

Using Software Defined Radio and Cognitive Radio in Smart Home Environment Networks

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Abstract

Nowadays there is a big need for intelligent smart home environments to reach a cost effective energy management and in the same time to provide a high level of comfort and security for smart home inhabitants. In smart home environments there are many different wireless networks working on different air-interfaces, protocols and standards and the lack of compatibility between them is an issue in present communication systems. The solution which seems to be the best one is the use of Software Defined Radios (SDR) and Cognitive Radios (CR). We analyze in this paper the opportunities for using the SDR technology to make Cognitive Radios, to form Cognitive Radio Networks and deploy them in smart home wireless networks. Starting from predefined tasks a smart home should fulfill, we made a critical analysis of SDR technology's current state of the art and finalized this analysis with conclusions regarding the "best" solutions to implement this technology in smart home networks.