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EVENTS HIGHLIGHTS

IEEE Nigeria Section
(http://ieee.org/nigeria)

- SYMPOSIUM AT FUTO: IEEE Nigeria Section collaborated with the Department of Electrical & Electronic Engineering, FUTO to organize a one-day symposium on August 14, 2014 at FUTO.

- The 1st IEEE Nigeria Section Technical & Administrative Meeting (TAM) in 2015 was held on Saturday 14th March 2015. The venue was Federal University of Technology Owerri (FUTO) Guest House Conference Room on Campus. It's time for your participation. Rise up in 2015 and be active in IEEE. Plan to attend the next TAM- Date and Venue to be fixed and circulated.

- The AUST Int'l Conference in Technology (AUSTEC 2015) is coming up on October 12-14, 2015 at Abuja, Nigeria

- The 2015 Computer Science Symposium (CSS'2015) has been announced. Please visit the Conference website- http://conference.aust.edu.ng/ for details.

- A 4-Day International Conference on Cyberspace (CyberAbuja2015) will hold on November 4-7, 2015.
  - Submission Deadline Open from now until September 15, 2015
  - Notification of Acceptance 2-3 weeks from the submission date
  - Camera Ready Submission Open from until October 05, 2015
  - Registration Deadline Open from now until October 15, 2015
  - Conference Dates November 4-7, 2015

SYMPOSIUM ON SPECIAL TOPICS FROM THE INDUSTRY: IEEE COLLABORATES WITH THE DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING, FUTO

The symposium was organized by the department of Electrical/Electronic Engineering, in collaboration with the Institute of Electrical/Electronic Engineering (IEEE). It took place at the New ICT Building of the Federal University of Technology Owerri, and was specially organized for the final year and Post-Graduate students and staff of the Department.

Group picture from the Symposium

The main objective of the symposium was to provide an opportunity for Final year and Post-Graduate students to understand the state of art electro-technologies and interact with industry practitioners and also afford EEE Department staff, avenues for networking and research collaboration with the industry. The IEEE Nigeria Section Chair, Prof. G. A Chukwudebe in her opening speech encouraged students and staff to take maximum advantage of the symposium, so as to synchronize academic ideas with industrial application. The first presentation was on *Entrepreneurship and Opportunity Realization in ICT* by Sir Paschal Opara. The presentation highlighted some of the reasons why most businesses fail, and provided a flowchart for each phase of the five (5) steps for the Opportunity Realization Process namely: Identify, Assess and Select, Develop, Execute, Operate & Evaluate. The second presentation was *on Integrating Photovoltaic (PV) Systems as an Alternative Energy Supply in Nigeria: Prospects & Challenges* by Engr. Orajaka Ifeanyi, an ex-student of EEE Department, FUTO. He compared the energy consumption indices for various countries and highlighted the benefits, applications and challenges associated with PV systems. The third presentation was on *Mobile Telephone Evolution and Long Term Evolution (LTE) Architecture – The future of Telecoms* by Engr. Austyne Duru. Austyne emphasized the need for mobile telephony to evolve to LTE also known as 4G. The fourth presentation by Engr. Ekene Mbonu was on *Programming Microcontrollers for Robotic Applications*. He detailed the factors affecting the choice of microcontrollers and gave step by step approach to programming microcontrollers. The fifth presentation was on *Programming Field-Programmable Gate Arrays (FPGA) for Embedded Applications* by Engr. Kennedy Okafor. The sixth and last presentation was by Dr. Godwin Ugwu on the *Principles and Practice of Instrumentation and Process Control.*

SURFING THE MILLIMETER-WAVES

By Byron Wicks

Today, wireless technologies have a dramatic impact on our lives. We live in an increasingly connected world. Access to voice and data communications is almost ubiquitous with our computers, phones, and cameras connected via WiFi, Bluetooth and cellular networks. Primarily the electronics for these devices are implemented on silicon. Silicon, and the CMOS processin particular, is the standard and most inexpensive technology for building the circuits used in consumer electronic devices. As silicon technology scales smaller in size and the transistors increase in speed, in accordance with Moore's Law, it is only a matter of time before silicon will be a viable alternative at millimeter wavelengths; the portion of the spectrum ranging from 30 to 300 GHz. The implementation of millimeter- wave wireless devices in silicon has the potential to enable new classes of highly integrated, low cost, power efficient, high speed applications and allows for integration of very small high gain arrays. This article highlights two promising potential applications of millimeter-wave frequencies; high speed wireless communication and vehicular safety. Currently our existing wireless technologies are too slow todeal with bandwidth intensive multimedia applications. The millimeter- wave spectrum has a large unlicensed region around the 60- GHz channel with reduced interference ideally suited for high data rate communications, which the IEEE has convening a task group to investigate. Devices implemented in this region promise to allow electronic devices to connect seamlessly and power efficiently at high data rates without any interaction. Your personal computer, high definition televisions, digital video recorders, digital cameras, and portable music and video players, will be able to communicate your videos, favourite TV shows, latest movies, and the footy wirelessly within seconds with no need to exchange wires, or purchase switches. A typical scenario for this technology is an individual who visits a kiosk in a shopping centre and buys a movie and downloads it wirelessly to a portable multimedia device. On returning home the portable multimedia device would seamlessly connect to a high definition television, and a surround sound system, and turn them on automatically and play the rented movie. There would be no wires, no switches or complex operating procedures required in order to be able to connect all of these devices. Currently automobile accidents are a leading cause of fatalities and injuries. Automotive radar technologies are able to help avoid collisions by detecting objects near the car, assisting with braking, blind spot warning with lane departures, and enhancing the driver's vision when driving in inclement weather and low visibility conditions. Sensors are able to provide parking assistance, and pre-imminent side collision detection. A minority of these systems is employed on current vehicles and only equipped on luxury automobiles due to prohibitively high cost. In order for these systems to be universally deployed across the entire price range of automobiles a low cost solution is urgently required. Silicon technology and the millimeter-wave frequencies prom ises to facilitate the realization of this visions. Implementing wireless technologies at millimeter-waves frequencies has the promise to provide low cost, power efficient, high data-rate wireless communication. This article has introduced two such applications of numerous that will utilize the millimeter wave spectrum.

A photograph of the world's first transceiver integrated on a single chip that operates at 60-GHz on the CMOS process. It allows wireless transfer of audio and video data at up to 5 gigabits per second, ten times the current maximum wireless transfer rate, at low cost.

[*Culled from IEEE GOLDRush, September 2008, page 9*]

CONCEPT OF HOME AUTOMATION SYSTEMS

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Think back. Can you remember what it was like to change the channels of your TV manually? When channel surfing and volume tweaking meant bouncing back and forth between couch and console? Although folks from the generation that remembers these antiquated modes of control may not have realized it then, this was highly inconvenient. Then we got to the era of handheld remote, where we have all the necessary buttons for finding and enjoying a TV program right at our fingertips. A home automation system offers that same kind of convenience, but on a much broader scale and often without any button pressing required. In addition to firing off commands to video equipment, an automation system can supervise lights, thermostats, security devices, lawn sprinklers, motorized window treatments and more. In seconds, your house is exactly the way you like it and all you had to do was tap a "Home" button on your smartphone. Needless to say, using an automation system to simultaneously adjust the lights, temperature, and other elements of your house for your arrival, departure, bedtime and other occasions is a huge convenience and time saver. But there are a host of other benefits you'll realize by putting an automation system in charge.

Enhanced Safety & Security

Nothing against residential security systems—they can do a great job of protecting your home and family. But when working hand-

in-hand with a home automation system, they can provide an even higher level of safety. For example, typically when an alarm trips, the security system will notify the provider (after 30 seconds or even a minute) who will then need to contact you. When tied to your automation system, you can receive a text message the instant that there is unauthorized access to your home. The automation system can also zero in on the breach by linking the nearest surveillance camera to your smartphone. From your smartphone, you can then view the situation and react accordingly.

Instant Status

Did the kids leave the lights on in the game room downstairs? Are there any windows open in the master bedroom? Did your teenager remember to close the garage door? A home automation system keeps tabs on happenings in and around your house and can share that information with you while you're at home or miles away on a vacation or business trip. Real-time status reports can be viewed on a variety of user interfaces, including the screen of a smartphone, tablet, TV, or touchscreen. Using this information, you'll be able to respond appropriately. For example, an automation system can be programed so that touching one button on the kitchen tablet will turn off every light and entertainment component left on in the game room.

Comfort & Efficiency

Keeping a home at its most comfortable state while still being mindful of energy use can be a challenge when you're forced to adjust thermostats, position draperies, and turn on and off lights manually. Based on parameters that are pre-programmed into a smart home automation system installed by a qualified professional, the thermostats can lower at night and all lights can turn off right before bedtime to save energy. An hour before you wake up the thermostat can adjust so that the house is comfortable the second you step out of bed. Meanwhile, the lights in the kitchen can turn on, the shades in the living room can open, all while your bedroom music slowly wakes you up, raising in volume over a 10 minute span of time.

Overall Enjoyment

When you are given the ultimate remote to your home, you may wind up with more free time, relaxation can come more easily and much more often, and it can transform into an oasis of entertainment. For example, from the same smartphone, tablet, keypad or touchscreen you use to monitor and operate the lights, thermostats and other electronic gear, you can tell your home's music system to deliver songs from your favorite Internet radio station to speakers in the family room and kitchen. Later, you and your guests might convene in the media room where with one tap of a button the lights fade, the shades lower, and the A/V system sets up to present a movie on a big projection screen.

Reference:www.control4.com , www.homcontechnologies.com

TECHNICAL/ADMINISTRATIVE MEETING

The latest Technical and Administrative Meeting (TAM) was held on Saturday 14th March, 2015 at the well respected Federal University of Technology, Owerri (FUTO), Imo State, Nigeria.

Picture from Owerri Meeting

The meeting, which started by 10:30am, boasted of the attendance of One hundred and forty-two (142) members. The meeting was the first in 2015. The chair, in her speech, reported on the IEEE Section meeting activities for year past and gave a highlight of what to expect this year. The chair promised an exciting year for the Students and Young Professionals (SYP) Nigeria Section and emphasized on the need for preparations for next year's Region 8 SYP Congress. A number of Technical presentations were made. One of the presentations was by Engr C. Okpareke on Creating & Nurturing Innovation and Entrepreneurial Culture. Another presentation was by Engr Tunde Salihu on Entrepreneurship: Discovering your Business Niche. Obinna's Team made a technical presentation on Intel Galileo Board Basics for Students Research Projects. The fourth presentation was by Dr N. Chukwuchekwa on

Google Resources for Improved Productivity. Dr Collins Agu made the fifth presentation on "Creating an Innovative IEEE". During the interactive session which followed the technical session, lots of clarifications were made and it was agreed that the Student Branches present at the meeting should be equipped with Galileo Boards. This will further enlighten them about the new technology and its adaptation, especially in Robotics. The Vice Chairman, Engr. Raphael Onoshakpor volunteered to donate twelve (12) boards in this regards. He is to put up a write-up for the criteria of securing these items. The Membership Development Officer gave a brief on the new rates for all membership grades/status as follows:

	Rate	Dollar Rate	International Rate	Local Due	TOTAL PAYABLE
MEMBER	195	79	15405	3,000	18,405
STUDENT	195	27	5265	1,000	6,265

EDITOR'S CORNER

IEEE STAR: A Mentoring Program for Girls

IEEE Women in Engineering (WIE) is the largest international professional organization dedicated to promoting women engineers and scientists and inspiring girls around the world to follow their academic interests to a career in engineering. Vlatka Paunovic in her statement as to Why She is an Engineer encouraged Girls to start now to apply your interests to changing the world as an engineer. Yes, it takes [hard] work to become an engineer—but it is good, exciting, fulfilling work. If you want to know what it might be like visit TryEngineering.org and TryComputing.org and explore how to prepare for an engineering career, ask experts engineering-related questions, play interactive games, and more. The IEEE Student-Teacher and Research Engineer/Scientist (STAR) Program (*http://www.ieee.org/membership_services/membership/women/star.html*) is an educational outreach program developed to address the growing concern that, at young age, girls are discouraged from dedicating themselves to mathematics, science, and engineering. The current "STAR" program includes the following reportable pre-university outreach: Classroom Activities; Humanitarian Projects involving the pre-university community; Competitions; Hands on Activities; Training of pre-university teachers; Mentoring; Public Awareness Activities; Field Trips; Technical support networking; and more… The IEEE WIE Nigeria Affinity Group (IEEE WIE^{NAG}) is currently being re-formation and re-registration with the parent body. Meanwhile, IEEE WIE^{NAG} already has its proposed program of activities aligned with the above listed STAR programs, starting with membership drive. We have already identified schools or groups to work with. Its gonna be funtastic, exciting and highly fulfilling. Be part of it. Register with WIE today

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