Enabling Technologies for Internet of Things

Module Outline

The 'Internet of Things' is concerned with the integration of physical and virtual objects in an information framework where the objects or 'things' become actively involved in business or information processes. IoT is based on Machine-to-Machine (M2M) communications between 'things' and the Internet, transforming them into intelligent devices that exchange real time information. IoT is a significant strategic technology trend and will enable a wide range of new applications and services to be developed. This module will introduce students to the underlying technologies which support IoT; describe key service scenarios; and provide an outlook on IoT business models. In particular the current and future (2-5 years) trends will be discussed in terms of 3GPP, IEEE and IETF technologies and applications, services and frameworks. Network layer specifics such as IPv6 addressing applicability and operation will be considered. Standardization efforts will be outlined and summarized.

Organisation

Guest Lecturer:	**Prof. Yevgeni Koucheryavy** Department of Communication Engineering Tampere University of Technology, Finland (http://www.cs.tut.fi/~yk/)
Dates:	**Mon 17th June** to **Fri 21st June**
Cost:	There is **no registration fee** for PhD students currently studying at an institution in Ireland.
Registration:	Complete the registration form and forward it to Dr. Philip Morrow <pj.morrow@ulster.ac.uk>.
Location:	The module is being hosted by the School of Computing and Information Engineering on the *Coleraine Campus* of the *University of Ulster* (http://www.ulster.ac.uk/). If you wish to spend some additional time exploring the north cost then further information on the local area can be found at <http://www.causewaycoastandglens.com>.
Further information:	For further information please contact Dr. Philip Morrow (pj.morrow@ulster.ac.uk)

Provisional module topics

- IoT challenges and opportunities; demand and trends in new services; wireless sensing paradigm;
- IoT principles and fundamentals; architectures; networking and communications;
- Management infrastructure; services and applications development;
- Machine-2-Machine and reference scenarios; M2M market and its analysis; emerging M2M opportunities for telematics;
- Integrated and PaaS M2M solutions; examples of deployed services; changes in conventional mobile operator role; case studies on mHealth;
- Wireless Technologies as enablers for IoT; general challenges for IoT wireless technologies; energy efficiency;
- IoT standardization activities; M2M in 3G, LTE, LTE-A; research challenges for efficient support of M2M traffic.
- Next steps in IoT – Internet of Nano Things

Acknowledgement