Wireless Communications and Mobile Computing

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Special Issue on
Vehicle-to-Everything (V2X) Communications in Future Smart Cities

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Traditionally, cities have always measured their growth in terms of investments in hard infrastructure. However, future smart cities will focus on the use of digital technologies to improve performance and wellbeing of humans, reduce costs, and efficiently utilize available resources, hence reducing the carbon footprint and engaging more effectively and actively with the inhabitants. Smart cities are expected to play an enormous role in transforming different areas of human life such as security, energy consumption, transportation, health, and education.

One important aspect that is expected to dominate life in future smart cities is the use of vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication systems, collectively known as vehicle-to-everything (V2X) systems. These systems are expected to increase road and passenger safety, decrease traffic congestion, decrease the negative impact on the environment, and lower capital expenditure, all of which are goals of future smart cities. However, V2X systems face many challenges, including having heterogeneous nodes with various speeds and intermittent connections, nonstationarity channels that are characterized by large Doppler spreads, and the need for ultralow latency as well as high-throughput links for delivering live video streams and the like to road side units (RSUs).

This special issue aims to bring together researchers, as well as practitioners, to discuss various enabling communications and networking technologies for the wide use of V2X communications in future smart cities. Original research articles discussing interdisciplinary work, as well as review articles, are especially welcome.

Potential topics include but are not limited to the following:

▸ Novel wireless and mobile technologies for vehicular communications

▸ Channel modeling for V2X systems

▸ Edge, fog, and cloud computing in support of V2X systems

▸ Safety, security, and privacy for V2X communications

▸ Data analytics based on V2X systems

▸ Applications, pilot deployments, and testbeds for V2X communications and their use cases in future smart cities

▸ Policy and regulatory issues for V2X communications in smart cities

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