Zaigham Mahmood (Ed.)

Connected Vehicles in the Internet of Things

Concepts, Technologies and Frameworks for the IoV

- Discusses the latest research on wireless connectivity, machine learning, sensor technology, and autonomous operations in the IoV vision
- Presents technical solutions that address the key challenges and limitations of VANETs
- Serves as a comprehensive reference resource on IoV and VANETs for students, researchers, and practitioners

This book presents an overview of the latest smart transportation systems, IoV connectivity frameworks, issues of security and safety in VANETs, future developments in the IoV, technical solutions to address key challenges, and other related topics. A connected vehicle is a vehicle equipped with Internet access and wireless LAN, which allows the sharing of data through various devices, inside as well as outside the vehicle. The ad-hoc network of such vehicles, often referred to as VANET or the Internet of vehicles (IoV), is an application of IoT technology, and may be regarded as an integration of three types of networks: inter-vehicle, intra-vehicle, and vehicular mobile networks. VANET involves several varieties of vehicle connectivity mechanisms, including vehicle-to-infrastructure (V2I), vehicle-to-vehicle (V2V), vehicle-to-cloud (V2C), and vehicle-to-everything (V2X). According to one survey, it is expected that there will be approximately 380 million connected cars on the roads by 2020. IoV is an important aspect of the new vision for smart transportation. The book is divided into three parts: examining the evolution of IoV (basic concepts, principles, technologies, and architectures), connectivity of vehicles in the IoT (protocols, frameworks, and methodologies), connected vehicle environments and advanced topics in VANETs (security and safety issues, autonomous operations, machine learning, sensor technology, and AI).

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