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Features

CHAIRMAN'S MESSAGE

The July 2003 issue of IEEE Spectrum, a respected and very widely read journal, carries two interesting articles. The first one is on the corDECT technology developed by Prof. Ashok Jhunjhunwala of IIT Madras.

A brief sent out by IEEE reads as:

INDIA'S HOMEGROWN SYSTEM FOR FIXED WIRELESS HAS LEGS A new "fixed wireless" system developed at the Indian Institute of Technology (IIT) is being deployed in rural parts of India that lack a connection to India's copper telephone infrastructure, according to an article from IEEE Spectrum. The IIT system, called corDECT, costs about US$200 per subscriber unit, and is much cheaper than the US$500 per fixed-line connection cost in rural areas. The corDECT system has attracted interest in other countries as well, such as South Africa, Brazil, Russia, Egypt, and Iran. <http://www.spectrum.ieee.org/WEBONLY/wonews/jul03/cordect.html>

Technology developed in India is getting recognized the world over and that too through the IEEE medium, which brings in higher credibility. Congrats to Prof Ashok and team for making this happen. Dr Ashok Jhunjhunwala is an active IEEE member and has delivered many lectures for the benefit of IEEE members in India.

The second article is a debate on the uses and misuse of a high technology. The brief from IEEE is: THEY KNOW WHERE YOU ARE: IEEE SPECTRUM REPORTS - RFID and other new technologies such as E911 and ultrawideband are capable of pinpointing users' locations at any time, promising safety and convenience but at the same time threatening privacy. In its July cover story, IEEE Spectrum magazine discusses the applications and implications:

<http://www.spectrum.ieee.org/WEBONLY/publicfeature/jul03/e911.html>

All of us continue to enjoy and learn from the various carefully edited and well presented articles that appear in IEEE Spectrum.

The Council is in the process of getting the Students congress, MV Chauhan Student Paper Contest and the ACE organized with the active participation of Sections. Soon you will hear more about these programs.

R. Muraleedharan   Mumbai
Chairman, IEEE India Council   1 August 2003

EDITOR'S DESK

'Let us leave a better world for our children to live tomorrow'

Today's children are lucky that they get all the attention in the family compared to yesteryears. Their studies, health, and all such aspects are of primary concern to the parents who set aside a major chunk of their money and time to see that the children are getting the best of everything in the world to become successful in life. In the daily rat race to meet the challenges in work place, family front etc we seldom find time to think about the environment around us which we all jointly pollute

and make unsustainable. We consume or even waste our natural resources, depleting them continuously, blissfully unaware that re-charging is not possible in many of them. The earth under our feet is abused with all kinds of chemicals, plastics and such other waste whose damaging effects on ecosystem will last for decades and decades - the period when our children will be in their prime of life. In other words, while we take care to see that they are given the best education and training to become professionals to occupy top tiers of the society, the world we ultimately leave for them to live in, most likely may not be all that comfortable. Our ultimate aim of ensuring a rich and healthy life for them thus gets torpedoed, with our own very actions or inactions. As engineers being knowledgeable about these aspects compared to other sections of the society, we have a dual role to play in this matter of protecting the environment – conduct all our activities with this necessity in focus and with appropriate engineering decisions, in the first place and then go out to educate the public about its importance, using the excellent forums like IEEE.

Before every major action, let us ask our conscience if it would affect the life of our young ones, in the long run!

Trivandrum,   **N.T. Nair**
1 August 2003   Editor

The only way for a rich man to be healthy is, by exercise and abstinence, to live as if he were poor"

-      **Paul Dudley White**

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IEEE NEWS & EVENTS

The Engineers Bill 2003

The IEEE in India is amongst the 24 professional associations that have come together in 2002 to form the Engineering Council of India (ECI), under the aegis of the Ministry of Human Resources and Development (HRD).

The key objectives of the ECI are:

§   To work for the advancement of the engineering profession in various disciplines and for enhancing the image of engineers in society, by focusing on quality and accountability of engineers.

§   To enable the recognition of expertise of Indian engineers and their mobility at international level in the emerging WTO/GATS environment, and for enabling employment of engineers in internationally funded projects, multinational corporations and large companies in India.

The recognition of competence of engineers and technologists on the basis of a degree obtained at one point in time is not enough. A mechanism has to be developed and installed for imparting relevant continuing development and integrating the same with the process of certification.

Presently, ECI is at an advanced stage of preparing a draft of the Engineers Bill for consideration by the Government of India, which will lay down the criteria for and the process of registration of Professional Engineers and Consulting Engineering organizations and provide the necessary statutory framework for the same.

At a recent meeting of the Board of Governors of ECI, the Systems and Procedures for Registration of Professional Engineers was approved. A Board of Registration of Professional Engineers (BRPE) is to be constituted soon to operate as the agency for approval of registration. Member associations like the IEEE in India – through its various Sections and Society Chapters – will set up National Committees in consultation with the BRPE, who will formulate and monitor the process of accreditation of Professional Engineers through conduct of examinations and periodic assessments.

Details of ECI can be found at: www.engineeringcouncilofindia.org

Reported by:
Raju R. Hira, Secretary & Treasurer

IEEE 1528 Standard - Working Group Spotlight

The IEEE-SA working group spotlight has recently presented IEEE 1528, the first standard produced by SCC 34 Electromagnetic Energy Product Performance Safety. 1528 provides standardized laboratory measurement techniques for accurately assessing the radiofrequency fields (called Specific Absorption Rate, or SAR) induced by cellular phones and similar wireless handsets, anywhere inside a model of the human head filled with a dielectric liquid.

This is a groundbreaking standard and the first of its kind addressing the complex issues, instrumentation, and uncertainty of performing such measurements with millimeter accuracy and precision. Even before its publication, the draft was referenced in the U.S. Federal Communications Commission Bulletin OET 65, Supplement C. In addition, the work has been carried on with common membership in the International Electro-technical Commission's Technical Committee 106 to ensure harmony with their publication, which is expected sometime next year.

The standard is entitled, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques."

The purpose of this recommended practice is to provide a protocol and instrumentation specifications for the measurement of the peak spatial-average SAR. The SAR is measured throughout an anatomical model of the human head of a user of wireless handsets, with the handset next to the ear. The head is filled with a liquid that has the microwave electrical properties of brain tissue. A tissue implantable electric field probe is used to scan throughout the head and measure the maximum SAR in a one or ten gram volume.

It provides standardized and accepted protocols, measurement and validation techniques, and means for estimating the overall uncertainty in order to produce valid and repeatable data. SAR limit values for human exposures are not included in this standard since these are found in other documents, e.g., the IEEE C95 series of standards. SAR limits are also cited in regulations in various countries throughout the world.

The 1528 Working Group Chair, Howard Bassen may be contacted at hib@cdrh.fda.gov Overseeing 1528 is the IEEE Standards Coordinating Committee (SCC) 34, which is responsible for the development of product performance standards relative to the safe use of electromagnetic energy for specific products that emit electromagnetic energy at frequencies between 0 and 300 GHz (the frequency range covered by IEEE-SA SCC 28, International Committee on Electromagnetic Safety (ICES) exposure limits). Other contacts: Sponsor Chair, Ron Petersen at r.c.petersen@ieee.org or Donald Heirman, the IEEE-SA Standards Board liaison at d.heirman@worldnet.att.net. IEEE SA News" is a web-based "news wire" for IEEE Standards Association (IEEE-SA) members with timely news briefs on policies, programs, services, and products. It may be shared with colleagues, friends, and family. Past issues are posted in IEEE-SA Member Central, the members only site for IEEE-SA members. Due to the nature of the IEEE-SA website, links are dynamic and may change. Your IEEE-SA membership includes a subscription to this newsletter. Unsubscribe at any time by sending a message to majordomo@majordomo.ieee.org with the word "unsubscribe ieee-sanews@ieee.org" as the first line of the message. If you have already unsubscribed to this list, your name may have been added back by your renewal payment. Please send any comments or questions about IEEE-SA News to the IEEE-SA Membership Team at ieee-sa-exec@ieee.org.

Think Standards! Think IEEE !

IEEE Gujarat Section

STUDENT PAPER CONTEST AND TECHNICAL SYMPOSIUM (SPCTS)
18-19 OCTOBER 2003

IEEE Gujarat Section and the Department of Computer Science, Gujarat University, Ahmedabad are organizing a Student Paper Contest and Technical Symposium on Computer, Electrical and Electronics Engineering for the Students, Academia and Industry Professional with the view to encourage an in-depth appreciation of Computer, Electrical and Electronics Engineering.

Papers Invited from Postgraduate/ Undergraduate Engineering, Computer Science/ Applications Students from any institution in India.

Important Dates:
Submission of Papers: 20/08/2003
Notification of Acceptance: 20/09/2003
Reduced Fee Registration Deadline:
20/09/2003

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For further details:
www.ewh.ieee.org/R10/GUJARAT

"Anybody who thinks money is everything has never been sick. Or is"

–Malcolm S. Forbes

TOP 12 IEEE STUDENT BRANCHES IN THE WORLD

(by Member strength As of 31 Dec 2002)

Region	Section	Student Branch	No. of students
10	Bombay	Pune Inst of Computer Tech	1018
10	Madras	Satyabama Engg College	928
3	Atlanta	Georgia Inst of Technology	902
5	Central Texas	Univ of Texas- Austin	559
10	Bombay	Thadomal Sahahani Engg Col	522
10	Bombay	V E S Inst of Tech	520
6	Santa Clara	Stanford University	453
8	W Puerto Rico	Univ of Puerto Rico	452
3	Virginia Mountain	Virginia Poly technic	435
5	Houston	Texas A & M university	425
10	Madras	St Joseph's Coll. of Engg	409
6	Oakland East	Univ of California- Berkley	399

(As of 31 Dec 2002 , there were 1158 Student branches around the World with a total strength of 72,328 students.)

Compiled by: H. Kalyanasundaram

Technology *in brief*

Reconstructing Shredded Documents

Advanced scanning technology makes it possible to reconstruct documents previously thought safe from prying eyes, sometimes even pages that have been ripped into confetti-size pieces. And although a great deal of sensitive information is stored digitally these days, recent corporate scandals have shown that the paper shredder is still very much in use.

"People perceive it as an almost perfect device," said Jack Brassil, a researcher for Hewlett Packard, who has worked on making shredded documents traceable. If people put a document through a shredder, "they assume that it's fundamentally unrecoverable," he aid. "And that's clearly not true."

In its crudest form, the art of reconstructing shredded documents has been around for as long as shredders have. After the takeover of the United States Embassy in Tehran in 1979, Iranian captors laid pieces of documents on the floor, numbered each one and enlisted local carpet weavers to reconstruct them by hand, said Malcolm Byrne of the National Security Archive at George Washington University.

That episode helped convince the United States government to update its procedures for destroying documents. The expanded battery of techniques now includes pulping, pulverizing and chemically decomposing sensitive data. Yet these more complex methods are not always at hand in an emergency, which is why the vagaries of de-shredding will be of interest to intelligence officials for some time to come.

Modern image-processing technology has made the rebuilding job a lot easier. A Houston-based company, ChurchStreet Technology, already offers a reconstruction service for documents that have been conventionally strip-shredded into thin segments. The company's founder, Cody Ford, says that reports of document shredding in recent corporate scandals alerted him to a gap in the market. "Within three months of the Enron collapse at end of 2001, we had a service out to electronically reconstruct strip shreds," he said.

ChurchStreet, whose clients are mainly law agencies and private law firms, charges roughly $2,000 to reconstruct a cubic foot of strip-shreds. A cubic foot of shreds is generally less than 100 pages. Mr. Ford said ChurchStreet would soon offer a service to reconstruct cross-shredded documents - that is, those cut in two directions - for $8,000 to $10,000 per cubic foot.

[Source: New York Times]

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News - Scan

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Information Technology and 2004 Olympics

The challenges: The job involves managing a network that unites everything from Unix servers to precision timing devices. After installing several redundant systems, they must guarantee 24/7 reliability and instantaneous performance on a tight budget. And just to make things even more interesting, all this must take place in a foreign capital with a sometimes shaky power grid.

Welcome to Athens, where Philipps is chief technology integrator for Schlumberger for the 2004 Olympic Games. The event will mark the second set of games at which the consulting firm will be responsible for ensuring that an intimidating grab bag of technology parts works flawlessly together.

The International Olympic Committee (IOC) awarded Schlumberger the contract to manage IT resources for the games after longtime contractor IBM suffered several embarrassing glitches that led to long delays in communicating results for key events at the 1996 Olympics in Atlanta.

Excerpts from a discussion with Mr. Philipps of Schlumberger:

What are some of the lessons you're applying from the winter games? When the IOC awarded the contract, one of the key things for them was reducing the cost of putting on the games, just so it's more affordable to Third World countries. Technology is one of the big costs of the games; so reducing the cost was a decision implemented through a knowledge management program.

From Salt Lake City on, we tracked everything—how many people did we hire for each position, how many people did we have at any given time? All the information we tracked down, and after the games we did a series of after-action reviews where we reviewed all the data...to see what we could do to make things happen better and cheaper the next time. We looked at everything—the starting plan, the number of volunteers, the amount of equipment, decisions about tools, decisions about what level of redundancy was appropriate in each area.

Are those tough decisions to make, given the reliability demands? Sure, because you always want to do more. But we found places we could cut back without compromising performance. The IT budget for Salt Lake City was around $300 million. For the summer games, we don't have the budget finalized yet—but the trend is to go for something very similar, like $350 million even though the amount of work is two to three times bigger. And we're on track to do that.

You deal with some pretty unusual IT situations. How do you find people who are expert at networking precision timing systems with back-end servers, for example? We use several

different levels of skills. We have a team that has Olympics games experience in several areas—technical areas, logistics, etc. And we rely on our partners. For Unix, for example, Sun is supplying a lot of talent.

How big a concern is security? All the Olympics games are very highly visible events. Our goal is to implement quite strong preventive measures against any breach of security or denial-of-service attack.

We're using both people awareness and a good suite of tools that helps us at every level—from the very technical level to the managerial level, so everyone has a good sense what the issues are. This is deployed very early, because we're dealing with sensitive information from very early in the process, like private data on athletes or VIPs.

You decided in Salt Lake City to pass on IEEE 802.11 wireless networking support because of security concerns. Any change in your position on Wi-Fi? We're doing the same thing in Athens. The IOC thinks—and we agree—that the security is not major enough to be used for such an event. I think the trend is in favor of wireless and we'll be able to do that at some future games, but not now.

How did IBM's problems in Atlanta affect the way you're approaching the Olympics? I won't comment on IBM's accomplishments previously. But the experiences the IOC had from that era were translated in their bid and the contract we have.

The two key aspects we are obliged to meet is to get a good knowledge transfer to make the games cheaper and cheaper and to make it more reliable by using mature technology. We're not a hardware provider. We're agnostic; we implement whatever technology we need on any hardware. (Editors' note: Athens Olympics sponsors include Dell Computer for PCs and Sun Microsystems for servers.)

We're not using the games to showcase any fancy products. We're arranging it to show we can deliver the job on time and on target. We're using this quite challenging project to show we can do this one, and if we can do a project like this that is quite in front of the world, because no failure is acceptable, we can do quite a job for our usual customers.

Are you using any open-source software to cut costs? No. It's not a religion that we use this or that. Sun is a sponsor and is providing Solaris (Sun's version of Unix), so that's what we use. Maybe for the next games we use Linux.

Library Scan

'Clicks and Mortar' –Passion driven growth in an Internet driven world
Book by: **David S Pottruck and Terry Pearce**
Published by: **JOSSEY-BASS, a Wiley Company, USA. www.jossybass.com**
The Internet and its companion technologies are changing the very boundaries of a company… leading to a redefinition of what it means to be a company. The revolution affects every area of commerce: financial models, leadership, measurement, and marketing. The network is changing the relationship of a company with all the actors: suppliers, stockholders, employees, and – most of all - customers. The authors have captured the essence of these changes and given a primer on how established companies in established businesses can move into the Internet-driven world successfully.

Managing Einsteins – Leading high-tech workers in the digital age
Book by: **Dr. John M. Ivancevich and Dr. Thomas N. Duening**
Published by: **McGraw-Hill**
The authors define 'Einstein' as:

An intelligent, curious, and technologically proficient knowledge worker who has the know-how to keep everything operating without costly delays, breakdowns, and crashes- and the individuality to drive managers insane.

They are the lifesavers who hammer through the impossible problems, keep the essential operations running by any means necessary, and consistently find answers when others scarcely understand the questions.

While Einsteins are valuable and essential to the organization, these curious and brilliant employees can be most frustrating, aggravating, and difficult to manage.

The book presents strategies and guidelines managers can use to recruit, train, lead, and retain Einsteins, even as outside forces and recruiters are working just as hard to lure them away.

"We, the members of the IEEE… do hereby…agree to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of

others"   **– IEEE Code of Ethics**

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