Chairman's Message

T.S. Rangarajan
ts.rangarajan@gmail.com

Dear Members

Your section is running three programs for you viz.

a. **Conference Sponsorship Program** – Technical and financial support to Institutions having student branches and who are organizing conferences / workshops / seminars and symposia under the banner of IEEE. IEEE has introduced a new conferences application platform called ICX wef June 2012 to enhance the user experience on conference organization.

b. **Faculty Development Program** – Conducting training programs for faculty in specific areas to update them on latest knowledge and enable them to be more effective teachers. The 22nd Faculty Development Program on "Soft Computing Techniques in Electrical Sciences – Recent Perspective" is scheduled on 30th June & 1st July 2012. Faculty IEEE members get 50% concession in course fee.

c. **Student Project Support Program** – For the second successful year this program aims to encourage student members of IEEE to experiment and explore their genuine project ideas as part of their curriculum. Your section funds the project either partially or fully depending upon the evaluation of the project by a committee.

During the last executive committee meeting, your section is considering adding two more programs viz.

d. **Skills Development Program** – One of the recurring feedbacks from previous faculty development programs is to consider running some skills based programs such as Matlab, Octave, Labview, Drupal etc. The IEEE GINI (Global Integrated Network of IEEE) and IEEE GOLD teams are already working on a program on Drupal (the open source CMS platform of our website) along with IEEE CS & IEEE PCS.

e. **Financial assistance for attending conferences** – Many requests have been received by your section in the past, particularly from student members, exploring the possibility of financial support for presenting their selected papers at international conferences. The section is actively considering allocating a fixed budget for this purpose after the members work out the modalities of approval.

Your section's executive committee is keen to identify areas where IEEE Madras Section can effectively contribute and make a difference by enhancing the value of IEEE membership. We welcome your suggestions in this regard and assure you that each suggestion will be taken up for discussion in the committee.

Each month we download the latest active members list from SAMIEEE to update our listserv ids and postal labels to ensure that all active members get our newsletters on time as also all the informative and very useful emails that we circulate. It pays to keep your membership active always.

Finally, I would like to point you to https://supportcenter.ieee.org/ for all your queries to be addressed through chat, phone or emails.

Yours voluntarily
ts.rangarajan@gmail.com

From The Editor's Desk

H.R. Mohan
hrmohan.ieee@gmail.com
Blog: http://infoforuse.blogspot.com

Dear Friends,

Our chairman, in his message has detailed out the various initiatives of the Section for the benefit of members. We are sure the members will participate and benefit from them.

LINK congratulates Mr. K.V. Rupchand for having received the "Certificate of Appreciation" from IEEE HQ for the Notable Services and Contributions towards the advancement of IEEE and the Engineering Professions as the Chair, IEEE Power & Energy Society, Madras Chapter during 2008-2011.

LINK also congratulates Mr. B. Anand from Madras Section for his project "A Significant Scheme on Small Renewable Hybrid Stand-Alone Power Generation System" having been selected to receive a grant of USD 480/=

We remind and encourage the SB counselors to send their nominations to the IEEE R10 WIE Coordinator on or before 30th Jun 2012 for the IEEE R10 WIE Section Affinity Group of the Year Award and the IEEE R10 WIE Student Branch Affinity Group of the Year Award.

Being the year end and examination period, this month, the activities reported for publishing are comparatively lesser than previous few months. We are in the process of bringing down the cost associated with the print communication and use the savings for other initiatives. Accordingly, this issue of LINK will be of eight pages instead of the normal 12 pages.

In this issue, we have published the reports on events organized by the following institutions:

- Madras Inst. of Tech
- VIT Univ.,
- Magna College of Engg
- Hindustan Univ.,
- Infant Jesus College of Engg and Tech
- M P Nachimuthu M Jagantahan Engg College

The other items published in the LINK include: Activities of IEEE IAS & PSES Chapters, Report on the national competition organized by NIOT and IEEE OES, Report on the Faculty Development Programme on "A Complementary Essentials of MATLAB & LABVIEW – Theory & Practice", Short articles on "Android on ARM for non-smart phone", "Plagiarism", "Learning from IBM Business Agility Technical Conference" by our member, "Techbits" dealing with recent and interesting developments.

We draw the attention of our readers to the announcements from IEEE CS & IEEE PCS on the "Guest Lectures" and "ManageMySkill Initiatives". SB counselors interested in these, may pl. get in touch with the chairman, IEEE CS & PCS at hrmohan.ieee@gmail.com. Also, we request the readers to enroll in the forthcoming FDP and benefit.

IEEE IAS & PSES Chapters

Technology Day Celebrations

IEEE IAS & IEEE PSES Madras Chapters in association with Larsen & Toubro Ltd., Chennai

VIT University

Photoshop Workshop

IEEE-PES organized a "Hands-on Workshop on Adobe Photoshop" on 11th Mar, 2012. The event conducted in collaboration with MBS Group to teach the students the basics of Adobe Photoshop Software, a professional image editing software package was attended by over 200, including faculties and students from outside colleges as well. Mr. Dhananjay, Chief Designer, MBS Group presided over the workshop and helped the students deal with the intricacies of the software. The content of the workshop included everything from the importance, aspect, role of the software to its basic tools of making selections, painting, retouching and layering. The participants were also made familiar with the basics of software like Corel draw, Maya and were also shown the features of 3D Animation. The workshop gave the participants the confidence to take new

celebrated the Technology Day on 11th May 2012. The function was inaugurated by Er. S. Rajavel, Chairman, IEEE-IAS Madras Chapter. Er. R. Srinivasan, Vice Chairman, IEEE-IAS Madras Chapter welcomed the gathering. Major (Retd) VV Chandrasekaran, Chairman IEEE - PSES Madras Chapter addressed the gathering.

There were following two technical talks during this programme:

1. Human Engineering & Safety - How not to go a Doctor by Dr G S Kailash, MBBS.,

design projects or image editing tasks on with ease.

SCOPES' 12: National Symposium on Smart Grid, Renewable Energy and Distributed Generation

IEEE–PES along with School of EE organised SCOPES' 12 the National Symposium on Smart Grid, Renewable Energy and Distributed Generation during 13-15, April, 2012. After the event inauguration by VP (Admn), Mr. Sankar Vishwanathan, there were sessions on "Home Automation using Renewable Energy" by Mr. A.V. Ramesh, Sr Executive Engineer, BOSCH, "Grid Optimization using Intelligent Controls" by Mr. Arun Moorthy, Country Head (SAARC), Echelon. The afternoon sessions included: "Energy Management and Efficiency" by Ms. Suhagi Shah, Technical Expert from Schneider and "Micro Grid in VIT" by Mr. Natrajan from

MD. This hilarious and thought provoking speech was enjoyed by all attendees.

2. Pumped Storage – Proven & Time Tested Technology for Storing Electrical Energy by Shri. K V Rupchand, Chairman, IEEE-PES Madras Chapter. This was very informative with lots of statistical information.

The program was attended by over 100 participants with representation from industries and academic institutions.

CO2 Research and Green Technology Centre. The second day sessions included: Distributed generation and power quality issues" by Mr. Shanti Swaroop from IIT- Madras, "Power Generation and Distribution" by Mr. V. Suresh, DGM, Power Grid Corporation (SRLDC), and "Smart Grid initiatives by IBM" by Mr. Jagabondhu Hazara, IBM Research Lab The last session was conducted by IEEE-PES itself where Sherin Ann Abraham, Pulkit Nahata and Abhinaya C enlightened the audience with their knowledge and experience on HCPV, Smart Grid and PoFreCa (Polythene Free Campus Drive initiated by IEEE-PES). On the third day, there were two events, GREEN–O-VIT — an idea presentation event on cleaner and greener technology covering topics such as efficiency improvement, waste management, smart grids for smarter systems, anti-pollution power systems, green energy, renewable power and hybrid renewable power etc., and TECHVILLE2.0 — a fun filled, mind-boggling quizzard. While the winners of the event GREEN–O-VIT, Ashwini Arora and Anuj Suhag received a cash prize of Rs. 3500, the winners of TECHVILLE2.0 were given Certificate of Excellence and others Certificate of Participation.

Report by: Saket Bhattad,
saket.sam.bhattad@gmail.com

2012 Region 10 Humanitarian Technology Activities

Link congratulates Mr. B. Anand from Madras Section for his project "A Significant Scheme on Small Renewable Hybrid Stand-Alone Power Generation System" having been selected to receive a grant of USD 480/= (360 from R10 & 120 from Section)

This project presents a schematic design of a compact stand-alone hybrid power generation system using wind-solar resources. This system can be implemented in national highways, where huge amount of air can be collected due to the high speed motion of

vehicles and at the same time the solar energy from the ambient will also be collected. Finally both energies will be acquired simultaneously for charging the batteries and is supplied for domestic and rural purposes. For the purpose of maximum uninterrupted power supply in industries and factories, a DC generator and power supply line are also connected to the system, but these two systems works in a priority order, only when the demand is not met by the Wind-Solar system. The main advantage of this system is, it can be implemented in both stand-alone and grid connected modes.

Section Membership as on 15th June 2012

Life Fellow	-	2
Fellow	-	2
Life Senior	-	7
Senior Member	-	101
Life Member	-	4
Member	-	1296
Associate	-	60
Affliate	-	22
Graduate Student Member	-	882
Student Member	-	4995
Total	**-**	**7371**

Madras Institute of Technology

International Conference on Recent Trends in Information Technology

The Dept. of IT in association with IEEE Madras Section organized the ICRTIT 2012: International Conference on Recent Trends in Information Technology during 19 – 21, April 2012. The conference started with the presidential address by the Vice Chancellor Dr. P. Mannar Jawahar followed by special address by Registrar Dr. S. Shanmugavel. Inaugural address was given by the Chief guest Dr. V. Frank Wang, University of Kent, UK. Dr. V. Vaidehi, Professor and HoD/IT, MIT welcomed the gathering and briefed about the conference.

Three workshops — "Pattern Recognition", "Beyond 4G Wireless Communications" and "Malware Analysis 101" were held on the 1st day. There were six keynote addresses by eminent speakers — "Towards 2020 Computing", "Technology, Globalization and the Vanishing Educational Institutions", "Human Computation, Crowd Sourcing, and Crowd Servicing", "Role of it in Transforming Educational System in the Digital Economy", "Complex Event Processing for Sensor Network", and "Genetic Programming and Nonlinear Control Problems" An online plenary talk on "A New Perspective on Spectrum Sensing for Cognitive Sensor Networks" was also organized.

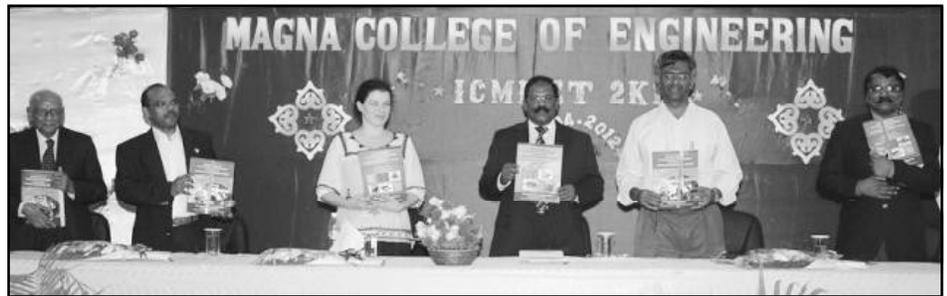The conference received about 570 papers from different educational institutions and research organizations out of which 101 papers were selected for presentation. The Proceedings of the conf. has been made accessible to international community through IEEE Xplore. Valedictory address was given by Dr. D. Vidya, Director, iNautics Technologies India Pvt ltd, Chennai. The conf. ended with vote of thanks by Dr. P. Anandha Kumar, Associate Professor, Dept. of IT.

Report by: Dr. V. Vaidehi,
vaidehivijay@gmail.com

Magna College of Engineering

International Conference on Emerging Engineering Trends

The second International Conference on Emerging Engineering Trends (ICMEET2K12) was conducted during 12th and 13th April 2012 with the technical sponsorship from IEEE Madras Section. Out of 713 papers received, after screening by experts in the respective fields 231 papers were selected for presentation in 24 sessions in 6 venues. Dr. A. Rajadurai, Prof., Dept. of Production Technology, MIT, Chennai, inaugurated the conference and delivered an interesting and informative inaugural address. Dr. Linda Hussami, K.T.H. Royal Institute of Technology, Sweden & Dr. S. Natarajan, Sr. Consultant, Engineering and Education, delivered the keynote addresses. Dr. Subash C.B. Gopinath, Electronic & Photonic Research Institute, Japan and Dr. V. Ganesan, Prof.,Dept. of Mechanical Engg, IIT Madras delivered the keynote addresses on the second day. Certificates and conference proceedings were distributed to the participants. The participants provided positive feedback and also offered few suggestions for future guidance.

Report by: Mrs. R. Mythily,
Mythu86@gmail.com

Hindustan University

National Conference on Communication Networks and Sensor Technology

A two days, National Conference on Communication Networks and Sensor Technology - NCCNS'12 was organized during 23-24, March 2012. Dr. K. Sarukesi, Vice-Chancellor, presided over the function. Ms. Swati Satish Kamat, CTO, Bharti Airtel, Chennai inaugurated the conference appreciated the unique theme combining Communication Networks and Sensor Technology. Mr. Nabakishore Singha Technical Project Manager, Nokia Siemens Networks, Global Service Delivery Centre, Chennai delivered the key note address on "The Emerging Future of Communication Networks and Sensor Technology & the Technological Revolution Touching Everyday Life". Out of 400 plus papers received from all over the country on the topics related to Communication, Sensor Technology, VLSI & Image Processing and Wireless Networks, 80 were selected for presentation by an expert panel in parallel sessions. The proceeding was also released on the occasion.

Infant Jesus College of Engineering and Technology

Workshop on How to Create Website

On 11th April 2012, the IEEE SB had organized a one day workshop to provide an exposure on how to create a website. In this workshop the students were given an introduction about designing the website by using software such as dream weaver, flash, photoshop, Microsoft front page. The sessions included lectures and hands-on. The students participated in the workshop with interest become confident at the end of the day long programme. The workshop came to the formal closure with the vote of thanks by Mr. T. D. Subash, SB counselor.

Website Design Contest

On 28th April 2012, the SB organized a website design contest. The contest was conducted by the first year M.E CSE students who are the members of IEEE. The theme for the competition was "My Dream Company", Under that theme students designed the websites using the software such as Dream weaver, flash, photoshop, Microsoft front page, in a time frame of 2 hours. Three winning teams (of two members) were selected based on the evaluation on photoshop, creativity, number of pages and layout. At the inaugural function of IEEE in IJCET, the mementos and certificates was provided to the winners.

Inaugural Ceremony

The IEEE SB at IJCET, observed its first official Inauguration on 28th April, 2012 with great enthusiasm from among the members, students and the faculty. Dr. B.Priestly Shan, Secretary IEEE India CAS from St Josephs College of Engineering and Technology inaugurated the proceedings. 450 students

including 26 members and 16 faculty attended the inaugural and office Bearers Installation ceremony along with Dr. S. Allwin, Director of the College, Dr .V. Velmurugan, Principal and Prof. S. V. Ghosh, Dean.

After the presidential address by Dr. S. Allwin and felicitations, Prof. T. D. Subash introduced the OBs for the year 2012. Ms. J. Avril took charge as the first SB Chairman and presented about the plans and activities for this year. The chief guest, Dr B Priestly Shan, in his inaugural address congratulated the college officials for showing interest for starting the IEEE SB and highlighted the need for association with professional bodies and the benefits of IEEE SB. He elaborated on the various events and activities which can be conducted in the college and provided useful inputs about the different types of awards and grants which are funded by the IEEE for student activities. After the IEEE Pledge by the members present, the winners of the Website Design Contest held

were presented with prizes. The function concluded with vote of thanks by Ms. Sumitha, Treasurer of SB.

Seminar on "Digital Image Processing"

A one day seminar on Digital image processing was held on 11th May 2012. Mr. T. D. Subash, SB counselor welcomed the gathering and introduced the Chief Guest Dr. B. Priestly Shan, Secretary IEEE India CAS from St Josephs College of Engineering and Technology. The chief guest gave an introduction about image processing and detailed out the applications of digital image processing. He highlighted the recent research activities in bio medical imaging. He clarified the doubts raised by the participants who numbered around 150 comprising of both IEEE and non IEEE members. The seminar came to the formal closure with the vote of thanks delivered by Ms.Akila, HOD /ECE.

Report by T. D. Subash,
tdsubash2007@gmail.com & B.Rathna Priya

Faculty Development Programme

The 22nd FDP on **"Soft Computing Techniques in Electrical Sciences - Recent Perspective"** will be held on 30th June & 1st July 2012 at Akshaya College of Engineering and Technology, Coimbatore. To register, pl. contact: IEEE Madras Section. Email: ieeemas@airtelmail.in / ieeemas@gmail.com

Congratulations

LINK congratulates **Mr. K.V. Rupchand** for having received the "Certificate of Appreciation" from IEEE HQ for the Notable Services and Contributions towards the advancement of IEEE and the Engineering professions as the Chair, IEEE Power & Energy Society, Madras Chapter during 2008-2011.

FDP on "A Complementary Essentials of MATLAB & LABVIEW – Theory and Practice"

The IEEE Madras Section in association with Dept. of Electronics and Communication Engineering, V.M.K.V. Engineering College, Salem organized the 21st Faculty Development Programme (FDP) on the topic "A Complementary Essentials of MATLAB & LABVIEW – Theory and Practice" on 9th and 10th May 2012. The programme was attended by 35 faculty members of colleges and universities from all over Tamilnadu. The co-ordinators of the program were Dr.N.Kumarappan, Professor, Annamalai University and IEEE Madras Section Educational Activity Chair and Dr. A. Nagappan, Principal, V.M.K.V. Engineering College, Salem and Excom Member IEEE Madras Section.

At the inaugural session, Mr. G. Narendra, Asst. General Manager, Research Publications, ICT Academy of Tamilnadu, Chennai delivered the special address. He was also a resource person along with Mr. Anand.B Desh Pande, Senior Software R&D Engineer, Tech Mahindra, Bangalore, Mr. J. Visweswaran, Academic Consultant, National Instruments, Bangalore and Dr. J. Sethuraman, Dean Innovation & Extension, V.M.K.V. Engineering College, Salem.

The topics covered included an introduction to Matlab and Labview, desktop layout, basic arithmetic operations in command window, matrix algebra, curve plotting, common functions and properties, 2D and 3D plots, Laplace transform and Fourier transform with applications. The participants were also given hands-on training in Matlab and Labview basic commands.

At the valedictory, Mr. Anand. B Desh Pande, Senior Software, R&D Engineer, Tech Mahindra, Bangalore delivered the valedictory address and distributed the certificates to the participants. The program received an excellent feedback from all the participants. The FDP provided an excellent opportunity to listen to the experts and also to discuss basics and advanced topics with hands-on training using Matlab and Labview.

National Competition on Student Autonomous underwater Vehicle (SAVe-2012)

National Institute of Technology (NIOT), under Ministry of Earth Sciences, runs a competition for students pursuing engineering degree to visualize and design an autonomous underwater vehicle partnering with IEEE - Oceanic Engineering Society - India chapter & Ocean Society of India. The conceptual basis for Student Autonomous underwater Vehicle (SAVe), is a highly mobile autonomous underwater vehicle (AUV) to be built based on engineering principles. NIOT supports the winning teams with their expertise and sponsor for the International competition being held annually in USA. In the SAVe-2012 competition, the team from IIT Kharagpur won and participated in the International AUV competition on 17th July 2011 at San Diego, USA.

For the SAVe – 2012 competition announced in Nov 2011, 57 registrations were received and 17 teams had submitted their Preliminary Design Reports (PDR). They which were reviewed based on the concept, Literature Review, Design Method, Simulation, Theory Design, Block Diagram, Project Document, Theory Modeling, Method of Operation and other requirements. The detailed Conceptual Design Report and oral presentation by the these 17 teams was held at NIOT on 30th Jan 2012. A High Level Committee under the chairmanship of Dr. M. R. Nayak with members from NIO Goa, NSTL Vizag, IIT Madras and senior scientists from NIOT evaluated the students on the basis of oral presentation, CDR Report, work done on design and development of AUV, methodology adopted, team spirit shown and ability to define their ideas etc., and shortlisted 8 teams. The working AUV developed by these 8 teams were demonstrated for evaluation to the national committee on 30th April 2012 at Sports Development Authority of Tamil Nadu, Chennai. The committee recommended the joint team of students from Panimalar Institute of Technology, Chennai as the winner. They would be sponsored by NIOT to participate in the International Competition to be held at San Diego, USA during July 2012.

Dr. P. Misra, Principal Officer cum Jt.DG (Tech.) Mercantile Marine Department, Chennai was the Chief Guest and announced the winning team. Dr. M. A. Atmanand, Director, NIOT appreciated the participants and colleges. He also explained about the initiative taken by NIOT in conducting this national event and its importance in creating awareness and interest among the young engineers. Dr. R Venkatesan, Coordinator of the competition delivered the Vote of Thanks.

Plagiarism

Dr. S. Thiruvengadam
Professor of Eminence, Dept. of EE
Valliammai Engineering College

Webstar's college dictionary defines 'PLAGIARISM' as the art of presenting as new and original an idea or product derived from an existing source. It is also defined as taking and using as once own the writings or ideas of another. It involves reusing of someone else's ideas, processed results or words without explicitly acknowledging the original author and the source. If one neglects to properly cite the work one borrows, either by choice or by accident, he is committing plagiarism. Plagiarism infringes copyright and will entail legal liability to the author.

Plagiarism can be defined as involving five levels

1. Copying (verbatim) of greater than half of an original paper without crediting.

2. Copying (verbatim) of less than half of the original paper without crediting.

3. The verbatim copying of individual paras, sentences or figures without acknowledgement.

4. Paraphrasing of pages without giving due crediting.

5. Verbatim copying of a major position of a paper without quotes or indents and due crediting.

Books, Magazines, Journals, Transactions, Conference Proceedings, Photos, Charts, tables, Multimedia presentations are covered by rules of plagiarism. All publicly distributed material is subject to the same rules of plagiarism.

There are four levels for relevant correction action

1. Publication of a notice of violation in the appropriate publications.

2. Prohibition of publication in all relevant journals for 3 to 5 years.

3. Rejection of all of this author's there papers (if any) under review.

4. The errant author /authors submit written apology to the affected author/ authors and to the editor of relevant publication.

If one wants to use charts, photos, are other material from another author's original work, he must:

1. Use quotation marks indentations and provide a full reference to original material.

2. Obtain beforehand written permission from original author/ publisher.

It is worth recalling in this context an anecdote mentioned by Nobel Laureate Martin Chalfie. Mr. Martin Chalfie sought permission from his own wife for publishing some of her unpublished research as part of his prize winning paper. In response to this she wanted him to make coffee, cook and empty garbage for an entire month in their house to permit him to use her unpublished researched.

Learning from IBM Business Agility Technical Conference

Agile transformation and quickly adapting to the growing changes of the clientele can heavily impact our business over our peers.

The capabilities of an effective transformation is

- Agile Process and Decisions
- Rapid, Adaptable Integration
- Unbounded Application
- Flexible and Intelligent Infrastructure

Successful transformations are built on Business Agility and that Business Agility Requires

1. Enterprise Visibility

2. Operational Dexterity - The capability of a business to change quickly with control over the business and without losing the quality

3. Process Integrity - Transactionally executing transformation

Roadmap to Business Agility and the strategy for better business outcome.

- Fuel New Growth
- Speed time to value
- Reduce the total cost of ownership

The requirements of the Customers are ever-changing and how does our business handle the best for each transformation required. One best solution is The Cloud. The Application Cloud is the mantra for IT Flexibilities. The unique benefits of taking IT over cloud are:

1. Deliver IT without boundaries

2. Create business value in a new way

3. Delivery new offerings

4. Can handle pressure from the Customers

For more details on IBM Business Agilityand SmartCloud, please refer:

http://www-01.ibm.com/software/solutions/business-agility/

http://www.ibm.com/cloud-computing/us/en/

— Barnabas Muthu

M. P. Nachimuthu M. Jaganathan Engineering College

Value Added Course

The Value Added Course for the II, III & IV year EEE students was jointly conducted by the Dept. of EEE, IEEE SB with Aero Creative Academy, Erode. The course duration was 45 days and the coverage included PLC, SCADA & MMI. At the end of the course an exam was conducted. All the participants passed in the exam and they were issued certificates by the correspondent Tmt. Vasantha Sudhanandhen.

Report by: D. Sabapathi,
esec74@yahoo.co.in

Android on ARM for non-smart phone

V. P. Sampath
Consultant, Ram Innovation Labs, Chennai
Ramsampath78@Rediffmail.Com

Android has seen extensive market share in the mobile phone market, and it is migrating to markets which include tablets, thin client personal computers, wireless video conferencing systems and televisions featuring GoogleTV.Developers using ARM processors tend to gravitate toward Android for its flexibility, power and versatility. Based on the open source Linux kernel, Android retains many of the characteristics of open source software, even with Google's acquisition of Android, it morphed into a hybrid model – between a commercial and open source OS. However, the benefit to Android is that it is license free and protected from claims by the open source community. The Smartphone sleek touch screen interfaces are so popular that these types of interfaces are proliferating into every day products used in the home and commercially.

Designers for these new, sleek products who are contemplating migration from an existing application to the Android environment should note the differences between Linux and Android. There are many similar capabilities, such as multimedia processing, file system calls, driver patches and other software modules. However, they are not the same, even though Android is build upon a Linux kernel. Designers will need to do some re-coding when moving from Linux to Android.Android is pre-configured with a powerful set of capabilities. Google defines the middleware, multimedia frameworks and key system firmware associated with the OS, which differs from open source OS such as Linux where developers must integrate these capabilities into the open source kernel. The most recent release was Android 4.0, or Ice Cream Sandwich, which merged the smartphone and tablet pieces of the OS into a single version.

ARM cores optimize

The Android OS is a perfect fit for ARM processor cores, specifically the ARM Cortex-A cores, including ARM Cortex-A8 offerings. The low power consumption and functionality of a net book class CPU for embedded systems makes the ARM Cortex-A8 a perfect fit for mobile embedded systems. ARM Cortex-A8 devices include an ARM Advanced SIMD technology known as NEON to accelerate operations such as codec's or graphics pixel manipulations can improve performance over straight ARM or THUMB code significantly. TI ARM devices include the NEON Advanced SIMD engine. ARM9 cores are widely deployed in embedded systems, but Android is not optimized for this core. It can certainly function on an ARM9 device, but performance is significantly hindered when running Android.Android-based systems usually feature multimedia applications, and developers should note how the video, audio and graphics are processed by the system. A lot of the multimedia codec's – encoders and decoders – are pre-configured with Android at low-resolutions, since they are targeted at ARM Cortex-A8 general-purpose cores. But many of the industry processors, such as TI's OMAP mobile applications processors, DaVinci video processors and C6000 DSP + ARM processors combine the ARM and DSP processing cores which is helpful because the DSP core can offload processing tasks from the ARM core and accelerate multimedia processing beyond capabilities of the ARM core.

Android development tools

Android offers developers Java and C/C++.Java utilizes the Android software development kit (SDK) and the Dalvik virtual machine optimized for mobile devices. Java will run anywhere that supports Java. The Android Native Development Kit (NDK) is used with C/C++ code, which limits the code to a specific CPU architecture. Since Android devices are mostly ARM-based, it's definitely not a severe limitation. This is a bigger problem for x86 vendors that want to use Android. The Java only applications run without modification, but if an application requires some NDK code developed for ARM, it needs to be manually ported to the x86 device.

An Android Development Tools (ADT) plug-in from Google is featured in the popular Eclipse integrated development environment (IDE). Eclipse comes equipped with many tools to quickly set up a project, develop an application user interface, add components based on the Android Framework Application Programming Interface (API), debug code with tools from the Android SK and export completed code.TI's Code Composer Studio v.5 IDE is based on Eclipse and extends it with features such as advanced debug capabilities, hardware debugging, profiling, simulation and others. If developers implement Code Composer Studio and the ADT plug-in, they can debug Android Java and C/C++ code, the Linux kernel, code for a DSP and more all within the same IDE. Developers can also debug code running on the Android emulator with Code Composer Studio and the ADT plug-in.

References:

- Developing Android applications for ARM Cortex-A8 cores. Darren Etheridge, Android Multimedia Engineering Manager, DSP and ARM, Texas Instruments (http://www.ti.com/lit/wp/spry193/spry193.pdf)

- ARM developers' community. (http://www.arm.com/community/)

- Mobile Virtualization - Coming to a Smartphone Near You – Steve Subar – Open Kernel Labs (http://www.ok-labs.com).

Guest Lectures

IEEE Computer Society is pleased announce the availability of **Dr. Venkat Ramanathan, Evangelist, Advanced Technology Applications Practice, Institute of Systems Science of the National University of Singapore** during Aug 22-23 & 29, 2012 to deliver guest lectures on the following topics.

- Business/IT alignment.
- Service Oriented Architecture - Trends and Directions
- Techniques for designing Services for successful adoption of SOA

Institutions, interested in hosting the talks may please write to the chairman, IEEE CS at hrmohan.ieee@gmail indicating the topic & date of their choice.

ManageMySkill Initiatives

IEEE CS & IEEE PCS Madras Chapter are exploring the possibility of offering "ManageMySkill" training to the students of various branches of Engineering, Management and MCA courses across different years based on an initial assessment of their skill sets. This initiative will broadly address and strive to improve the academic, cognitive and enabling skills, career management skills, employability/work/job skills and will be offered on a short / long term basis depending on the need and at an affordable cost. This will be a collaborative initiative of the IEEE Society Chapters (CS & PCS), Institutions and VictoryMind. SB counselors of the institutions interested in this initiative may please write to the chairman, IEEE CS & PCS at hrmohan.ieee@gmail.com

Techbits

- The Green Grid is a non-profit, open industry consortium of end-users, policy-makers, technology providers, facility architects, and utility companies collaborating to improve the resource efficiency of data centers and business computing ecosystems. With more than 170 member companies around the world, The Green Grid seeks to unite global industry efforts, create a common set of metrics, and develop technical resources and educational tools to further its goals. More at http://www.thegreengrid.org/

- Can computers understand emotions? Can computers express emotions? Can they feel emotions? The latest video from the University of Cambridge at http://goo.gl/Wkhph shows how emotions can be used to improve interaction between humans and computers.

- A breakthrough in the ability to process thermoplastic-based composites for use in the helmets of soldiers which saves at least one-quarter the weight and up to 35% higher tolerance from fragmenting munitions has been achieved by The U.S. Army Research Laboratory

- The new material grades have produced several types of head protection, each of which saves at least one-quarter the weight and up to 35% higher tolerance from fragmenting munitions.

- Seagate recently announced it had achieved a density of 1 terabit (1 trillion bits) per square inch on a disk drive platter. That breakthrough should lead to 20TB laptop drives within the decade.

- Computer scientists at the University of Glasgow are participating in a new project to develop a search engine which will draw its results from sensors located in the physical world. As the Internet continues to expand, public access to net-connected sensors such as cameras and microphone arrays is increasing. The European-funded project, known as SMART, for 'Search engine for MultimediA Environment geneRated content', aims to develop and implement a system to allow internet users to search and analyze data from these sensors.

- Technology That Translates Sign Language Into Text Aims to Empower Sign Language Users: Researchers at University of Aberdeen have developed the Portable Sign Language Translator (PSLT), software that can be used on mobile devices and enables users to customize sign language to their specific needs. To use the program, a person signs in front of a standard camera that comes with portable computing devices. The program then translates the signs into text that can be read by others. This technology aims to empower sign language users by enabling them to overcome the communication challenges they can experience, through portable technology. PSLT can be used with a range of sign languages, including British Sign Language (BSL), a general-purpose language. Full story at http://www.abdn.ac.uk/news/details-11751

- Software Translates Your Voice Into Another Language: Microsoft researchers have developed speech recognition software that can learn the sound of a user's voice and translate it into a new language. This could be used to make language learning more personal or make traveling easier or in doctor-patient consultations. The software can convert between any pair of 26 supported languages, including Mandarin Chinese, Spanish, and Italian. Full story at http://www.technologyreview.com/computing/39885/

Compiled by: H.R. Mohan

Visit our Website
www.ewh.ieee.org/r10/madras

Posted On : 25th June 2012
Posted at: Egmore RMS (Patrika)

FROM:

◆IEEE
MADRAS SECTION

Room No. 3, ISTE Professional Centre
Gandhi Mandapam Road
Chennai 600 025
Tel   : +91 44 2442 3939 Cell : 93823 28776
Fax   : +91 44 2442 3939
Email : ieeemas@airtelmail.in, ieeemas@gmail.com
          ieeemaslink@gmail.com

TO: