Guest Editorial

Special Focus Issue on "Sensor Networks"

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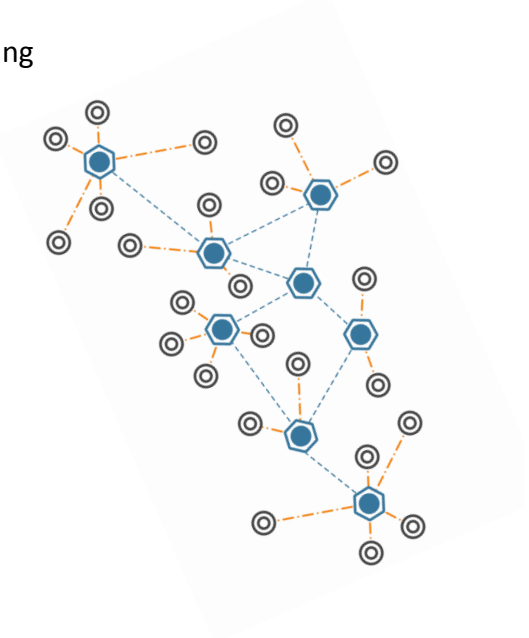
Smart environments represent the next evolutionary development step in industrial automation, automated and smart homes, video surveillance, traffic monitoring, medical device monitoring, monitoring of weather conditions, air traffic control, robot control – and in many other important fields of human activities. Sensory data comes from multiple networks of interconnected sensors, present in complex distributed locations.

A “sensor network” is a group of specialized transducers with their communications infrastructure (wired and/or wireless) intended to monitor record or control the conditions at diverse locations. Commonly monitored parameters are temperature, pressure, humidity, light intensity, wind direction and speed, illumination levels, vibration frequency and level, sound intensity, power-line quality, chemical concentrations, pollutant levels and in some cases vital body functions.

A sensor network consists of multiple measurement units called sensor nodes. Every sensor node can be equipped with different type of transducers, one smart controller (based on microcomputer, FPGA, microcontroller etc.), one transceiver and power source. The transducer generates electrical signals based on sensed physical effects and phenomena. The smart controller processes and stores the sensor output and using the transceiver, receives commands from a central computer and transmits data to that computer. Each sensor node is powered from the electric utility (in many cases an energy harvesting system) or from a battery.

This iJOE special focus issue is dedicated to this kind of “Sensor Networks” and will cover interesting researches in the field of:

- Radio Frequency Identification and Complex Event Processing
- Attacks Detection in Wireless Sensor Networks
- Monitoring Systems and Case Studies
- Signal sources in special Monitoring systems
- Distributed multi-sensor systems and Multirate sampling
- Inertial Navigation System and Global Positioning Systems
- Special clustering algorithms
- Kalman filter prediction method
- Localization Algorithms in Wireless Sensor Networks etc.



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