
Vol. 13 No. 4 May 2016

Message from Chairman



Dear Members,

Season's Greetings

Seasons are changing drastically, without following any specific pattern. Effects of manmade over exploitation of nature are taking a toll. The unseasonal rains in Tamil Nadu during peak summer are unprecedented. It reminds all the black days of December last year.

We at IEEE being the top professional organization, have to get involved in the disaster prevention activities in a scientific manner. We are proposing to call for a conference towards the end of this year wherein we will have sessions with various experts in the field of disaster management and mitigation. We would like to specifically attack issues which were faced during the Chennai floods in December 2015. You may recall that the main issue was power. The Electricity Board power was switched off to prevent untoward incidents of electrocution. This however hampered many communication systems. The only major means of communication was perhaps WhatsApp, which also could not proceed, once the handset got dead. Some apps are seen which could communicate without tower by communicating to mobiles each other. But this will require the mobiles to have this app running and its efficacy is to be proved.

I request all members to ponder on these, come out with ideas and participate in the proposed conference, the details of which will be posted in due course. We require new ideas and practical means to work during such calamities, which are bound to increase in the future.

The conference per se will be announced soon as an event which could be bid for by the Academic and other Institutions in the Madras Section of IEEE. IEEE Madras would be partially supporting this event.

Meanwhile, all of us can be proud that the weather prediction has improved leaps and bound in the last few years, thanks to the excellent observation systems in the land, the ocean and the modelling capabilities which India has. The rain in May which is a rare phenomenon, during the hot "Agni Nakshatram" period was predicted accurately and warnings were issued on time. All these are possible only due to the technological developments in the country.

While the results for the Plus Two are round the corner, I welcome the new aspirants to the engineering colleges. I suggest you to go through the profiles of various branches of engineering and select the branch best you think suits you well and meets your interest. Discussion with seniors would be advantageous for decision making. A mild warning is not to yield to pressures from any one, including your family members to select a course which you think does not suit you.

Till next time,

Yours voluntarily

M A Atmanand
Chairman, IEEE Madras Section



Prashant R Nair

Editor

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Message from the Editors



H.R. Mohan

Chief Editor

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Dear Readers,

Welcome to the 4th issue of IEEE MAS LINK for the year 2016 which features the activity reports from 24 Student Branches, Seven Society Chapters & Affinity Groups apart from the Section activities. The SBs and AGs whose activities published include: Aarupadai Veedu Institute of Technology, Chennai; Adhiparaskathi Engineering College, Melmaruvattur; Cape Institute of Technology, Kanniyakumari; Dr. NGP Institute of Technology, Coimbatore; KPR Institute of Engineering and Technology, Coimbatore; Ganadipathy Tulsi's Jain Engineering College, Vellore; Jeppiaar Institute of Technology, Chennai; Karunya University, Coimbatore; Karpagam College of Engineering, Coimbatore; Kings College of Engineering, Pudukkottai; Kongu Engineering College, Erode; Mar Ephraem College of Engineering and Technology, Marthandam; K.S. Rangasamy College of Technology, Tiruchengode; Panimalar Institute of Technology, Chennai; Dr. Sivanthi Aditanar College of Engineering, Tiruchendur; Sri Sai Ram Engineering College, Chennai; Sathyabama University, Chennai; Saveetha School of Engineering, Saveetha University, Chennai; Sona College of Technology, Salem; Sri Ramakrishna Engineering College, Coimbatore; St. Peter's College of Engineering and Technology, Chennai; Sri Venkateswara College of Engineering, Chennai; VIT University, Vellore; SSN College of Engineering, Chennai; IEEE Madras Section; IEEE Computational Intelligence Society; IEEE Product Safety Engineering Society; IEEE Computer Society; IEEE Professional Communication Society; IEEE Madras Section SIGHT; IEEE Madras Section – Women In Engineering; and IEEE Madras Young Professionals Affinity Group;

The evaluation of the of projects for Section funding has been completed by the SPF team and the list of nine projects which were selected for funding to a total of Rs. 67,000 appears elsewhere in this issue.

We are happy to include two articles relating to Overview of Router & Router Architecture by a senior practitioner which we are sure will interest both students and working professionals. We look for more articles from both academic and professional covering trends and developments in engineering and technology.

In the Announcements section, you will find an important announcement regarding revival / revamping of SBs which are dormant along with the call for SB mentors to assist the Section in the process of activating SBs. Other announcements include: Call for Proposal to Conduct the Conference on Disaster Responsiveness/Disaster Management; New SB Chapters of Societies & Affinity Groups; Call for participation: 2016 Volunteer Leadership Training Program (VOLT); IEEE Foundation Grants; IEEE Senior Members; Group Challan Payment Option for IEEE Membership; Awards & Nominations.

The response to the MAS LINK READER QUIZ-1604 was overwhelming. MAS LINK congratulates the winners Mr. M. Jawahar, Student Member, MEPCO Schlenk Engineering College, Sivakasi and Dr. K. Porkumaran, Professional Member, Dr. N. G. P. Institute of Technology, Coimbatore who will receive Amazon gift coupon of rs. 500/= which are sponsored by IEEE Computer Society. The details of READER QUIZ-1605 whose prizes are supported by IEEE Communications Society appears in this issue and expect the readers to participate in large number.

Along with the usual column "Info Resources" we have published a short review of the book "Mastering Software Project Management". The Forthcoming Events lists a no. of conferences which would interest our readers. We look forward contributions as per guidelines at <http://ieeecs-madras.managedbiz.com/link-web/report-to-maslink-submission-guidelines.pdf> To issues are MAS LINK are archived and can be accessed at <http://ieeecs-madras.managedbiz.com/link-web/index.html>

Aarupadai Veedu Institute of Technology, Chennai

Lecture Series



The IEEE SB in association with the Dept. of ECE organized a series of lectures on various topics. The lecture series was coordinated by Mr. P Subramanian, Assoc. Prof/ECE

- 18th Mar 2016: Mr. A Subbiah, AP/ECE, delivered a lecture on “Power Plant Instrumentation” covering topics such as instruments used in thermal power plants like pressure transmitter, temperature transmitter, flow sensors and level sensors.
- 21st Mar 2016: Mr. R Pathamuthu, AP/ECE delivered a lecture on “ARM Processors” which covered topics such as ARM architecture, instruction set and programming.
- 22nd Mar 2016. Ms. R. Mohanapriya, AP/ECE delivered a lecture on “Skinput”, an input technology that uses bioacoustics sensing.
- 23rd Mar 2016: Ms. K. Sasirekha, AP/ECE delivered a lecture on “Smart Sensor Networks” covering topics such as types of sensors, applications, smart sensors and future technologies.
- 29th Mar 2016: Ms. R Indumathi, AP/ECE delivered a lecture on “Telemedicine” covering the concepts, applications and implementation of telemedicine.
- 29th Mar 2016: Ms. C Manibharathi, AP/ECE delivered a lecture on “Multimedia Compression” covering the need for compression and related techniques.
- 29th Mar 2016: Mr. R Suresh Kumar, Assoc. Prof/ECE delivered a lecture on “Cloud Computing” covering the need, working and applications of cloud computing.
- 5th Apr 2016: Mr. P Subramanian, Assoc. Prof/ECE delivered a lecture on “Content-Based Video Indexing and Retrieval” covering the concept of video data management and video retrieval.

Report by: Mr. P Subramanian , surya602@yahoo.co.in

Adhiparasakthi Engineering College, Melmaruvattur

5th International Conference on Computation of Power, Energy, Information and Communication



The IEEE SB along with Dept. of EEE organized two-day International Conference on Computation of Power, Energy, Information and Communication on 20th and 21st Apr 2016. The 5th edition of this conference was supported by IEEE Madras Section and CIS Madras Chapter. Mr. N Murugesan, Director General (EX), Central Power Research Institute Bangalore inaugurated the conference and released the proceedings. The first copy of the proceedings was received by Dr. D.P. Kothari, Director (Research), Gaikwad Patil Group of Institutions, Nagpur & Dr. N. Kumarappan, Chairman, CIS Madras Chapter. Others who participated in the inaugural ceremony included Principal, Dr. V. Ramasamy; Director, Dr. S. Jayashree; Vice Principal, Dr. R. Rajasekaran; Conference Program Chair, Dr. J. Baskaran, HOD/EEE and Dr. S. A. Elankurisil. The conference valedictory was graced by Mr. J. Ranjeeth Kumar, IAS and Dr. K. Ravi, Professor, VIT

Reported By: Dr. J. Baskaran, baski1@gmail.com

Cape Institute of Technology, Kanniyakumari

Workshop on Arduino



The IEEE SB, Dept. of ECE organized a two-day workshop on Arduino during 3-4, May 2016. Mr. P. Nagarajan, Professor and HoD/ECE welcomed the gathering and Mr. R. Solomon Roach, Professor and Coordinator of IEEE SB delivered the inaugural address. Mr. L. Arivazhagan, Assistant Professor and Co-coordinator of IEEE SB gave an introduction of Arduino, LCD, Seven Segment, LED, Motor and ULN2003 driver followed by a detailed explanation of how to use these devices. Five IEEE members and two Non

IEEE members from the final year ECE, acted as course instructors. They helped the students in giving hardware connections. 33 students participated in the workshop in batches of three. Students were taught on developing interactive objects, taking input from a variety of switches or sensors and controlling variety of lights, motors and other outputs. An interactive session also took place in which students were encouraged to come up with new ideas which could be implemented through Arduino. Based on the performance, one batch was selected as the best and cash prize was presented by Prof. P. Nagarajan.

Report by: Mr. Arivazhagan.L, arivulaxmanan1987@gmail.com

Dr. NGP Institute of Technology, Coimbatore

Seminar on “Career Opportunities for Electrical Engineering in Core Functions”



The IEEE SB and the Dept. of EEE organized a seminar on “Career Opportunities for Electrical Engineering in Core Functions” by Mr. Ramasundhar, Founder, Switchgear Training and Recruitment Solutions, Coimbatore & Retd. DGM, L&T Switchgear Ltd, Coimbatore on 13th Apr 2016. College Secretary Dr. Thavamani D Palaniswami; Mr. O.T. Bhuvaneshwaran, CEO, Kovai Medical Center for Research and Educational Trust; Dr. K. Porkumaran, Principal and Dr. S. Jaganathan, HOD/EEE were present at the programme which was attended by 65 students.

Industrial visit to SWELECT Energy Systems Limited



The IEEE SB and the Dept. of EEE organized an industrial visit to SWELECT Energy Systems Limited, Vellakovil, Tamil Nadu on 20th Apr 2016. Class Tutors of 2nd year B.Tech EEE Ms. P. Rajeswari and Mr. S. S. Karthikeyan accompanied 48 students of EEE. SWELECT Energy Systems Limited provides solar power and sustainable energy solutions for a greener and healthier India. The company has 30 years field experience and a team of experts in power electronics and power systems owing to its strong backdrop of UPS and power conditioning / power quality systems.

Report by: Dr. K. Porkumaran, porkumaran@gmail.com

KPR Institute of Engineering and Technology, Coimbatore

National Conference on Innovations and Advancements in Electrical Sciences



IEEE SB and EEE Dept. organized a National Conference on “Innovations and Advancements in Electrical Sciences” on 29th Mar 2016 on the theme “Greener Energy for Future Generation”. Dr. P. Raj Kumar, Project Manager, Robert Bosch Engineering and Business Solutions Pvt Ltd, Coimbatore inaugurated the conference and spoke on “Embedded Controllers for Modern Applications”. Dr. K. Bommanna Raja, Principal presided over the inaugural session. Others addressed at the inaugural include: Dr. V.Kumar Chinnaiyan, HOD/IEEE and IEEE SBC, Prof. S.

Vivekanandan and Prof. G. Saravanan. Around 85 papers were selected for presentation from over 150 manuscripts submitted..

Technical Quiz

IEEE SB and EEE Dept. conducted a “Technical Quiz” covering all the fields of engineering to bring out the hidden talents among the budding Engineers on 12th Apr 2016. About 75 students participated in the Quiz. Dr. K. Bommanna Raja, Principal presented the prizes to the winners.

Report by: Dr. V. Kumar Chinnaiyan, kumarchinn@hotmail.com

Ganadipathy Tulsi's Jain Engineering College, Vellore



Guest Lecture on VLSI Design

The Dept. of ECE and IEEE SB organized one day Guest Lecture on “VLSI Design” on 10th May 2016. Prof. A. Manimegalai, IEEE SB Advisor introduced the Chief Guest Dr. S. Vijaykumar, Associate Professor of ECE, SITAMS, Chittoor, AP. Dr. S. Vijayakumar delivered a guest lecture on VLSI Design. In his lecture, he explained the concept of the Layers of CMOS fabrication and functions in details. The students interacted with the chief guest and clarified their queries.

Jeppiar Institute of Technology, Chennai

Elixir – 2k16 & Striderz 2k16

IEEE SB and EEE Dept organized the national level technical symposiums Elixir 2k16 & Striders 2k16 on 15th Mar 2016. Various events of the symposium included Paper Presentation, Circuit Debugging, Technical Quiz, Investigation and Greymatter Gaming, Rubix Cube, Extempore, Kleptomania, Digi Swarm, Electronic Tussle and Electro Puz. Prizes were distributed by the director Dr. N. Marie Wilson in the presence of the principal, Dr. V. Kannan.

CIEEMA – 2K16

IEEE SB organized CIEEMA – 2K16, a National Level Conference on Recent Trends in Computer Science, Information, Electronics, Electrical, Mechanical Engineering and their application on 3rd and 4th Mar 2016. Around 75 participants from various colleges participated.

Online Event – Poster Designing Contest

IEEE online poster design contest on the theme “Chennai Hub Congress” was organized during 20-28 Mar 2016. Out of 27 responses received, shortlisted ones were presented with goodies and certificate of appreciation at the CHC held on 8-9 Apr 2016.

IEEE Chennai Hub Congress 2016



IEEE Chennai Hub Congress 2016 (CHC-2016) was organized by the SB on 8th and 9th Apr 2016. The objective of the two-day congress was to create awareness on IEEE and how the membership in IEEE can be leveraged for advancement. Students from colleges like Sri Muthukumaran Institute of Technology, Sastra University, Sri Sai

Ram Engineering College, Sri Sairam Institute of Technology, SSN College of Engineering, Panimalar Institute of Technology, College of Engineering Guindy and Velammal Engineering College registered enthusiastically for this grand event. Various speakers at the congress and panel discussion included:

- Dr. MA Atmanand, Chair - IEEE Madras Section,
- Mr. HR Mohan, Chair - IEEE Madras Section SAC.
- Dr. Celia Shahnaz, IEEE R10 WIE Coordinator,
- Mrs. Vydeki Vijayakumar, Chair - IEEE WIE Madras Section.
- Mr. Ashwin & Ms. Niveditha, Students from VIT.
- Ms. Vishakha Khona, Developer at TCS.
- Mr. Santhosh Karnananda, Director Strategy at ICARE.
- Dr. Ulhas J Vasave, CEO, J V Gokul Charity Trust.
- Mr. Issac John Wesley, CEO, Ink monk.
- Mr. Shreyas, Mozilla Ambassador
- Ms. Kamala Tamilvanan, Business Development Executive, School of Excellence.
- Mr. Sanju Sony Kurian, Technical Lead, Kings Learning.
- Mr. Sasi Kumar, AP, Jeppiaar Institute of Technology.
- Mr. Chelliah Ramachandran, Regional Student Ambassador.
- Mr. Vijay Srinivas, IEEE R10 ECIM.
- Mr. A Aravindhana, Regional Student Ambassador.

College Director Dr. N. Marie Wilson and Principal, Dr. V. Kannan participated in the inaugural, which was presided by Dr. M.A. Atmanand. Mr. H R Mohan pointed out that this is the first Hub Congress in Madras. He appreciated the works of Mr. Jamal Mohamed and Mr. Susheel, Organizers of the IEEE Chennai Hub Congress 2016 as well as Mrs. Benisha M, SBC and Mr. Selvin Pradeep Kumar, SB Mentor. Dr. Celia Shahnaz, IEEE R10 WIE coordinator opened the Student Branch Activity Center.

Various sessions during the congress included presentations on: Ocean Observation; WIE Awareness; Nuclear Plasma Science and Society; IEEE and Membership Retention; IEEE Technical Society Chapters & Best Practices; How to think about your career; Social Entrepreneurship, Establishing & Survival of Start-up; Mozilla Learning Networks and Mozilla Clubs; 7 Streaks to Win Corporate World; Being an Young Professional; How to lead a happy life; IEEE SB Administration. A panel of experience sharing by volunteers and fun activities were also held. IEEE PCS supported ICT Quiz was conducted by Mr. H.R. Mohan, Chair, IEEE PCS and cash prizes were given to those answered the questions.

At the valedictory on the 2nd day, after a brief feedback session by the participants, the prizes and certificates were distributed by Mr. H.R. Mohan, Vice-Chair, IEEE Madras Section and the Director Dr. N. Marie Wilson.

The main objectives of the CHC were networking, entrepreneurship, career development and IEEE awareness. All the participants appreciated the sessions and the facilities extended by JIT SB and making their participation a memorable one. The event showcased volunteerism of JIT IEEE SB members, the interest and tireless efforts put in by them to make this event a grand success.



Karunya University, Coimbatore

IEEE PELS Inaugural



The IEEE Power Electronics Society (PELS) Student Chapter was inaugurated on 11th Feb 2016 by Dr. R .Seyezhai, Assoc. Prof/EEE, SSN College of Engineering, Chennai and Secretary, IEEE PELS, Madras Section. In her inaugural address, she highlighted the mission of the PELS and how this could help the academia in solving problems related to energy. She stressed that power electronics is the key for integrating renewable energy into the grid and the importance of power electronics in energy generation, management and conservation.

National Workshop on Control of Electric Drives with Advanced Power Converters



The IEEE PELS Student Chapter organized a two-day national level workshop on, "Control of Electric Drives with Advanced Power Converters" on 11th and 12th Feb 2016. Dr. R .Seyezhai, Secretary, IEEE PELS, Madras inaugurated the workshop and delivered a talk on "Introduction of Electrical Machines Drives". Dr. S. Sundar Manoharan, Vice-Chancellor; Dr. M. J. Xavier, Pro-Vice Chancellor; Dr. C. Joseph Kennady, Registrar; Dr. A. Shobha Rekh, Director, School of Electrical Sciences and Dr. A. Immanuel Selvakumar, HOD/EEE and Mr. K.Vinoth Kumar, PELS SBC graced the inaugural ceremony. Around 70 participants including PG students, research scholars and faculty members participated in this two-day workshop. Other workshop speakers and talks included:

- Dr. A. Vijayakumari, Assoc. Prof/EEE, Amrita School of Engineering, Coimbatore on "Design Consideration for Converters in Electric Drive Applications".
- Dr. S. Senthil Kumar, AP/EEE, NIT Trichy on "Design of Vector Control of Induction Machine Drives".
- Dr. S. Ganesh Kumar, AP/EEE, College of Engineering Guindy, Anna University, Chennai on "Basics of Passivity Based Control of DC drives".
- Dr. M. Kowsalya, Prof/EEE, VIT University Vellore on "Parallel Operation of Inverters".

Report by: Prof. K.Vinoth Kumar, yinothkumar@karunya.edu

POINTS TO PONDER: What's Mother's Day if you've been born in a machine and raised by robots?: As far-fetched as it may seem today, there are a couple of compelling reasons why some humans may one day be born without either a mother or father as we now know them, and with no other humans around to bring them up. The first is the uninhabitable Earth scenario: doomsday. This is the idea that one day our planet will not be able to support human life. This may be due to catastrophic climate change brought on by a large asteroid or comet impact, a nuclear winter following a global nuclear war or a pandemic so severe that humans do not survive. Whatever the cause of our demise, if humans want to ultimately survive and one day re-emerge, it makes sense to store the building blocks of people – ovum and sperm – ready for a resurrection of the human race once our planet is habitable again. There are already gene banks around the world that have been created to store plant seeds for just this kind of eventuality. <https://goo.gl/SqgPy6>

Karpagam College of Engineering, Coimbatore

2nd Apr 2016: An Entrepreneurship Development Programme on Solar Energy covering the topics such as Solar energy technology development in India; How solar energy can provide service in rural & urban areas; Basic design principles, installation and system maintenance; Providing small solar home system: start of a business; Developing a business plan; Day-to-day operations of business; Sales skills and selling solar home systems; and Government and state policies was organized. The participants included Architects, Consultants, SME Entrepreneurs, Professional Engineers, Electrical & Civil Contractors, Businesses looking at diversification.

9th Apr 2016: An Entrepreneurship Development Programme on “Why Self Employment – Advantages Over Wage Employment, Entrepreneurship Development – What, Why & How” was organized with Dr. B. Nagaraj, Head, Karpagam Innovation Centre as the resource person.

13th Apr 2016: Talk on Indian Startup Tour by Akshay Gunteti & Nidhiya V Raj: According to the speakers, whose initiative was the “Indian Startup Tour” is a pioneering journey to meet dynamic groups of Entrepreneurs, Innovators and Small-Scale Startups. It is a drive to propel 2000+ ingenious ventures with 40 advantageous meetups across 30 destinations spanning 10020 kilometers. The aim of this tour is to meet fellow entrepreneurs, investors, mentors, policy makers and government officials, to research on startups, incubators, accelerators, educational institutions and co-working spaces across the country and to identify the challenges faced by the entrepreneurial community, and thrive to find possible solutions for them.

16th Apr 2016: A motivational event on “Belief In Yourself” was organized with Dr. B. Nagaraj, Head, Karpagam Innovation Centre as the speaker

29th Apr 2016: A hands-on and experiential entrepreneurship program on the theme “Building A New Venture “ was organized. Participants interacted with experienced entrepreneurs through workshops, panel discussions and mentoring sessions. Entrepreneurial case studies were discussed. Participants formed groups and iterated a project/idea over 2 days to pitch and potentially launched it at the end of the program. This program aimed at aspiring entrepreneurs to conceive, plan, initiate and launch an economic activity or an enterprise successfully.

2nd May 2016: A guest lecture on “Think outside the Box” by Mr. Noor Mohammed was organized to help the students develop an insight towards how to think differently, unconventionally, or from a new perspective. This lecture, helped the students to develop an ability of novel or creative thinking.

Report by: Dr. B. Nagaraj, nagarajice@gmail.com

VIT University, Vellore

One day workshop on Recent Trends in Antenna Design

The IEEE SB had organized a one day workshop on “Recent Trends in Antenna Design” on 22nd Apr 2016. The workshop started with a brief introduction about the workshop by Dr. Srinivasarao Inbathini, SENSE, VIT University. The various sessions of the workshop included:

- Introduction to antenna and antenna parameters by Dr. P. H. Rao.
- Recent trends in microstrip antenna design by Dr. P. H. Rao
- Practical issues in antenna design by Mr. Ganesh, Deputy Director, Amphenol antenna division (Asia)
- Microstrip antenna design using FEM software by Dr. Srinivasarao Inbathini and Prof. G. Boopalan, SENSE, VIT, Vellore.

At the end of all sessions, all participants were given their valuable feedback about all seven technical sessions by antenna experts. The overall all feedback about the event was about the well reception of this programme.

This workshop attracted 58 participants (31- IEEE Members, 27 Non IEEE Members) at different level such as UG & PG students, Research Scholars and faculty of various engineering colleges from all over Tamil Nadu and Kerala, and has commented positively about the all three days programme.

Kings College of Engineering, Pudukkottai

Awareness program on Basic Electricity for Everyone and Electrical Safety



The IEEE SB and EEE Dept. organized an “Awareness Program on Basic Electricity for Everyone and Electrical Safety” to the students of St. Mary’s High School, Thirukanurpatti, on 4th Mar 2016.

Around 230 students attended the program and benefited from the talk by Prof. T. Kannan, Project Officer.

Mr. E. Venugopal, IEEE SBC delivered a special address on higher studies to the students.

Report By: Mr. E. Venugopal, venug2285@gmail.com

Kongu Engineering College, Erode

Valedictory Function



The IEEE SB organized its valedictory function on 2nd Apr 2016. IEEE SB and WIE annual reports for the academic year 2015-16 were presented by Mr. C. Rajkumar, Chair, IEEE SB and Ms. R. Akshaya, Joint Secretary of WIE respectively. Prof. K. Narayanan, IEEE SBC presided over the function and released the newsletter “Resonance VOL 5” for 2015-16. New office bearers of IEEE and WIE for the next academic year 2016-17 were introduced by Ms. V.R. Saraswathy, IEEE Staff Coordinator.

Report by: S. M. Soundarrajan, smsrajan94@gmail.com

Mar Ephraem College of Engineering and Technology, Marthandam



IEEE Orientation Programme

The IEEE SB organized the student orientation program (SOP) on “Benefits of IEEE membership” on 2nd Mar 2016. College correspondent, Rev. Fr. Prem Kumar; Principal Dr. Lenin Fred and Director Dr. N Austin graced the SOP. Student coordinators who addressed the programme included Mr. Abel Jacob, Secretary and Ms. Reshma Sara Reji, Treasurer of SB. On this occasion, a gaming event was conducted by Mr. Varghese Sunny, Vice-chair and Mr. Jacob Cherian, Senate member of IEEE SB.

Report by: Mr. Varghese Sunny, varghesesunny12345@gmail.com

K.S. Rangasamy College of Technology, Tiruchengode



Student's Technical Symposium on "Current Trends in Biotechnology and Biomedical Engineering"

IEEE-EMBS SBC organized a Student's Technical Symposium on "Current Trends in Biotechnology and Biomedical Engineering" on 29th Mar 2016 in which 29 papers were presented by the students. Dr. P. Ponnuragan, Head/Biotech presided over the symposium. Dr. Govindarajan, Director/Training Cell distributed the cash prize and certificates to the best five papers.



Workshop on "PCB-Designing"

IEEE SB organized a workshop on "PCB-Designing" by Mr. K. Raguvaran, AP/ECE on 1st Apr 2016 and covered the design and fabrication of PCB with the help of the CAD tools.

Dr. K. Thyagarajah, Principal presided over the workshop, which was addressed by Dr. C. Rajasekaran, IEEE SBC; Dr. K. B. Jayanthi, HOD/ECE and Mr. M. Nepolean, IEEE SB Chair.

Workshop on "ARDUINO"



IEEE SB organized a workshop on "ARDUINO" on 2nd April, 2016 by Mr. K. Raguvaran, AP/ECE on 2nd Apr 2016. The workshop was aimed at knowing about the design of Arduino with the help of the microcontroller boards. Dr. K. Thyagarajah, Principal presided over the workshop, which was addressed by Dr. C. Rajasekaran, IEEE SBC; Dr. K. B. Jayanthi, HOD/ECE and Mr. M. Nepolean, IEEE SB Chair.

Report by: Dr. C. Rajasekaran, raja7ksrct@gmail.com

The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function. – F. Scott Fitzgerald

Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity. – General George Patton

Panimalar Institute of Technology, Chennai

Chart Making Event

IEEE SB, WIE, SP, RAS & Communication Society, in association with Dept. of ECE & EEE organized a Chart-making event on 4th Mar 2016. Mr. A. Ramesh of second year ECE won the first prize.

Model Making Event



IEEE SB, WIE, SP, RAS & Communication Society, in association with department of ECE & EEE organized a model-making event on 7th Mar 2016. Mr. C. Sakthi Kumar, Director of the college interacted with the participants. The model "Smart City" made by Indira E, PriyaTharsshini S, Shami Seles. M, Shraddha Kamath, Niveda B of third year ECE won the first prize.

Essay Writing Contest

IEEE SB, WIE, SP, RAS & Communication Society, in association with the Dept. of ECE & EEE organized a Student Essay Contest on the theme, "Harnessing the Power of ICT for our New Initiatives". ICT for Digital India, an essay written by Mr. Yogesh Gudi of second year ECE won the first prize.



Lecture on Women Entrepreneurship and Entrepreneurs

IEEE SB & WIE in association with Dept. of ECE organized a lecture on Women Entrepreneurship and Entrepreneurs on 9th Mar 2016.

Sree Vishnupriya. K, Regional Program Executive from "ENACTUS", an international non-profit organization delivered the lecture. She highlighted the social stigma, an important factor which influence woman venturing into business and how to overcome it.

Woman's Day Celebration

The IEEE SB & WIE celebrated women's day on 10th Mar 2016. The event was presided by Dr. M. P. Chitra HOD/ECE. The speakers included Ms. Jyotshna, AP/ECE; Ms. Shami Seles, WIE Chair and Ms. Shafeeka Fathima, Vice-Chair WIE. The events held included Quiz, Extempore & Connexions in which students participated actively.

Lecture on Emerging Trends in VLSI Signal Processing



IEEE SB, WIE & Signal Processing Society in association with the Dept. of ECE organized a lecture on Emerging Trends in VLSI Signal Processing on 10th Mar 2016.

Mr. Senthil Arunachalam, Director – Automotive Business Unit, Jasmin Infotech Pvt. Ltd., Chennai delivered the lecture. He highlighted the Importance of signal processing in our day to day life.



Lectures on “Embedded Systems” and “Enjoyable Introduction to Coding”

IEEE SB, WIE & Robotics & Automation Society in association with Dept. of ECE organized a lectures on “Embedded Systems” and “Enjoyable Introduction to Coding” by Dr. Jey Veerasamy, Director, Center for Computer Science Education & Outreach, University of Texas, Dallas on 14th Mar 2016. He also spoke on “Life as Software Engineer” and the differences in the software projects before and now. SB Chair and Vice-Chair, Mr. Vinoth and Ms. Indira and Ms. Priya Tharsshini S, SP Chair organized the lectures.

Lecture on Leadership Quality

IEEE SB, WIE & E-Cell in association with the Dept. of ECE organized a lecture on Leadership Quality by Mr.. S. Varadarajan, Chief Empowerment Officer & Mentor, V empower Academy, Chennai on 16th Mar 2016.

Lecture on Skill Development

IEEE SB, WIE & E-cell in association with the Dept. of ECE organized a lecture on Skill Development by Mr. Paul Baskaran, Competent Communicator and Competent Leader with Toastmasters International, USA, Chennai on 16th Mar 2016. During his lecture he gave a brief introduction on the importance of communication skill in one’s day today life.

Lecture on Public Speaking

IEEE SB, WIE & E-cell in association with the Dept. of ECE organized a Lecture on Public Speaking by Mr. E. Sathyanarayanan, Software Engineer, Mphasis, Chennai on 16th Mar, 2016. He emphasized on the importance of public speaking and how it will be helpful in the corporate as well as public platform.



IEEE Outreach Programme

The Dept. of ECE and IEEE SB organized an IEEE Outreach Programme event at Sri. R. M. Jain Vidhyashram. This educational outreach program promoted the involvement of IEEE members to expose the school students to the IEEE, benefits, activities and its subsidiaries. Speakers and student coordinators included Mr. K. Vinoth, Mr. Ponvannan, Mr. Aravind, Mr. Jayaram, Mr. Kalyan, Mr. Vishal, Mr. Pramod Jacob John, Mr. Sai Saran, Mr. Sundarji and Mr. Naveen.

Seminar on How to Crack UPSC & Competitive Exams

IEEE Young Professionals & IEEE SB in association with the Dept. of ECE organized a seminar on “How to Crack UPSC & Competitive Exams” on 21st Mar 2016. Mr. M.Arun, IEEE SB Counselor was the resource person at the seminar. He discussed in brief about all the UPSC & Competitive Exams, the procedures to apply, eligibility criteria and benefits if selected.

Seminar on Molecular Communication

The IEEE SB & Communication Society in association with the Dept. of ECE organized a seminar on “Molecular Communications” by Mr. S. Ganesh, Assoc. Prof/ECE on 22nd Mar 2016 for ECE students. He outlined the significance of molecular communication in variety of applications such as biomedical, military, and environmental areas. He also elaborated how it is used in drug delivery system (DDS), bio-hybrid implants, and lab-on-a-chip (LoC) systems. Mr. M.Arun SBC also spoke.

Report by: M. Arun, arunmeieee@gmail.com

Dr. Sivanthi Aditanar College of Engineering, Tiruchendur

National Seminar on Trends in Antenna Design & Applications



The IEEE SB organized a national seminar on “Trends in Antenna Design & Applications” on 11th Apr 2016. Dr. V. Prithivirajan, AP, National Engineering College, Kovilpatti and Dr. A. Beno, AP/ECE were resource-persons for the workshop. Around 70 students attended the workshop which was also addressed by Dr. R. Tamilarasan, Vice Principal; Dr. D. David Neels Ponkumar, HOD/ECE; Dr. R. Manjith, SBC and Mr. V. D. M..Jabez Daniel, AP/ECE.

IEEE Awareness Programme



An IEEE awareness programme was conducted on 29th Apr 2016. Over 50 students participated in this programme, which created an awareness on IEEE membership and its benefits.

Report by :Dr. R. Manjith, manjithkmr@gmail.com

You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new. – Steve Jobs

Sri Sai Ram Engineering College, Chennai



Seminar on “The Benefits of joining IEEE”

IEEE PES SB Chapter organised a seminar on “The Benefits of joining IEEE”. The Programme was inaugurated by Prof. A. L. Kumarappan, HOD/EEE.

The seminar dealt with the opportunities and the various advantages of joining IEEE in a nutshell starting from the webinars, credits, resume lab, spectrum magazine, scholarships and project funding etc.. The event was attended by around 120 students.



Project Exhibition

IEEE PES SB Chapter organised a project expo wherein around 120 students showcased their 47 projects. The project expo gave a platform for the students to showcase their knowledge and its implementation in real-time applications. Notable projects included “Auto Synchronisation of Alternators using Internet of Things” and “Solar Powered Brushless DC Motor Water Pump”.

Seminar

IEEE PES SB Chapter organised a seminar covering the topics “Adaptive Cruise Control”, “Anti-Locking Braking System” and “Building Security System”. The seminar had a participation of 50 students.

Report by: Revanth Kumar M, revanth.kumar.1996@ieee.org

Sathyabama University, Chennai

Technical Talk on “Smart Grid – Revolutionizing Our Energy Future”



A technical talk on the topic “Smart Grid – Revolutionizing Our Energy Future” supported by IEEE Computational Intelligence Society was organized on 7th Apr 2016. Following the welcome address, the technical talk was delivered by Dr. N. Kumarappan, Professor of Electrical Engineering, Annamalai University and Chair IEEE Computational Intelligence Society Madras Chapter.

The talk was aimed at providing valuable information about evolution of Smart Grid in energy sector. In this talk, the basic concepts, the general outline and advantage of using smart grid over present grid and

overcome the problem due to fossil fuels in present power sector were presented. The programme was attended by 50 participants.

You can have brilliant ideas, but if you can't get them across, your ideas won't get you anywhere. – Lee Iacocca

Saveetha School of Engineering, Saveetha University, Chennai

International Conclave on Renewable Energy Systems and Technology



The three days conference started with the inaugural function on 6th Apr 2016 participated by Dr. P. Shankar, Principal, Saveetha School of Engineering, Saveetha University; Mr. Mangat Ram Sharma, I.A.S., Principal Secretary, Chairman & Managing Director, Tamil Nadu Energy Development Agency, Govt. of Tamil Nadu; Dr. S. Gomathinayagam., Director General, National Institute of Wind Energy, Government of India; Dr. Kumaran Kadirgama, Associate Professor, University Malaysia Pahang,

Malaysia; Dr. P. Muthukannan and Mr. G. Anandhakumar, Convener. Mr. Mangat Ram Sharma and Dr .S. Gomathinayagam released the proceedings of ICREST -2016.

Keynote & Invited Talks: The conference had the following invited talks.

1. Mr. .Michel Vieuxmaire, MY Evolution, Malaysia highlighted the role of renewable energy in industrial applications.
2. Dr. Kumaran Kadhirkama, Associate Professor, University Malaysia Pahang, Malaysia briefed on the renewable energy conversion and its challenges.
3. Dr. Rajini, Professor, SSN, Chennai delivered a talk on “Modelling of solar power system”.
4. A talk on “Challenges of Renewable Energy System” was delivered by Dr. Jeyavel, University of Malaya, Malaysia and Dr. Shaima Omran, National Research Institute, Egypt
5. Dr. Kumarappan, Chair, IEEE CIS, Madras Section spoke on smart grid and its application.
6. Dr Celia Shahnaz, R10 WIE Coordinator 2016 & Professor, BUET, Dhaka, Bangladesh, Professor, Bangladesh University highlighted the signal processing in power system fault analysis.

Tutorials: In the tutorial session, Dr. Ramaprabha, Professor, SSN, Chennai highlighted on renewable energy conversion system and its types and Dr. Chittibabu, Professor, Nagpur presented on micro grid

Workshop: The resources persons from National Institute of Wind Energy conducted a workshop on “Challenges of grid Integration of Renewable Energy Systems”

Panel Discussion: A panel discussion on the usage of renewable energy and its awareness among the students and public was held with expert penalties from National Institute of Wind Energy.

School Students Competitions: Over 150 school students participated in the renewable energy themed competitions such as drawing, quiz, project display and etc..

Technical Paper presentation: 50 papers out of 120 received were presented by the authors during the conference.

The conf. came to an end with the valedictory function presided by Dr Celia Shahnaz, R10 WIE Coordinator 2016 & Professor, BUET, Dhaka, Bangladesh. Report on ICREST-2016 was presented by Mr. M. Venkateshkumar, Co-Convener ICREST. Awards were given to best papers and poster presentations. Feedback from the participants added more honour for the conference -ICREST 2016. Dr. P. Muthukannan, HOD/EEE, proposed the vote of thanks. The conf. was technically supported by TEDA, NIWE, IEEE PES, IEEE CIS, IEEE YP and IEEE WIE Madras Section.

Report by: M. Venkateshkumar, venkatmme@gmail.com

Sona College of Technology, Salem

- 23rd Mar 2016: Workshop on Big Data Analytics was conducted. 20 student participants from various colleges attended the event.
- 24th Mar 2016: Technical Symposium CIRCUITRIX '16 was conducted. 150 students from various colleges participated in the various events like paper presentation, technical quiz, circuit debugging.
- 8th Apr 2016: Seminar on the topic “Internet of Things (IoT) applied to Precision Agriculture” by Prof. V. Prithiviraj, Principal, Rajalakshmi Engineering College, Chennai.

Sri Ramakrishna Engineering College, Coimbatore

National Level Technical Expo - Techkosmos' 16



The IEEE SB organized a national level technical expo - Techkosmos' 16 on 5th Feb, 2016. The event was inaugurated by Mr. Ganesh Rajkumar, Project Manager, Engineering and Design, Pricol Technologies Ltd., Coimbatore. Dr. N.R. Alamelu, Principal presided over the inaugural ceremony which was also addressed by Prof. S.P. Rajkumar, SBC and R.S. Arunraj, SB Chair. Around 35 participants from various colleges in Tamil Nadu and Kerala attended the expo, which included a hands-on training on MATLAB. Certificate of Appreciation was presented to the participants. In this event, the chief guest also awarded the winners of the weekly intra college quiz competition – AUSFRAGEN along with presenting the IEEE SB awards “Duke of TECHKOSMOS 16” and the title “SEDULOUS” to those played key role in organizing the event.

Report by: K. Balamurugan, balamurugan.kaliappan@srec.ac.in

St. Peter's College of Engineering and Technology, Chennai

National Workshop on Software Defined Radio (SDR) and Cognitive Radio Technologies (CR)



The IEEE SB along with the IETE Students' Forum organized a National Workshop on “Software Defined Radio and Cognitive Radio Technologies on 21st and 22nd Apr 2016. Shri. K. Sridhar, Head Communications Division, SAMEER inaugurated the workshop and delivered a keynote address on “Next Generation Networks”. Dr. K. Gunaseelan, Anna University spoke on “CR Spectrum Sensing Techniques”. There was a brain storming session on “Analog RF Front end Design for SDR” by Dr. R. Ramasamy, RMK Engineering College and hands-on sessions by Cadence on various Cadence bundles to design RF front-end for SDR.

Report by: Dr. V. Amudha v.amudha.in@ieee.org

Sri Venkateswara College of Engineering, Chennai

Arduino Workshop

The IEEE SB has started a Students' Research Club to bridge the gap between theoretical fundamentals and its application to perpetuate practical skills on trending engineering practices through workshops and applied research. As the first activity, the club held an Arduino workshop on 30th Apr 2016. The workshop dealt with the introduction to the world of Arduino and coding. A demo of a clap-controlled fan using relays was the highlight along with various hands-on sessions.



Guest Lecture

The IEEE SB organized a guest lecture on 29th Apr 2016. Dr. S. Ganesh Vaidyanathan, Principal in his presidential address highlighted the importance and benefits of being an IEEE member to the fresher. Mr. Rajasekar, Director IT, Lantrasoft delivered the guest lecture on 'The Trending Engineering Practices'.

The office bearers for the academic year were presented with certificates for their contribution to the IEEE SB - Mr. Aditya Narasimhan, President; Mr. Amitesh B, Secretary; Ms. Keerthipriya, Treasurer; Ms. Aishwarya Murali, Executive Member; Mr. T V Prashanth, Executive Member and Mr. Shankar, Executive Member.

Report by: Aditya Narasimhan, adinaras.ieee@gmail.com

VIT University, Vellore

SPAx'16



The IEEE SB organized SPAX (Student Professional Awareness Experience) on 23rd and 24th of Apr 2016. The inauguration ceremony was graced by presence of IEEE SB, Mr. V. Arunachalam and Dean of Business School Mr. D. Ashok. SPAX accomplished its motto of providing best professional experience through networking and motivational sessions with various well

renowned speakers along with an entrepreneurial event "BallPark".

There were various Entrepreneurship Development Extended Sessions held with the support of IEEE Madras Section which included interactive skype sessions with Mr. Sarvesh Agrawal, CEO of Internshala and Dr. Anurupa Roy, CEO & Founder of 'Who Am I', Mr. Srinath Shankar, the Co-founder of Pickyourtrail,

A workshop on Investment Banking conducted by Mr. Santosh Das Kamath, MD & CIO of Franklin Templeton Investments was another highlight. Apart from the EDP-X sessions, there was an interactive session on Social Entrepreneurship and majorly its impact in our growing world presented by Mr. Paul Belknap, who leads the health incubation work at Villgro.

Report by: PranshuPoddar , pranshupoddar@gmail.com

SSN College of Engineering, Chennai

WiSPNET-2016 International Conference

The Dept. of ECE organized a three day IEEE International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET-2016) during 23-25 Mar 2016 on the theme of 'Advancement in Information Communication towards the creation of smart world'.

On day one, Dr. Ian Akyildiz, Ken Byers Chair Professor in Telecommunications Broadband Wireless Networking Lab School of Electrical and Computer Engineering Georgia Institute of Technology set the tone for the conference by delivering his tutorial talk on 'Underground sensor networks for soil, tunnel and mine applications'. The second tutorial was by Dr. Ravikumar Balakrishnan who elaborated on 'Supporting Internet of Things for 5G and beyond'. Two more tutorials were conducted in the afternoon session by Mr Vijay Anand of Aricent Technologies on the 'Emerging trends and challenges of connected cars' and by Mr Vibhav Katre of National Instruments. During the day paper presentation was held parallel in seven tracks in three sessions.



The inaugural of WiSPNET 2016 on 24th Mar was graced by the Guests of Honor Dr Ian Akyildiz, Professor Georgia Institute of Technology and Dr Soon Xin Ng, Professor, University of Southampton UK. The Chief Guest at the inaugural was Dr S A V Satya Murty, Distinguished Scientist & Director, IGCAR, DAE, Kalpakkam. The inaugural ceremony was followed by two keynote lectures on 'SoftAir-Software Defined Networking for 5G Cellular Systems' by Dr. IAN F. Akyildiz and 'Cooperative Classical and Quantum Communications' by Dr. Soon Xin Ng. Dr Hrishikesh Venkataraman elucidated on 'Intelligent Transport Systems (ITS)' followed by Mr Swarna Ravindra Babu of Coovum Smart Systems who briefed the audience on 'Connectivity of Heterogeneous Devices' in the afternoon tutorial sessions.

The second day of the conference also saw about 177 oral presentations spanning across three sessions conducted at six different venues. The panel discussion on '5G and beyond' by distinguished members like Dr. Ian F. Akyildiz, Dr. Soon Xin Ng (Michael), Dr. Ravikumar Balakrishnan, Dr. Arun Subramanian, Dr. Ravi Kishore and moderated by Dr. M. D. Selvaraj was a widely appreciated forum. Discussions on the conceptual framework of 5G, implementation constraints and stakeholders of the technology were presented and deliberated in detail.

The concluding day of WiSPNET-2016 began with a tutorial by Dr Ian Akyildiz on 'Advancements in Underwater Communication Networks'. The third keynote of the conference was delivered by Dr. Jianfei Cai, Professor, NTU Singapore. The last two tutorial sessions of WiSPNET-2016 was on 'Application of Evolutionary Optimization in the Area of Signal Processing' by Dr. R.N. Patel and Dr. Atul Dwivedi. The final day of the conference hosted 168 oral presentations. In all three days 63 sessions of paper presentations were held and chaired by eminent researchers from academia.

Report by: Dr. S. Radha, radhas@ssn.edu.in



Inauguration of Communication Society

IEEE Communication Society SB Chapter inaugural took place on 7th Apr 2016. Around 50 members including PG students participated in the inaugural ceremony. Mr. R. Rajagopalan, Chief Architect & Head of Architecture group, Communications BU, Tata Elxsi, Chennai was the chief guest at the ceremony and spoke on “Thinking on these things”. Dr. S. Radha, Faculty coordinator and Mr. N. Vivek Sivaraman, Student Coordinator participated in the

ceremony, which was followed by a science and technology quiz.

Revamp Programme



IEEE WIE SB organized a revamp program on the topic “Role of IEEE in Women Empowerment” by Dr. D.Vydeki, Assoc. Prof/ECE, Saveetha Engineering College and IEEE WIE Madras Section Chair on 7th Apr 2016. She spoke on various benefits of being an IEEE WIE member and the possible associations that the student can have for the societal benefits. Another talk by Ms. Agnes Mariam Aggie, PG Student, SSN School of Management on volunteering with IEEE highlighted her IEEE volunteering experiences. Mr. Saravana Prakash from the department of Biomedical Engineering explained about the Mobile Application Development Contest. The event was attended by 40 participants.



Participation in IEEE Chennai Hub Congress

SSN College students took part actively in " IEEE Chennai Hub Congress 2016 (CHC'16) " hosted by IEEE SB of Jeppiaar Institute of Technology on 8th & 9th Apr 2016.

The participants from SSNCE are Ms. Ranjini Vasu (II IT), Ms. Sanjana S Mallya (II ECE) and Mr. Nishanth (II ECE). Mr. S. Saravana Prakash (IV BME) served as volunteer for the congress.

Report by: Dr. R. Ramaprabha, ramaprabha@ssn.edu.in

Research Scholar Symposium on Data Analytics and Security (RSS DAS'16)



RSS DAS'16 event supported by IEEE CS and CSI was organized on 4th Apr 2016. The goal of RSS DAS'16 was to provide a platform for big data and cyber security researchers, practitioners, and users to exchange ideas, techniques and tools. Sessions were handled by distinguished speakers including Mr. Velmurugan, Director, Big Data from CTS; Prof. M. Sethumadhavan, Head of TIFAC-CORE in Cyber Security from Amrita University; Dr. Bhalaji, SSNCE and . Prof. Neelanarayanan, VIT, Chennai

Report by: Dr. S. Karthika, skarthika@ssn.edu.in

IEEE Madras Section

Technical Talk on “Easy ways to save the Planet - Starting with Your Little Corner of It”



IEEE Madras Section along with IEEE Information Theory Society Madras Chapter and IEEE Product Safety Engineering Society Madras Chapter organized a technical talk on “Easy ways to save the Planet - Starting with your little corner of it” on 9th May 2016 by Dr. V. Jayaprakasan, Chairman, IEEE PSES Madras Chapter at Jayaraj Annapackiam CSI College of Engineering, Nazareth.

Dr. S. Jeyakumar, Principal of the college welcomed the gathering. Dr. B. Paramasivan, Chairman, Technical Meetings Committee, IEEE Madras Section & Chairman, Information Theory Society Madras Chapter gave an introduction and explained the importance of professional membership in IEEE. In his talk, Dr. Jayaprakasan explained about ways and means by which we can save our planet. Dr. E. Mariappan, HOD/CSE of the host college delivered the vote of thanks. Over 60 students and faculty members attended the talk and benefited from the talk.

Report by Dr. B. Paramasivan, hodcse@nec.edu.in

IEEE Computational Intelligence Society

Activities during Mar-Apr 2016

- 10-11 Mar 2016: ICHCI'16: International Conference on Human Computer Interaction at Saveetha University, Chennai.
- 17-18 Mar 2016: ICIECS'16: International Conference on Innovations in Information Embedded and Communication Systems at Karpagam College of Engineering, Coimbatore.
- 17-18 Mar 2016: ICETECH'16: International Conference on Engineering and Technology at Rathinam Institute of Technology, Coimbatore.
- 6 – 8 Apr 2016: ICREST'16: International Conclave on Renewable Energy Systems & Technology at Saveetha University, Chennai.



7th Apr 2016: Technical Talk on “Smart Grid – Revolutionizing Our Energy Future” at Sathyabama University, Chennai. Following the welcome address, the technical talk was delivered by Dr. N. Kumarappan, Professor of Electrical Engineering, Annamalai University and Chair IEEE Computational Intelligence Society Madras Chapter.

The talk was aimed at providing valuable information about evolution of Smart Grid in energy sector. In this talk, the basic concepts, the general outline and advantage of using smart grid over present grid and overcome the problem due to fossil fuels in present power sector were presented. The programme was attended by 50 participants.

- 20-21 Apr 2016: ICCPEIC'16 – International Conference on Computation of Power, Energy, Information and Communication at Adhiparasakthi Engineering College, Melmaruvathur.

Report by: Dr. N. Kumarappan, kumarappann@gmail.com

IEEE Product Safety Engineering Society

One Day Hands-on Workshop on “LED Luminaries Design, Fabrication and Testing”



The Dept. of ECE, Dhirajlal Gandhi College of Technology (DGCT), Salem conducted a one-day hands-on workshop on “LED Luminaries Design, Fabrication and Testing” on 15th Apr 2016 in association with IEEE Product Safety Engineering Society, Madras Chapter.

Dr. V. Murali Bhaskaran, Principal, DGCT presided over the inaugural session and stressed the need for students to get more exposure of LED based companies which have

been emerging in India. He explained the advantages over the energy consumption of using LED lights, instead of conventional incandescent lamps.

Er. V. Angappa, Managing Director & Proprietor, Mega Tech Scientific Instruments, Coimbatore conducted the sessions. He provided the hands on training on LED Design, Fabrication and Testing with necessary LED raw materials. The participants gained knowledge on advanced LED creation, LED design procedures, LED PCB making, designing of SMPS circuit for LED lamps, electrical parameter determination and power & power factor measurement through this workshop

Smt. Archana Manojkumar, Secretary, DGCT appreciated the participants and distributed the certificates to them. Initially Dr. S. Rajendran HOD/EEE delivered the welcome address. The coordinator of the workshop Mr. A. Alaudeen, Assistant Professor delivered the vote of thanks. Over 60 students from various engineering institutions and universities around Tamil Nadu participated and benefited from this programme.

Two Days Workshop on “Electronic Circuit Design - Artwork and Practice”



A two days’ workshop on “Electronic Circuit Design-Artwork and Practice” was organized by IEEE Product Safety Engineering Society (PSES), Madras Chapter on 3rd & 4th Mar 2016 at Sreenivasa Institute of Technology and Management Studies (Autonomous), Chittoor, Andhra Pradesh.

R. M. Sulthani, HOD/ECE welcomed the gathering and briefed about the workshop. Dr. T. Sai Rama, Principal, delivered the

presidential address. Prof. V. Jayaprakasan, Chairman, IEEE PSES Madras Chapter in his talk briefed on the importance of Printed Circuit Board – purpose, recognition of layout, footprints of components and relationship to circuit diagrams. Mr. K. M. Hemambaram, presented a session on the importance of Design and Testing of various electronic circuits, component recognition which are useful in our daily life and introduced the basic skills and terminology associated with hand tools, soldering irons, tip care and soldering techniques. At the end Prof. V. Jayaprakasan, provided an overview on the IEEE Membership benefits to the students and faculty members of SITAMS

This program was conducted for the benefit of student’s members of all streams of engineering. Around 70 students attended the workshop and got benefitted from the presentations by the resource persons.

Report by: V. Jayaprakasan, jayaprakasan.v.1974@ieee.org

IEEE Computer Society

Activities during Mar-May 2016

23rd Mar 2016: Presentation on "Strategies for Effective Business Communication" by Mr. G. Thirumurugan, Managing Director, Rakshashe.com at Chennai.

23rd Mar 2016: Leadership Session on "Grow from a Functional Leader to a Business Leader" by Mr. V. Ramanathan, Management Consultant at Chennai.

26th Mar 2016: Half-day workshop on "Software Architecture". at Chennai.

29th Mar 2016: Technical Talk on "Digital India, Make in India, Skill India & Start-up India" by Mr. H.R. Mohan, Vice Chairman, IEEE Madras Section, Chairman, IEEE Computer Society, Chairman, Professional Communications Society, Immediate Past President, Computer Society of India & Former Associate Vice President (Systems), The Hindu at Francis Xavier Engineering College, Tirunelveli.

4th Apr 2016: RSS DAS'16 -- Research Scholar's Symposium on Data Analytics and Security at SSNCE, Chennai.

22nd Apr 2016: Presentation on "CMMI - Future Direction, Relevance in Modern Day Products & Services" by Kirk Botula, CEO, CMMI Institute (USA).



20th Apr 2016: Presentation on "Life Career Fundas : LCF 101" by Mr. Deepak Mirza, Recipient of President's "Swarn Kamal" Award.



11th May 2016: Presentation on "Communication Systems in Indian Railways: Today and Tomorrow" by Mr. R. Baskaran, Group General Manager, RailTel Corporation of India Ltd, Chennai.

IEEE Professional Communication Society

Activities during Jan-Apr 2016

23rd Jan 2016: Talk on "Trends and Ideas for the Technology Entrepreneur" by Mr. Dorai Thodla.

6th Mar 2016: CSI Day Celebrations including presentation of student projects and ICT Quiz.

14th Mar 2016: Talks on "Life as Software Engineer" and "Final year CS projects" by Dr. Jey Veerasamy, Director of Center for Computer Science Education & Outreach, CS Teaching Faculty, University of Texas at Dallas, USA.

23rd Mar 2016: Presentation on "Strategies for Effective Business Communication" by Mr. G. Thirumurugan, Managing Director, Rakshashe.com at Chennai.

23rd Mar 2016: Leadership Session on "Grow from a Functional Leader to a Business Leader" by Mr. V. Ramanathan, Management Consultant at Chennai.

20th Apr 2016: Presentation on "Life Career Fundas : LCF 101" by Mr. Deepak Mirza, Recipient of President's "Swarn Kamal" Award.

IEEE Madras Section SIGHT

A Technology Evening at Marina Beach



IEEE Madras Section SIGHT joined hands with Angels of Marina (AOM) to provide technology support for the mission of Clean, Green, Safe and Great Marina. AOM, a Chennai based NGO which is committed for the task of making Marina clean, green, safe and great for the present and future generations to come. On the

other hand IEEE SIGHT group is motivated to take up projects, which helps the common man using tech-savvy solutions. This project also aligns its objective with the Swachh Bharat initiative.

IEEE Madras Section SIGHT organized an awareness programme on 30th Apr 2016 at the Marina beach with the aim to reduce the amount of trash at the beach and also to demonstrate the use of technology to help in the same. Keeping the beaches clean is necessary because they are the closest to our ocean resources. Health of both general public visiting the beach and marine flora and fauna is at risk with the plastic trash.

Dr. Dhanasekaran, Vice Chair, IEEE Madras Section SIGHT welcomed the gathering. Mr. Jiju, Mr. Rajesh and Miss. Monica, volunteers of AOM, Er. Angelin Indira, Vice Chair, IEEE ADSF SIGHT and Prof. Kanagaraj Subramani, Treasurer, IEEE Madras Section SIGHT addressed. Dr. S. Ravichandran, Vice Chancellor, St. Peters University, Chennai was the Chief Guest and inaugurated programme.

Trash Collector, a model developed by Mr. Eugene Kingly and team, Jeppiar University of Engineering; another model 'Autonomous Underwater Vehicle' (AUV) which was developed by the students of Saveetha School of Engineering, Saveetha University, Chennai presented the programme. Solar Light Caps were distributed to the volunteers at the end of the programme. Volunteers from various colleges including public involved in cleaning the beach. Hope this would inculcate a habit among the visitors to throw the trash not at the beach. Mr. Eugene Kingly with Miss. Divya, Miss. Amala Devi organized the programme.

Report by Kushboo Agarwal, SRM University, Chennai

IEEE Madras Section – Women In Engineering

WIE Session in IEEE Chennai Hub Congress



IEEE Chennai Hub Congress 2016 (CHC-2016) was organized by IEEE Jeppiaar Institute of Technology SB on 8th and 9th Apr 2016. The two-day congress was packed with sessions to inspire all, to create awareness on IEEE and how the membership in IEEE can be leveraged for advancement. The session about WIE and the benefits of being a member of WIE affinity group was organized on 8th Apr.

The session was presented by Dr. Celia Shahnaz, R10 WIE Coordinator from Bangladesh. The session began with the overview about WIE, its mission and vision. Then, the speaker spoke about the ways we can utilize the benefits provided by the

affinity group. The speaker also gave the statistics of the Region 10 WIE affinity group. The number of the WIE affinity groups has been rising up in the recent years, especially in Madras Section. She also highlighted that men also can take part in WIE activities, by becoming a WIE member. Dr. Celia outlined the various possible activities of SB Affinity Group. She focused on the upcoming and proposed initiatives of R10 WIE. She insisted that the Student Branch Affinity Groups must develop a website of their own, to showcase their activities to the entire world. The participants were able to get a clear idea about WIE, its benefits, funds, awards and the various ways one can indulge in the new initiatives that are lined up.

Report by: Dr. Vydeki Vijayakumar, dvydeki@yahoo.co.in

IEEE Madras Young Professionals Affinity Group

White Talk on “Money Management”



The Young Professionals Affinity Group, IEEE Madras Section organized a white talk on “Money Management” on 17th Apr 2016 at Government College of Technology, Coimbatore. This Programme was supported by Educational Society, IEEE Madras Section and SSIT. The resource person for the programme was Dr. P. Lovelin Auguskani, Treasurer, IEEE SSIT and Educational Society, Madras Chapter. Around 30 IEEE members along with few non members

participated in the programme. About 20 student members turning to young professional members were also participated.

The programme started with IEEE Code of Ethics. Dr. K. Baskaran, IEEE SBC, Government College of Technology IEEE SB welcomed the gathering. Dr. P. Lovelin Auguskani, in his talk on “Money Management” created awareness among the participants about the importance of savings and its impact on the economic status of the country. His speech was an eye opener on various mutual funds, insurance policies, housing loan calculation, income tax calculations to the young graduates. He highlighted the benefits of share trading adding that share trading is not a gambling.

Dr. S. Elangovan, Chair, IEEE MAS YP AG explained the various benefits of IEEE professional memberships. In his address he mentioned about IEEE TV, webinars, IEEE Collabratec. He stressed that all the members present in the hall should renew their membership regularly and continue to be a professional member. He also added that the new IEEE YP members need to concentrate on the inactive student branches and encourage the SBs to be more activities with organizing events regularly. Dr. K. Baskaran presented a memento to the speaker. Mr. Ancelm Rajan, IEEE Student Coordinator (YP Member) delivered vote of thanks.

Report by: Dr. S. Elangovan, elangopr@gmail.com

IEEE Madras Section Student Project Funding (SPF 2015-16)

IEEE Madras Section SPF 2015-16 called for proposals from the various student branches. The received proposals were shortlisted for preliminary evaluation and recommended for the final project submission. The final project demo and validation by the students was carried out at the IEEE Madras Section on 7th May 2016.

A panel of judges consisting of Dr. R. Venkatesan, National Institute of Ocean Technology, Chennai; Dr. S. Ranganath Muthu, Professor, SSN College of Engineering, Chennai; Dr. P. A. Manoharan, Chair, Robotics and Automation Society & DRDO; Mr. Jagadala Prthap, Data Patterns India Pvt. Ltd., Chennai; and Dr. S. Elangovan,

Chair, Student Project Funding evaluated the projects and the demo. Nine projects, listed in the table, were selected and recommended for the funding. These selected student projects will be provided with the project completion certificate along with the funding as specified in the table below.



At the function held after the evaluation of the projects, Dr. P.A. Manoharan, Chair, RAS Madras Section & Co-Chair, SPF 2015-16 welcomed the students and members present. The Section Chair, Dr. M.A. Atmanand and the Office Bearers (Dr. N. Kumarappan, Vice-Chair, Shri. H. R. Mohan, Vice-Chair, Dr. P. Sakthivel, Secretary cum Treasurer) of the Section congratulated to the students who had taken effort and actively participated in this project

competition / funding event by showcasing their knowledge and skills. The Section met the student participants travel cost. The program concluded with the vote of thanks by Dr. S. Elangovan, Chair, SPF 2015-16.

S. No.	Project Title	Name of the Student	Name of the College	Amount funded
1.	Life Protector Robot For Child In The Borehole	A.S.Hemnath Kowshick G.Barath Vignesh A.Balachandran R.Gayathri	Knowledge Institute of Technology	5000/-
2.	Evaluation of anti-cancer properties of Lichens using experimental rats as an animal model for biomedical applications	Vishnu Priyan, V. Gayathri, G Yoka Barrathi, N.S Dheenadhayalan, K	K.S.Rangasamy College of Technology	15000/-
3.	Automatic Fall Detection for the Elderly People using Motion Sensing	Sharmila D. Lukeman Hakkim S	Sri Ramakrishna Engineering College	7000/-
4.	Torque Ripple and Harmonics Reduction In BLDC drive using SVPWM Cascaded Multilevel Inverter	K. HariPriya R. Jeevabharati G. Nandini S. Piyanga	Dr.N.G.P. Institute of Technology	5000/-
5.	Development of Biomedical Remote Data Logging System With Raspberry PI Based Embedded Webserver.	Ranjith.S Poopal.T	Jeppiaar Institute of Technology	3000/-
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Report by: Dr. S. Elangovan, elangopr@gmail.com

An Overview of a Router

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Abstract: This article discusses the various components that make up a router from hardware and software perspective and also captures the packet flow in a router for ingress and egress packet processing and also define the performance measurement in a router.

INTRODUCTION

Routers are network elements that aids in forwarding packets which enters through the ingress port and gets forwarded through the egress port based on the forwarding table lookup. The routers are built in different architectures: midplane architecture, backplane architecture, software based routing, hardware based routing (ASIC/FPGA based), single blade routers, chassis based routers (ATCA Advanced Telecommunication Computing Architecture) where multiple line cards are plugged into multiple slots.

BUILDING BLOCKS OF A ROUTER

The software component of router has control plane, data plane and management plane. There are two tables: routing information base RIB and forwarding information base FIB. The routing protocols like RIP, OSPF, BGP, MPLS, IS-IS etc run in the control plane and populate the routing table in the control plane. The data plane is also called as forwarding plane and contains the forwarding table which is programmed in the network processor or ASIC or FPGA based or TCAM and usually populated by the routing control plane.

Refer Fig 1. The other components include boot rom which is EPROM used for startup diagnostic code, flash memory where the router operating system exists , nvram for storing startup config and static configuration register information, ROM where ROM monitor resides, RAM which stores running config, data structures, routing tables, interface buffers, system buffer, layer 2/3 cache , operating system executables etc,

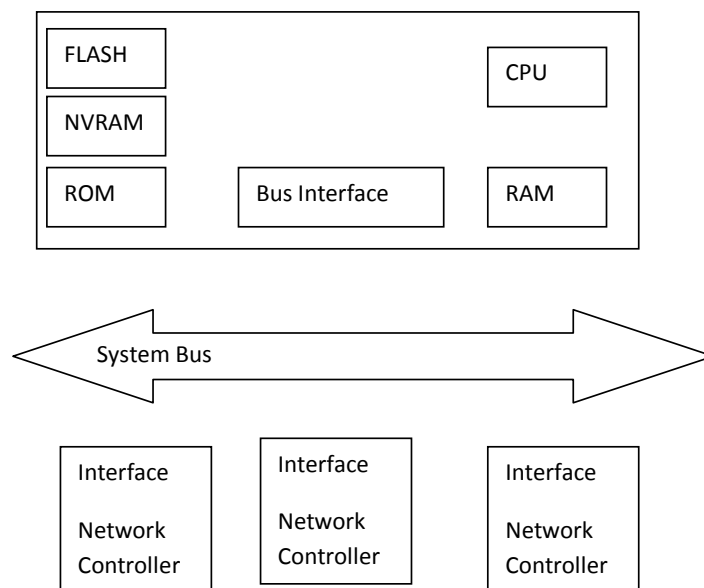


Figure 1 Building Blocks of a Router

ELEMENTS OF A ROUTER

Forwarding Table

Forwarding Table : Forwarding Information Base or Forwarding table is referred by outgoing IP packets to determine which of the outgoing interface on the router the packet has to be pushed in order to reach a particular destination. FIB can exist in software or hardware. In hardware, FIB can be programmed in TCAM or Ternary Cam to provide line rate forwarding. Refer Fig 2.

Queue Manager

This is used to provide buffers for temporary storage of packets when outgoing link from a router is overbooked. When these buffer queues overflow due to congestion in the network, the queue manager selectively drops packets.

Traffic Manager

This component is responsible for prioritizing and regulating outgoing traffic depending on the desired level of service. The traffic manager shapes the outgoing traffic to the subscriber according to the service level agreement. Similarly for incoming traffic from the subscriber, it does not accept more than what is specified in the contract.

Backplane

This component provides connectivity between incoming network interface on one line card with the outgoing network interface on another line card. The backplane can be shared, where only two interfaces can communicate with each other or switched, where multiple interfaces can communicate with each other simultaneously. The aggregate bandwidth of all the attached network interfaces defines the bandwidth required for the backplane.

Route control processor

This component is responsible for implementing and executing routing protocols. It maintains a routing table that is updated whenever a route change occurs. Based on the contents of the routing table, the forwarding table is computed and updated. This component also performs complex packet-by-packet operations like errors during packet processing. For examples, for those routes that are not present in the forwarding table, this component is responsible for sending ICMP packet to sender of destination unreachable error.

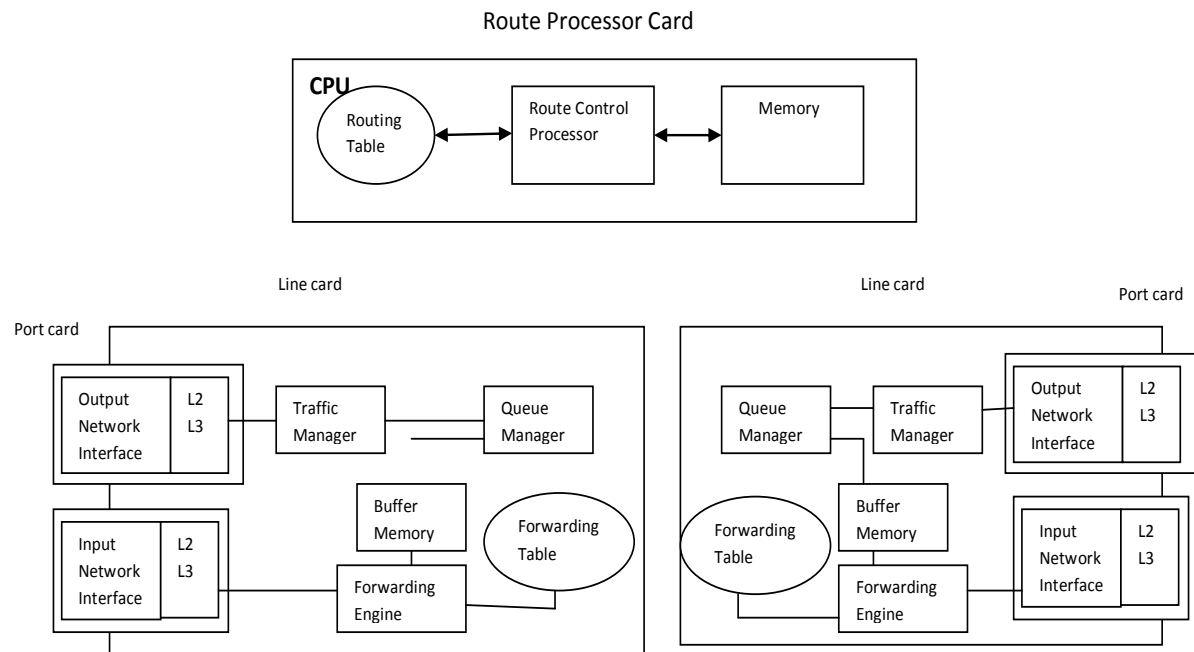


Figure 2 Elements of a Router

Port cards

A port card implements network interfaces. Each port card is capable of handling only a specific medium. For instance, a port card will handle only Ethernet whereas another port card will handle only SONET. The port card contains L2 processing logic that understands L2 packet format specific to that medium. In addition, the port cards

perform accounting about the incoming and outgoing packets. Juniper networks refer to them as Physical Interface Cards or PICs whereas Cisco systems call them as Physical Layer Interface Modules or PLIMs in CRS-1 routers.

Line cards

A line card implements a majority of the functional components, forwarding engine, queue manager and traffic manager. It parses the IP payload and uses the header information to make decisions like forwarding, queuing and discarding packet during the period of link congestion. It also contains memory buffers for storing the packet during processing and queuing. The line card houses port cards and connect to the backplane and ultimately to another line card. Sometimes the line card include ports specific to certain media rather than using port cards.

Switch Fabric cards

While a line card implements packet processing functions, a switch fabric card acts as a backplane for transferring packets from ingress line card to egress line card. In high end routers, multiple switch fabric cards are used for increased throughput and redundancy.

Route Processor cards

These cards implement the functionality of the route control processor. The routing protocols and the management software run on these cards. In high end routers, these cards use general purpose processors with a large amount of memory running a commodity operating system.

PACKET FLOW IN A ROUTER

The packet flow in a router is shown in Fig 3. The processing steps can be classified into ingress packet processing and egress packet processing.

Ingress Packet Processing

When an IP packet arrives from the network, it first enters into the network interface which may be an Ethernet port. The network interface interprets the Ethernet header, detects frame boundaries and identifies the starting point of the payload and the IP header in the frame. The L2 processing logic in the card removes the L2 header and constructs a packet context. A packet context is a data structure that serves as a scratch pad for carrying information between different stages of packet processing inside the router.

The L2 processing logic peels off the payload, which is an IP packet, and along with packet context sends it to the L3 processing logic. The L3 processing logic locates the IP header and checks its validity. It extracts the relevant IP header information and stores in the packet context. The header information includes destination ipaddress, source ipaddress, protocol type, DSCP bit (for differentiated services), and if the packet is carrying UDP payload, the destination and source port as well.

At this point, the packet context contains enough information for route lookup and classification of packet. Next the entire packet context is sent to the forwarding engine in the line card. The forwarding engine searches a table (forwarding table) to determine the next hop. The next-hop information contains the egress line card and the outgoing port the packet needs to be transferred. This information is populated in the packet context.

While the forwarding engine is determining the next hop using the packet context, the L3 processing logic sends the IP packet to be stored in the buffer memory temporarily. When the forwarding engine completes, the packet context is appended with the address of the packet in memory and sent to the backplane interface.

From the packet context, the back plane interface knows to which line card the packet needs to be transferred. It then schedules the packet for transmission along with the packet context over the backplane. The priority of the packet is taken into account while transmitting on the backplane, the higher priority packets will be scheduled ahead of lower priority packets.

Egress Packet Processing

When the packet reaches the egress line card, the backplane interface on the egress line card receives the packet and stores it in the line card memory. Meanwhile, the received packet context is updated with the new address of the memory location and sent to the queue manager. The queue manager examines the packet context to determine the packet priority. The packet priority has been determined by the forwarding engine in the ingress line card during packet classification. Next the queue manager inserts the packet context in the appropriate queue.

As different queues, depending on the priority, consume different amount of bandwidth on the same output link, the queue manager implements a scheduling algorithm. The scheduling algorithm determines the next packet to be transmitted according to the bandwidth configured for each queue. In some instances, the queue may be full due to congestion in the network. During those times, the queue manager drops the packet when the router experiences congestion

Once the packet is scheduled to be transmitted, the traffic manager examines its context to identify the customer and if there are any transmit rate limitations that need to be enforced according to the service contract. This mechanism is known as traffic shaping. If the traffic exceeds any rate limitations, the traffic manager delays or drops the packet in order to comply with the agreed rate.

Finally, the packet arrives at L3 processing logic which updates its TTL and also the checksum. The L2 processing logic adds the appropriate header and the packet is transmitted.

PACKET PROCESSING : FAST PATH AND SLOW PATH

The tasks performed by a router can be categorized into time-critical and non-time-critical depending on their frequency; they are referred to as fast path and slow path respectively. The time critical operations are those that affects majority of the packets and need to be highly optimized to achieve gigabit forwarding rates. The time critical tasks can be broadly grouped into header processing and forwarding. The header processing function include packet validation, packet life-time control and checksum calculation while forwarding functions include destination address look-up, packet classification for service differentiation, packet buffering and scheduling. Since these tasks need to be executed for every packet in real time, a high performance router implements these fast path functions in hardware.

Non-time-critical tasks are typically performed on packets destined to a router for maintenance, management and error-handling. Such tasks include but not limited to:

- Processing of data packets that lead to errors in the fast path and generation of ICMP packets to inform the originating source of packets.
- Processing of routing keep-alive messages from the adjacent neighbours and sending of these messages to the neighbouring routers.
- Processing of incoming packets that carry route table updates and sending messages to neighbouring routers when the network topology changes.
- Processing of packets pertaining to management protocols such as SNMP and its associated replies.

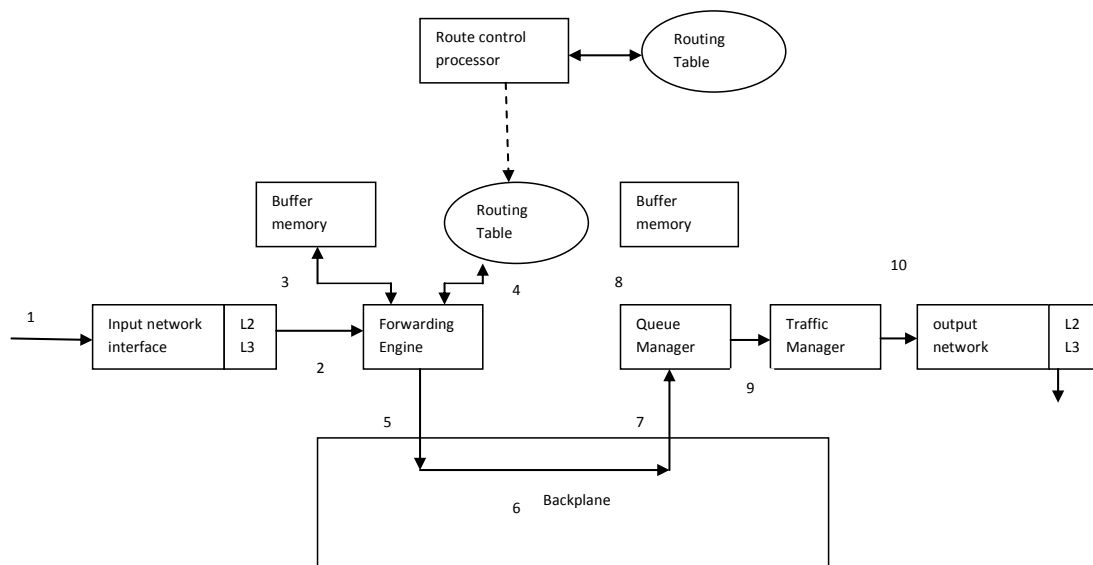


Figure 3 Packet Flow in a Router

PERFORMANCE OF ROUTERS

The performance of a router is expressed in terms of throughput expressed in bits per second. The throughput characterizes how much data a router can transfer in per second from the input network interface to output network interface. A router throughput T is calculated as

$T = P * R$ where P represents the number of ports or interfaces feeding the router and R represents the line rate of each port.

If S is the packet size and P_s represents packets per second, then the line rate R can be expressed as
 $R = S * P_s$

Therefore $T = P * S * P_s$

ACKNOWLEDGMENT

This paper is dedicated as an acknowledgment to Prabakar Sundarajan, CTO, Juniper networks who has been instrumental in grooming me and coming up with such a paper.

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Router Architecture

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Abstract: This document aims to provide an idea to anyone who is interested in designing and building routers.

Types of Routers: Routers come in different shapes. Some common router models are pizza or 1RU model, chassis model with pluggable line cards. Routers can be mid-plane where line cards are connected in the middle of the enclosure or backplane where the line cards are connected to the backplane. The line cards communicate with each other using backplane Ethernet or proprietary protocols. Routers can be classified into various types depending on where they are deployed. Common forms are edge routers or access routers, metro-ethernet routers, core routers.

Primary modules in router: The routers consist of control plane, data plane and the management plane. The control plane is the one where all the signaling and routing protocols run. The data plane is also known as forwarding plane where the most preferred routes out of the dynamically learned routes of the control plane get stored. The management plane is where network management protocols like SNMP, CMIP, and TL1 can be used. The Ethernet ports that are connected to the router are termed as ingress or egress port depending on whether packet is incoming or outgoing on the router. The other modules in a router are interface manager for creation and deletion of interfaces, ip address manager for creation and deletion of ip addresses, Route table manager whose functionality is to populate the RIB (Routing Information Base) with unicast and multicast routes, Chassis manager whose functionality is to identify and detect the presence of line cards and their insertion and removal from the chassis enclosure/cabinet.

Software and hardware components in a router: In a pizza model router, there may be a single operating system running on the router whereas in a chassis model, each line card can run with its own operating system. The chassis manager on the router which uses CPLD is responsible for detecting the insertion and removal of line cards on the router. TCAM (Ternary content addressable memory) are used to store the FIB entries in the case of IPv4 and IPv6

in addition to ARP, ND and ACL's. Some routers use DRAM and SRAM for storing the route entries. The data plane primarily consists of packet processor or ASICs as well as the forwarding table in the software IP Stack.

Ethernet, Layer 2 and Layer 3 protocols: The line cards come with variable number of Ethernet/optical ports and there is a numbering or naming convention adopted in the routers to uniquely identify slot/port combination. The Ethernet layer comprises the PHY chip and supports auto negotiation for setting up the speed and duplex. There are 10Mbps Ethernet, 100Mbps fast Ethernet, 1Gbps Gigabit Ethernet, 10Gbps, 40Gbps, and 100Gbps Ethernet supporting IEEE 802.3 Ethernet standards. There are also SFP and XFP ports support for connectivity on the router. The control plane protocols support both unicast (RIP, RIPng, OSPF, OSPFv3, BGP4) and multicast routing protocol like PIM, DVMRP support at Layer3. Similarly at Layer2, the control protocols like Spanning Tree Protocol, Rapid Spanning Tree protocol, MSTP are supported. The purpose of the spanning tree protocol is to detect and avoid loops in the network topology.

Router Testing: The routers generally follow the university of New Hampshire guidelines for conformance testing of routing protocols. Different test tools like IXIA, SpirentTestcentre, Smartbits, ANVL test suite etc exist to test the line rate forwarding and performance of packet forwarding of the routers.

Switch Fabrics: The ingress and egress ports on a router are connected through switching fabrics in the backplane. The routers generally contain fans to cool the heat generated due to power supply which would otherwise cause the erroneous behavior of the memory banks on the router. The router images generally get stored in two banks namely primary and secondary banks. In case if the primary image crashes, the system can be alive with the secondary image without the entire system undergoing a reboot thereby not disturbing the service of traffic forwarding.

Other Router features: The routers also do support ACL's for firewall functionality as well as QoS(Quality of Service) support in both the hardware and software modules. In addition, enterprise routers support multiple features like VoIP, IPsecurity using IPsec, SSL, tunneling protocols, Wireless support with IEEE 802.1x, high availability functionality, protection switching etc.

Processors and Chipsets: Routers are mostly built with ATCA architecture. Multicore processors are used to increase packet processing performance in routers in case of IPsecurity functionality. DSP chipsets are used for audio/video encoding and decoding functionality in routers as well as for handling voice traffic. Similarly some of the access routers and DSLAMs utilize SoC solution for functionalities like DSL/ADSL/VDSL functionalities.

L4 to L7 protocol: In modern routers, capabilities exist for deep packet inspection of the incoming packet from L 4 to L7 header content and accordingly decisions about whether to drop the packet or give it a preferential treatment for processing. For example, how to handle HTTP packet,NFS packet, SIP, H.323 packet at Layer 7, how to handle TCP, UDP packet at Layer 4 etc.

Different networks where routers are used: Broadband routers are used to ensure delivery of converged voice, video and data with high QoS and dynamic bandwidth control. The primary purpose of core routers are to ensure high speed packet forwarding at line rates and highly resilient and highly available and scalable. The enterprise routers and switches can be used in data centre environments predominantly to handle web content and storage content in an efficient way as well as with wireless functionality. The routers handling storage and server content do support Fiber channel over Ethernet, RapidIO and Infiniband architectures for faster I/O operations.

Interconnects: The different components on a line card lets say PHY, Framer, Mapper, CPU Processor, SERDES, DRAM, SRAM, Switch Fabrics etc are all interconnected by Hyper-G, I2C, PCI,PCMCIA, ISA, iSCSI, RapidIO buses etc

Device drivers and BSPs: The device drivers and BSP's shall be supported for the various controllers like network Ethernet controllers, input-output I/O controllers, flash controllers, etc

We cannot solve a problem by using the same kind of thinking we used when we created them. [A. Einstein]

Minds are like parachutes; they work best when open. [T. Dewar]

A discovery is said to be an accident meeting a prepared mind. [A. von Szent-Gyorgyi]

Information Resources

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8 tips for preventing ransomware: Chances are you know someone, or some organization, who has suffered a ransomware attack – it could be your local police department, a small business, big hospital, or someone in your family. If you haven't been hit by ransomware personally, you're either very lucky, or you've taken some proactive steps to protect your computers and files. If you do get infected with ransomware, unless you've got back-ups, or the crooks made some kind of cryptographic mistake, you're left with either paying or losing your locked up files forever. Prevention is far better than a cure. So here are 8 tips to protect you against ransomware.

<https://goo.gl/VGc8wV>

IoT Applications With Examples: Internet of things examples extend from smart connected homes to wearables to healthcare. It is not wrong to suggest that IoT is now becoming part of every aspect of our lives. Not only internet of things applications are enhancing the comforts of our lives but also it giving us more control by simplifying routine work life and personal tasks. With the recent hype about the future prospects of IoT has forced companies to take the initiative of coming up with basic building blocks of internet of things i.e. hardware, software and support to enable developers deploy applications that can connect anything within scope of internet of things. We know that the potential of IoT markets is huge but there are some domains that will mature much faster than the rest. Here we list the application areas for the internet of things with examples that have the potential of exponential growth.

<http://goo.gl/P87eTq>

IoT Programming Languages You Must Know: Internet of Things projects attracts many beginners and students. Ability to connect physical objects to create an easy human experience is a tremendous achievement in its own. For any IoT project the choice of the software and hardware is a tough call. Where selection of hardware can be truly cumbersome, choice of a language to program IoT is also not an easy call. Here we list top 10 IoT programming languages you can get started with. <http://goo.gl/CY06tZ>

100 IoT Open Source Development Tools And Resources: Reasons for the popularity of the IoT open source development tools are the community of users. This community wants to have the open market for utilizing consumer technology devices and not to be dominated by a single vendor. Another reason of going open source is to provide an ecosystem where the IoT devices and applications developed can be integrated without hassles and many efforts. Finally going open source means your device or application can support numerous vendors as you will not be developing code for any specific vendor. Internet of Things (IoT) open source development tools are mostly developed by the open source community which had worked from early on in the IoT domain. You can deploy the IoT applications making use of these tools sooner than ever before. If you are beginning to build your first internet of things application then this open source tool guide is exclusively for you. Here we list 100 most widely used and reliable open source tools for developing IoT apps. We have tried our best to include IoT hardware platforms, development tools, software, integrations tools, operating systems and monitoring tools. <http://goo.gl/yOqobn>

Online (Mostly Free!) IoT courses You Should Know: In the realm of Internet of Things every physical object will be connected. From home appliances to security systems to healthcare devices, this tech is going to be part of our lives. Have you ever wonder what impact it is going to create on the job sector. Opportunities are endless and you can become not only a learner and innovator but also a highly successful entrepreneur if you utilize the listed IoT courses curriculum wisely. Previously when .com era created millionaires by dozens a years, hardware and software tools were extremely expensive. However not anymore you can start building some serious IoT applications from using boards costing just \$9. IoT platforms available these days are extremely versatile. All you need to do is to make use of information available to work on embedded systems. There are many internet of things courses available online both for free and with fee. Check out the latest available IoT courses that can help you to specialize in the connected world components to build new age IoT applications. <http://goo.gl/2fecNP>

10 ways mobile devices are changing society: Humanity is evolving in many ways thanks to mobile devices. But are all the changes for the better? <http://goo.gl/aUJTwe>

Special Report on Startups: Engineering and entrepreneurship in many ways go hand in hand. IEEE members have for decades been at the forefront of turning their ideas into successful businesses. In this issue, we present IEEE's efforts to attract more entrepreneurial types to the organization and to support members' ventures through online resources, networking events, and more. A venture capitalist whose companies have never failed shares his advice with engineers who want to turn their business or product ideas into reality. We also feature several members behind some of today's hottest startups and delve into the humble beginnings of Microsoft, Hewlett-Packard, and other multibillion-dollar companies. <http://goo.gl/aP0XqI>

Baths to washing machines: welcome to the (almost) waterless home of the future: Domestic products that eliminate the need for water could mean you'll never have to get wet in the bath or boil an egg again. Dry shampoos have been a morning routine game-changer, but DryBath takes hygiene hacks one step further. Claiming to be the world's first bath-substituting lotion, it is among a number of emerging waterless, or near waterless, household solutions. <http://goo.gl/bKqOUy>

You probably have a drawer full of them – why can't we crack battery recycling?: Research indicates up to half of all EU countries could fall short of this year's target to recycle 45% of waste batteries. By September this year, EU countries must be collecting and recycling 45% of the batteries sold on their markets, with producers such as Duracell and Energizer footing the bill. The target is the result of an EU law signed a decade ago in an effort to deal with the toxic problem of waste batteries. Here we explain why the target is important and how likely it is to be met. <http://goo.gl/weVhs1>

7 things we learned about healthcare and the circular economy: The circular economy is the concept of keeping resources in use for as long as possible through their recovery and re-use. For healthcare, this might be buying refurbished MRI scanners or sharing under-utilised surgical equipment. A recent live chat debated how circular economy principles might take root in the healthcare sector. Here are seven things we learned. <http://goo.gl/ZywSYX>

eBook: Software-Defined Storage For Dummies: In the enterprise IT landscape, storage always has been a thorny issue for IT leaders and administrators. Without fundamental changes, storage problems will only get worse, as business moves further into the world of digital everything. That's because storage demands are exploding. The data center is evolving- has your storage kept up? Check out this Dummies Guide to learn: How to move to a software-defined data center; Capitalize on hypervisor convergence; and Dynamically control storage services. <http://goo.gl/5Kp3zC>

Raspberry Pi 3: The inside story from the new \$35 computer's creator: During the recent the launch of the Raspberry Pi 3, the co-creator Eben Upton told how the board's release opens up new software, operating systems and uses for the credit card-sized machine. It's fair to say the success of the Raspberry Pi computer has surpassed expectations. Co-creator of the board Eben Upton famously said he originally thought they'd sell about 1,000 of the \$35 pocket-sized boards. That estimate turned out to be somewhat conservative. More than eight million boards have shipped in the four years since the Pi's launch - with the Pi selling faster than ever last year. This burgeoning demand is being fuelled by newfound appetites for the Pi. While early sales were driven by hobbyist makers and tinkerers, in recent years schools and businesses have began using the boards in serious numbers. <http://goo.gl/QLER22>

The top 10 projects to try out with your Raspberry Pi 3: If you snapped up one of the more than 200,000 Raspberry Pi 3's available at launch, you might be wondering just what you can do with a \$35 computer. Here are 10 projects to get you going with the Pi 3 - some that make the most of the board's more capable hardware, some that are classic uses for the Pi and others that are just plain fun. <http://goo.gl/VKgQG9>

10 easy ways to ruin your smartphone: One minute you have an indispensable high-tech tool... and the next minute, you have a doorstop. Avoid the cost and inconvenience of a damaged smartphone by following a few best practices. We depend upon our smartphones. They keep us connected, informed, and up to date during the hectic daily grind. For many of us, those smartphones have become more than a simple tool, so we should probably take better care of them than we do. Instead of treating them as if they are toys that can be replaced on a whim, we should treat smartphones as if they contain sensitive data and our jobs depend upon them. What steps can you take to make sure you don't damage or destroy your mobile device? I have a list of nasty things that can be hazardous to the health your smartphone or tablet. Give this a read and see whether you're guilty of any of these abusive behaviors. <http://goo.gl/5DkdxB>

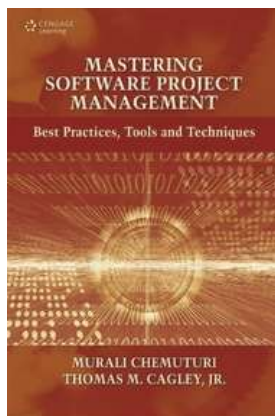
10 human factors that are critical to your app testing: A feature-rich app isn't necessarily what your users want or need - not if it hasn't been thoroughly tested to deliver a positive user experience. All too often, IT develops applications that are tested for functionality and features but not for usability. But if an app isn't user friendly, there is risk that it won't be used. This is why companies should concentrate on human-factors engineering as much as they do on features and functions. Here are 10 things you should check during app testing to ensure that your apps are easy to use. <http://goo.gl/t9O411>

10 ways mobile apps are bringing breakthrough technologies to business: The best mobile apps are giving companies unprecedented efficiency, convenience, and the ability to deliver a topnotch customer experience. Tens of thousands of mobile apps have been deployed by companies in the past three years. What we've learned from these deployments is that certain application scenarios are head and shoulders above others in terms of their usability and their ability to make a difference in the business. The industry a company is in also matters—because the same mobile app won't work equally well in every business context. What we do know, though, is that certain mobile apps have worked exceptionally well and are beginning to provide us with some outstanding examples and mobile app best practices. Here are 10 of them. <http://goo.gl/QaXHwl>

Will the internships program help young people get jobs?: There are many different reasons why a young person might not end up securing a job. Even having a university degree doesn't mean you will necessarily find work straight away. In fact, research shows that it now takes a young person, on average, 4.7 years to find full-time employment after graduating. During this year's budget, the government set out its plan for how tackling youth unemployment. It said it would offer six-week paid internships to those who have been looking for work for at least six months. We speak to youth employment expert Lucas Walsh about whether this idea will work, and the challenges young people face securing a job. You can follow the lines in our flow chart below to look at the many different pathways young people might have to take to get work. <http://goo.gl/khvmc0>

5 Google Drive tips you'll kick yourself for not knowing: Take your Google Drive experience to the next level with these five handy tips. <http://goo.gl/6B2s33>

Book Review:



Mastering Software Project Management

Author: Murali Chemuturi & Thomas M Gagle
Pages: 408, Paperback, Imprint: JROSS, Price: 599.00
ISBN: 978813151536, © Year : 2011
Published by: <https://www.cengage.co.in>

"This book in the form of a guide explains software project management from the standpoint of a software project manager working in a professional software development organization. It covers the subject of software project management in its entirety, including project acquisition and execution with backward linkages to concepts that play a facilitation role in successful project management, such as general management, decision making, people management, motivation, productivity and expectations management. This comprehensive reference provides guidance, best practices, tools and techniques needed to master software project management and

achieve superior results.

This book details all facets of software project management planning from training through deployment and contains templates for practitioners; explains decision-making concepts from the perspective of software project managers and includes tools and techniques for making quantitative decisions; discusses management of work, configuration, quality management, productivity, team morale and stakeholder (customers, senior executives, and the project team) expectations in great detail; describes the aspects of project control and details general concepts and tools that will assist the project manager; and presents best practices and pitfalls to avoid for nearly ever topic discussed to enhance software project manager performance.

This book also offers downloadable software project planning templates, a demo version of a collaborative software project management tool (PMPal), a tool useful for test effort estimations and test case design (TestPal), and a personal effectiveness tool (PET) – available from the web added Value Download Resource Center at www.jrosspub.com

Forthcoming Events

The **IEEE TENSYPMP 2016** on 9-11 May 2016 at The Sanur Paradise Plaza Convention Centre, Bali, Indonesia. <http://tensymp2016.org/>

The IEEE-sponsored International **CyberCrime and Computer Forensics Conference** to be held in Vancouver, Canada during 12-14 Jun 2016. <http://www.apatas.org/icccf/icccf-2016/>

IEEE Madras Section SIGHT organises a one day **Seminar on "Clean, Green, Safe and Great Marina"** in association with Angels of Marina on 15th Jun 2016 at Koodal Hall, Anna University from 9.30 a.m. to 4.30 p.m. For registration details please contact Mr. Eugene Kingsley. E-mail: connectwiteugene@gmail.com Mobile: 8012055236

IEEE Region 10 Student/YP/WIE/LM Congress 2016. 25-27 Aug 2016 at Bangalore.

ADCOM-2016: The Advanced Computing and Communications Society (ACCS) in association with the PES University, Bangalore, announces the 22nd annual International Conference on Advanced Computing and Communications on the theme Machine Learning Applications at Bangalore during 8-10 Sep 2016. This event is technically so-sponsored by IEEE Bangalore Section. <http://accsindia.org/category/adcom-2016/>

ISC2-2016: 2016 IEEE International Smart Cities Conference. The flagship conference of the IEEE Smart Cities Initiative, ISC2 will be held in Trento, Italy, 12-15 Sep 2016 and will foster plenary discussions and collaboration between all entities involved in planning and implementing successful smart cities. <http://events.unitn.it/en/isc2-2016> .

IEEE ProComm during 2-5 Oct 2016 at Austin, Texas. Theme: Communicating Entrepreneurship and Innovation. <http://sites.ieee.org/pcs/procomm2016/>

17-19 Oct 2016: The first IEEE International **Conference on Rebooting Computing** (ICRC 2016) at the Hilton San Diego/Del Mar, in San Diego, CA, USA. <http://icrc.ieee.org>

TTM 2016: IEEE Technology Time Machine during 20-21 Oct 2016 in San Diego, CA, USA, will bring together renowned experts from research and industry to provide an overview of emerging technologies and explore how they may be leveraged towards "making the future" through their research, products and services. This event is geared towards industry leaders, government officials, scientific innovators, economists, and social policy makers. <http://sites.ieee.org/ttm/>

The **7th International Conference on Transforming Healthcare** with IT 2016 is being held on 21-22 Oct 2016, ITC Chola, Chennai along with 21st annual conference of ISfTeH (International Society for Telemedicine and eHealth). As the IEEE Computer Society, Madras Chapter is a supporting organisations of this conference, a discount of 15% is applicable on the registration fee to the members of IEEE. While registering for the event pl. enter the discount code as DISCIEEE. <http://www.transformhealth-it.org/>

BIBE-2016: The 16th annual IEEE International Conference on Bioinformatics and Bioengineering. Oct 31-Nov 2, 2016, in Taichung, Taiwan <http://bibe2016.asia.edu.tw>

TENCON-2016: TENCON is a premier international technical conference of IEEE Region 10, which comprises 57 Sections, 6 Councils, 21 Subsections, 514 Chapters and 1159 Student Branches in the Asia Pacific region. The theme for TENCON 2016 is Technologies for Smart Nation and it will be held in Singapore from 22-25 Nov 2016. Last date for paper submission: 30 May 2016. <http://www.tencon2016.org>

PEDES 2016: IEEE International Conference on Power Electronics, Drives and Energy Systems, 14-17 Dec 2016, Trivandrum, Kerala, India. www.pedes2016.org

INDICON-2016: 16-18 Dec 2016 at Bangalore. Paper Submission Last Date: 16-Jul-2016. <http://www.indicon2016.in>

MAS LINK READERS QUIZ-1603

Answers

- Q1. Bangalore
- Q2. Kalasalingam University, Krishnakoil
- Q3. Dr. S. Raghavan, Professor, National Institute of Technology, Tiruchirappalli.
- Q4. Chemclave 2016
- Q5. SA Engineering College, Chennai
- Q6. IEEE Computer Society
- Q7. University of Texas at Dallas, USA
- Q8. Shri. K. Ramakrishna, Director, IEEE R10
- Q9. Wiley-IEEE Press
- Q10. Kongu Engineering College, Erode
- Q11. Community
- Q12. 15

Winners

Mr. V. Sudarsan, Student Member, SASTRA University, Thanjavur
Dr. R. Ramaprabha, Professional Member, SSN College of Engineering, Chennai

Both will get Amazon Gift Coupon of value Rs. 500/= from **IEEE Professional Communication Society Madras Chapter**.

IEEE Professional Communication Society (PCS) members access the latest research concerning communication in engineering, scientific, and other technical environments. As a member, you will have access to the IEEE Transactions on Professional Communication, the Society newsletter, training podcasts, low rates on the annual International Professional Communication Conference (IPCC), chapter symposiums and workshops for networking and continuing education, and more.

Field of Interest (abridged): Communicating information in engineering: electronic information, technical documentation, interfaces, usability, presentations, and content management.

[Join the IEEE Professional Communication Society](#)

MAS LINK READERS QUIZ-1604

Answers

- Q1. Project Skybender
- Q2. True
- Q3. St. Xavier Catholic College Of Engineering, Nagercoil
- Q4. Charles R. Swindoll
- Q5. Jeppiaar Engineering College
- Q6. IEEE RAS
- Q7. I.S. Yasmin
- Q8. KLN College of engineering
- Q9. M. Kumarasamy College of Engineering, Karur
- Q10. Claude E. Shannon
- Q11. Dr. Liu Yun-hui, Professor, University of Hong Kong.
- Q12. Marine Plywood

Winners

Mr. M. Jawahar, Student Member, MEPCO Schlenk Engineering College, Sivakasi
Dr. K. Porkumaran, Professional Member, Dr. N. G. P. Institute of Technology, Coimbatore

Both will get Amazon Gift Coupon of value Rs. 500/= from **IEEE Computer Society Madras Chapter**.

Become a member of the world's leading organization of computing and information technology professionals when you join **IEEE Computer Society**, the largest society within IEEE. Membership to the Computer Society includes FREE access to 3,500 self-paced online technical and business courses, FREE access to 1,100 online technical and business books (600 titles from Safari® Books Online and 500 titles from Element K® Press), six e-newsletters, 12 monthly issues of *Computer* magazine, discounts on 170+ Society-sponsored conferences and two software development certifications, up to 50 percent off subscriptions to 26 peer-reviewed journals and magazines, and more. Network and learn from fellow professionals through automatic membership to one of 350+ worldwide chapters, and participate in more than 40 technical committees.

Field of Interest: All major areas of computing and information technology: computer hardware, software, multimedia, IT, security, networking, mobile computing, and more.

This Society is a sponsoring society of the [IEEE Council on RFID](#), [IEEE Biometrics Council](#), [IEEE Council on Electronic Design Automation](#), [IEEE Nanotechnology Council](#), and [IEEE Sensors Council](#).

[Join the IEEE Computer Society](#)

MAS LINK READERS QUIZ-1605

Participate in the "IEEE MAS LINK READERS QUIZ - 1605" and win Two Amazon Gift Cards of worth Rs. 500/- each (sponsored by **IEEE Communications Society Madras Chapter**). The last date to receive your answers is 5th Jun 2016.

MAS LINK READER QUIZ - 1605

To encourage readership, this quiz is being conducted.

The "IEEE MAS LINK READERS QUIZ - 1605" has 12 questions for which answers can be found in the MAS LINK issue of May 2016 which can be accessed at <http://ieeecsc-madras.managedbiz.com/link-web/link-1605.pdf> and also from the gDrive folder named MAS LINK shared at <https://drive.google.com/folderview?id=0B5jxEnDN1CofWlkxejBNei1vOXc&usp=sharing> OR at <https://goo.gl/QjVcHK>

TWO lucky readers who provide correct answers to a minimum of 10 questions will get Amazon Gift Cards of value Rs. 500/= each. .

The prizes for the "MAS LINK READER QUIZ - 1605" are sponsored by IEEE Communications Society.

QUESTIONS

- Q1. The Madras Section has ----- Graduate Student Members as on 1st May 2016
- Q2. Who gave a lecture on "Skinput", an input technology that uses bio-acoustic sensing
- Q3. Who are footing the bill for battery recycling in EU
- Q4. The ICT Quiz at the Chennai Hub Congress was supported by -----
- Q5. Which SB had conducted a programme on "Why Self Employment?"
- Q6. "Resonance" is the newsletter of which SB
- Q7. Which SB has reported maximum number of activities in this issue of MAS LINK and how many
- Q8. Which SB organised a seminar on "IoT applied to Precision Agriculture"

Q9. Which conference had a panel discussion on “5G and beyond”

Q10. Which OU of IEEE organises a programme related to “Swachh Bharat initiative”

Q11. Which SB (not the project) received the 2nd highest amount in Student Project Funding for 2015-16 and how much

Q12. In 2016, till Apr, how many in Madras Section have been elevated to Senior Member

HOW TO PARTICIPATE

Send your answers to these 12 questions by email to ieemaslink@gmail.com

The subject should be MAS LINK READER QUIZ - 1605

Provide the answers to all questions by writing question no (pl. do not write the question. Just the no. such as Q1, Q2, Q3 is sufficient) & related answer. If you do not know the answer, pl. enter "NOT KNOWN"

After answering all the questions, pl. provide the following information relating to the quiz participant.

Name:

IEEE Member No

Type of Member

Designation (If student pl. write as Student)

Institution / Orgn Name

Town/City

Email

Contact Phone No.

TERMS & CONDITIONS

Incomplete & late entries will not be considered.

Decision of the IEEE MAS LINK Editorial Team is final.

LAST DATE TO RECEIVE THE ANSWERS IS -- 5th Jun 2016

Two lucky winners of the MAS LINK READER QUIZ - 1605 will get Amazon Gift Coupon of value Rs. 500/= from **IEEE Communications Society Madras Chapter**

The **IEEE Communications Society** gives members access to the latest breakthrough research in communications, specifically, information transfer with signals, including terminals, computers, systems, and operations; transmission media networks; new content/delivery methods; layout; protocol; and architecture. Membership benefits include a personal subscription to IEEE Communications Magazine (electronic and digital delivery), IEEE Communications Surveys and Tutorials (electronic), IEEE RFID Virtual Journal (electronic), the IEEE/OCN Journal of Optical Communications and Networking (electronic), and the Journal of Lightwave Technology (electronic). In addition, members have affordable access to low rates on Society publications, discounted admission to all conferences sponsored by the Society (averaging 20 percent off non-member registration prices), and access to continuing-education materials.

Field of Interest (abridged): Information organization, collection and transfer using electronic, optical, and wireless channels and networks.

This Society is a sponsoring society of the [IEEE Sensors Council](#), [IEEE Biometrics Council](#), [IEEE Nanotechnology Council](#), [IEEE Sensors Council](#), [IEEE Council on RFID](#), and [IEEE Systems Council](#).

[Join the IEEE Communications Society](#)

Announcements

IEEE Student Branches Revival / Revamping

Based on the mail sent on 4th Apr 2016, there has been a reasonable response (from 7 SBs) wrt revival / revamping of SBs. However, still we note a large number of SBs are still dormant. These are to be revived on or before 15th Jul 2016. If not revived, these SBs be recommended for termination by IEEE Madras Section to the R10. We have sent individual communication to the Principal / SB Counsellor of SBs in this regard. Please take immediate steps to revive your SBs by renewing the membership of your students or by adding more new student members meeting the SB requirements.

After completing the process you may please report to elangopr@gmail.com and hrmohan.ieee@gmail.com with CC to ieemas@gmail.com and ieemassac@gmail.com

Join IEEE MAS as SB Mentor

IEEE MAS SAC is in the process of revamping the Student Branches (SBs). The list of SBs to be revamped is available at <https://drive.google.com/file/d/0B5jxEnDN1CofYXNqQzNocVQ4TEU/view?usp=sharing> Please go through the same and decide the SBs to which you can be associated with for revamping. We are open to have mentors from GSM / YP and higher grade members who can support SBs in revamping.

For more details about Mentors forum please visit: <http://sac.ieeer10.org/forum/>

Please follow the link and fill the form.

<http://ieeefluidsveys.com/surveys/R0/r10-sac-call-for-mentors/>

If you need any help please contact: Dr. S. Elangovan, IEEE MAS Coordinator, SB Revamping - elangopr@gmail.com or Mr. H.R. Mohan, Chair, SAC, IEEE MAS - hrmohan.ieee@gmail.com or Dr. Rajesh Ingle, IEEE R10 (Asia Pacific) Student Activities Chair - ingle@ieee.org or Mehvish Zahoor, Regional Student Representative – mehvish@ieee.org

Call for Proposal to Conduct the Conference on Disaster Responsiveness/Disaster Management

The Disasters such as Flood, Drought, Cyclone, Earthquake, Forest fire, Tsunami, Landslide, Hurricane etc. which can occur at anytime, anywhere in the world without the knowledge of human being causing enormous destruction of properties and human sufferings, resulting in negative impacts on economies. Disasters can be classified as Natural Disasters, Human made disasters and Human induced disasters. Based on the main controlling factors leading to a disaster, we may also classify disasters as meteorological, geomorphological, geological, ecological, technological, global environmental and extra terrestrial. To effectively reduce the impact of disaster, a complete strategy for disaster management is required. Disaster management consists of three phases; two of them i.e. Disaster prevention and disaster preparedness, take place before disaster occurs. The third phase i.e. disaster relief, rehabilitation and reconstruction, happens after the occurrence of a disaster. The disaster management can be the collection of activities as follows:

Before a Crisis: Policy Creation, Risk Management, Mitigation Strategies, Preparing for Media Enquires, Warnings etc.

During a crisis: Protecting reputation, Human Behavior, Crisis Management, Leadership, Situational Awareness, Prioritizing tasks, Frontline Coordination, Emergency Management, Communicating, Protecting, Safety, Support etc.

After a Crisis: Disaster Recovery, Learning Lessons, Trauma, Responding to Investigations, Minimizing subsequent impacts, Support, Shelter etc.

Due to the very heavy rain and flood which happened in the month of November/December 2015, a very big disaster had happened in the city of Chennai and some other parts of Tamilnadu. People of Tamilnadu in general and Chennai in particular had suffered in many ways because of the non-availability of basic needs such as shelter, food

and drinking water, power and communication facilities due to this unexpected rain and flood. In the month of November/December, 2016, we are completing one year from this bad experience. As a Professional Society of Engineers and Technocrats, IEEE has moral responsibilities: (1) to find some solutions to prevent this kind of disaster, (2) to take appropriate actions to handle the disaster at the time of occurrence, (3) to make rehabilitation arrangements after the disaster.

To manage disasters well, we should know about preservation of data and information about the disasters for the present and future generations. We should also know how to build competent capacity to ensure that the legacy from these disasters is not lost. The available technology, technological tools and social media can play a vital role in the mitigation. The information and communication technologies can be used effectively to manage the disasters.

Taking all the above into consideration and in connection with the first anniversary of Chennai flood, The IEEE Madras Section invites you to submit a proposal for Conducting a Conference on Disaster Responsiveness and Management during the Month of December 2016. The closing date for accepting the proposals at IEEE Madras Section office is 30.06.2016. You will be notified by 20th July, 2016, if the proposal has been accepted. IEEE Madras Section will provide partial support to conduct the Conference as per the existing norms.

Please go through the CONFERENCE PROPOSAL FORM/EXPRESSION OF INTEREST available at <https://drive.google.com/file/d/0B3HJ2knpFzKHBndaNGJhVnBpMXM/view?usp=sharing> and submit the completed form to the IEEE Madras Section by E-mail/Post.

New SB Chapters of Societies & Affinity Groups

INFOLINE wishes to the following newly formed student branches Societies & Affinity Groups at the IEEE Student Branches.

- Panimalar Institute of Technology: Power Electronics; Power & Energy; Electron Devices; Control Systems; Antennas and Propagation; and Computational Intelligence
- S.A. Engineering College: Women in Engineering
- St. Joseph's Institute of Technology: Robotics and Automation
- Vellore Institute of Technology: Technology and Engineering Management
- Kongu Engineering College: Computer Society

Call for participation: 2016 Volunteer Leadership Training Program (VOLT): deadline 10 June

The MGA Training Committee is pleased to announce the launch of the Volunteer Leadership Training Program (VOLT) for this year. As it enters its third successful year, over 80 graduates have completed the program, representing all IEEE geographic Regions. VOLT is targeted to volunteers who have a true desire to learn about the broader IEEE and are considering taking leadership positions within their local units and IEEE committees. For 2016, the program will run under the same structure as last year:

Track 1 - All IEEE volunteers are invited to participate in Track 1, which covers key organizational units of IEEE and focuses on the foundational knowledge of the organization. These pre-requisite courses will be available to all IEEE volunteers through the IEEE Center for Leadership Excellence (CLE) website from 29 April through 10 June 2016. Participants will be asked to complete a short quiz at the end of each session.

Track 2 - Volunteers who complete Track 1 by 10 June can apply for consideration for Track 2 of the program, which is planned to start in September. Track 2 will last three months and focus mainly on leadership related topics. Participation in Track 2 will be determined by the MGA Training Committee based on predefined criteria.

Access Track 1 courses at <https://iee-elearning.org/CLE/>

(Log in with your IEEE account and choose the “Volunteer Leadership Training Pre-Requisite” category to begin)

IEEE Foundation Grants

The IEEE Foundation Grants Program is a vital element of the Foundation's mission to enable IEEE programs that enhance technology access, literacy, and education. Thanks to the generosity of donors to the IEEE Foundation, in 2016 the Foundation will invest approximately US\$325,000 in grants funding specifically to innovative and promising IEEE grassroots projects that raise awareness and understanding of technology and its impact on society.

If your IEEE organizational unit (OU) has a project worthy of IEEE Foundation grant funding under the theme: increase the understanding of technology and its critical role in meeting global challenges and improving the human condition, we invite you to apply for a grant at <https://ieeefoundation.org/Grants>

Application deadline is 15 July 2016, so send your proposal in now. Your project could be among the ones selected to receive funding from the IEEE Foundation Fund or IEEE Life Members Fund. Funding decisions will be announced in December 2016. Please www.ieeefoundation.org/Grants for more information.

IEEE Senior Members

IEEE MAS LINK congratulates the following Members for having been elevated to Senior Member grade in 2016 (till Apr).

Babu K N Dinesh	Radha S
C Venkatesh	Rajini Veeraraghavalu
Das Sukhendu	S Joseph Gladwin
Jayaparvathy R	S Arumugam
K Sivasankaran	S Malarvizhi
Karuppannan Sundararaju	S Vijayalakshmi
Krishnan Kothalam Nagarajan	Shanmugam Paramasivam
Manoharan Arumugam	Sivakumar R
Nagamani Chilakapati	Sivarajan Ganesan
Nandivada V Krishna	Thiripurasundari D
P Vijayalakshmi	Uppu Dr. Ramachandraiah
P S Mayurappriyan	Vijayan Thulasi
Pudhupallayam Murugeasan Beulah	VP Sampath
R Ramaprabha	

Benefits of Senior Membership

- Recognition: The professional recognition of your peers for technical and professional excellence.
- Senior Member plaque: All newly elevated Senior members receive an engraved Senior Member plaque to be proudly displayed for colleagues, clients, and employers to see. The plaque, made of fine wood with bronze engraving, is sent within six to eight weeks after elevation.
- US\$25 coupon: IEEE will recognize all newly elevated Senior members with a coupon worth up to US\$25. This coupon can be used to join one new IEEE Society. The coupon expires on 31 December of the year in which it is received.
- Letter of commendation: A letter of commendation can be sent to your employer on the achievement of Senior Member grade upon the request of the newly elected Senior member.
- Announcements: Announcement of elevation can be made upon request to your Section/Society in their local newsletters, newspapers, and notices.
- Leadership Eligibility: Senior members are eligible to hold executive IEEE volunteer positions.
- Ability to refer other candidates: Senior members can serve as a reference for other applicants for senior membership.
- Review panel: Senior members are invited to be on the panel to review Senior member applications.
- US\$25 referral coupon: Newly elevated Senior members are encouraged to find the next innovators of tomorrow and invite them to join IEEE. Invite them to join and the new IEEE member will receive US\$25 off their first year of membership.

If you are not yet become a senior member, pl. visit the webpage on "Become an IEEE Senior Member" at http://www.ieee.org/membership_services/membership/senior/index.html

Group Challan Payment Option for IEEE Membership

IEEE is officially launching the Group Challan payment option for student branches, institutions, and any individual or organization that wish to make group payment for IEEE Membership(s) using Indian Rupees.

Currently, group membership payments are being processed by MCI Management (India), a third party vendor. The MCI payment program will be discontinued on December 20th, 2015.

The steps for using the new Group Challan payment option are as follows:

- Go to http://www.ieee.org/documents/group_challan_payment_template.xlsx to download and complete the IEEE Group Challan Payment Template Form.
- Email the completed form to groupchallan@ieee.org
- Upon receiving the list, staff will create a Group Challan and email it to you within 3 business days.
- Print the Group Challan.
- Make payment at any Corporation Bank branch or at any other bank.
- The payment can be made by on-line banking, from an individual bank account, through National Electronic Funds Transfer (NEFT). The IEEE account number needs to be added as a beneficiary account for the on-line NEFT payment.
- For any transaction exceeding INR 200000/, please use the RTGS (Real Time Gross Settlement) option.
- Notify IEEE Member Operations at groupchallan@ieee.org after the payment has been made.
- Please indicate 'Group Challan # XXXX paid' in the subject line.
- You will receive a payment confirmation within 3 business days, and notice of the completion of the order process within 10 business days.

Please note that payments for IEEE Membership(s) or products using a Challan are non-refundable and must be paid in Indian Rupees.

Note: Please see additional details <http://rbi.org.in/scripts/FAQView.aspx?Id=60> for fees and service tax that NEFT/RTGS transaction may incur.

This new payment option will provide a faster turn-around time for the processing of IEEE Memberships, and will provide direct contact with IEEE Member Operations staff who are available to assist and resolve any challenge concerning membership applications and payments.

For further details and instructions on the Group Challan payment option, please visit https://www.ieee.org/membership_services/membership/rupee_join_option.html

If you have any additional questions or concerns, please direct them to groupchallan@ieee.org

Awards & Nominations

IEEE R10 SAC is announcing three awards this year, for more information please visit: <http://sac.ieeer10.org/r10-sac-awards/> **Deadline: Monday, 30th May 2016.**

Nomination form can be found at <http://www.ieeer10.org/activities/awards/sac-awards.html> to be submitted directly to R10 Student Activities Coordinator, Dr. Rajesh Ingle <ingle.rb@gmail.com>, and cc. Ewell Tan at <ewell.tan@ieee.org>

Useful IEEE Links

- Global Benefits Finder: http://www.ieee.org/membership_services/membership/benefits/index.html
- 2016 IEEE Membership and Society Membership Dues
http://www.ieee.org/membership_services/membership/join/join_dues.html
- IEEE Society Memberships: http://www.ieee.org/membership_services/membership/societies/index.html
- IEEE Student Activities: http://www.ieee.org/membership_services/membership/students/index.html
- IEEE Geographic Unit Formation Policies and Petitions
http://www.ieee.org/societies_communities/geo_activities/forms_petitions/forms_petitions_index.html
- Student Branch Officer Responsibilities and Administration
http://www.ieee.org/membership_services/membership/students/officers.html
- IEEE Student Branch Manual and Counselor Guide (PDF, 285 KB)
http://www.ieee.org/membership_services/membership/students/student_branch_manual_14.pdf
- IEEE Xplore Digital Library: <http://ieeexplore.ieee.org/Xplore/home.jsp>
- GoogleApps@IEEE: http://www.ieee.org/membership_services/membership/products/googleapps.html
- IEEE Region 10: <http://www.ieeer10.org>
- IEEE Contact & Support: http://www.ieee.org/about/contact_center/index.html
- IEEE Support Center: <https://supportcenter.ieee.org>
- IEEE Websites / Sitemap: <http://www.ieee.org/sitemap.html>

IEEE Madras Section membership status as on 1st May 2016

Affiliate	14
Associate Member	24
Fellow	4
Graduate Student Member	750
Life Member	5
Life Senior	11
Member	1233
Senior Member	155
Student Member	3583
Total	5779

For Private Circulation

IEEE MAS LINK

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