Distinguished Lecturer Tour of Xavier Fernando in South India

By Xavier Fernando, Ryerson University, Canada and Pradeep Balachandran, Secretary of the IEEE Comsoc Kerala Chapter, India

Prof. Xavier Fernando had a very successful IEEE COMSOC Distinguished Lecturer Tour in South India, during July 11 – 17, 2012, thanks to the support of Dr. Mehmet Ulema, Dr. Sabu, and Ms. Ewell Tan. He visited five different cities in three states giving seven lectures during this trip.

In Chennai, Tamil Nadu Prof. Subramanian, Secretary of COMSOC Chennai Chapter coordinated events. Prof Xavier visited the Madras Institute of Technology (MIT) campus of Anna University on July 11th where, Ms. Vaidehi Vijayakumar, Head of the IT Dept. and Dr. Srikanth were the hosts. Anna University is ranked only next to well-known IITs in Tamil Nadu. The lecture was on 'Communication Requirements for Smart Grid'. The talk covered an overview of the smart grid and layered architecture of and inter-operability requirements of the smart-grid communication networks. Integration of renewable, distributed energy sources to the core network was discussed in detail, highlighting India's huge solar and wind potential. The lecture was attended by over 50 students, professors and professionals. The audience were very keen on the smart grid technologies that would enable incorporating renewable sources to the grid as India is struggling to meets its demand despite the solar and wind potentials. Especially, there is a frustrating, rotating power cut in Tamil Nadu.

The next day, July 12th morning Prof. Fernando visited the Arupadai Veedu Institute of Technology in Kancheepuram District of Tamil Nadu. Dr. Vijendra Babu, Head of ECE department received Prof. Fernando introduced him to the students. The lecture was again on 'Communication Requirements for Smart Grid', which was very well received. There were over 100 audiences, mostly students.

There was another talk on the same day afternoon at Anna University, Guindy campus. The host was IEEE

Lecture at Trivandrum.

Audience of the talk in Kochi.

Chennai Section Vice Chair Dr. Mohan. The topic was 'Radio over Fiber for Wireless Communications'. There were over 80 audiences. They showed great interest in the topic as number of them actively works in this area. There were many questions; one question was on the photonic generation of ultra wideband radio signals; another one the pros and cons of using A/D converters.

The next day, he visited the prestigious National Institute of Technology (NIT) at Calicut, Kerala. Prof. K. P. Mohandas, Chair, IEEE Malabar Subsection welcomed the speaker and Prof. Abraham T. Mathew introduced the speaker to the audience. The talk was again on Smart Grids. The specific case of prospects and possibilities of the use of smart grid technology for solving India's power crisis was highlighted. About 75 participants attended the lecture. Dr. Sameer, Secretary, IEEE Malabar subsection gave vote of thanks. Since NIT is a research intensive institution, there was very fruitful discussion afterwards. There was discussion on the low power conversion efficiencies of solar panels as a hurdle for widespread deployment.

It is worth mentioning that the talk at NIT Calicut about smart grid initiatives for solving India's power woes appeared in the Indian National Newspaper, The Hindu (http://www.thehindu.com/todays-paper/tp-national/tp-kerala/article3644505.ece). Ironically, the great black-out which affected over 600 million people hit India after few days.

The next day, July 14th, Dr. Fernando went to Cochin (Kochi), Kerala. Dr. Suresh Nair, Vice Chair, IEEE Kochi Subsection introduced the speaker. The talk was on 'Wireless Sensor Networks for Green Building', where he gave an overview of smart buildings, then discussed various wireless communication technologies for the realization of smart structures and made a comparative evaluation among the peer technologies such as Wi-Fi, Zig-Bee, Bluetooth, RFID, and EnOcean. Sub topics such as modern techniques for heating/cooling, Felt Air Temperature and powering the wireless sensors were also briefly discussed. Speaker also shared his research experience at the experimental Archetype Net-Zero House that is built in Toronto. There were 35 participants of whom 15 were from Industry and 20 from academia. The event

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concluded with vote of thanks proposed by Mr. Shahim Baker, Secretary of IEEE Kochi Subsection.

Prof. Fernando then went to Thiruvananthapuram, the capital city of Kerala on the next day, 15th July. The lecture was held at the Centre for Development of Advanced Computing (C-DAC) and the topic was "Low Interference Wireless Communications for Biomedical Applications." Mr. Pradeep Balachandran, Secretary, ComSoc, Kerala chapter introduced the speaker. A broad spectrum of aspects ranging from basic principles of wireless sensors, corresponding control and command networks, protocols and standards, resource management and performance evaluation, all applied to the Bio-Medical Systems, formed the outline of the talk. The relative advantages of prospective technologies like '60 GHz' and 'Magnetic Coupling' over the peer ones like Zig-Bee and Bluetooth were discussed. Speaker highlighted the key requirements on wireless sensing for the real time monitoring of vital physiological parameters and described the need for a robust, reliable, and energy efficient wireless Body Area Networks (BAN). He also remarked on the power and size constraints of body area sensor networks and the need for bio-compatible energy harvesting designs. The event had a participation of about 30 people including engineering college faculty members and students. The feedback from the audience highlighted the trend of growing interest among the engineering community to pursue active research in the field of Bio-Medical engineering and allied fields. In the closing ceremony, a memento was presented to speaker by Mr. Koruthu P. Varughese, veteran biomedical engineer and Past-Chair of IEEE Kerala Section. Mr. Prem Krishnan, Treasurer, COMSOC, Kerala Chapter, proposed the Vote of Thanks.

On the last leg of the tour, Prof. Fernando went to Bangalore, the IT capital of India. The Indian Institute of Science (IISC), the highest ranked institution in India is located in Bangalore. Prof. Srinivas of IISC warmly welcomed the speaker. The lecture on July 17th was on Radio over Fiber. About 70 people attended the lecture. The audience consisted of graduate students, professors and practicing engineers from nearby high tech companies, including a group of engineers from the highly reputed Tata Consultancy Service (TCS). There was lot of discussion after the lecture especially on various applications of ROF. Prof. Vinod Sharma, head of the ECE department attended the lecture and very impressed. His students who are working on femtocell systems found a unique possibility of combining ROF with femtocell systems which could perform better than the individual systems. The TCS engineers wanted to know how the ROF can be used for Smart Grid communications.

Overall, the DLT experience was wonderful. Each lecture was very satisfying to the speaker and the attendees, due to the positive response from the audience and fruitful discussion.

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train to infrastructure communications, rail ITS, methods to enhance cellular connectivity on trains, methods for improved traffic flow and traveller information, vehicular information fusion, disaster management, cellular networking technologies for ITS, methods for enabling security policies in automotives, and security solutions for C2X networks.

The workshop proceedings for Nets4Cars & Nets4Trains in the past have been published either by IEEE or by Springer. This year proceedings were published as the Volume 7266 of the prestigious LNCS (Lecture Notes in Computer Science) series by Springer; you may read it online at http://www.springerlink.com/content/978-3-642-29666-6.

The next year event will be held in Lille, France, and will be supported by the regional IEEE Chapter. We are expecting the 2013 event to be much larger in number and scope and inviting you all to be part of it.

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