The IEEE Ottawa Communications Society, Broadcast Technology Society, and Consumer Electronics Society (ComSoc / BTS / CES) Joint Chapter, The IEEE Ottawa Reliability Society Chapter (RS), , and Algonquin College Student Branch (ACSB), and IEEE Ottawa Section (OS) are inviting all interested IEEE members and other engineers, technologists, and students to a technical seminar on

Sensing and Identification in the Internet of Things Era

by

Professor Hossam Hassanein

Telecommunications Research Lab, Queen's University, Kingston, Ontario, Canada

DATE: Wednesday October 20, 2010.
TIME: Refreshments, Registration and Networking: 06:30 p.m.; Seminar: 07:00 p.m. – 08:00 p.m.
PLACE: Algonquin College, School of Advanced Technology, Building-T, Room T129 Nortel Optophotonics Lab, 1385 Woodroffe Ave., Ottawa, Ontario, Canada
PARKING: No fee after 5:00 p.m. at the Visitors' Parking Lots 8 & 9. Please respect restricted areas.
Admission: Free. Registration required. To ensure a seat, please register by e-mail contacting:
Wahab Almuhtadi almuhtadi@ieee.org .

Abstract

The concept of Internet of Things (IoT) is opening new horizons in systems intelligence, where physical objects (embedded with sensory, identification and networking capabilities) can interact with other objects through the global infrastructure of wireless/wired Internet. These systems can be monitored and controlled by filtering and processing collected data. Such intelligent design will naturally result is efficient and cost effective systems. Several architectures are being built to implement IoT from two different perspectives. The first, also known as sensor-oriented, is based on large-scale sensors deployment targeting the collection of accurate sensory data. Such huge sensory data are analyzed through cloud computing to deliver intelligent responses. The second architecture, also known as service-oriented, targets the association of unique identifiers with specific services. In such architecture, the service (or the appropriate response) is invoked upon receiving the unique identifier from a specific ID collecting node considering the context in which it was collected.

Unique identification technologies (dominated by RFID) and low power Nano-scale sensors are the main enablers of IoT realization through the uniqueness of ID, small size, sensing, storage and processing capabilities. However, energy management, mobility and scale remain main challenges toward ubiquitous adaptation of such technologies. As well, the realization of IoT necessitates overcoming several interrelated technical and social challenges in IoT systems architecture, modeling and design. This talk will highlight the main characteristics of IoT, the opportunities it creates and main challenges it faces. The talk will cover some of the activities at the Telecommunication Research lab at Queen's University towards the realization of IoT.

Speaker's Bio

Hossam Hassanein is with the School of Computing at Queen's University working in the areas of broadband, wireless and variable topology networks architecture, protocols, control and performance evaluation. Dr. Hassanein obtained his Ph.D. in Computing Science from the University of Alberta in 1990. He is the founder and director of the Telecommunication Research (TR) Lab http://www.cs.queensu.ca/~trl in the School of Computing at Queen's. Dr. Hassanein has more than 350 publications in reputable journals, conferences and workshops in the areas of computer networks and performance evaluation. He has delivered several plenary talks and tutorials at key international venues, including Unconventional Computing 2007, IEEE ICC 2008, IEEE CCNC 2009, IEEE GCC 2009, IEEE GIIS 2009, ASM MSWIM 2009 and IEEE Globecom 2009. Dr. Hassanein has organized and served on the program committee of numerous international conferences and workshops. He also serves on the editorial board of a number of International Journals. He is a senior member of the IEEE, and is currently chair of the IEEE Communication Society Technical Committee on Ad hoc and Sensor Networks (TC AHSN). Dr. Hassanein is the recipient of Communications and Information Technology Ontario (CITO) Champions of Innovation Research award in 2003. He received several best paper awards, including at IEEE Wireless Communications and Network (2007), IEEE Global Communication Conference (2007), IEEE International Symposium on Computers and Communications (2009), IEEE Local Computer Networks Conference (2009) and ACM Wireless Communication and Mobile Computing (2010). Dr. Hassanein is an IEEE Communications Society Distinguished Lecturer.