



Celebrating 125 Years
of Engineering the Future

New Jersey Coast Section

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Editor's Notes

First issue of the New Year – and there is lots to share with you – the membership of the NJ Coast Section – Be sure we are reporting what you want to learn about – drop us a note if you have something to add or comment on ! Special thanks to Bala Prasanna for his help on this issue.

I am sure many of you have heard of **"SIXTH SENSE TECHNOLOGY"** (a wearable device that enables new interactions between the real world and the world of data). I received a link to a video – that I wanted to share with you.

<http://www.ted.com/talks/view/id/685> The speaker is Pranav Mistry an MIT PhD student who is Brilliant and the inventor! His work (shown on this video) has also led to intelligent sticky notes, [Quickies](#), that can be searched and can send reminders; a [pen](#) that draws in 3D; and [TaPuMa](#), a tangible public map that can act as Google of physical world Take the time to watch – he is going to offer this as Open Source! And amazingly, the device only costs about \$300 to build! This video takes about 13 minutes to watch – take the time to see this fun stuff!

Region News



Humanitarian Technology Challenge

REGIONAL STUDENT DESIGN COMPETITION

By Bala Prasanna, Region 1 HTC Co-Ordinator

IEEE is sponsoring a Regional Student Design Competition for solutions to one of three humanitarian problems as part of the joint IEEE-United Nations Foundation Humanitarian Technology Challenge (HTC). Deadlines are as follows - Project registration Feb 12; Progress report March 1; and final submission no later than May 28, 2010.

The HTC Regional Student Design Competition challenges students to provide a working prototype, scale model or detailed engineering design specifications for a project that satisfies one of the following three Challenges.

Electricity - Availability of electric power for lighting and other electronic devices in resource-constrained environments. Important for education, communications, and economic development.

Data Connectivity of Rural District Health Offices - Capability of exchanging data among remote field offices and central health facilities. Important for accessing treatment protocols, creating and monitoring health trends, and sharing results of treatments.

Individual ID Tied to Health Records - Consistent availability of patient medical records. Important for ongoing treatment of patients, especially migrants and those with long-term diseases.

The winning teams will be announced in late June. Winning teams will receive regional prizes and the opportunity to present their solution at an HTC Conference in 2010. Rules and details for the Regional Student Design Competition are available at www.ieeehtc.org/students. and <http://www.ieeehtc.org/index.php/htc/students/challenge> Or you can contact Bala at bprasanna@ieee.org

Section News

LIFE MEMBERS by Ralph Wyndrum (Section Member and 2006 President of IEEE USA)

Did you know ?? The NJ Coast Section has the 11th largest population **IN THE WORLD** of **LIFE MEMBERS** of IEEE ! There are **337** of you in our area to have achieved this status! Congratulations to every one of you – So



the question is..... How would you like to meet and network with others in this group of distinction ? The NJ Coast Section would like to hear from you – please write with your thoughts and suggestions and how we can best reach you We are looking for group leadership and organization – if you think you can assist contact our Section Chair at tksieee@gmail.com.

ERRORS and OMISSIONS (OOPS!)

In our last newsletter – we neglected to include a photo of Dr. Elizabeth Tse. Dr. Tse was awarded the final in a series of 4 patents applications on her research work done on high performance IP router architectures. A benefit of this architecture is that it could provide high validity/high reliability and speedy transmission of information from field sensor networks and embedded systems.

We are very happy for her success and congratulate her. If you would like to contact Elizabeth for more information or discussion on this hardware-wise, flexible and yet high performance architecture write to her: Elizabetsuet.tseau@us.army.mil
The Editor regrets the error - sorry for the omission Elizabeth !



SECTION MEETING -- Report for February Meeting – by Dr. K Raghunandan

Volunteers met on Thursday the 4th of February for the Monthly organizational and planning meeting at Rosalia Marketplace in Colts Neck. Topics covered activity planning for the coming year. Join us - the next scheduled meeting is posted on our web site and the section can always use more volunteers as our activity is only limited by those helping!

Discussion around our banquet seems likely to be in May this year – if you have a speaker to recommend, you can send the suggestion to John Palframan at John.Palframan@ieee.org.

SECTION MEETING Report for February – cont'd.

An exciting activity in the works for this year is "Entrepreneurs' Day"! All of you Small Business Owners (or 'wish you were') keep watching for news of this event.

In keeping with "encouraging/educating our youth" for engineering careers, we will be actively seeking participation from high school students / teachers to conduct a paper presentation event. Prizes will be awarded. Our new student activities coordinator, Dominique Ross, a student at DeVry University and employee of SS White Burs, Inc in Lakeswood, will be working on this project.

For the past 15 years, IEEE NJ coast has sponsored this event and will continue it this year. It is scheduled for March 25th in Monmouth University. This event is open to all New Jersey high school students. It is expected to be a big 3 day event sponsored by Army, Navy, Monmouth University and IEEE NJ Coast.

Chapters, Affinity Groups News

WOMEN IN ENGINEERING - HIGH SCHOOL CAREER FORUM

Written by Sharon Rushen, Ft. Monmouth CERDEC PAO / Edited by Dru Reynolds, WIE

Professional engineers wore two hats – engineer and educator, on Dec. 2, as they spent their morning as educators, teaching the career-related disciplines they practice on a day-to-day basis. The twelve engineers joined the Neptune High School students for Neptune's first-ever engineering forum; a day dedicated to giving students a bird's-eye view of careers in various engineering fields.



As part of an ongoing effort to promote engineering among high school students, the NJ Coast WIE organized a career day forum which incorporated classroom-like sessions and a closing assembly, where students gave feedback about their experiences and learned about related scholarship opportunities.

In one of the educational sessions, Cindy Poon, Branch Chief of the Communications-Electronics Research, Development and Engineering Center's Tactical Networks branch, and member of the Women in Engineering, taught a group of students about internet protocol addressing and sub-netting.

One of Poon's students, Abigail Sanford, shared her experience with her classmates during the closing session. "We learned about IP addresses and at first, I don't think anyone knew what was going on and then it was actually really simple and I got it," Sanford said.



In addition to teaching the students a new discipline, Principal Richard Allen hoped the event would expose students to the variety of possibilities for a career in engineering. "The connection between real-world problem solving and class work is forged by this relationship. They can now see the 'so what' of their day-to-day class work and their future careers."

Before concluding the day, the students gathered in Neptune's auditorium where Erica Bertoli, Fort Monmouth CERDEC Outreach program manager gave a presentation about science, technology, engineering and math and the various opportunities in the U.S. Army for students.

Due to the enthusiasm of the students, Principal Allen urged the WIE to consider another career day at Neptune. We agreed and another and more expanded, forum which will be held on March 24th. Students will have an opportunity to choose 2 presentations this time and to reach more “future engineers”, students from Asbury Park, as well as some Middle Schoolers from Neptune Township, are invited. We expect 225+ students! The WIE has agreed to keep this as an ongoing effort and are in the process of reaching out to several other area schools for the winter 2010/11.



Editor's Note: We would be remiss without mention of the Engineers who gave personal time to create a meaningful presentation and then joined us on the morning of December 2nd to promote engineering through personal stories and educational material. Special thanks to the following:

Carole Perry, Worldradio Magazine and Recipient of the Radio Club of America Life Award, 2009

MaryAnn Apostle, Sales Engineer, Agilent Corporation

Rupal Parikh, Owner, Nexagen Networks, Inc.

Ellen O'Brien, Retired AT&T Human Factors Engineer and Currently Tinton Falls Librarian

Margaret J. Lyons, Director, RCC Consultants, Inc.

Dr. Paula Muller, Owner, Netscale Technologies, Inc.

Dr. Janet Jackel, Principal Engineer, Telcordia

Cindy Poon, Networks Branch Chief, Fort Monmouth and Owner, Koo Restaurants

Lisa VanOrden, Verizon

Fatimah Shehadeh, Consultant

Diane V. Wilkerson, Software Engineering, Booz Allen Hamilton

Scott B. Zederbaum, Sales Manager, Tektronix Corporation

Erica Bertoli Ft Monmouth Outreach Program Manager

Sharon Rushen, Photographer and Aide to Ft. Monmouth Outreach Program

ALSO

Many thanks to TSK LAMBDA - Blackhawk Engineering – Mary Ward Callen, IEEE for Gvieaways to the Students

CONSULTANT NETWORK NAMES NEW OFFICER & SELECTS THEME FOR THE YEAR

The Consultant's Network theme this year will be “Jobs in the Renewable Energy Space”.



The Section is pleased to introduce Takeo Ishimasa, as our new Consultant Network Vice Chair. He has over 23 years experience managing large defense contracts, project management, capture management, special operations, intelligence collection and processing, psychological operations, course development, and technical instruction. Currently, Takeo is a Director at Aspen Consulting in Pt. Pleasant and concurrently completing his PhD studies in IT Management at Capella University. Reach out to welcome him takeo.ishimasa@us.army.mil.

AEROSPACE AND ELECTRONIC SYSTEMS & TECHNOLOGY MANAGEMENT/COMMUNICATIONS/CIRCUIT & SYSTEMS & SIGNAL PROCESSING SOCIETIES

3 SOCIETIES SPONSOR DISTINGUISHED GPS LECTURER !



Dr. George T. Schmidt, a distinguished lecturer for the AES Society, spoke on GPS Technology – where it came from and where it's going. His talk was both informative and compelling and the audience of almost 50 were very engaged (at least one long term friend from Fort Monmouth, reunited with George and gave a wonderful introduction).

Dr. Schmidt's career awards, honors, and affiliations have been with: NATO, MIT, IEEE, Russian Federation Academy of Navigation and Motion Control, Charles

Stark Draper Lab; has authored or contributed to more than 80 publications.

This talk was given on the 4th of February at Gibbs Hall at lunchtime - and if you missed it – you need to stay current on our talks by going to our web site! Most announcements are accompanied by an abstract and often – the slides are posted from the actual talk.

Many thanks to Jose Villagron, Vice Chair for the AESS/TM Chapter who provided the photos.



MICROWAVE THEORY AND TRANSMISSION, PHOTONICS, AND ELECTRONIC DEVICES CHAPTER



On January 21st at the Shrewsbury Library – Many engineers and students enjoyed the presentation Mobile Satellite Communication, DVB-SH and Hybrid Mobile TV by Stephen A. Wilkus from the Alcatel-Lucent Wireless Chief Technology Office. You can find the slides for this talk on our web site next to the announcement of the talk under the Calendar of Events tab. Shown in the picture to the left is Dr. Jeffrey Sinsky with Stephen. Jeff is our chapter chair for the year 2010 – he is always interested in suggestions (or Your Help)

MTT SOCIETY - Student ASH Receiver Design Competition

MTT Society Regions 2 and 16 are pleased to announce the first Student ASH Receiver Design Competition, which will take place at IMS2010 in Anaheim, CA. This Competition is open to all students and graduate students registered at an educational establishment. The competitors are required to design, construct, and measure an Amplifier-Sequenced Hybrid Receiver (ASH receiver) at a frequency of 433.92 MHz. The winner will be judged on the design which demonstrates the lowest power consumption while providing the highest sensitivity. The winner will receive a prize of US\$1,000 and will be invited to submit a paper describing the design and the experience for IEEE Microwave Magazine. Questions can be sent to Mr. Stefan Zorn at zorn@lfte.de or to Mr. Benjamin Laemmler at laemmler@lfte.de. Support for the testing is provided by Rohde & Schwarz GmbH. Deadline for Registration is April 15, 2010.



Brain Teaser Challenge – Butch Shadwell



Butch Shadwell BIO – Butch has been working in electronics since he was 12 years old. Starting with vacuum tube technology, he has designed systems through the evolution of transistors, SSI, MSI, and LSI. In his extraordinary career he has worked with almost every kind of technology in the electronics industry. Including applied R&D in nuclear medicine, opto-electronics, electronic warfare, robotics, industrial automation, machine vision, artificial intelligence, digital television, special sensors and embedded microcontrollers.

A senior member of the IEEE, for the last fifteen years Mr. Shadwell has been authoring the Brain Teaser Challenge, a monthly humorous column with a technical challenge inside. It is published in a number of IEEE newsletters and magazines worldwide. Readers are encouraged to send in their answers.

For the past ten years he has had a successful consulting practice developing new technologies for over a dozen companies. His clients include multi-billion dollar companies, and as an active volunteer in IEEE has spoken to many sections and student branches around Region 3 and Jamaica. More data available at <http://www.shadtechserv.com/>

SOLUTION

Nov/Dec Issue Brain Teaser

Measurements can be difficult. "... using a multimeter rated at 1,000 ohms per volt, set on the 10 volt range, what voltage would I read from the dial if I measured the voltage at the middle node of a voltage divider composed of two 10,000 ohm resistors in series, across a solid 5 volt DC supply? Later I bought a VTVM or vacuum tube volt meter, with a fixed input resistance of 11 megohms."

Many students I meet, and some MS and PhDs as well, sometimes forget that whenever you measure something you have to take some energy from it.

Measurement requires interaction with the phenomenon of interest. Before the advent of solid state electronics, portable meters had to function without the benefit of high input impedance amplification. The vacuum tube volt meters discussed last month required connection to the mains and so were considered a

bench based measuring technology.

There were several correct answers sent in this month. Adding the meter to the circuit changed the resistor divider from $\frac{1}{2}$ to $\frac{1}{3}$ of the 5 volt supply, and that is what would have been seen on the dial. With the VTVM the error would have been less than 1%, assuming the meter had that degree of accuracy in the display (which of course they did not). With these analog meters you rarely got more than two significant digits from the reading.

Some of you may remember tapping the meter face trying to get it to settle at the right value.

NEW Brain Teaser Challenge

Space travel has been the spark of imaginary adventures for over a hundred years. Jules Verne wrote "From the Earth to the Moon" in 1864. A popular film today is "Avatar" which takes place on a hypothetical planet some distance away where a very valuable mineral (unobtainium) is in abundance. One of the things that always bugs me about these science fiction stories is that they always underestimate the sophistication of future technology. Avatar is supposed to take place over 140 years into the future, and the military is still flying around in a type of helicopter and firing weapons that have chemically propelled bullets. And the worst thing is that they miss the target most of the time (also true in Star Trek). I am quite confident that in 100 years we will have fire control systems in handheld weapons that will ensure better accuracy, if only to conserve energy. I can imagine that many of you are hoping that in 100 years the whole notion of weapons is obsolete. Today we improve the accuracy of air dropped ordnance, and reduce collateral damage, by using a target designator system. Can anyone tell me how these work?

Think You Know The Answer?

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-410-9751 (fax), 904-410-9750 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328.

Career Management

CHANGE – DEAL WITH IT! By Bala Prasanna, Program Manager – IBM

A few days after I had started working at a new company, I went to talk to my manager regarding the lack of progress and potential customer ire on an item for which I had responsibility. The manager struck back: what is your management system to get this done? That jolted me! into evaluating my existing flaws and made me reevaluate my approach in the context of my own personal management system. Is there a benchmark and trajectory for progress? Are the people expected to work on this aware of my needs? Do they see the big picture I see? Ever since, I have made a conscious effort to have a process in place enabling me to anticipate and react and guide a job to its conclusion, increasing our chances of success. This process, a personal management system, is different for everyone and for each new situation. As we evolve and grow in our work environment, we wear different hats. Even if we might be predominantly technologists, we can never ignore the need for being managers — the ability to manage events and jobs for expected results. After all, where would we be if we didn't produce results? Consider an investment in training yourself with a management system that is personal to you for your success.

We are creatures of habit. Before the die is cast – before an irrevocable choice in our attitudes and behaviors sets in, we need to be open and flexible to adopting positive and productive habits. For example, if I'm aggressive and I always want to be the “bride at every wedding,” I need to step back and learn to be accommodating and offer chances for others to shine. (The reverse is also true!) Suppose I have a habit of being very methodical and I can't come to the table to make decisions before I have every single fact. While there are very few things wrong with this picture, remember that present-day business demands that you must sometimes make value-judgements based on, say, only two-thirds of the facts. Of course, you are judged and rewarded on the judgments and decisions you bring to the table. So, it forces you to be different in your approach and be the beneficiary of this change if you play it right.

Bring a sense of urgency to your work place. We all have deadlines. If the business governing practices in leading companies these days any indication, reports are generated at several intervals before the deadline, and you will be on “delinquent lists” if you do not fulfill your responsibilities much before the deadline. Frequently being late tells your manager something about you: something not very flattering. Consider front-ending your job items when and where you can — and make a habit of it! No manager wants to see that they have employees being delinquent, no matter what one's justification might be.

As much as we enjoy feeling comfortable and secure in our ways of doing things, today's business climate requires us to embrace change, comply with change, and be an agent of change. It can be frustrating (just think about the justification/proof/accountability questions you are asked these days), but you shouldn't allow yourself to be frustrated. You need to have a game plan for surviving and thriving. So, be prepared for change and welcome it by making a few changes in your habits. Your changes, if handled well, will cause you to break away from old habits and be inventive in your approach for a productive and beneficial career.



Contact Bala at bprasanna@ieee.org

WORKING WITH A RECRUITER - The Good News & The Bad News

Edited by Dru Reynolds, Principal at "Reynolds, Recruiters"

1) Be respectful of the recruiters time. Recognize that this is a Free service, but value? A recruiter's time is often worth a minimum of \$100 an hour, so don't call every 2 days to follow up. In fact, if you don't have a really good reason, don't bother calling at all. If you think that's a little bit harsh? Consider This Fact - A 300:1 ratio of incoming Candidates to Placements is not unusual at all. This is not a typo. THREE HUNDRED (or more) to ONE. If you must contact your recruiter (to make yourself feel better) -- Email is the preferred mode of contact.

2) Do what you say you're going to do, when you say you will. Trust me, our tolerance for ignorance and/or arrogance is really slim. Particularly important regarding scheduled interviews. Most don't realize the amount of time, energy, logistical concerns and resources that go into this process.

3) Being anything less than forthcoming with information. This doesn't mean give up all info blindly... If you are uncomfortable with a request, just ask why that's important or relevant at this time and listen. This includes scenarios utilizing 'cash register' honesty. That's where someone gives you change, but doesn't tell you how they got it. Sneaky at best... Trust, but verify. Not unlike some other industries, recruiters have gained a reputation for shady ethics. So, you're right to be cautious. Just don't sabotage a potential relationship which could be collectively beneficial.

4) Being ambiguous or disingenuous with your capabilities. - PEOPLE GET HIRED FOR WHO and WHAT THEY SAY they ARE and CAN DO but FIRED for the TRUTH.- Trust me, employers find out the truth and most long term recruiters can "smell" a exaggerations or, conversely, too much humility. We listen - and we check your references and listen to them. Just because you're walk on water doesn't mean you're getting hired - with the amount of investment a company is looking at paying in exchange for our services, believe me they are listening for our feedback on your soft skills too (or lack of).

5) Be Nice. Show a little appreciation for the effort. It's wise and in your best interest to be courteous and respectful. Especially if you don't get an interview or land that job. Guess what? We BOTH get paid the same...ZERO. In fact, if you want to turn empathy into apathy, or worse, just give a little attitude to us on the back end of the process. Instead, ask questions & learn from the process. Anyone who has been recruiting for more than a few years will tell you, we're phone cops. What does that mean??? Simple. This means we can hear, see, and detect B\$ from a mile away... So, mean what you say and say what you mean. We're here to help, but don't take us for granted. This is **NOT** the unemployment office and we are **NOT** government employees. Be grateful. Filling Needs for employers is OUR JOB - and we are in this business to EARN A LIVING! Simply put - we don't make money if you don't get the job.

from *Engineering Automation Solutions Team Blog*
on LinkedIn

TECHNICAL TALKS FOR JANUARY AND FEBRUARY

CHECK OUR WEB SITE TO REGISTER AND FOR THE LATEST UPDATES

1. January 14, 2010 (Thursday) - 11:30 AM – 1:00 PM
Technical Talk & Lunch, Royal Buffet, Middletown. **"PICOCELLS FOR NEXT GENERATION WIRELESS LOCAL AREA NETWORKS"**, Dr. Jack Winters
2. January 21, 2010 (Thursday) - 6:15 PM
FREE Technical Talk & Dinner, Eastern Branch Public Library, Shrewsbury **"MOBILE SATELLITE COMMUNICATION, DVB-SH AND HYBRID MOBILE TV"**, Stephen A. Wilkus
3. February 4, 2010 (Thursday) - 11:30 AM - 1:00 PM
Technical Talk & Lunch, Gibbs Hall, Ft. Monmouth, **"INERTIAL SYSTEM & GPS TECHNOLOGY TRENDS"**, George T. Schmidt
4. February 25, 2010 (Thursday) - 11:30 AM – 1:00 PM
Technical Talk & Lunch, Royal Buffet, Middletown **"CARBON NANOTUBE ANTENNAS FOR WIRELESS COMMUNICATIONS"**, Dr. Jack Winters
5. February 25, 2010 (Thursday) - 11:30 AM – 1:00 PM
Technical Talk & Lunch, Royal Buffet, Middletown, NJ **"Carbon Nanotube"**, by Dr. Jack H. Winters

IEEE NJ COAST SECTION

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We're on the Web!
Look for the latest News:
www.ewh.ieee.org/r1/njcoast/

CONFERENCES FROM AROUND THE GLOBE

1. 2010 IEEE "International Symposium on Phased Array Systems & Technology"
<http://array2010.org/>
2. 2010 IEEE Conference on "Technologies for Homeland Security" (HST '10)
<http://www.ieee-hst.org> **CALL FOR PAPER DEADLINE APRIL 24, 2010**
3. 2010 IEEE Conference on "Innovative Technologies for an Efficient and Reliable Electricity Supply" <http://www.ieee-energy.org/> **CALL FOR PAPER DEADLINE MARCH 12, 2010**

High School Students News

REGIONAL DEAF EDUCATION PROGRAM

REPRINT ARTICLE “CityScapes: An Update on Exciting Events, Programs, and Activities in **New Jersey’s Urban Public Schools**” January 15, 2010

“The Neptune Township Regional Deaf Education Program Helps Auditorily Impaired Students Succeed in a Hearing World” **Neptune’s Regional Deaf Education Program** has grown to include a pre-school and an elementary school program sited at the new Summerfield School facility and programs at both Neptune Middle School and Neptune High School. Today, auditorily impaired (AI) students from all over Monmouth, Ocean, Middlesex, Mercer, and Union counties travel to Neptune every day to take advantage of these classes. This award-winning program began in Neptune almost 40 years ago on a very small scale. At that time, a single class for students with hearing issues was pioneered in a room located in the basement of Summerfield Elementary School. Reena Banerjee is one remarkable young lady who has benefited from being in this program since she was 3 years old! Reena is currently a sophomore at Neptune High School in Neptune, New Jersey. She is taking a full course load of classes, including Honors Algebra. Reena is a member of the school’s varsity bowling team and plays soccer, as well. This spring, she is hoping to join the softball team. Reena is also involved in many other activities and recently served as one of the emcees for her school’s Women in Politics and Public Service Forum. She is a well-spoken, confident, and personable student with lots of friends, a great sense of humor, and a maturity that belies her years. Reena has also set some pretty ambitious goals for herself. After completing college, she is determined to go on to medical school and ultimately become a pediatrician. What makes Reena’s achievements all the more noteworthy is that she has been hard-of-hearing since birth. In fact, Reena’s mother and two sisters are also hard-of-hearing and her brother is deaf...the difference between the two classifications measured simply by the decibels of hearing loss. Reena credits the Deaf Education Program with helping her to assimilate into, and excel in, the hearing world. To read the entire article go to www.state.nj.us/education/dsis/leadership/news/11510