

CALL FOR PAPERS **IEEE Internet of Things Journal Special Issue on** **Internet of Things for Smart Cities**

The cities in the world are in the process of quick transition towards more smart, automatic, responsive, and flexible societies. The Internet of Things (IoT) are expected to improve the intelligence of the cities, promote the interaction between the human and the environment, enhance the reliability, resilience, operational efficiency, and energy efficiency, as well as reduce costs and resource consumption. Gartner Inc. estimates that 1.1 billion connected things will be used by smart cities in 2015, rising to 9.7 billion by 2020.

The development, adoption and application of IoT technology into smart cities is of huge interest. IoT along with smart systems use advanced sensing, monitoring, processing technology, and high-speed communications and networking, which enable efficient, intelligent, and economical lifestyle as well as build sustainable cities. Local authorities have partnered with startups, technology companies, research institutions, and universities to test and deploy IoT across all dimensions of urban life such as smart grid, smart buildings, water management, connected healthcare and patient monitoring, environment/climate monitoring, connected cars, smart transportation, and smart parking.

IoT architectures for smart cities require seamless integration of new applications that typically require installation of relevant devices, sensors and software. The IoT architecture must be able to handle millions of devices; thousands of servers; transmission and processing of Big Data, etc. To address these challenges, entirely new IoT architectures and technologies are required to explore and exploit the latent intelligence being created in the network big data, promote better engagement and participation of citizens, and guarantee high quality of service and low maintenance.

Extensive research on IoT in smart cities is taking place on environmental sensors, cloud computing technology and big data analysis. It facilitates a multidisciplinary approach for developing integrated solutions and creating novel applications to build a sustainable smart society. There is an emerging gap between business centric IoT enterprise systems and citizen provided infrastructure. To fill this gap, a diversity of research issues remain open and need in-depth investigations. For example: How can the crowd-sourced infrastructure from citizens evolve into a useful IoT system and integrate into the IoT enterprise systems? How to encourage citizens to contribute to an IoT system as a whole by sharing infrastructure, resources and data? How can an IoT be better used for people to address the social and economic needs?

There have been some research works published in the literature on IoT for smart cities. However, there is a lack of a unified place to systematically address the challenges arising from the integration and convergence of IoT into smart cities in order to provide a more cost-effective and efficient smart cities. The collection of the papers in this SI will create a forum for researchers, developers and practitioners from both academia and industry to publish the key results and to disseminate the state-of-the-art concepts and techniques on IoT for smart cities.

Topics of interests include (but are not limited to) the following categories:

- Layer architecture design of IoT for the smart cities
- Information and communication techniques of IoT for smart cities
- Energy management (including energy harvesting and renewable energy) for IoT in smart cities
- Information security technology and privacy in IoT for smart cities
- IoT infrastructure and applications for smart cities
- Integration of IoT and smart grid into smart cities
- Embedded systems, computing and networking technology in IoT for the smart cities
- RFID, WSNs, cloud computing, fuzzy identification, big data, smart technology in IoT for the smart cities
- Data collection, fusion and processing technology and online monitoring system design in smart cities
- Artificial intelligence theory, advanced human to machine interaction, machine to machine

- technologies in smart cities
- Intelligent control, signal processing technology in IoT for the smart cities
- Sensor technology including information transmitting, receiving, processing, and analysing technology in IoT for the smart cities
- Reliability, self-organization, self-healing, hybrid communication network in IoT for smart cities.
- Citizen-centric IoT for smart cities
- IoT infrastructure and applications for smart cities
- IoT testbed and experiment experiences in smart cities

Important Dates

Submissions Deadline: **January 31, 2017**

Final Manuscript Due: May 31, 2017

Acceptance Notification: April 30, 2017

Publication Date: November 2017

Submission

The special issue seeks submission of papers that present novel original results and findings on Internet of Things in Smart cities. Solicited original submissions must not be currently under consideration for publication in other venues. Author guidelines and submission information can be found at <http://iot.ieee.org/journal>. All manuscripts should be submitted through Manuscript Central: <http://mc.manuscriptcentral.com/iot>.

Guest Editors

Jia Hu, University of Exeter, UK

E-mail: j.hu@exeter.ac.uk

Kun Yang, University of Essex, UK

E-mail: kunyang@essex.ac.uk

Sergio Toral Marin, Catedrático de Universidad, Spain

E-mail: storal@us.es

Hamid Sharif, Univ of Nebraska – Lincoln, USA

E-mail: hsharif@unl.edu