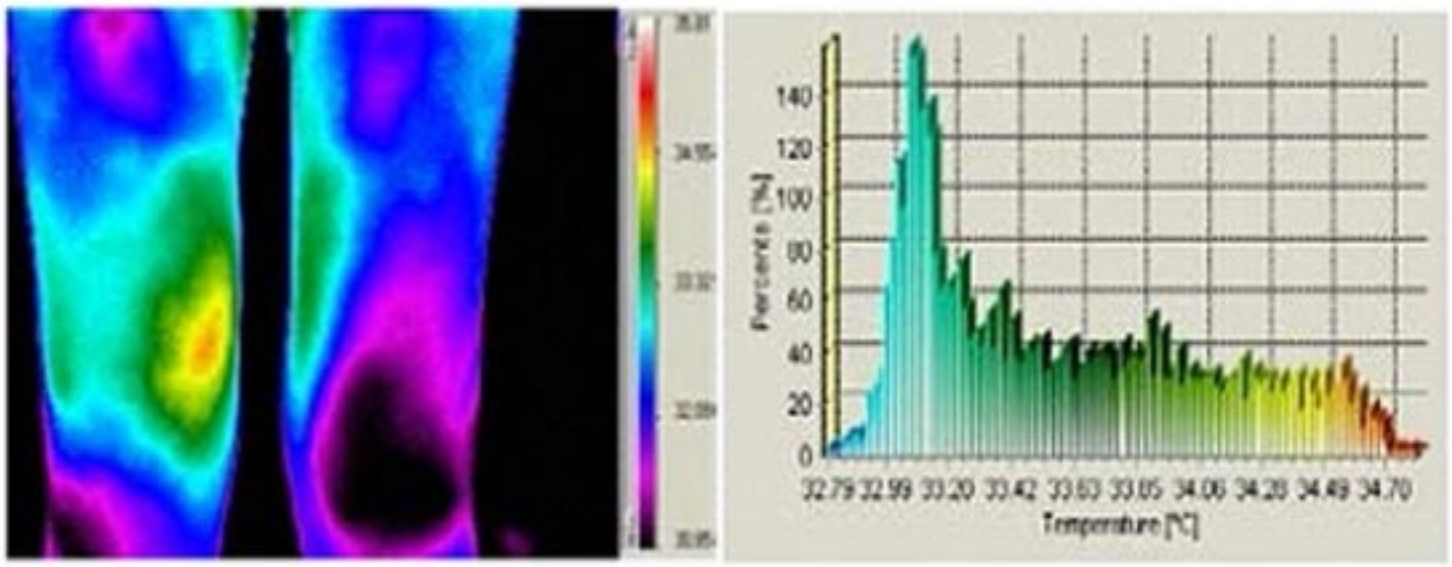
IR image of a high-voltage power line connected to a 115–23 kV substation Transformer.

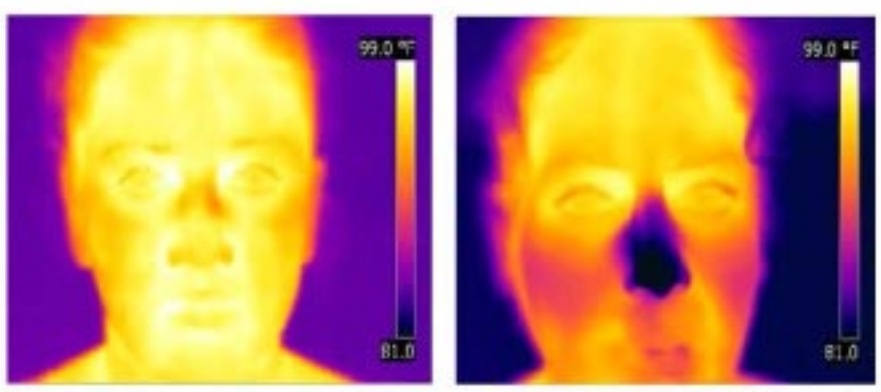
The major applications of real time thermal infrared imaging presently are for military and intelligence purposes for target acquisition, fire control, aerial navigation, surveillance, and intelligence gathering. Non-military applications of thermal imaging include identifying concealed objects, thermal pollution surveys, forest fire prevention, air-sea rescue, manufacturing quality control, preventive maintenance inspections of electrical power equipment and earth resources surveys. Quite a few other successful medical thermography applications have been fiund. As selected examples, some applications in medicine are given below.

Infrared Thermal Image Processing in Medicine: Thermal imaging is nowadays accepted by doctors as a diagnostic aid and monitoring of various diseases. As seen from History, the Greek Physician, Hippocrates, wrote in 400 B.C. "In whatever part of the body excess of heat or cold is felt, the disease is there to be discovered." The ancient Greeks immersed the body in wet mud. The area that dried more quickly indicated a warmer region, and was considered the diseased tissue. The first use of thermography came in 1957 when R.Lawson discovered that the skin temperature over a cancer of the breast was higher than that of normal tissue (The "normal skin temperature" is defined to range from 32 to 34 °C).

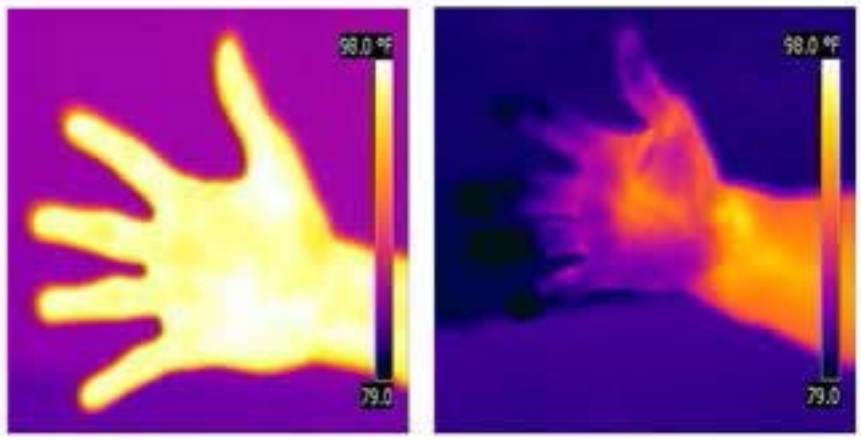
In medicine, IR thermography can reveal clinically unapparent diseases including,

- ☒ Breast Cancer
- ☒ Nervous System Disorders
- ☒ Metabolic Disorders
- ☒ Repetitive Strain Injuries
- ☒ Headaches, Neck and Back Problems
- ☒ Arthritis
- ☒ Diabetes
- ☒ Increased or decreased blood circulation
- ☒ Soft Tissue Injuries

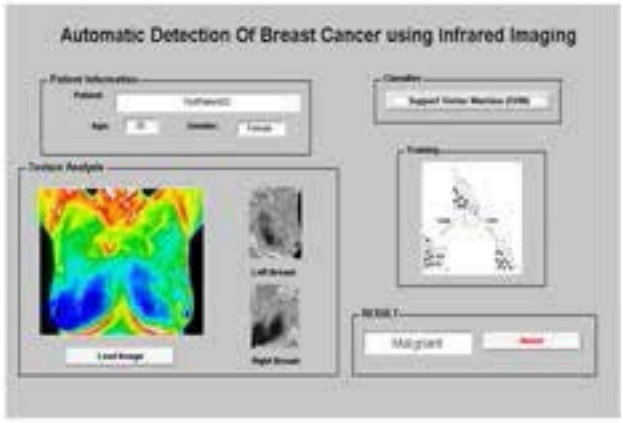




High (normal) temperature face and low Temperature (Diabetic) Nose and Fore head indicating the presence of Diabetics



High (normal) temperature palm and Fingers and lower Temperature (Diabetic) palm and Fingers again indicating the presence of Diabetics.



With the aid of IR imaging and processing further, automatic detection of Breast cancer due to elevated surface temperature caused by the increased blood flow can be identified.

Advantages of IR Thermal Imaging:

☒ It allows comparison temperatures over a large area.

☒ It can be used to detect objects in dark areas.

☒ Images can capture information of moving targets in real time.

☒ Condition monitoring of moving mechanical components can be non-destructive.

☒ IR images can used to observe areas that are hazardous.

Some of the disadvantages include:

☒ High cost of Quality cameras

☒ IR images can be difficult to interpret accurately under certain conditions.

☒ It can only detect surface temperatures.

As the utility of thermal imagery becomes more widely recognized, it will have a significant impact in shaping and molding the activities of the humankind.

Acknowledgement:

The IR images are reproduced from the text:

1. Infrared Thermal Imaging Fundamentals, Research and Applications by MichaelVollmer and Klaus-Peter M¨ollmann, WILEY-VCH Verlag GmbH & Co, 2010.

RESEARCH NEWS

PROPOSALS SUBMITTED

☒ Dr. B. S. Sreeja, Asso. Prof., "Fabrication and characterization of novel bi-stable MEMS switches," worth Rs. 12.5 Lakhs to Department of Science and Technology, New Delhi under Young Scientist Award - Fast Track Scheme.

☒ Mr. S. Sakthivel Murugan, Asst. Prof., "Development of high end source code to forecast the wind power using the multivariable wind generation pattern," worth Rs. 26.75 Lakhs to Centre for Wind Energy and Technology (CWET), Chennai.

☒ Dr. S. Radha, Prof. and Dr. R. Kishore, Asso. Prof., "Framework for video surveillance systems using WSN," worth Rs. 14 Lakhs to Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam.

☒ Dr. N. Venkateswaran, Prof., Dr. Premanand Chandramani, Prof., and Dr. Nandita Lavanis, Asso. Prof., "Design and implementation of low complexity pre-coder for large MIMO systems," worth Rs. 35.21 Lakhs to Department of Science and Technology, New Delhi.

☒ Dr. R. Rajavel, Asso. Prof. & Shri. Nachiketa Rout, Asso. Prof., Department of Speech, Hearing and Communication, National Institute for Empowerment of Persons with Multiple Disabilities (NIEPMD), "Sign language translator for speech impaired persons communication," worth Rs. 9.65 Lakh to Cognitive Science Research Initiative (CSRI) – Department of Science and Technology, New Delhi.

☒ Dr. B. S. Sreeja, Asso. Prof., Dr. S. Radha, Prof. and Ms. S. Kirubaveni , Asst. Prof., "Design and fabrication of MEMS-based vibration energy harvester using uniformly distributed mass," worth Rs. 4.5 Lakhs to Tamil Nadu State Council for Science and Technology.

INTERNAL FUNDING

☒ Mr. S. Sakthivel Murugan, Asst. Prof., "Data collection for characterization of underwater ambient noise at Bay of Bengal - Pondicherry / Cuddalore or cochin," worth Rs. 2.5 Lakhs

☒ Dr. B. S. Sreeja, Asso. Prof. Dr. S. Radha, Prof., "Fabrication and Characterization of Bi-stable MEMS Switch" worth Rs. 5.50 Lakhs

☒ Ms. S. Kirubaveni, Asst. Prof., Dr. B. S. Sreeja, Asso. Prof. Dr. S. Radha, Prof., "Design of MEMS Based Vibration Energy Harvester" worth Rs. 1.50 Lakhs

VISITS AND INTERACTIONS

☒ Dr. K. T. Selvan, Prof., visited IISc and LRDE in Bangalore and discussed prospects for research and educational collaboration with Dr. K. J. Vinoy, Asso. Prof./IISc and with Dr. D. C. Pande, Director (Technology) and Dr. A. K. Singh, Scientist 'G' in LRDE on 25th Jul. 2014

☒ On 4th Aug. 2014, Dr. R. Rajavel, Asso. Prof. visited NIEPMD and met Mr. Nachiketa Rout, HOD, Dept. of Speech, Hearing and Communication for research collaborations in the area of Digital Hearing Aid Design. As an outcome of this meet,he Director, NIEPMD has agreed to collaborate with ECE Dept., SSNCE and sponsor a two days National Workshop on "State-of -the-art amplification devices".

☒ Dr. K. T. Selvan, Prof. visited IIST, Thiruvananthapuram on 7th Aug. 2014 and had discussion with Director Dr. Dasgupta and his faculty regarding collaboration. He also gave a talk on "Fundamentals of electromagnetic units and constants" to Post Graduate students, Research scholars and faculty.

☒ On 19th Aug. 2014, Mr. S. Sakthivel Murugan, Asst. Prof. met Mr. Boopathi, CWET and had a discussion for research project.

☒ A Non-Disclosure Agreement in respect of a collaboration initiated by Dr. K. T. Selvan, Prof.between SSN and Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany, in the area of antenna measurement techniqueswas signed by Dr. S. Salivahanan, Principal on 29th Oct. 2014

☒ Dr. S. Radha, Prof., Dr. R. Kishore, Asso. Prof., Dr. B. S. Sreeja, Asso. Prof, Ms. S. Esther Florence, Asst. Prof., Ms. S. Kirubaveni, Asst. Prof., Mr. S. Ramprabhu, Asst. Prof., and Ms. S. Aasha Nandhini, Research Scholar had discussion with Dr. S. A. V. Satyamurthy, Director, Electronics and

Instrumentation group to explore the possibilities of research projects at IGCAR, Kalpakkam on 18th Nov. 2014.

☒ Dr. S. Radha, Prof., visited Transmos Technologies, Coimbatore regarding funded projects for Hardware development.

TECHNICAL TALKS

FACULTY AT OTHER INSTITUTIONS

☒ Dr. B. S. Sreeja, Asso. Prof., "Short term value added course," Travancore Engineering College, Kerala on 25th and 26th Jul. 2014.

☒ Dr. K. T. Selvan, Prof., "Uncertainty in antennas measurements," SRM University, Chennai, on 25th Aug. 2014.

☒ Mr. C. Vinoth Kumar, Asst. Prof., "Difference Expansion based Medical Image Reversible Watermarking," Madras Institute of Technology, Anna University on their Researcher's day celebrated on 5th Sep. 2014.

☒ Dr. R. Kishore, Asso. Prof., "Semiconductor sensors and its applications," Two day national seminar on "Modeling of Semiconductor Devices and Sensors – MSDS '14 (UGC XII Plan)" organized by the Centre for Information Technology and Engineering of Manonmaniam Sundaranar University, Tirunelveli on 12th Sep. 2014.

☒ Dr. R. Kishore, Asso. Prof., "Research Methodology" Centre for Information Technology and Engineering, Manonmaniam Sundaranar Univeristy, Tirunelveli on 13th Sep. 2014.

☒ Ms. G. Durga, Asst. Prof., "Amplifiers in Electronic Circuits," SRM Valliammai Engineering College, Chennai on 22nd Sep. 2014.

☒ Dr. A. Jawahar, Prof., "Analysis of Asynchronous Sequential Circuits," Agni Institute of Technology, Chennai on 25th Sep. 2014.

☒ Mr. S. Sakthivel Murugan, Asst. Prof., "Advanced Satellite Systems," Velammal Engineering College, Chennai on 30th Sep. 2014.

- Dr. K. T. Selvan, Prof., "Uncertainty in antenna measurements," VIT, Chennai on 28th Oct. 2014.

- Dr. N. Venkateswaran, Prof., "Image denoising and deblurring using PDE based methods" Three day FDP on "Advanced digital signal and image processing" Department of Biomedical Engineering, SSNCE.(Nov 5th-7th ,2014)

- Dr. Jayaparvathy, Prof., "Embedded Systems in Industrial Automation," Kumaraguru College of Technology, Coimbatore, on 11th Nov. 2014.

- Dr. P. Vijayalakshmi, Prof., "Spectrum estimation-an inescapable marvel," Three day FDP on "Advanced digital signal and image processing" Department of Biomedical Engineering, SSNCE on Nov. 5th – 7th 2014.

- Mr. V. Vaithianathan, Asst. Prof., "Verilog – HDL Programming," Seven Day FDP on "VLSI Design", St. Joseph's College of Engineering. (9th Dec)

- Dr. N. Venkateswaran, Prof., "Design of Finite Impulse response filters and applications," Seven Day FDP on"Digital signal processing", Jeppiar Engineering College on Dec. 12th 2014.

EXTERNAL EXPERTS AT THE DEPARTMENT

- Mr. Karthikeyan Padmanaban, Scientist, Tata Elxsi "How to make wireless simple for us" on 6th August 2014.

- Dr. Arun K. Bhattacharyya, Northrop Grumman Corporation, "Shaped beam antenna technology in satellite communication," on 4th Oct. 2014.

- Dr. Shenario Ezhil, Research Scientist and Project Manager AEM, Fraunhofer Institute for High Frequency Physics and Radar Techniques, Bonn, Germany, "Current State-of-the-Art Research in Defense and Space Microwave Engineering - An Overview" on 27th Oct. 2014.

- Dr. Chin Yeng Tan, Senior Electrical Engineer, Motorola Solutions, Malaysia, "Microwave Engineering and Industry," on 4th Nov 2014.

- Dr. Arokiaswamy Alphones, Nanyang Technological University, Singapore, "Emerging Broadband Technologies of Optical Wireless Communication," on 6th Nov 2014.

CONFERENCES, WORKSHOPS & SHORT TERM COURSES ATTENDED

- Dr. B. S. Sreeja, Asso. Prof. and Ms. S. Kirubaveni, Asst. Prof., "Nano-materials and Microsystems," Five day National workshop organized by Nitte Meenakshi Institute of Technology, Bangalore between 14th Jul. and 18th Jul. 2014

- Mr. Suresh R. Norman, Asso. Prof. "Conference/ Exhibition Electronica/ Productronica 2014", Bangalore International Exhibition Centre, Tumkur road on 23rd & 25th Sep. 2014

- Dr. S. Radha, Prof. & Head, Ms. R. Hemalatha, Asst. Prof., Ms. Angayarkani, Research Scholar, "IEEE Smart Tech," IEEE Bangalore Section on 26th & 27th Sep. 2014.

- Mr. R. Kalidoss, "Cognitive Software Defined Radio," Dept. of ECE, SSNCE, on 10th & 11th Oct. 2014

- Ms. Esther Florence, Asst. Prof., and Mr. M. Gulam Nabi Alsath, Asst. Prof., "Microwave Engineering and Industry," Dept. of ECE, SSNCE, on 4th Nov 2014.

- Ms. K. Muthumeenakshi, Asst. Prof., Ms. S. Hanis, Asst. Prof., Ms. R. Hemalatha, Asst. Prof., and Ms. S. Esther Florence, Asst. Prof., "Mathematica software and its features" from Wolfram organized by the Department of CSE, SSNCE, on 11th Nov. 2014.

- Dr. S. Radha, Prof., Ms. S. Aasha Nandhini, Ms. Florence Gnana Poovathy and Ms. Nirmala, Research scholars attended the 5th National workshop on "Ubiquitous Computing - Ubicomp India 2014," C-DAC Bengaluru in association with IEEE Bangalore section on 14th & 15th Nov. 2014.

- Ms. G. Durga, Asst. Prof., INUP Familiarization workshop on "Nanofabrication Technologies" at IIT – Bombay, on 28th – 30th Nov. 2014.

- Ms. S. Hanis, Asst. Prof., Ms. P. Kaythry, Asst. Prof., attended a workshop on "Research methodology" at Anna University, Chennai on 15th Dec. 2014.

CONFERENCES, WORKSHOPS & SHORT TERM COURSES ORGANIZED

- Dr. Rajavel, Asso. Prof. and Mr. S. Joseph Gladwin, Asst. Prof., organized Intra College "TI Analog Design Contest" on 22nd Jul. 2014.

- Dr. N. Edna Elizabeth, Prof. and Dr. R. Kishore, Asso. Prof. organized a two day national workshop on "Cryptography and network security" on 21st & 22nd Aug. 2014.

Speakers: Dr.M. Prem Laxman Das, Mr. Gopikrishnan, Mr. S. Karthikeyan, Mr. Santosh Kumar Gulivindala from Society for Electronic Transactions and Security and Dr. Edna Elizabeth, Mr. K. J. Jegadish Kumar from SSNCE

Attendees: 41 external and 7 internal participants

- Dr. B. S. Sreeja, Asso. Prof. & Ms. S. Kirubaveni, Asst. Prof. organized a workshop titled "Comprehensive hands on experience on Mems design and simulation using Intellisuite Software," on 12th and 13th Sep. 2014.

Speakers: Dr. Shanthi Bhattacharya, Asso. Prof., Dept. of EE, IIT Madras, Dr. B. Bindu, Professor, Dept. of ECE, Easwari Engineering College, Dr. Prita Nair, Asso. Prof., Dept. of Physics, SSNCE, Mr. Sripadaraja, Product Manager, SriDutt Technologies,

Dr. S. Radha, Prof. & Head, Dr. K. S. Vishvaksenan, Asso. Prof. and Mr. N. Prabagarane, Asst. Prof. hosted a two day workshop on "Cognitive Software Defined Radio" on 10th & 11th Oct. 2014.
Sponsor: Amitec Electronics Ltd, New Delhi
Speakers: Mr.Amit Sharma, Managing Director, Mr. Karthik,
Technical Director from Amitec Electronics Ltd, New Delhi
Attendees: 60 participants from various colleges around Tamil Nadu

Dr. K. T. Selvan, Prof., and Mr. S. Joseph Gladwin, Asst. Prof.
organized one day seminar on antennas at National Engineering College, Kovilpatti as part of IEEE Antennas and Propagation Society on 18th Oct. 2014.
Sponsor: IEEE AP-S
Speaker: Dr. PH Rao,
SAMEER - Centre for Electromagnetics, Chennai Attendees: 40 participants

Dr. S. Radha, Prof. & Head, Dr. N. Padmapriya, Asst. Prof./Maths
and Dr. N. Venkateswaran, Prof. organized two days seminar on "Recent developments in medical image processing" on 30th and 31st Oct. 2014.
Sponsor: Indian Council for medical research (ICMR), New Delhi.
Speakers: Mr. Sivagnanam,GM, Appasamy Associates; Dr. Sridhar, Asso. Prof., Dept. of IT, Anna Univ.; Dr. Kavitha, Asso. Prof. and Head, Dept. of BME, SSNCE; Dr. Subhashini, Asso. Prof., Dept. of CSE, Annamalai University; Dr. Bipul Das, Manager, GE Global Research; Dr. Jayathi Sivaswamy, Prof. Dept. of ECE, IIIT, Hyderabad; Dr. Sasikala, Asso. Prof., Dept. of ECE, Anna University.
Attendees: 40 faculty members and 10 PG students.

Dr. K. T. Selvan, Prof., Mr. S. Joseph Gladwin, Asst. Prof., Mr. S. Karthie, Asst. Prof., organized a three day workshop on "Advanced Antenna Technology"
Speakers: Dr. B. Ghosh, IIST, Trivandram; Dr. P. Mohanan, CUSAT; Dr. A. Alphones, NTU, Singapore; Dr. S. Raju, TCE, Madurai; Dr. J. Thakur, Intel, Bangalore; Dr. C. Y. Tan, Motorola, Malaysia; Dr. K. T. Selvan, SSNCE.
Sponsors: IEEE AP-S, IEEE MTT-S and SSNCE
Attendees: Around 72 external participants and 5 internal participants

PROFESSIONAL ROLES/RECOGNITIONS

☒ Mr. S. Joseph Gladwin, Asst. Prof. has been a reviewer for IEEE - Asia Pacific conference on Applied Electromagnetics 2014, Malaysia.

☒ Dr. Premanand Chandramani, Prof. reviewed scripts for IET Circuits, Devices & Systems.

☒ Mr. M. Gulam Nabi Alsath, Asst. Prof. reviewed articles submitted to IET – Microwaves, Antennas and Propagation and Applied Computational Electromagnetics Society Journal.

☒ Dr. K. T. Selvan, Prof. reviewed a paper for International Journal of RF and Microwave Computer Aided Engineering. He also edited a paper for International Journal of Antennas and Propagation.

☒ Mr. K. J. Jegadish Kumar, Asst. Prof. & Ms. G. Durga, Asst. Prof. received SSNCE Best teacher award of ECE department - First & Second place respectively for the year 2012-2013 during Teachers day celebrations.

☒ Dr. Premanand Chandramani, Prof. will be a Member, Technical Review Committee for the "28th Conference on VLSI Design" in 2015. He also reviewed scripts as part of the technical review committee.

☒ Dr. P. Vijayalakshmi, Prof. has been appointed as International Advisory Committee member for 2nd International Conference on Biomedical Engineering (ICoBE) 2015. This conference will be held in Kuala Lumpur, Malaysia from 30th – 31st March 2015.

 Mr. S. Sakthivel Murugan, AP was invited to review a research article on "Performance of Transmitter Pre-Processing Assisted Multi-Cell IDMA System over Correlated Frequency-Selective Channels," submitted to Fluctuation and Noise Letters, World Scientific Publishers, Singapore

 Dr. Jayaparvathy, Prof. is elected as a Technical Programme Committee (TPC) member for International Conference on Computing, Networking and Communications (ICNC) 2015. Anaheim, California, USA to be conducted on Feb. 16th – 19th, 2015. Reviewed papers for the same. She is also serving as a TPC Member for ICCRITT 2015 organized by MOP Vaishnava College, Chennai

 Ms. S. Joseph Gladwin, Asst. Prof., is nominated as a Technical Review Committee member for I4CT'2015-International Conference on Computer, Communication and Control Technology, Malaysia and reviewed two papers.

 Mr. S. Sakthivel Murugan, Asst. Prof., reviewed the Second international edition of "Electromagnetic Engineering and Waves" published by Pearson Publication.

 Dr. K. T. Selvan, Prof., has been selected as an IEEE AP-S Region 10 "Distinguished Speaker for 2015 - 16".

 Dr. R. Rajavel is recognized as Research Supervisor (Ref. No. 2540035) for guiding Ph.D/MS (By Research) scholars of Anna University under the faculty of Information & Communication Engineering.

FACULTY GALLERY

Dr. R. Rajavel & Mr. S. Joseph Gladwin
at "TI Analg Design Contest"

"Recent developmets in Medical
Image Processing"
workshop

Dr. S. Radha presenting gift to
Chief Guest in "Cryptography
& Network security" workshop

Mr. K.J. Jegadhish Kumar receiveing
Best Teacher award of
ECE deptarment

Dr. N. Edna Elizabeth at the "Cryptogrphy
& Network security" workshop

Ms G. Durga receiveing Best Teacher
award of ECE deptarment

OVERSEAS CONFERENCE PRESENTATIONS

- K. S. Vishvaksenan, D. Abidha, R. Kalidoss, M. A. Bhagyaveni and I. Nelson, "Performance of STTD-IDMA system in frequency selective channel," International Conference on Modern Trends in Science, Engineering and Technology, 2014 held at Park Regis Kin hotel, Dubai on 10th and 11th September 2014.

- K. S. Vishvaksenan, K. Mithra, C. Annadurai, V. Nagarajan and P. T. Vasanth Raj "Performance of joint VBLAST/STBC assisted MIMO-IDMA system," International Conference on Modern Trends in Science, Engineering and Technology, 2014, Park Regis Kin hotel, Dubai on 10th and 11th September 2014.

- B. Ramani, M. P. Actlin Jeeva, P. Vijayalakshmi, T. Nagarajan, "Cross-lingual voice-conversion based polyglot speech synthesizer for Indian languages," Proceedings of Interspeech 2014, MAX Atria, Singapore between 15th and 18th September 2014.

- V. Sherlin Solomi, M. S. Saranya, G. Anushiya Rachel, P. Vijayalakshmi, T. Nagarajan, "Performance Comparison of KLD and PoG Metrics for finding the Acoustic Similarity Between Phonemes for the Development of a Polyglot Synthesizer," Proc. of IEEE TENCON, Oct. 2014.

- G. Anushiya Rachel, S. Sreenidhi, P. Vijayalakshmi, T. Nagarajan, "Incorporation of Happiness into Neutral Speech by Modifying Emotive-Keywords," Proc. of IEEE TENCON, Oct. 2014.

JOURNAL PUBLICATIONS

- R. Sathish Kumar, R. Rajavel, "Studies on autonomous underwater vehicle systems", International Journal of Current Research, vol. 6(7), pp. 7453-7457, Jul. 2014.

- M. Gulam Nabi Alsath, Kanagasabai, M., "A shared aperture multi-service antenna for automotive communications," IEEE Antennas and Wireless Propagation Letters, vol. 13, pp. 1417 – 1420, 2014.

- Nandita Lavanis, D. Jalihal, "On finite-SNR DMT of non-coherent SIMO-MRC," IEICE Transactions on Comm., vol. E97-B, no. 5, pp. 1080 – 1086, May 2014.

 S. Sakthivel Murugan, V. Natarajan, Prethvika and Suvasini, "Extraction of binary sequences in a frequency shift keying modulated signal by empirical mode decomposition algorithm against ambient noises in underwater acoustic channel," Artificial Intelligence and Evolutionary Algorithms in Engineering Systems, vol. 325, 2014.

 R. Sathish Kumar and R. Rajavel, "Submarine vehicle design: technology needs and challenges," International Journal of Innovative Research in Advanced Engineering (IJIRAE), vol. 1(7), pp.217-222, Aug. 2014.

 R. Kalidoss, M. A. Bhagyaveni, K. S. Vishvaksenan, "A location based duplex scheme for cost effective rural broadband connectivity using IEEE 802.22 Cognitive radio based wireless regional area networks," Fluctuation and Noise letters, vol.13(4), 2014.

 S. Radha, Victoria Jancee, Nandita Das, "Analysis of non-binary fault tolerant event detection in wireless sensor networks," International Journal of Smart Sensing and Intelligent Systems, vol. 7(3), pp. 1287-1309, Sep. 2014.

 S. Kirubaveni, S. Radha, B. S. Sreeja, T. Sivanesan, "Analysis of rectangular and triangular end array type piezoelectric vibration energy harvester", Microsystems Technologies, Springer Publishers, Sep. 2014.

 S. Esther Florence, Malathi Kanagasabai and M. Gulam Nabi Alsath, "An investigation of a wearable antennas using human body modeling," Applied Computational Electromagnetics Society Journal, vol. 29(10), pp. 777 – 783, Oct. 2014.

 R. Sathish Kumar, R. Rajavel, "Design of acoustic modem for an autonomous underwater vehicles", International Journal of Applied Engineering Research, vol. 9(21), pp. 10123-10135, Oct. 2014.

 S.Sakthivel Murugan, V.Natarajan, K.Maheswaran, "Analysis of EMD algorithm for identification and extraction of an acoustic signal in underwater channel against wind driven ambient noise", International Journal China Ocean Engineering, Springer, vol. 28(5), pp. 645 -657, Oct. 2014.

P. Elaveni and N. Venkateswaran, "Feature extraction and classification of hyperspectral images using novel support vector machine based algorithms", International Journal of Scientific & Engineering Research, vol. 5(4), pp. 255-260, 2014.

K. Nirmala and N. Venkateswaran, "Analysis of enhancement techniques for retinal images", International Journal of Scientific & Engineering Research, vol. 5(4), pp. 266-271, 2014.

K, Muthumeenakshi and S, Radha, "Optimal techniques for sensing error minimization with improved energy detection in cognitive radios", International Journal of Smart Sensing and Intelligent Systems', vol.7, no.4, pp. 2014 - 2034, Dec 2014.

S. Sakthivel Murugan, S.Prethivika, V.Natrajan "Analysis on extraction of modulated signal using adaptive algorithms against ambient noises in underwater communication," International Journal of Signal Processing systems, vol. 3(1), pp. 25-29, June 2015.

PhD VIVA VOCE EXAMINATION

1.Dr. R. Amutha conducted PhD viva voce examination for her candidate Ms. Asnath Victy Phamila, registered under Anna University on 15th Jul. 2014

Thesis Title: "Energy efficient image communication over wireless sensor network"

She has also conducted Viva voce for her Candidates at Sankara University.

- Mr. S. Sathish Kumar, "An efficient approach to digital Angiographic blood vessel detection" on 11th Aug. 2014
- Mr. M. Moorthi, registered under Sankara University "A fast and improved quality model for medical image compression" on 26th Sep. 2014
- Mr. M. M. Madhu, registered under Sankara University "A new approach to face recognition system" on 6th Oct. 2014

2.Dr. Jayaparvathy conducted PhD viva voce examination for her candidate Mr. S. J. Sugumar, registered under Anna University on 27th Oct. 2014.

Thesis Title: "Intelligent techniques for averting human -elephant conflict in the forest border areas"

3.Dr. R. Rajavel conducted PhD viva voce examination for his candidate Mr. R. Sathishkumar, registered under AMET University on 2nd Dec. 2014.

Thesis Title: "Analysis of imaging and communication systems for modern autonomous underwater vehicles"

FUNDED LABS - PROPOSALS AND EQUIPMENT PURCHASED

☒ Dr. R. Rajavel, Assoc. Prof. and Mr. S. Joseph Gladwin, Asst. Prof., had sent the proposal to ATMEL University Program, India to set up ATMEL MCU Center at Department of ECE, SSNCE on 09, July 2014.

☒ Dr. R. Rajavel, Assoc. Prof. has got sanctioned 20 numbers of TIVA C Microcontroller Launch pad and numbers of MSP430 Wireless Development Kits worth of Rs. 33,000 and Rs. 60,000 respectively by TI University Program, India to setup "TI Embedded Systems Lab" at Department of ECE, SSNCE.

☒ Dr. R. Rajavel, Assoc. Prof. had sent the proposal to TI University Program, India to set up TI pure C2000 MCU Lab and Analog System Design Lab at Department of EEE, SSNCE on 02, December 2014.

STUDENTS CORNER

ASSOCIATION OF ECE & ORBITCE 2k14

◀ ASSOCIATION OF ECE 2014-2K15 ▶

The Activities for the Academic year 2014 – 15 of Association of Electronics and Communication Engineers (of Department of Electronics and Communication Engineering) was Inaugurated on July 07, 2015 at Mini Auditorium, SSN CE Campus.

Dr. Rajeev Shorey, Ph.D, Programme Director, ITRA-Mobile, Information Technology Research Academy, A Division of Media Lab Asia, Ministry of Communications and IT., Govt. of India, inaugurated the Symposium by Lighting the Kuttuvillakku. He also gave a keynote talk on "Emerging Telematics Services for Smart Cars". Mr. Febin Steve Jose, President, AECE presented a report on the History of AECE and Activities proposed to be conducted during this academic year.

Ms. Priyanka Ganesh welcomed the gathering.

During the Inaugural function AECE forum was also inaugurated. Activities to be supported in the forum were also highlighted.

Office bearers elected for the academic year 2014 – 15 were introduced to the audience. Ms. Anu Rekha, Secretary, AECE proposed the vote of thanks.

ORBITCE 2k14

Orbitce2K14, a National Level Student's Technical Symposium, was conducted by the Association of Electronics and Communication Engineers (of Department of Electronics and Communication Engineering) on September 04, 2014.

Mr. K. Sridhar, Scientist-F and Head, Communications Systems Group, SAMEER, Chennai-113, inaugurated the Symposium by Lighting the Kuttuvillakku. He also gave a talk on "Communication Systems – Present and Future", and released the official souvenir, "SURGE". Ms. Priyanka Ganesh, Secretary AECE2K14-15 welcomed the gathering. Mr. Febin Steve Jose, President, AECE2K14-15 presented a report on the Orbitce2K14. Dr. S. Salivahanan, Principal offered his felicitations.

During the Symposium following events were organized for the students, by our students: Paper Presentation, Project display, Programming Contest, Circuitrix, M-Guru, Mathomania, Freeze Quiz, Be a Prof, Crack2Talk, Mock Placement, Treasure Hunt, Juke box, Scribblers, Triple T, Wizard and Gaming events.

Workshops on "Android with Cloud computing" and "Audrino and Embedded systems" (both by Uniq Technologies were organized for the benefit of students.

Prizes (Certificates and Cash prizes) to the winners were distributed by the Head of the Department Dr. S. Radha and other Professors of Dept. of ECE., during the valedictory function.

About 4000 Students from various engineering colleges in around Chennai participated in the event.


TREASURE
HUNT
Treasure Hunt


ORB


ORBITCE


Orbitce


Juke
BOX


ORBITCE

CONFLUENCE

ORBITCE - BEHIND THE SCENES

ORBITCE - 2k14 was a grand success with the largest student participation so far. Organising ORBITCE has been one of the best experiences in my entire college life.

Firstly, I thank the core committee members Selva Ganapathi, Priyanka Ganesh, Dale Mathews, Rajagopal Balathandhayutham, Anu Rekha, Arun Narasiman and Sriram Jeganathan and all the other fourth years without whose support ORBITCE would have been hard to organise.

I also thank the publicity team responsible for bringing in the crowds and the decoration committee both technical and non-technical for coming up with creative ways to give an attractive appearance to the department and its surroundings.

Finally, I sincerely express my sincere gratitude towards the juniors,for being so cooperative and patient. It is the juniors, who helped us turn our dreams into reality.

-FEBIN STEVE JOSE ,President,AECE

DECORATION TEAM SPEAKS....

Decoration is always necessary for an event to be attractive and successful. Being the central building in our campus, our department had to be decorated for the symposium to be great. The only issue is that our building covers a huge area and it was very big to cover it up with just charts. So we had to come up with a theme that can decorate the entire building. We could not think of a singular theme at first, but the time was ticking by and we had to start the art works. We brainstormed for ideas and themes with the creative team and many other students of our department. Since we firmly believed that the decoration should be related to the technology that is being used today, we finally decided our theme to be "TECHNOLOGY". Inspired by the technical decorations at

various world level expositions, we decided to make a maiden attempt in building various centers of attractions that are going to be noticed not only by our college students, but students from colleges all over Tamil Nadu. We believed in the feasibility of this plan and immediately started to get into action. We also made sure that we could keep the budget as cheap as possible but at the same time not compromising on the quality of the furnished prototypes. There were four ideas finalized: Arc-reactor prototype for Iron-Man decoration, LED Orbitce logo, Interactive steps and Interactive Text Display.

The arc-reactor prototype was a 3 ft x 3 ft circular cavity that housed 10 incandescent (60 W) thereby taking in 600 W from the mains distribution board. Though it was less efficient to have incandescent bulbs, cost wise it showed a greater difference when compared to LED bulbs. The reactor prototype framework was done using cardboards and plywood. Ten bulb holders were mounted inside the hollow cavity spaced equally so that the brightness gets evenly distributed. Reflective sheets were fixed inside the reactor and the cavity was covered using translucent sheets. This was the cheapest and most attractive entity in our department building during the symposium.

Decoration at the department alone will not spice up the other excitement. So we thought we would have an attractive and eye-catching icon for our technical decoration this year. We designed a LED version of our Orbitce logo with approximately 800 LEDs powered by 12 V DC supply. This was the most hectic of all as it required soldering 200 nodes and it took about 4 hours of soldering to complete but the final output was so satisfactory and worth the workmanship.

DECORATION TEAM

Dhinesh
Jayaprakash
Alakar Srinivasan
Sibi Nikesh
Sirajudeen

Though we did a couple of eye catching decorations, any technical decoration would be incomplete without a prototype that could interact with the people. Keeping this in mind, we succeeded in building an interactive display that displays the word "ORBITCE" by lighting up the characters over which the person's hand is hovered. The characters were formed using LED strips and the hovering of a hand was sensed by InfraRed sensors placed at the center of every character. The device was built around an Arduino board running on an ATmega8 microcontroller and powered by 12 V DC supply.

Having a thought in mind that interactive devices are more exciting and engaging for the participants, we came up with the idea of having Interactive Steps at the staircase in our department. The idea is to sense the footsteps of people and to switch on/off lights accordingly. We used 10 Laser diodes, one for each step for launching a straight beam of light from one end of the staircase. The other end consisted of 10 Light Dependent Resistors (LDRs) and a comparator circuit to detect the light beams from the laser sources getting interrupted. The binary signal from each step's sensor arrangement switches an incandescent light. Therefore, ten lights were switched independently using ten sensors arrangements. The result is that, for every step the user takes on the staircase bulbs light up in a sequence.

We had a great response from the participants and our students for the newly introduced technical decoration ideas. We were able to accomplish this with the help of final year students and juniors!

PUBLICITY TEAM

The work we were assigned was publicity to various colleges for the symposium 'ORBITCE'. Really I feel proud to have a kind set of juniors to help us throughout and made our work easier. The progress of work we made was unimaginable and I really had a great confidence of getting a huge crowd. We reached almost all the colleges better than we expected. On the other side, our online publicity team worked out well in various strategies to bring up a great reach. It was amazing to get a great reach in such a small span of time.

TEAM

Praveen Kumar

Karthick Sundar

Jaya Prakash

Exactly five days before the symposium, we had a very tough challenge of publicizing our symposium to more than 50 colleges in the city. But our juniors gave their own time and split the work in a simple way and they did it in the given time. We were so nervous two days before the symposium and the whole pressure was with us to bring as much crowd as possible. We didn't know if our hard work would bear fruit for our special day. The day had come. And we were really amazed to get a big crowd that was never seen before and the only thing in mind was that "ohh! Yes we guys did it we can do wonders too!! ". Shortly it can be told as a big satisfaction in all our hearts and was a wonderful moment to be cherished in our college life. The spirit we had and the relief we got on that day was worth it. Finally I have to thank my team because without our juniors, core members and the various team members, the success would have been impossible. It was wonderful working with you people even during those tough times and the memories we got in those moments can't be forgot easily. My best wishes to our juniors to make our upcoming events in our department a grand success and make our symposium bigger and better in the coming years.

Thank You!!!

TECH CLUB

The Tech Club of ECE is started to explore and enhance the potential in the field of Electronics and Communication among the students of ECE. The Club's objective is to provide students with practical exposure into technology that has been missing from engineering colleges for long. Initiated by our alumni R. Shanmugam in the year 2014, the club has its main purpose focused on educating students on various fundamental technological requisites and promoting interest among students in research pursuits through workshops, projects, seminars and training programs by students as well as faculty members. The club will also provide a forum to guide students on MS, MBA and Placements while providing a platform to share their skills, talents and interests in addition to responses to their queries from expert faculty members.

SAILESH BARATHWAAJ,
(secretary)
JAYA KRISHNA,
(joint secretary)

To start with, we have the three most preferred domains among electronics and communication engineers:

- Embedded Systems,
- Signal Processing
- Wireless & Networks.

There are a few basic skeletal functions of the TECH CLUB that will definitely take place every year:

An orientation programme to the freshers into the department, followed by introductory sessions on each of the domains to help students identify their interests. Apart from that, sessions on the basic concepts pertaining to the above mentioned domains will be conducted to impart knowledge to the students. The primary motto of the club lies in the concept of learning by doing and hence, hands-on workshops on Arduino (Embedded), Matlab (Signal Processing) and Network simulator (Networks) will be conducted. From the above mentioned course works, students will be encouraged to implement mini projects and exhibit them in a mini project expo that will be conducted periodically. Another important avenue of focus will be, guidance for students who are planning to do higher studies. A common portal will be created that will contain all the required course materials. There are already active facebook groups containing preparation materials for competitive exams. We've also planned to create an online database of resources, of the projects previously completed by our seniors. Also people who have completed research internships and paper presentations will be made to share their experiences to the students to provide an idea about them.

The club will also foster development by creating an online forum for discussion regarding various technical and non-technical aspects and also circulate information regarding upcoming events in other colleges. Tech start-ups are a rarity in SSN, hence we would like to encourage people to come up with innovative ideas that solve environmental or other current technological deficits and hence provide the students with a platform to productize it. Classes on Matlab and Arduino have already commenced.

 A workshop on "MATLAB: BASICS" was conducted for the second year students of the ECE department. (17th July 2014).

⊠ A seminar on "Placement: An Eye opener" was given for the final year students of the department of ECE. (24th July 2014)

We've done a few sessions on the basics of Matlab and Arduino and have planned to conduct a few more sessions involving practical applications. We even hosted an event and a workshop during our department's technical symposium, Orbitce this year. The event was a line follower robotics event and the workshop was an arduino hands on workshop. Also, technical decoration projects were implemented to show our technical prowess that greatly proved to be a morale boost for the club. The club will then be extended to other departments as well, fostering vvall-round development. We also look forward for creating tie-ups with similar clubs in other colleges and conduct inter college competitions and workshops. These will be the basic functionalities of the club and developments will be implemented every year to ensure that the club attains its goals.

WATERPROOF ELECTRONICS-P2I

When you switch on the television you are bound to watch at least one commercial pertaining to a new mobile phone, camera, during a 'small commercial break' from your favorite show and one out of two of these are going to feature a beautiful model/actress getting wet along with the gadget only to discover that the smartphone is actually waterproof! 'Waterproof' is the new favorite word of most leading smartphone companies and an important selling feature of their newly launched products. What's the technology behind this? - Liquid-repellant nano coating.

The leading company in commercializing nano-coatings is P2i which have an already successful splash proof technology and a brand new technology both of which use pulsed-plasma enhanced deposition processing to permeate the coating throughout the device, attaching it to all surfaces.

The precise method for applying the nano-coating depends on the device but the overview of the general application process includes loading the devices into the chamber, lowering pressure, initial phase of plasma activities on surface, removal of water and contaminants, creation of free-radical sites, addition of monomer and polymerization which creates the hydrophobic layer and then the chamber is returned to room pressure and just like that, without the need for post curing, the product is ready to use.

Apart from being advantageous to the user as a gadget that can now withstand splashes, this technology also reduces the risk of financial losses and other effects of water damage for network carriers. The basic principle behind the technology is the lowering of the surface energy of the device inside out thus causing the water to form droplets and roll away instead of spreading and sticking to the device. Besides, the coating is 1000 times thinner than human hair so you will not even know that it is there!

Toshitha Kannan
3rd yr ,ECE

WHEN SATELLITES DIE....

The vast outer space has always been and it's still a home to a number of satellites. The man made satellites, usually launched for communication and remote sensing reasons, have a lifetime of about 10-15 years during which they can hover and serve their purpose. The lifetime of these artificial satellites are determined by the amount of propellants available and the component redundancy provided so that if there is a failure of one component it can be replaced with another. If the tonnes of propellants are exhausted or if a failure has occurred beyond recovery, then the satellite is "dead". Such dead satellites can pose a threat to its counterparts nearby or even has the danger of falling under the earth's gravity. Hence such satellites have to be identified at the dying stage itself so that once they are defunct they are properly disposed off.

The most commonly used methods of "cremation" include sending such satellites to graveyard orbit. The satellites are usually monitored 24*7 and during such observation when a failure is predicted, the satellite is lifted to a higher orbit where the traffic is absent thus avoiding collision with its neighbours. Another method involves destroying the ailing one by allowing it to fall under gravity. During such fall, the satellites which enter the earth atmosphere with high velocity are burned up. But such a way of discarding produces a lot of debris and it has to be made sure that they don't have harmful effects on the living beings. Blasting out the dying satellites with missiles sent from earth is another option present to cast off them.

Certain satellites are fixed with the help of robots which takes care of fuelling and other repairs. Such a restoration is mostly possible when there occur spaceflights through which the robots can reach the unwell satellites. Some mission controllers leave the dying satellite, which appears to be in control, to its own fate.
Thus the satellites are either fixed or got rid of, once their lifetime ends.

KAVYA.S
III yr, ECE.

MAKE A DIFFERENCE (MAD)

What A MADphoric life!!
If you think Saturdays and Sundays are those blissful God blessed two days of every week where you hate to see the morning sun, watch TV, hangout day in and day out with friends or just sleep like there is no Monday, you would love to know that there is something more to the weekends which can be ecstatic and simply amazing.
That weekend I would like to define as a MAD one(Caught up in the irony?!)

Make A Difference(MAD) is a platform that empowers youth to become change leaders who make positive social impact and create self sustaining communities.
Every week teachers in MAD put an effort to make each class of theirs more significant, meaningful and impacting. We fathom that our objective is to not just to instill a better understanding of English in our children but to be responsible mentors who produce conscientious, hard-working and compassionate human beings. Throughout this journey we experience a gamut of emotions – from ingenuous smiles that showcase content and satisfaction to moments that leave us speechless and nonplussed. And there are times when they make us feel supremely proud; proud of what they are, of what they learn from us and how they wish to follow their heart.

Time flies. Sometimes with the blink of an eyelid, everything around us changes. We at MAD always felt and knew that we were growing. That we will grow so fast, and have such a huge family in just a matter of seven years, however, is something we did not foresee in our wildest dreams. Yet here we stand, on the brink of entering our eighth year-23 cities strong; armed with projects, old and new, with thousands of volunteers and children, as 'One Big MAD'.

What made MAD grow so fast? What was it that motivated everyone to step forward and usher change? What is the very pulse of the organisation and values it upholds?
It was then that it hit us. The heartbeat of the projects, of the movement, of MAD is US. Change will be heralded only when we stand together-as a force of determined youth, a group of people with an unquenchable thirst, as a legion of fighters who never stop believing and as a family, as that One Big MAD we talk about. The 'Us' is what makes it happen. It Starts With Us.

Why is it that we say 'us'? Why not simply say it starts with 'you'? What is so magical about 'us'?

If one retraces the currents of history, the one thing people would notice is that the tide of change swept the world and moved nations only when an entire gamut of people came together. Sure, there were great leaders. But no war could have been won without that one soldier who held the garrison for days; Martin Luther King Jr's 'dream' would have remained unfulfilled had the people chosen not to respond to it unanimously; Mandela's crusade against apartheid or Gandhi's Satyagraha in the face of imperialism would have remained mere wishful thinking if not for the people moving forward with them, together, towards achieving their goal.

We have entered into an era of the people. Leaders can surely lead the way but change, real change, is possible only when each one of us takes ownership, each one of us leads from the front. No one person can do it alone.

MAD has evolved from an organisation that imparts English language skills to children-at-risk to a platform that empowers youth to take ownership of creating self-sustaining communities for the children to grown up in. For an organisation as young as MAD, the leap was a big one. MAD evolved too fast. Then again, it did happen. We evolved, our projects developed, new ones got added, and with that, our vision too underwent an overhaul. However, there is one thing that never changed. That one thing is the people and their support. For every project that was initiated, it was the hard work of the volunteers on ground that made it thrive. For ever new class or new shelter home we took up, it was the bunch of enthusiastic teachers who pushed in an enormous amount of effort to make those children utter a sentence in perfect English. For every child that we dreamt would attend college, it was the unwavering dedication of a mentor who helped to realize it.

We at MAD have a vision. That vision is to see each and every child of this country lead a healthy and safe life, to provide them equitable resources and opportunities. It seems like a highly unrealistic, unachievable goal.. Is it really so? Perhaps, but only if

no one comes forward. Then nothing changes, everything goes on as before. But if today everybody comes together, you and I, we, us, then can anyone dare to say that moving the mountains is not possible. That achieving this vision for our children is not. All we require is a belief, a belief that says that for every step we take as a team, a child or two can dream of a better life tonight. We know it in our hearts, and we hope every person reading this does too. Because #ItStartsWithUs.

Vaishnavi Sriram
IV yr,ECE
Center Head at Make a Difference

THAT ONE STEP TOWARDS A SOCIAL CAUSE

All of us in this world are blessed to be born as humans. With many stories telling us the need of God creating the humans, the truth that stands apart is that to help each other and build a healthy and peaceful generation. Right from the olden days to this milieu, there has always been a ghetto in the minds of people that turned them to be very conservative and putting down their social thinking ability. Always it is believed that the children form the future of our nation. But today with the statistical data of our nation showing a huge rise in the number homeless, illiterate, underprivileged children it is ironical to sustain without taking any measures to overcome it. Also our country is facing major crisis of pollution and death tolls due to epidemic diseases, putting us in threat. So there comes a call for the responsible actions of us, in order to take a step towards the burning social issues.

Being a college student, one most common and the simplest medium that one can adopt is nurturing knowledge and inculcating that learning process in many young minds. I was extremely happy when this was met by the "Teach A School" event of our EDC.I am very proud for being a part of it as it taught me what real happiness and pleasure means. It was at that time I felt that imparting knowledge and teaching a piece of something that we know, would go long miles in creating a brighter future for these young kids. Also current data shows that there are many children who are still deprived of their primary education.

If we could just take that one step in spending our leisure time with these kids, teaching and enjoying with them, I am sure that it will give you the feeling of life's fulfillment. All that it requires is the social interest and that hand of yours which is ready to be lent out for helping. This project would surely bring a massive change in the society if carried out at a faster pace with more people joining hands in building a better future.

Another way to extend this support of ours is organizing a fund raising event, where each of us can put in an affordable sum, contributed to resolve the problems of illiteracy, malnutrition, cure of deadly diseases and many other burning issues. This little effort of ours may go to the zenith of improving the lives of many, providing the basic necessities like food, education, medicines etc for many underprivileged people. Well, isn't this something that is possible by each of us? One can also indulge in the activities that involve collecting stationeries, eatables and basic requirements for daily life and distribute it to the needy students and people.

Periodic visits to old age homes and homes for the destitute children in order to distribute the above collected things, sweets, clothing and many other items may also suffice to provide happiness to the one giving and receiving. For isn't life build on that giving and receiving? Yes, this small outreach of ours may do wonders in the lives of destitute children, who believe that they have many sisters and brothers reaching out to them in need, and also for the old people, who may take each of us as a grandson/granddaughter, feeling satisfied and giving us their well wishes. So this small act if ours not only proves beneficial for the society, but also for us, helping us to receive abundant happiness and pleasure.

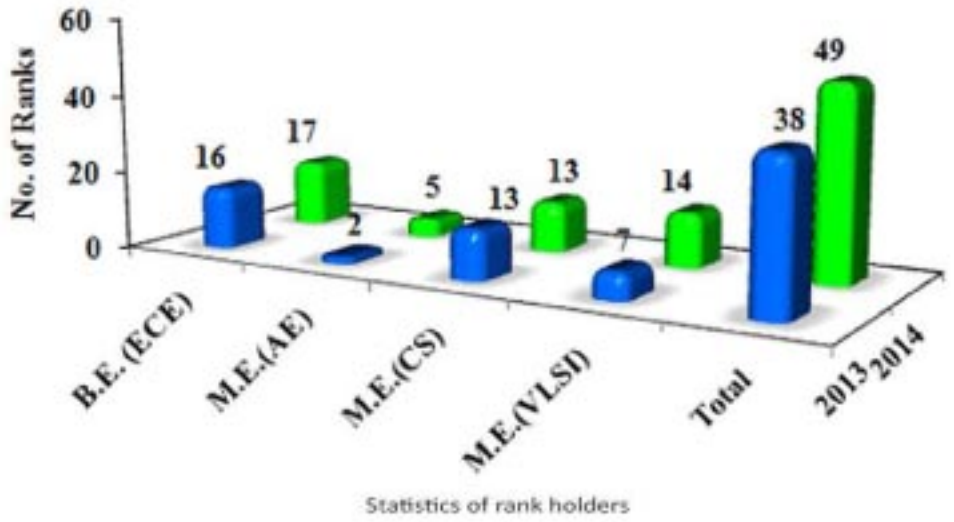
Yet another way is to raise your voice towards any awareness programs conducted across the city. There are many happenings which include the ones like Go green campaign, Fighting cancer, polio awareness, beach cleanups and rallies. By being a part of such prime programs, one can aid in spreading the word among the people so that there comes more involvement.

Finally, the thought conveyed is that this little contribution of ours towards a social cause can accrue and result in a million hands joining a project, in improving our surrounding and the nation at large. So it is important that we become sensitive to the needs of the people around us, for giving and sharing forms the woven parts of our lives. Being a part of a social cause is more like a bouncing ball! For a bouncing ball, more the force you put in throwing it, the faster it reaches you. Similarly, more the effort you put in to help people, the faster it reaches you as happiness, pleasure and contentment in disguise. So at least this year, all of us should make it a point to involve in any social event and take that one step towards a social cause.

- Aishwarya Ashok
3rd Year

UNIVERSITY RANK HOLDERS

Anna University released the Rank List for the year 2014. SSN Institutions bagged 87 ranks in UG program and 52 ranks in PG program. The Department of ECE bagged 49 University ranks. Sabareesh S. is awarded with a Gold Medal for having secured a CGPA of 9.27 and standing out as Topper among other students graduated in the year 2014 under Anna University. A more detailed statistics of the rank holders produced by DECE is given in the Chart below. The Faculty team congratulates the rank holders and young graduates.



Statistics of rank holders

SABAREESH S (2010 -2014) – UNIVERSITY TOPPER SPEAKS.....

Be passionate! Everything else follows.

I would like to thank my professors, teachers, parents and of course my dear friends who have always been a constant source of encouragement behind my success. As I always get inspired from my dad, the purpose of leading a life is more than just to be meaningful. It must be purposeful.

A life without purpose is a similar to the body without the soul. Having this in mind I have had the passion towards science and technology. So in any task that you take up, you need to have the interest and involvement. In the same way, Engineering too is a stream where you need to have the passion and patience in understanding what is actually happening in it. Having chosen Electronics and Communication, it is acceptable that the coursework was tough at times, but regular study and keeping track of the materials being discussed can be of a great help. Maintaining proper notes and following the lectures of my professors helped me stay aligned with the course. A single lecture or a concept that you don't understand can actually pull you down from understanding a plethora of material and phenomena that can follow it. So it is always the best to understand what you are studying is all about, rather than blindly following the principles stated in textbooks by authors. The college also provided with a number of tests and exams before we face our semester. It is a must to take up all these exams seriously. Consistent preparation and performance in tests is one of the main reasons for me to achieve this gift. I am also grateful to the management for awarding me and several others with merit scholarships for their talents each year. All these added to the motivation to achieve my goal. When it comes to the lab sessions, it is always good to do a bit of homework and study before actually attempting to experiment with the apparatus provided to you by the college. Doing so can help you save a great deal of time and you end up finishing experiments well ahead of time. This can enable you to do further experimentation and study, apart from what is actually covered in syllabus. Your knowledge will grow bounds and it is always good to know stuff apart from what is meant for exams alone. For utilizing the apparatus apart from the prescribed experiments, you of course need the prior permission from our faculty. You need to be grateful for the facilities provided in the lab and hence make a good utilization of it. Apart from academics, it is also equally important to enjoy college life. This is the phase of life where you get to meet so many people and friends, who will remain for the rest of your life time. Also participation in various college events and volunteering for college symposiums can get you a lot of experience to manage critical situations. I must accept that these help me today as I lead an independent graduate student's life. Hence always remember the following: work hard, play hard and make your parents, and the institution proud of you. Thank you SSN... You will always have a special place in my memories.

STUDENT INTERNAL FUNDING

☒ C. Arun Kumar, M. S. karthik, S. Kavya, S. Joseph Gladwin, R. Rajavel, "Automatic Skyscraper window cleaning system"

☒ Ramesh Ashwath, Shoban Narayan, T. N. Varshini, N. Venkateshwaran "Development of a new low cost programmable communication module using USB Radio".

☒ S. Prakash, S. Kirubaveni, "Design of Servo Humanoid Robot"

☒ G. Harshavardhan Raju, R. Karnik Ram, S. Harish, V. Aadhithya, V. Ashwin, G. J. Krishna, Divakar, Prita Nair, "Closed Loop Surveillance Quadcopter"

☒ B. Motilal, I. Jayanathan, Irfan Ahamed, N. Edna Elizabeth, "Information Broadcast through Bluetooth"

☒ K. Sundaralakshmi, S. Swethambari, Suresh R. Norman, "Energy Harvesting using PVDF film"

☒ Joseph D. Sankoorikal, M. Kiran Kumar, N. Edna Elizabeth, "Traffic Congestion Prediction Module"

☒ B. Rahul, S. Rajeshwar, Sam Sundar, B. S. Sreeja, "Internet Controlled Power Management System".

☒ Shashank Murthy, Sibi Chakravarthy, "Optimisation of Structural Design of Cantilevers in Piezoelectric Energy Harvesting

☒ Sistla Venkata Anish, L. R. Vignesh, Vijayakumar, R. Jayaparvathy, "Automated Parental Control Drug Infusion System"

☒ N. Archana, S. Sakthivel Murugan, "Development of wind speed frequency distribution algorithm and its implementation with DSP based hardware for real time".

☒ P. Janani, S. Sakthivel Murugan, "Development of an energy harvesting microbial fuel cell system using marine sediment for underwater applications"

☒ K. Malarvizhi, R. Jayaparvathy, "A hybrid fleximode pricing scheme for smart grid"

CONFERENCE ARTICLES

☒ M. Deepak, V. Ashwin, R. Amutha, "A New multistage multiple image encryption using a combination of chaotic block cipher and iterative fractional fourier transform," International conference on networks and soft computing, Aug. 2014.

☒ Prasanna Venkatesh, Nitin Narayan, Sailesh Bharathwaaj, M. P. Actlin Jeeva, P. Vijayalakshmi, "Modified DCT based speech enhancement in vehicular environments," 16th IRF International Conference, Oct. 2014.

☒ S. Yogeshwaran, "Real time voice identification based geared control system in LMV using MFCC and VQ algorithm," EPSCCON'14 - A National Conference, 2014

☒ Alagu Sanjana, "Performance of transmitter pre-processing aided cooperative downlink MC-DSCDMA system," IEEE International conference on Ultra-Wideband, Paris, France, Sep. 2014.

INTERNSHIPS

☒ Shashank Murthy, IV year B, IITM summer internship programme 2014, Department of Electrical Engineering from 1st May to 1st Aug. 2014.

☒ K. Mila, IV year A, Intergraph SG & I India, Hyderabad from 3rd Jun. to 11th Jul. 2014.

☒ S. Hariharan, IV year A, "Non-intrusive load monitoring using artificial neural network," Tata Consultancy Services, Siruseri, Chennai between 6th Jun. to 7th Jul. 2014.

☒ S. Yogeshwaran, IV year B, "Big data analysis and data cleaning automation using R tool," Tata Consultancy Services, Siruseri, Chennai between 6th Jun. to 7th Jul. 2014

☒ S. Prasanna Venkatesh, IV year B, TATA Communications Ltd., at IITM Campus, Chennai from 9th Jun. to 4th Jul. 2014

☒ R. Pallavi, IV year B, LUCAS-TVS Ltd., Padi, Chennai from Jun. 11th to Jun. 27th, 2014

☒ R. Bharathi, R.Gowshika, R. Geetha priya, III year A, Departments of Inspection and Testing, Quality Management and Development at Bharat Electronics Limited, Chennai, from 18th to 23rd Jun. 2014

☒ Priyamvadha Krishnakumar, IV year B, "Research and implement the intelligent video surveillance through image processing," Bosch Ltd., Bangalore from 20th Jun. to 18th Jul. 2014

☒ S. Srihari III year B, PACK & SEND North Sydney, Australia from 23rd to 27th Jun. 2014

☒ T. N. Varshini, III year B, University of Hyderabad from 23rd Jun. to 11th Jul. 2014

☒ Vignesh Sridharan, IV year B, "Photocurrent detection in carbon nanotubes" as a Summer Research Fellow at IISc, Banglore during Jun. – Aug. 2014

I-CELL ACTIVITY

☒ T. S. Jaikrishna, B. Sailesh B, IV year, "MATLAB Programming - Part I," on 17th Jul. 2014 – 101 II/III year students participated.

☒ T. S. Jaikrishna, B. Sailesh B, IV year, "MATLAB Programming - Part II," on 7th Aug. 2014 – 60 II/III year students participated.

☒ R. Dinesh, IV year A, "Introduction to Embedded Systems," on 21st Aug. 2014 – 25 students – IV year students participated

WORKSHOPS ATTENDED

☒ S. NivethaLakshmi, D. Gracia, N. Archana, Mariam cathy Joy, P. Priyadharshini (M.E. VLSI) "Analog and digital design using Cadence," Karunya University, Coimbatore, 23rd & 24th Jun. 2014.

☒ Mr. Jaikrishna and Mr. Dinesh, IV ECE, Mr. Srinath and Mr. Srihari, III ECE and Mr. Harshavardhan Raju, II ECE attended the "Internet of Things" camp organized by FICE, MSME, PES University, held at PES University, Bangalore between 7th and 11th Jul. 2014. Mr. W. Jino Hans, Asst. Prof. accompanied the students.

☒ G. Harshavardhan Raju, II year A, S. Srihari and N. Srinath, III year B, T. S. Jaikrishna and R. Dinesh IV Year A have participated in Internet of Things Camp at PES University, Bangalore from 7th Jul. to 11th Jul. 2014.

☒ M. Anusha, A. Gowthami, D. Lakshmi Priya, R. Sharmila Devi, K. Malar Vizhi, M. Maheshwari (M.E. VLSI), "Workshop on Cadence tool," Easwari Engineering College, Chennai, 10th & 11th Jul. 2014.

☒ S. Deepika, S. Sasi Princy, Binlin Jefry, R. Nandhini (M.E. VLSI), "Nano-materials and Microsystems," Nitte Meenakshi Institute of Technology, Bangalore, 14th Jul. to 18th Jul. 2014.

☒ R. Indhu, II year M.E. (CS) "Nanomaterials and MEMS," at SSNCE from 14th Jul. to 18th Jul. 2014.

☒ P. Yasasvini, K. S. Vaishali, R. Sushmitha, Swetha Vivekanandan, III year B "Research on embedded systems," IIT Madras on 31st Jul. 2014.

☒ P. Prathima, V. Karthick, II year M.E. (CS) "Cryptography and network security," SSNCE on 21st and 22nd Aug. 2014

☒ S. Varsha, R. K. Rasiga, N. Srividya, V. Soniya, K. Sruti, III year B, "Robotics workshop" IEEE India Student Activities Committee and Lambda Edulabs, Sathyabama University, 27th & 28th Aug. 2014.

☒ J. Vinitha, N. Priyanakavasan, R. Lakshmi Priya, I year M.E. (CS) "Comprehensive hands-on experience on mems design and simulation using Intellisuite software," SSNCE, 12th & 13th Sep. 2014.

☒ P. Prathima, P. Suresha Barani, II year M.E. (CS) "Workshop on NS2 for MANETS, VANETS and sensor networks," Jeppiaar College of Engineering, 25th and 26th Sep. 2014.

☒ D. Piruthiha, S. Sudharsan, I year M.E. (CS) "Recent Developments in Medical Image Processing" SSNCE, 30th and 31st Oct. 2014.

☒ Aishwarya Ashok, Aparna Ramanathan, III year A, "Digipreneur - Digital Marketing Workshop," SRM university, 10th to 13th, Sep. 2014.

☒ Toshitha Kannan, III year B, "Molecular biotechnology and bioinformatics," International centre for stem cells, cancer and biotechnology, Pune, 22nd – 26th Sep. 2014.

SPORTS ACHIEVEMENTS

☒ N. Hema Priya, II year A participated in Junior National Chess Tournament and represented Tamil Nadu state held at Pune, Maharashtra from 10th to 18th Jul. 2014.

☒ T. R. Arjun, IV year A participated in Zonal volley ball tournament at KCG College of Technology on 8th Aug. 2014.

☒ Gohulalakshmi, III year A represented the Anna University badminton team in the Tamil Nadu Inter University tournament organized by SDAT, Chennai during 18th Sep. to 20th Sep. and won prize.

☒ P. Ramalingam Karthik, III year B has participated in various chess tournaments organized by Viruthunagar Chess club, VIT Univeristy, Vellore and PITS Tanjore.

☒ R.Bharathi, IV year A, participated and won prize in Anna University Inter Zone Chess tournament, held at Sri Krishna College of Engg. & Tech, Coimbatore on 12th Sep. 2014.

☒ N. Hema Priya, II year A participated in Tamil Nadu State Under 25 Chess Tournament held at Nehru Stadium, Chennai from 20th to 24th Aug. 2014

☒ N. Hema Priya, II year A participated in Anna University Zonal Chess Tournament held at CIPET, Chennai on 14th Aug. 2014.

☒ Gohulalakshmi, III year A has won the winner's trophy in the Anna University Inter zone Badminton tournament held at PSNA College of Engineering, Dindugul, during 25th Sep. to 27th Sep. 2014.

☒ K. Sreeram, II year B has participated in PITS Basketball Tournament held at PITS Tanjavore from 19th to 22nd Sep. 2014.

☒ Ananya Ravi & Alagu Sanjana of IV year A participated in Inter zone Basket ball tournament held at Sri Krishna College of Engg. & Technology, Coimbatore between 6th and 8th Oct. 2014.

CONTESTS

☒ S. Varsha, R. K. Rasiga, N. Srividya, V. Soniya, K. Sruti, III year B, participated in a Robotics zonal level contest organized by IEEE India Student Activities Committee and Lambda Edulabs at Sathyabama University on 10th Oct. 2014.

☒ A Project titled "Automatic Skyscraper Window Cleaning System" by C. Arun Kumar, M.S. Karthik, S. Kavya of third year ECE, under the guidance of Mr. S. Joseph Gladwin and Dr. R. Rajavel is selected for Texas Instruments Innovations India Design Contest 2015.

☒ V. Girish & D. Sam Sundar (4th year) won 1st place and Hariharan & Pranav Asokan (4th year) won 3rd place in "The Number Thing" contest conducted by LatentView Analytics.

MUPHORIA – Winners (S. Rajeshwer& D. Sam Sundar – 4th year)

Muphoria is a data analytics competition hosted by one of India's largest data analytics companies, MuSigma. It's a competition where a real world business problem is given to the students along with huge data associated with it. In the July 2014 edition of the competition, the problem statement was pertaining to food recommendations for a fictitious company based on historical analysis of data provided. This leg of the competition was won by students of SSN College of Engineering from the Electronics and Communication department, Sam Sundar & Rajeshwer S of 4th year. They used a heavily modified version of the collaborative filtering methodology to rank the food item preferences for each of the users according to their history of purchases from the given data, also taking into account the profits that could potentially be earned by the fictitious company if recommended. This food recommendation system was built using the R language, which is used widely for data analytics and was made to be highly efficient, i.e. their program could crunch several million entries of data within minutes. They were not just required to program the food recommendation system, but also were made to prepare business plans based on the data through observation, which was executed by them flawlessly. For all their efforts, they were awarded 2 Lakhs in cash prize and an opportunity to interview with MuSigma directly at their campus in Bangalore.

SERVICE TO THE COMMUNITY

☒ P.Kaythry, Asst. Prof./ ECE, received "Best NSS Programme Officer award" for Tamilnadu State for academic year 2011-2012 on 3rd Dec. 2014, at Nehru stadium. Dr. Selvaraj, Honourable Minister for Sports and Youth Affairs, Tamilnadu presided over the function.

☒ S Sathivel Murugan, Asst. Prof., provided an amount of Rs.2 Lakhs as scholarship to MASS (Mahendra Alumni scholarship scheme) function held at Mahendra Engineering College on 10th Oct. 2014.

☒ S. Sanjana Smruthi, II year B has participated in 'Teach a School' an initiative by LAKSHYA-Entrepreneurship Development Cell, on 12th Aug. 2014.

CAMPUS PLACEMENT

– DEPARTMENT OF ECE (2014-2015)

PLACEMENT CO-ORDINATORS

Alakar Srinivasan

Mahita Mahesh

G. Shri Ranjani

E. Tamilarasan

Placements are an integral part of any student's career! And so it is for us. The entire process, right from taking the aptitude test to attending the final HR interview is like a machine. These steps form the various parts of the machine and we, the placement coordinators were just the lubricant oil in this machine. Each and every material that enters into this machine undergoes a transformation and comes out as a finished product. The kind of product that comes out depends on what was put in and what external factors affected the machine and the material during the process. In the end, there is some change or the other in every material fed into the machine. The lubricant oil is just essential to keep the machine running smoothly and to an extent help in the making of a successful product.

So how did this lubricant come??

The faith and confidence our friends and staff coordinators had in us made us the "Placement Coordinators". We had an initial meeting with Krishnan sir and Ramesh sir who instructed us clearly what our roles would be. Our first task was to collect all possible details from our classmates. Then on, for each and every company that came for recruitment, our task was to collect the names of students interested and eligible for the company. Also, we were present in the placement arena during the process to ease out the work and also to support our friends. On most days we were attending the placements ourselves apart from carrying out our role. Each and every one of us learnt a lot out of the placement drive. We honed up our Aptitude, Technical skills, management skills and communication skills in order to fit into the different types of companies - IT, Core and Business Analytics. Hours of preparation reaped fruits of knowledge and certainly job offers. These are things which all of us learnt in these 4 months. But one additional thing that we, as coordinators learnt was time management. Managing our time between attending placements, organizing them and also writing Unit Tests was a tough task indeed. Thanks to our HOD mam Dr. S. Radha and the faculties Mr. C. Thiruvenkatesan sir and Mr. C. Annadurai sir, we could pull it off pretty well. Mr. I. Nelson sir, our staff coordinator provided us all the support and guidance that we needed at all times, Thank you sir. Mr. K. J. Jegadeesh Kumar sir, our OD in charge, systematically and very patiently handled our attendance, Thank you sir. We would also like to thank our friends who supported and helped us so that we could carry out things in a much better way.

We are proud to say that most of us are good finished products now. There is still time for all of us to become successful finished products. And it doesn't stop there. The next batches of materials are in the making and the Machine keeps running...

PLACEMENT DETAILS

(AUGUST 2014 - DECEMBER 2014)

STUDENT WITH HIGHEST PACKAGE OFFER

D. Sam Sundar
Thorogood Consultancy

STUDENTS WITH CORE COMPANY OFFERS

N. Arun Kumar

M. Divya

Krishnapriya

M. Santhosh Kumar

R Sathiya

G. Shri Ranjani

J. Sriram

S. Venkatesh

S. Yogeshwaran

No. of Dream Offers

34

No. of Core Company Offers [Robert Bosch]

9

No. of IT Services Offers

71

REFLECTIONS

ALUMINI SPEAKS....

SHANMUGAM RAMASAMY (2010 - 2014) – PURSUING MS AT GEORGIA TECH.

NOTHING WORTH HAVING COMES EASY

"You can't connect the dots looking forward;
you can only connect them looking backwards,
you have to trust that the dots will somehow
connect in your future. You have to trust in
your gut, destiny, whatever; because believing that
the dots will connect down the road will give you
the confidence to follow your heart, even when
it leads you off the well worn path".

One of my favourite quotes, delivered by Steve jobs in his Stanford commencement speech. It brings smile thinking about how I am starting this article with a quote, reminds me so much of my Statement of purpose. 'Brainstorm before you write', was the common advice I got when I enquired about the art of writing a Statement of purpose. So I posed a few questions to myself, 'What have I accomplished in these 4 years? How many papers have I published? How much internship did I do?' My mind was blank, literally blank, if there was a camera taking pictures inside, it would have flashed a white screen. Not sure about what to write, I sat down before my computer and went through my seniors SOP's. Reading about their accomplishments certainly affected my confidence. So now I was stuck seriously thinking about what I had

actually accomplished. I knew I had a passion towards a Master's degree, and a lot of knowledge in the domain of signal processing, acquired through several online courses on Coursera, and from my professors, certainly not much from Anna University though. However, a huge problem was that I didn't have any proof in the form of research papers or interns. So apart from writing about what I had done, which was quite insignificant, I wrote more about what I was planning to do, and about my knowledge and passion regarding signal processing, and how I would make the best use of a given opportunity. I put in a tremendous amount of effort to make sure every sentence portrayed my interest and enthusiasm. Some important realizations that I made while writing my SOP:

1. In order to condense your SOP, isolate each paragraph, and try to convey the same message in fewer lines.
2. Make sure there is a nice flow to your SOP, everything should be chronological and well connected.
3. Don't forget to write about your future goal (i.e. What you are planning to do with your Master's degree).

After having spent almost 3 months on my applications I submitted all of them successfully. The next phase was awaiting the results. Checking my mail at least twice a day, if not more, was a routine. My first decision letter was a reject from Rutgers, a university I had considered safe. I wasn't upset, because I knew if there was something I could have done, I had already did, hence there was nothing to regret. Then after a couple of weeks, came the best day of my life, an admit from CMU, one of my most ambitious universities. I remember how crazy I went, running around the house with joy, hugging everyone in the family, and the numerous phone calls and wishes I got. Just when I thought things couldn't get any better, there came another mail, this time from Georgia tech, another dream university of mine, granting me an admit. My happiness could not be described in words. It gave me a sense of accomplishment. It made me realise that price of success is hard work, dedication to the job at hand, and the determination that whether you wvvcin or lose you had applied the best of yourself to the task at hand.

At last it's done! Thank U SSN!!

TAMIL PAVAI (2010-2014) – EMPLOYEE AT PAYPAL

It was our department that provided the opportunity for us to explore the various areas and discover our area of interest. During the final year project we were given complete freedom to choose our field and guide. All the professors made sure we are through in our basics so that we will have a clear view about the fields available. The Lab classes were never restricted to the prescribed experiment but we were given chance to try out our own experiments. I guess it was this tat helped us improve our practical knowledge and especially improve my programming skills which got me where I'm today.

I need to thank our HOD and my guide for giving us all support to come out with our own ideas and implementing them. Our project was displayed in many competitions including CEG, NIT and won it was because of the support and encouragement that our department staffs gave we were able to achieve this. We were given all support directly and indirectly by everyone in our department from Our HOD to lab Assistants who helped us get apparatus, equipment, etc. I must thank my guide Mr. Suresh R. Norman who gave us the freedom to try our different ideas and also helped us in all possible aspects. I am also thankful to all the other professors of our department and other departments who helped me throughout my project and those who framed the path for my future with their knowledge.

ALUMNI UPDATE: (LATE JUNE 2014)

☒ Mr. Srikanth (2013 passed out ME VLSI) has got admission to Ph.D. programme at IIT Madras (Jul. 2014 admission).

☒ Ms. Y. V. Bhuvaneshwari (2014 passed out ME VLSI) has got admission to Ph.D. programme at IIT Indore (Jan. 2015 admission).

FORTH COMING EVENTS

3rd National Conference

on

Information and Communication Technology

(NCICT-2K15 - April 09 & 10, 2015)

Organized by

Department of Electronics and Communication Engineering

SSN College of Engineering, Kalavakkam - 603 110