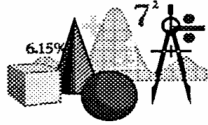




IEEE

SPARKS

IEEE Daytona Section Newsletter
February 2010



FROM THE HIGH CHAIR

There are many interesting activities coming up and I urge you to take advantage of them.

The Daytona Section is supporting Engineers Week this year at Embry Riddle Aeronautical University (ERAU). The beginning events are on Tuesday February 16, 2010, with a Paper Airplane contest and a keynote address by Homer Hickam, author of Rocket Boys (that inspired the film October Sky) and the Coal Wood Way. On Wednesday February 17, student design posters can be reviewed and voted upon. On Thursday student design posters can be reviewed and there will be an Engineering faculty Present-a-thon. On Friday the Engineers Week banquet will be held. We will be sending email reminders with more detail as the events near. Contact Tim Wilson, if you need more information about any of these events.

At our next section meeting on February 25, Ron Gedney will discuss the future of automotive electronics. Many of you should be interested in this topic.

In March there will be a Region 3 Professional Activities Committees for Engineers (PACE) meeting in Nashville. Jeanette Barott will represent the section. Later in March, Southeast Con will be held with the ERAU student section competing against other universities in the region in a robotics contest. The students will present their efforts at the April section meeting. Thomas Yang will represent the section at the business meetings.

Dr. Kent Davey presented at our section meeting on January 28, and discussed magnetic gears. This was an interesting topic with a technology useful for windmills and ships, as it will reduce the size and maintenance tasks currently required for mechanical gears. We all learned a lot about this novel technology.

Thomas Yang and I represented the section On January 30th at the Tomoka Region Science Fair held at Atlantic High School. The variety and skill of both junior (6th-8th grade) and senior (9th-12th grade) students was impressive. I think our future is secure as shown by the dedication of the students and the creativity of the demonstrations. We chose a junior presenter, Jacob Cheatham from Indian Trails School of Palm Coast, for the section award – a plaque and a check. Jacob built and programmed a small robot that had to navigate a maze autonomously. He compared that result with a human controlling the robot. Guess who won!

Thanks to Frank Baxter for his review of our 2009 finances. The section must submit a financial report to IEEE HQ each year.

We have all been saddened by the terrible loss of life and property in Haiti. The IEEE is matching funds up to the first \$50,000 donated to reestablish engineering education and professional development. See www.ieee.org for more details.

If you haven't renewed your IEEE membership, this may be the last Sparks you receive. Many of us can attest to the advantages accrued by being a member; including the ability to network with other professionals, the health, savings and insurance

benefits, the ability to stay abreast of advances in our particular specialty by access to IEEE unique papers and technical e-books and attending conferences and seminars. Please renew now if you haven't done so, we need you.
Roger Grubic

FEBRUARY PROGRAM

ROAD MAPPING AUTOMOTIVE ELECTRONICS

Among the 26 chapters in the iNEMI roadmap is the "Product Emulator" for Automotive Products. The Roadmap has consistently predicted that electronics **will** become 30% to 40% of the manufacturing cost of an automobile!! There is an on-going dramatic increase in the use of electronic systems to enable better performance, handling and reliability in the automobile. Today's car depends on "drive-by-wire" technologies for steering, braking and handling. We are beginning to see the use of radar systems for "blind spot" management, parking, lane changing, driving while impaired, or falling sleep at the wheel. Manufacturers are introducing new systems that will allow the driver to view internal and external information such as temperature and humidity; hands-free communication and entertainment systems; GPS travel directions/maps; tolling, and more. Hybrid vehicles are being introduced with voltages ranging from 42V to 500V. Some of these systems will be discussed as well as new technologies that are yet to come.

OUR SPEAKER

Ron Gedney was V.P. Operations and Chief Technical Officer for the International Electronics Manufacturing Initiative (iNEMI) and was responsible for the development and publication of the iNEMI biannual Roadmap. He retired from iNEMI at the end of 2002 (although continued to be involved with several of ongoing projects on a consulting basis). He joined the consortium in 1996, bringing with him nearly 40 years experience in the development, manufacturing and procurement of electronic components and electronics packaging.

Mr. Gedney has several patents in electronic packaging and has authored or co-authored numerous technical articles, several book chapters and co-edited a book on lead-free electronics. He is past president of the IEEE Components,

Packaging and Manufacturing Technology (CPMT) Society, past General Chair of the IEEE/EIA-sponsored Electronic Components and Technology Conference, past chair of the CPMT Binghamton chapter, a Fellow of the IEEE and an associate editor of the IEEE Transactions on Electronics Packaging Manufacturing. In 1999, Mr. Gedney was the recipient of the IEEE CPMT Society's David Feldman Outstanding Contribution Award. He was presented with the IEEE third Millennium Medal in 2000. He received the SolderTec Global Lead-free Solder Award in 2004 "in recognition of his leadership and technical expertise in eliminating lead from electronic assemblies". He graduated from Tufts University with a degree in electrical engineering.

BRAIN TEASER CHALLENGE SOLUTION

JANUARY 2010

BUTCH SHADWELL

I am a little embarrassed to have put in so many clues, but I still got some incorrect answers. Schlomo "...rolled the wheel down Pearl Street... (The Pearl St. Station was a well known DC generating station.) ... It was 1889, and for a ten year old in New York, ... (The Pearl St. station burned in 1891.) ... he heard his Uncle Lenny describe his new electric light business. As you know, light bulbs were pretty expensive, about a dollar a piece, and they didn't really last that long. Lenny's idea was to sell folks lower voltage light bulbs which were a little cheaper and would last a little longer. He planned on buying transformers to reduce the voltage. What turn ratio did he need to run 25 volt bulbs? Hope you remember your electrifying history."

Edison's New York power grid ran on 110 volts DC. Of course the use of a transformer to lower the voltage would not have worked without a later invention called a vibrator (used in car radios in order to create the higher B voltage for the vacuum tubes), which would turn DC into pulsing DC which could produce an output from a transformer. But I bet you already knew that.

BRAIN TEASER CHALLENGE

FEBRUARY 2010

BUTCH SHADWELL

When I got started in this business we used multi-meters with a d'Arsonval meter movement that

was powered by the signal that was being measured. Of course the voltage that one read from the meter needle movement could be off a bit depending on the source impedance of the signal.

They used to rate the meters input resistance in ohms per volt. Some would be 10,000 ohms/v or even higher sometimes.

If I had a multimeter rated at 1000 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.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328.

(<http://www.shadtechserv.com>) The names of correct respondents may be mentioned in the solution column.

EDITORS NOTES

The **SPARKS** newsletter is also available on our website. The website address is shown in the Section information box to the right.

Our neighboring Sections in Melbourne and Orlando also sponsor activities and meetings that also may be of interest to our members. We encourage you to visit their websites.

Region 3 website

<http://www.ewh.ieee.org/reg/3/>

Melbourne Section website

www.ieeemelbourne.org

Orlando Section website

www.ieee.org/orlando

FUTURE MEETING DATES

Meeting dates for the spring session are:
March 25th and April 29th.

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The website address for the Daytona Section is:

<http://www.ieee.org/go/daytona>

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FEBRUARY MEETING

Thursday February 25th at the Halifax River Yacht Club
331 South Beach Street, Daytona Beach, Florida 32114
Just south of the Fire Station at the corner of Beach and Orange

AGENDA

6:30 PM Cocktails
7:00 PM Dinner
8:00 PM Program

OUR SPEAKER – Ron Gedney

TOPIC– Road Mapping Automotive Electronics

It's Mardi Gras/Cajun night! Please call with your menu selection. All items are \$18.00 each

Beef Bourguignon w/mashed potatoes	{Entrees served with Vegetable du jour,
Chicken & Sausage Jambalaya	{Roll and Butter, Garden Salad,
Louisiana Deviled Crab Cakes	{Coffee/Tea

A Veggie plate is available upon request for \$10

Please contact the secretary with your dinner selections or for program information. Dinner selection's must be in by Wednesday morning so the club has time to order and prepare

Allan Jusko

Secretary

386-671-3706 a.jusko@ieee.org

IMPORTANT: If you make dinner reservations and are unable to attend, call at least 24 hours prior to the meeting to cancel. The Section is charged for all dinners ordered.
