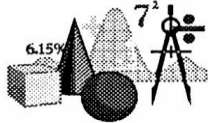




# SPARKS

Daytona Section Newsletter  
October 2017



## OCTOBER SECTION MEETING

Thursday October 26th at the Halifax River Yacht Club, 6:00 PM  
331 South Beach Street, Daytona Beach, Florida 32114

### PRESENTATION TOPIC

Customer Relationship Management;  
How Software can improve the Customer Interface

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### CHAIR'S REPORT



Hello and welcome to the October newsletter. I hope everyone is enjoying the Florida fall weather, if you can distinguish it from the Florida summer weather.

As usual, our section members, both professional and students, are busy. The section was well represented at the 36th Digital Avionics Systems Conference in Tampa last month. Our student section is participating in the IEEEXtreme programming contest once again.

This 24-hour marathon programming event always shows off the ingenuity and energy of our students. In addition, yours truly will be attending events at Mainland High School and Father Lopez High School as part of our K-12 outreach activities.

I look forward to seeing you at the October dinner meeting and reporting the results of these activities.

*Keith*

## SEPTEMBERS PRESENTATION

### DESIGNER DRUGS

Designer drugs are synthesized to chemically and psychoactively mimic known illicit drugs, made to avoid the law, and are skillfully marketed.

Dr. Kristen Kent discussed advances in chemistry and medicine over the past several hundred years that evolved natural plants into the first designer drugs. She also presented advances in pharmaceuticals, genetics, information technology in recent decades that contributed to proliferation and popularity of designer drugs causing a global public health crisis.



Daytona Section Vice Chair Richard Kent, obviously very proud father of Dr. Kristen Kent, making the presentation of our Sections travel mug to our speaker

## OCTOBER PRESENTATION

### Customer Relationship Management; How Software can Improve the Customer Interface

This talk will define Customer Relationship Management and discuss its supporting software. Mr. Michael Baran will explain what it is, and how it interacts with different people based on their roles and what benefits it brings to those who use it. He will also show why some systems are very successful while others failed to be implemented properly and thereby did not produce the desired results.

### OUR SPEAKER

Mr. Baran has a B.S. In Electrical Engineering and an MS in EE & Computer Science. In addition to working as a design engineer, he has had a number of jobs in management and sales, consulting for many well-known companies, such as Intel, IBM, Citibank, Nissan, etc. Currently semi-retired, Mr. Baran is doing consulting work primarily for Colorado State University in Salesforce Customer Relationship Management.

## ANOTHER TALE FROM THE OLD PROFESSOR

### HOW MUCH DOES YOUR AIR CONDITIONER WEIGH?

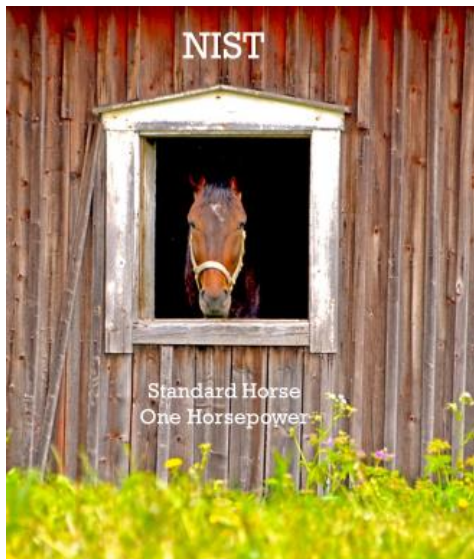
That's an easy question to answer. If you look for the name tag on the outside unit the weight is clearly marked. My AC unit weighs 2.5 tons. I find that hard to believe. I doubt that it weighs more than 250 pounds which is one eighth of a ton.

The 2.5 ton figure is not the weight of the AC unit but of a block of ice. A 2.5 ton AC provides the same amount of cooling that you would get from 2.5 tons of ice if you took 24 hours to melt it. If you think about it, that's a very handy figure to have. If you suffer a power outage you will know how much ice you need to have delivered to keep your house cool until power is restored.

There are some really dumb units of measure in our world and the heating, ventilation and air conditioning, HVAC, group has some of the dumbest.

The Old Professor has always been critical of the aerospace and civil engineers that still use a lot of English units of measure. In the electrical world, we never used dumb units. Electrical science is a new science and never made the mistake of using English units of measure. Now, you might argue that motors are rated in horsepower. That is true; but that is the mechanical side not the electrical side of a motor which is rated in watts or volt-amperes, VA.

To rate something by horsepower suggests there is an International Standard Horse, ISH. The National Institute of Standards and Technology, NIST, maintains all kinds of standards. These include a standard ohm, kilogram, and also is the keeper of standard time. Accurate measurements require that the measuring instruments be calibrated such that the calibration can be traced back to the NIST primary standards. One must assume somewhere in the vaults of NIST there is a standard horse.



Let us return to the HVAC units of measure. Natural gas, an important part of HVAC, is sold and can be priced by volume; by cubic feet. But therein is a problem. Gas is a compressible fluid and a cubic foot of gas could be compressed to a much smaller volume but still contain the same mass of gas. But the natural gas suppliers recognize this fact and sell gas by its heat content, the BTU. A BTU is a British Thermal Unit. (Just seeing "British" in the measure says we are in for trouble.) A BTU is the energy required to raise one pound of water, that's weight not mass, one Fahrenheit degree. If we specify weight we need to also state a standard gravitational acceleration which is not a constant but varies from location to location on the earth. What if we buy gas for use in orbiting spacecraft where everything is weightless?

In order to simplify calculations, the HVAC folks have created the "therm". It just happens that one cubic foot of natural gas at the sea level temperature and pressure of the International Standard Atmosphere, ISA; 29.92 inches of mercury and temperature of 59F, contains about 1000 BTU's. Notice the "about". This is not a precise science here. Therefore, the gas suppliers sell gas by "therms" which is about 100 cubic feet or about 100,000 BTUs.

What if you compress natural gas, (CNG) or, God forbid, liquify it, (LNG) and use it for an internal combustion engine for transportation? For that, we have a “gasoline gallon equivalent”, gge. I have no idea how this equivalency was created. This also implies that NIST may have a standard “gallon of gasoline” which would more troublesome to maintain than the standard horse. In any event, gge is equal to 5.66 pounds, (weight not mass!) of natural gas.

But wait! (as the TV hucksters say) There is more! The makeup of natural gas varies quite a bit. Natural gas is primarily methane but contains a lot of other gases depending on the well that produced the gas. Therefore, the amount of heat energy will depend on where the gas came from.

If you heat and cool by electricity like The Old Professor, you are billed by kilowatt hours, which is energy content with no ties to how you used it. It doesn't matter if you powered your car or heated or cooled your house with the energy. This makes sense.

“Only in America”: a hit song performed by Jay and the Americans in 1963, can be applied to the sale of natural gas. Outside of the United States, gas is sold by the gigajoule. “Only in America” is it sold by therms. Maybe someday the US gas companies will “wake up and smell the coffee” and sell energy by its proper unit; joules. By the way, speaking of smelling things; did you know natural gas is odorless and the stink is deliberately added?

*All Hellfrick, a.k.a. The Old Professor*

## DAYTONA SECTION SHIRTS



We are pleased to offer Daytona Section polo shirts for our Section members. The shirts are embroidered with the IEEE Logo and DAYTONA SECTION on the left and your name and grade, if desired, on the right. The shirt is a high quality 5 oz, 65/35 poly/cotton pique in Royal Blue with white embroidery. Available in S - 2XL in men's as well as ladies sizes. Price is \$29, including tax, for S-XL size's, 2XL size is \$3 additional. For more information or to order shirts contact: Allan Jusko 386-671-3706 or [a.jusko@ieee.org](mailto:a.jusko@ieee.org).

## IEEE MEMBERSHIP PINS

We have IEEE Membership pins available for years of IEEE membership. See Richard Kent or Allan Jusko if you're interested

## FUTURE MEETING DATES:

The date for the fall 2017 spring session is: Nov 30

## EDITORS NOTES

The **SPARKS** newsletter is also available on our website <http://www.ieee.org/go/daytona>

### Region 3 website

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

### Other web sites of note

#### Melbourne Section website

[www.ieeemelbourne.org](http://www.ieeemelbourne.org)

#### Orlando Section website

[www.ieee.org/orlando](http://www.ieee.org/orlando)

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## ENGINEERING HUMOR



# OCTOBER 2017 MEETING

**Thursday October 26<sup>TH</sup>** 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 Streets

**TOPIC**– Customer Relationship  
Management; How Software can improve  
the Customer Interface

**SPEAKER** – Mr. Michael Baran

## **AGENDA**

5:30 PM Greetings & Cocktails  
6:00 PM Dinner  
7:00 PM Presentation

## **Dinner Menu**

**Flat Iron Steak with a demi-glace-** Served with mashed potatoes and buttered broccoli.

**Chargrilled Breast of Chicken-** with a tarragon and sundried tomato cream sauce. Served with mashed potatoes and buttered broccoli.

**Grilled Salmon with a blood orange butter sauce-** Served with tomato infused jasmine rice and baby carrots.

**Members and guests \$20.00 each. Students \$10.00 each**

**Please contact Allan Jusko by Wednesday October 25th at noon  
to give us a count for dinner or for further information**

**If you make reservations and are unable to attend, call prior to the event to cancel.**

**The Section is charged for all dinners ordered, please let us know if your plans change**

Allan Jusko Editor

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