

Special Issue on
**Integration of 5G Networks and Internet
of Things for Future Smart City**

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The paradigm of IoT has attracted special interest worldwide due to the rapid popularity of smart city applications. More and more gadgets in daily life will be equipped with digital communication transceivers with an ambition of connecting and understanding objects. The ultimate goal of smart city IoT would involve making better use of public resources, improving the quality of services to citizens, and reducing the operational costs.

The applications of IoT proliferate in all sorts of devices with smart city style demands. These devices from different geographic sectors will cover every corner of society and thus need city-wide networks to deliver and retrieve data. Envisioning this trend, 5G has extended its mission to communicate things more than just people. 5G IoT contributes to the prosperity of smart city ecosystem by allowing companies and organizations, big or small, to set up IoT services without the need to implement their own network facilities, in contrast to other solutions such as LoRa and SigFox.

This trend, in turn, is going to impose unprecedented challenges on the on-building 5G mobile networks. The most prominent one is the massive communications among millions of connected sensors. With diversified requirements, the priorities of different applications have to be managed to ensure some critical performance metrics, and advanced resource allocation scheme becomes a prerequisite for efficient service provision. The shared network infrastructure and open environment also significantly raise the stake on the security of communications amongst IoT devices. Though network slicing is proposed by 3GPP, it is now still quite conceptual with few practical solutions, resulting in an urgent need of innovations in network architecture, protocols, algorithms, etc.

To overcome the challenges mentioned above, we propose this feature topic to help both academic and industrial research communities understand the recent research progress and emerging technologies of 5G IoT for smart city.

Potential topics include but are not limited to the following:

- ▶ Novel 5G architecture for future smart city IoT
- ▶ Interoperation between 5G IoT and other IoT technologies for smart cities
- ▶ 5G network slicing for virtual smart city IoT networks
- ▶ Business-model-driven network services for smart city IoT
- ▶ High-reliability-low-latency tactile communications for 5G IoT
- ▶ Massive machine-type communication for smart cities
- ▶ Adaptive cloud computing and edge computing for smart city IoT
- ▶ Novel machine learning algorithms for future 5G IoT
- ▶ Secure architecture and protocol design for future 5G IoT

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