

Special Issue on Wireless Sensor Networks: Evolution towards Smart Spaces

Call for Papers

Wireless sensor networks have been subject to a great deal of research since the turn of the century, driven by their potential to embed into the physical environment and observe and act on certain phenomena. Distinct characteristics arising from strict energy constraints, large numbers of nodes, and highly asymmetric data flows pose a number of technical challenges for large-scale and long-term deployments.

With their autonomous and ubiquitous nature, the use of wireless sensor networks is emerging in numerous domains. Lately their adoption is often in close relation with sustainable development and efficient use of natural resources. Some of the application areas where sensor networks represent a key infrastructure for the development of new services and applications include smart houses, smart factories, smart transportation, smart public spaces, and smart cities. Successful realization of real-world wireless-sensor-network-based infrastructure is on the one hand reliant on a detailed understanding of specific application requirements and on the other hand constrained by the desire for small, low-cost devices with decent communications and computation capabilities. To engender better performance whilst adhering to the constraints, further research and development is required on protocol and algorithm design to achieve autonomous, self-organizing configurations of heterogeneous sensor devices.

We invite academic and industry experts to contribute original papers or review articles on the latest research and development in the field of wireless sensor networks. We encourage submissions on the issues surrounding practical realization of large-scale sensor networks, but theoretical contributions are also welcome. Potential topics include, but are not limited to:

- Hardware developments and platforms
- Physical layer design
- MAC layer protocols
- Energy management and scavenging
- Synchronization techniques and real-time response
- Propagation models and measurements
- Localization and positioning
- Mobility management and target tracking

- Routing, data aggregation, and fusion
- Security
- Fault tolerance and robustness
- Quality of service provisioning
- Topology control and management
- Data Management
- Bio-inspired protocols and algorithms technologies
- Internetworking

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