IoT sensors, devices and data analytics

Overview

This course introduces the basic concepts in the area of Internet of Things (IoT), the IoT stack and terminology, alike the design principles of Internet of Things systems and their device and Infrastructure-related architectures, technologies and protocol frameworks that aimed at enabling the formation of highly distributed and ubiquitous networks with seamlessly connected heterogeneous devices. Participants/students will learn to design and analyze such networks in order to support the development of smart services with given performance requirements in a variety of application domains. In particular, students will learn about the major architectures and paradigms for the Internet of Things and protocols at the different levels of the IoT stack and also will learn to map those concepts with the OSI model by means of access layer (including sensor, vehicular and cellular networks for machine-to-machine communication) and network layer (with particular emphasis on IPv6-based solutions), and analyze their performance. The course will also introduce technologies and protocols at the service and application layers, which enable the integration of embedded devices in web-based, distributed applications. Students will get the notions for service creation, customization, execution and deployment in distributed IoT heterogeneous environments.

Students will learn the Internet Protocol (IP) applicability for Smart Objects and the main challenges that IoT systems demands. Also the IEEE 802.15.4 recommendation, and the Constrained Application Protocol (CoAP) features, interaction model, packet format, messages and request/response sub-layers.

Student will be proposed to design and execute an IoT project based on the learned concepts and principles and expected to complete the project within additional off-time tutorials days.

Modules	A: IoT sensors, devices and data analytics : 08 August - 12 August 2016 **Number of participants for the course will be limited to fifty.**
You Should Attend If…	• Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories. • Students at all levels (B.Tech./M.Sc./M.Tech./Ph.D.) or Faculty from reputed academic institutions and technical institutions.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $300** **Non-students (i.e. academic, industry participants etc.): Rs. 1500/-.** **Students: Rs. 500/-** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis. The individual course participants will have to borne the charges for their food, transport separately.

The Faculty

Shivakumar Mathapathi is Capstone Lecture – MSIS-Smart City project- Leavey School of Business- Santa Clara University, CA, USA. Guest Lecture - IoT course - School of Engineering - Santa Clara University, CA USA. Lead Instructor – IoT course - California Polytechnic State University, CA, USA. Team Lead - Global City team challenges hosted by National Institute of Standards &Testing.CTO – Dew Mobility, California, USA

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