

IEEE India Bulletin Vol. 11 No. 4 April 2001

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CHAIRMAN'S MESSAGE

Dear Fellow Members

I have recently taken over as Chairman, India Council and it is my first communication through which I can share my thoughts with the members' fraternity of IEEE. My predecessor, Prof. Akshay K. Aggarwal had been a dynamic leader for the cause of Indian members and had taken up a number of issues with the concerned authorities in IEEE which were important for the growth of IEEE in India. Some were resolved and the others are at various stages in process. I shall make an endeavour to pursue the pending issues and bring them to their logical conclusions.

While there are 10 Sections in India and all of them are quite active, carrying out their professional, technical and educational activities, there may be many issues which are common and instead of all Sections taking up these issues separately, it may be worthwhile to take them up in a more focussed manner from a single point. This service can be provided by the India Council in the larger interest of all the sections and for such activity only the councils are required in IEEE. I would therefore call upon all the sections to come out with the issues which have commonality and which need to be taken up. I am still going through the earlier points and will share with you progress in respect of them subsequently. A good news is that the issue of involving a signatory from headquarters in the Section bank account which was not considered feasible in the context of India Government regulations etc. and Sections were finding difficult to implement has been put on hold till further communication from the headquarters.

The first event as Chairman in which I got an opportunity to participate was the 2nd All India Student Congress (AISC) held at Mumbai on 8th & 9th March 2001. The 1st AISC was held at Chennai in July 2000 which was organised by the Madras Section. But responsibility of organising the 2nd AISC was taken up by the Student Branch of Vivekanand Education Society Institute of Technology (VESIT), Mumbai which was a commendable step and gave the budding engineers an opportunity to demonstrate their leadership, teamwork, organisational skill, etc. While the Sections get enough opportunities to organise big and small events like conferences, seminars, workshops, lectures, etc., it is a good idea to entrust the responsibility of organising a student's event to students themselves with all encouragement by the concerned Section.

The 3rd AISC will be held in 2002 in Kerala and the organising student branch should draw upon from the experiences of VESIT Student Branch so that the shortcomings of the 2nd AISC are not repeated. They should ensure timely communications and publicity to all the student branches so that participation from maximum number of student branches could be possible. Since the AISC is going to be an annual event, the

participants should not only be exposed to IEEE activities but all the problems faced by the student members be brought out. I hope Kerala Section will start planning to hold the 3rd AISC in right earnest.

Region 10 Executive Committee Meeting will be held at Singapore on 6th & 7th April which I am going to attend. I will be able to share with you the highlights of the meeting in May 2001 issue of the Newsletter.

I would invite the suggestions from the members on how to make the role of India Council more effective and purposeful and also what they expect from the Council.

With best wishes,

Sincerely yours,

New Delhi
02 April, 2001.

P. K. Srivastava
Chairman



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AES - COM - LEOs SOCIETY CHAPTER

Aerospace & Electronic Systems, Communications and Lasers & Electro-Optics Society Chapter - India. Highlights of Activities in 2000

Achievements

The Chair of the Chapter has been awarded "IEEE 1999 Region 10 outstanding Volunteer Award", which was presented at TENCON' 2000 at Malaysia.

The major event of the Chapter "2000 IEEE International Conference on Personal Wireless Communications (ICPWC'2000)" was held during December 17-20, 2000 at Hyderabad. The Conference was hosted by IEEE Hyderabad Section and sponsored by IEEE Information Theory Society besides the Chapter and Hyderabad Section. University of Victoria, Ministry of Information Technology, India and IEEE Aerospace Electronics System Society, technically supported the ICPWC. 122 participants from 22 countries (61 from abroad) attended. 8 exclusive tutorials and 24 technical sessions. 128 technical papers presented. The Plenary session had the keynote address by Dr. T. H. Choudhary, Information Technology Adviser to Govt. of Andhra Pradesh, India.

Technically participated in organizing Electronics and IT Exposition(ELITEX-2000 and 2001) the annual event of Ministry of Information Technology, India. The Chair of the Chapter was the Member Convenor of ELITEX. Each individual event has attracted more than 8000 visitors from all over the country. The visitor included individuals from Industry, User Organizations, R&D Labs including defence and academic institutions. The 2001 exposition had official participation from Asian countries. The participants included those from USA, UK, Germany and Counsellors from most of the countries. The events were inaugurated by Hon'ble Shri. Pramod Mahajan, Minister of Information Technology, India. The keynote address was given by Dr. APJ Abdul Kalam, Principal Scientific Advisor to the Prime Minister (and Sri. R.S.Pawar, CMD, NIIT, the leading Human Resource Development Institution in India). The seminar in the exposition covered special theme sessions on Convergence, Technolo-gies of Convergence, Infrastructure, IPR and other legislations in IT and their impact on India, IT Enabled Services, Electronics Governance, Wireless Communications, Multi-lingual Technologies, Electronic Commerce, On-line Learning Education, Venture Capital/Brand Equity, etc. The on-line proceedings of exposition was made available on the

"www.elitexindia.com". New product/software developed were launched and some of the technologies were transferred to the industry on the spot. 130 technologies developed are given wide publicity for mass commercialisation. The students from engineering and management colleges also participated in the expositions.

In association with Institution of Electronic Data Processing, organized a one day workshop covering IPR issues, low cost multi-media and electronic governance applications.

In association with Delhi Section, organized one day tutorial by Prof. Gordon L Stuber on "Mobile Communications", at IIT Delhi.

Partially supported the National Symposium on "Advances in Microwaves and Lightwaves" at University of Delhi South Campus. Keynote addresses by Prof. A K Ghatak on "Recent Trends in Fibre Optics" and Prof. G P Srivastava on "Growth of Microwaves". A workshop on "Modelling, Design and Characterization of Micro-electronic Devices" was also conducted.

Supported the International Conference on "Fibre Optics and Photonics" at IIT Kharagpur. The Conference with 40 invited talks and 200 papers along with 5 tutorials, emphasized on the future growth of Fibre Optic Communication and Networks in India.

Supported the Conference on "Connecting Villages with Communication Facilities", organized by FICCI at Delhi.

Organized lectures/workshops under the DLT programme, Prof. K.K. Ramakrishna visited India and gave workshop/lectures on Qos support for internet technology. A local DLT tour of Prof.Bhargava is planned during Nov-Dec 2001.

Actively participated in the renewal of Sister Society MoU between IEEE Communications Society and IETE India upto July 2002. The proposed joint activity with Communications Society include issues like dual membership, group affiliation, joint paper award and representation on IEEE Communications Society Board of Governors, etc.

Supported the IETE Zonal Conference on "Information Technology and E-Commerce" at Jaipur.

Co-sponsored the 32nd World Telecommunication Day Celebrations on the theme, "Mobile Communications" along with IETE. Hon'ble Minister of Communications, Shri. Ram Vilas Paswan was the Chief Guest.

Supported opening up a Sub-Section at Jaipur and Student Chapter at Pune.

Financially and technically supported the participation of student members to International conferences for presentation of technical work.

Technically supported a two day seminar on Digital Signal Processing organized by Student Chapter at Pune.

Shared its activities with Student Chapter at Parshvanath College of Engineering, Mumbai University.

Participated in the Student Congress organized by India Council at Chennai.

Sponsored IEEE Student Branch at Manipal Institute of Technology for organizing INTELLECT' 2000.

The Chapter Chair attended the Regional Communications Society Chapter Chairs meeting at Seoul.

The Membership in all three societies have been substantially increased and the present status is : AES-10/90 COM-19/2794 LEO-036/124

One issue of IEEE India Bulletin was supported.

Distributed information on the following:

- o IEEE Communications - Newsletter
- o Mail Manager - Communication Society
- o LEO Newsletter
- o IEEE Global Communications Newsletter.
- o IEEE Communication Society.

Chapter Chair is representing India on IEEE GCN Editorial Board.

Dr. Ram Gopal Gupta

Chair

e-mail: guptarg@mit.gov.in

**Haldia Institute of Technology
Dept. of Computer Science and Engg.
and
IEEE AES COM SOCIETY CHAPTER**

organise a one day workshop

on

"LEO System and Communication for Global Connectivity"

on

30th May, 2001.

Topics:

Classification of satellites, relative merits and demerits,
LEO characteristics, LEO systems:Orbit dynamics,
Number of satellites, System performance, Required
channels,

LEO projects: Iridium, Globstar, Odyssey, Ellipse, Teledesic,
Worldwide mobile communication by LEO.

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Technology in brief

Chip for desktop Supercomputer

Sony, IBM and Toshiba are jointly investing \$400 million and 300 engineers to build what, today, would be called a Desktop Super computer chip. But its goal is to power future Play-stations, PDAs and more!

Code-named "Cell," this chip will be made with elements smaller than 0.1 micron (compared to the 0.13 micron elements common in today's chips). The smaller the elements, the closer that "active devices" on the chip can get to each other, and that reduces the effects of that nasty old "speed of light" limit. And so the chip can operate faster - in this case, at one trillion operations per second, or "1 TeraOPS," and beyond!

In five years, according to IBM, the result will be consumer devices that are more powerful than IBM's Deep Blue supercomputer, operate at low power, and access the broadband Internet at ultra high speeds. Cell will be designed to deliver "teraflops" of processing power. So if there's anything that you'd "like"

your computer to do, but it's just not fast enough, don't give up the dream (or product, or service) - because that will change. Soon.

And remember - these are just the chips to power our "games!" Imagine what the really powerful stuff will do!

Intelligent clothing

Now clothing also is in for an e-revolution. Research work on 'intelligent clothing' or 'i-Wear' being carried out at Brussels-based Starlab aims at bringing out clothes that tell you that you have forgotten your keys or warn you that your wallet is stolen or such other wearer-friendly functions. A tracksuit of this genre may monitor you starting to run, configure data on your heart beat, play a certain type of music and adapt the rhythm of the music to push you harder or slow you down. The mobile phone function in the clothing will send the data by email to your sports club, which will receive the report on their training by the time you have taken your shower. Even though the present i-Wear prototype still looks weighed down with gadgets, the researchers are aiming for a seamless appearance and more sophisticated mechanism. They are considering ways to charge the fibres of the cloth such as using washing powder to deposit a substance which would start generating power once it is exposed to light or coating fibres with the same thing.

Already many major international brands like Adidas, Levi Strauss, Samsonite etc. have come forward to support this research project.

Simple Geometry for Measuring the Globe

The Greek astronomer Eratosthenes used simple geometry to calculate the size of the earth. He noticed the position of the sun on the first day of summer at two different places. Assuming the sun's rays to be parallel to each other and knowing the distance between both the places that he had made his observations at, he calculated the earth's circumference to be 25,000 miles. His calculations have been proved to be remarkably accurate by later scientists.

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BITS & PIECES

On an average last year, General Motors earned \$853 for every car it sold

According to consulting firm Challenger Gray & Christmas, FORTUNE 500 companies announced 66, 682 layoffs in January '01, including cuts by Lucent, Xerox, and AOL Time Warner. That is not even counting those announced by non-500 companies such as Amazon and DaimlerChrysler (It's international) which trimmed their staffs by 1,300 and 26,000 (20% of its workforce) respectively.

- Chinese to become #1 Web Language by 2007.

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Learner's Column

Bluetooth

The Bluetooth technology allows users to make effortless, wireless and instant connect-ions between various communication devices, such as mobile phones and

desktop & notebook computers. Since it uses radio transmission, transfer of both voice and data is in real-time.

Bluetooth radio is built into a small microchip and operates in a globally available frequency band ensuring communication compatibility worldwide. This wireless technology supports both point-to-point and point-to-multipoint connections. With the current specification, up to seven 'slave' devices can be set to communicate with a 'master' radio in one device. Several of these 'piconets' can be established and linked together in ad hoc 'scatternets' to allow communication among continually flexible configurations.

Bluetooth operates in the crowded, 2.4 GHz Industrial, Scientific, and Medical (ISM) radio waveband, which is theoretically available worldwide without a licence. Microwave ovens and other heaters need to work around 2450 MHz, the resonant frequency of water, so the 50MHz on either side of this is supposed to be kept free.

Bluetooth has a maximum data rate of only 1 Mbits/sec, which translates to a throughput of 780kbits/sec once protocol overhead is taken into account. Like many wireless systems, Bluetooth is based on a technology called frequency hopping. It rapidly hops between different frequencies. The theory is that if there is interference on one, another will be clear. Bluetooth divides the ISM band into 79 channels, switching between them in pseudo-random pattern, 1600 times every second.

Bluetooth dates back to a 1994 project within mobile phone company, Ericsson, aimed at developing a way for phones to communicate with accessories such as wireless headsets. In 1998, other archrival Cos like Nokia, IBM, Intel and Toshiba joined with them to form the Bluetooth Special Interest Group (SIG), which today has grown into an alliance of 2000 companies. The name, Bluetooth, is taken from Harald Bluetooth, a Viking crusader who unified Denmark and Norway in the 10th century. SIG promised that Bluetooth would do the same to hitherto separate technologies.

The SIG members foresee a future where beer cans communicate with your refrigerator and your wristwatch, telling you when they are cold enough to drink. When you throw away the empties, your Bluetooth equipped trashcan will tell the garbage truck how they can be recycled. Meanwhile, the fridge could order more beer from an online liquor store, and instruct your car not to start until you've sobered up.

The day is not far when Bluetooth enabled gadgets will become part and parcel of our daily life.

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News & Events

Annual Conference on 'Embedded Systems'

Organized by:

IEEE Kerala Section

Venue: Technopark, Trivandrum

Date: 28th of July 2001

For more details please contact:

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Congratulations !

Dr. A.Q.Ansari, Reader, Jamia Millia Islamia, New Delhi, has been awarded the 'ISCA Best Poster Presentation Award' in the section of 'Communication and Information Sciences' by the Indian Science Congress Association at the 88th Indian Science Congress held at New Delhi during January, 2001.

Dr. Paolo Tenti & Dr Giorgio Spiazzi visited Vellammal Engineering College on 30th January and delivered a lecture at the College premises. Later they visited Sameer Electronics in Chennai.

*Report by: Er. S. A. Soundara Rajan
Chairman, IEEE Madras Section*

Er. S. A. Soundara Rajan, Chairman IEEE Madras Section presenting a memento to Dr. Paolo Tenti. They are flanked by Dr. N.M. Parthasarathy and Dr. Giorgio Spiazzi

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News - Scan

Internet Telephony

Some observations: One in 33 voice phone calls were transmitted via the Internet last year... The International Telecommunication Union (ITU) estimates that by 2004, up to 40% of all international telephone traffic will be Internet-based.

(Courtesy: NewsScan Daily, March 7, 2001)

First wave-energy generator

The world's first commercial wave power station has been connected to the national grid in Britain. Wavegen and Queen's University Belfast jointly developed the LIMPET (Land-Installed Marine Power Energy Transformer) wave system with financial support from the European Union.

The LIMPET is operating on the Scottish island of Islay, generating 500 kW of renewable energy without green house gas emissions, to feed 400 local homes.

The LIMPET uses an oscillating water column in an inclined concrete tube that has its opening below the water level. Wave action causes the water level in the collector to oscillate, and this variation alternately compresses and decompresses the trapped air in through a pair of generating turbines which are driven in the same direction at all times, regardless of the direction of the airflow.

The unit is designed to operate on the shoreline. It can also be incorporated within rubble mounds of caisson breakwaters to provide coastal protection schemes as well as power generation. Key features include low cost power, maximum local content and a 60-year life with minimal maintenance.

Oceans cover about three quarters of earth's surface and represent a vast natural resource in the form of waves. The World Energy Council estimates the energy that could be harvested from these oceans is the equivalent of twice the planet's electricity production.

<http://ens-new.com/ens/nov2000>

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Food for Thought

'If a man is called to be street sweeper, he should sweep streets even as Michelangelo painted, or Beethoven composed music, or Shakespeare wrote poetry. He should sweep streets so well that all the hosts of heaven and earth will pass to say, here lived a street sweeper who did his job well'

Martin Luther King, Jr

'We aren't a one-product company or one-market company or one-geography company. We're a company that reinvents itself constantly. It's in our DNA'

John Chambers, CEO, CISCO

Editorial Board**Er. N. T. Nair**

Editor

Prof. V. K. Damodaran

Member

Er. J. Muraleemohan Lal

Member

'We, the members of the IEEE,... do hereby ... agree to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist

- IEEE Code of Ethics

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EDITOR'S DESK**Convert adversity to opportunity**

When the entire world is riding high on the wings of IT boom, the news about US economic slow down comes as a sudden cold wave, likely to upset the plans and fortunes of many an IT savvy nation. A leading IT player, India has every reason to be concerned, as the major share of our IT exports are to US. Some observers predict that this slow down would spell doom for those companies operating in peripheral areas of IT like body-shopping. Some others foresee exciting new opportunities unfolding in front of Indian IT companies, especially in the form of outsourcing, off-shore development, etc. normally practiced during such economic slow downs, to cut costs. But to tap this emerging opportunity, we have to restructure our methods to satisfy the changing needs of service seekers.

Even though we lost the golden opportunities of industrial era, we have so far been successful in averting such a situation in this IT era. But the recent mid-course crisis facing us has come a cropper and requires to be handled with all the ammunitions in our techno-managerial front. If the opportunity is allowed to

slip out of hands at this crucial juncture, the repercussions would be disastrous. This is especially so, because every other country is working hard to take advantage of globalization to emerge as a winner. Allowing them to go past us once again would be the worst legacy we can leave for the next generation, who may not pardon us at all. There is no room for complacency now. We have to redouble our efforts to be world-class in performance by

- Honing up the skill sets of our personnel
- Learning to be more time & quality conscious in executing projects
- Evolving innovative ways to cut costs to remain the most economic business partner

The nation as a whole has to awaken to this new found and urgent necessity. Otherwise, yet another miss of a wonderful opportunity would be the result. Can we afford it?

Resolve to be tender with the young, compassionate with the aged, sympathetic with the striving and tolerant of the weak and wrong. Because sometime in our lives we would have been all of these ourselves.

-Lloyd Shearer

Trivandrum
01 April 2001

N. T. Nair
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Your feedback is important!

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