Special Issue

Cognitive Radio for Wireless Sensor Networks

Message from the Guest Editors

The integration of 5G networks and wireless sensor networks (WSNs) plays a very important role in the new era of the Internet of Things (IoT). It is used in many applications with a different quality of service (QoS) requirements, for example, military surveillance, vehicle tracking, health monitoring, industry monitoring, etc. In particular, it is a key tool for promoting the development of industry 4.0. Usually, resource-constrained sensor nodes have a limited processing and communication power, which makes designing WSNs challenging. Conventional WSNs use a fixed spectrum allocation policy, and their performance is limited. For the efficient utilization of the spectrum, cognitive radio sensor networks (CRSNs) are proposed, which exploit the synergy between WSNs and cognitive radio (CR) technology. CR eliminates the interference and increases the communication quality with adaptability to the channel conditions. It can also overcome the problems caused by the dense deployment and bursty communication nature of WSNs. At the same time, some new challenges appear, for example, the tradeoff between the QoS and energy conservation.

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