Wireless Communications and Mobile Computing

Special Issue on

Support of Smart City Applications by the Internet of Things

CALL FOR PAPERS

The Internet of Things (IoT) provides connectivity between objects and between objects and people and access to remote data. IoT will be the support for a large number of vertical themes (applications). Some of those applications are key components in the roll-out of smart cities. The support of the vertical themes requires an IoT infrastructure, which still presents challenges in its enabling technologies, software and computing platforms, security, privacy, and advanced systems for data analytics.

In the context of smart cities, relevant applications, potentially supported by IoT, are smart energy grids, smart water management, smart mobility, and smart buildings.

Smart energy grids originated with the introduction of Information and Communication Technologies (ICT) into the electrical energy infrastructure. In smart cities, it is of particular interest, for example, to investigate how IoT can impact the advanced metering infrastructure and the monitoring and reliability of the distribution grid, including the public lighting. ICT based water management solutions start appearing in the market, and due to the foreseen need of monitoring and control actions to avoid water shortages, these systems will increasingly appear in the future. IoT has the potential to enable new solutions for the new water management systems and to give a strong push to their deployment.

IoT can originate applications that will impact the mobility of traffic in the city. For example, solutions to better control traffic congestion, new mobility services, and use and management of the infrastructure are examples of areas where the use of IoT can have a significant impact. IoT can also advance a new wave of smart buildings. This can be done, for example, through the increase of the sustainability and energy efficiency in the buildings, comfort applications for the occupants, and interactivity of the occupants with the building.

The special issue is directed to innovative vertical oriented applications of IoT, which can contribute to the roll-out of smart cities, and to advances in the respective IoT infrastructure. Applications in the areas of smart grid, smart water management, smart mobility, and smart buildings are relevant areas of interest to smart cities, but other relevant application areas can also be included. The articles should identify and describe innovative IoT applications for smart cities and should also include the advances in the IoT infrastructure that are required to support those applications.

Potential topics include but are not limited to the following:

- IoT enabling technologies for smart cities
  - Communication technologies
  - Software for IoT
  - Mobile computing
  - Real-time computing
  - Fog and cloud computing
- IoT platforms for smart cities
  - Architecture of IoT platforms
  - Open source middleware
  - Interoperability
  - Standards
- IoT security and privacy for smart cities
  - Trust and reputation management
  - Attack prevention and detection
  - Privacy enhancing/guaranteeing technologies
- IoT based back end data analytics for smart cities
  - Privacy preserving data mining
  - Application driven data fusion
- IoT based applications for smart cities
  - Applications for smart energy grids, smart water management, smart mobility, and smart buildings
  - Other applications for smart cities
- Experiences with IoT test-beds and large scale deployments in smart cities

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Lead Guest Editor
José N. de Souza, Federal University of Ceará, Fortaleza, Brazil
neuman@ufc.br

Guest Editors
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augusto.casaca@inesc-id.pt

Peter Langendoerfer, IHP, Frankfurt, Germany
langendoerfer@ihp-microelectronics.com

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