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Special Session:

Advances and Challenges in Network and Communication

Dr. Monji Mohamed Zaidi (CoE – KKU - KSA, Electronic and Microelectronic Lab - FSM - Tunisia),
Monji Zaidi <amzaydi@kku.edu.sa>

Dr. Imen Rachid Bouazzi (CoE - KKU - KSA, Electronic and Microelectronic Lab - FSM - Tunisia),
amzaydi@kku.edu.sa

The advancement of internet technology has led to the development of several new applications, as it enables communication across various network technologies. Mobile/static sensor networks are a very promising field for research and development in network and communication. A wireless / wired sensor network is created by gathering portable devices such as laptops, smartphones, sensors, etc., which establish communication with each other through a communication technology. These devices operate together to provide the necessary network functions without relying on a fixed central organization.

Description

Research on sensor communication is being conducted worldwide. It encompasses gadgets equipped with sensors that are capable of perceiving and analyzing the surrounding environment. These sensors play a crucial role in identifying objects in the tangible realm. Several technologies that can be used for this purpose include RFID, Wi-Fi, ZigBee, Bluetooth, and LoRa. The significant issues in such networks are:

- Determining the exact positions of each sensor devices. This enables them to precisely determine the whereabouts of objects or events by analyzing the signals they emit and receive.
- Conserving energy is a highly crucial matter in wireless sensor networks, as it directly impacts the whole network's lifespan.
- Routing protocols play a crucial role in the domains of environment-oriented monitoring and traffic monitoring.
- Regulating extent of reporting and movement.
- Communications in line-of-sight (LOS) and non-line-of-sight (NLOS) scenarios.
- Minimal cost of implementation.
- Guaranteed Service Quality.
- Partitioning and prototyping of hardware and software components.

The objective of this proposed special session is to convene scholars and professionals from both academic and industrial sectors to deliberate on the most recent breakthroughs, issues, and prospects in the domain of network and communication.

The purpose of this session is also to offer a forum for researchers, engineers, and practitioners to engage in discussions on the latest advancements in network technology. It aims to identify the existing alternatives and opportunities in this field and to explore new avenues for study.

The proposed session invites submissions on various subjects, including but not limited to:

- Architectures and protocols for integrated sensing and communication.
- Designs and technologies for low-power and energy-efficient systems.
- Security and privacy in integrated sensing and communication systems.
- Innovative applications and use cases for sensing and communication.
- Real-world deployments and case studies of integrated sensing and communication systems.
- Emerging technologies and standards for integrated sensing and communication.