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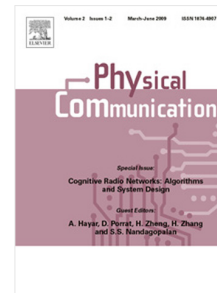
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A Novel Sensing and Primary User Protection Algorithm for Cognitive Radio Network using IoT

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Abstract

Internet of things (IoT) is a technology which facilitates passive devices to participate in active communication. In the presented work the radio frequency identification (RFID) system is used to access information from passive primary receiver (PURx). This inspires to develop a novel sensing algorithm along with PURx protection from harmful transmissions of cognitive radio (CR) nodes in CR network. The novelty in the sensing and protection lies in the approach of accessing information from primary users. Here a CR node can detect occupancy of primary channel from both, primary transmitter (PUTx) end as well as from PURx end on the basis of relative distance. For protection of PURx a novel power control algorithm is proposed and implemented. The results indicate less energy is needed to run the network along with a notable improvement in average throughput and reduction in delay for increasing amount of CR traffic.

Keywords: IoT, RFID, cognitive radio, primary communication, power control, primary transmitter, primary receiver.

1. Introduction

The Continuous enhancement in the radio technology causes scarcity of spectrum in industrial, scientific and medical (ISM) bands. For achieving high data rate with current static spectrum allocation schemes is difficult. This motivates to shift focus towards dynamic spectrum allocation schemes.

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