

COGNITIVE RADIO BASED OPTIMAL SENSING FOR RESOURCE ALLOCATION IN SMART CITIES/VILLAGES

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ABSTRACT

Cognitive radio is the cutting edge wireless technology that is used to solve the spectrum saturation problem. In cognitive radio, secondary users use primary user's spectrum (licensed band) during primary user's absence. Cognitive radio provides more flexibility in terms of spectrum utilization but the spectrum sensing efficiency need to be improved to make sure that the primary users are not interrupted while they are active. This paper presents the test-bed development of a cognitive radio network using Android based smart phone for optimal sensing and data transmission. An energy detector based sensing method is proposed and used here since the energy detector does not require the information of the primary user. The cognitive radio features has been implemented in Android phone by using the Eclipse Java programming. The test-bed experimental set up was done Android based smart phone. Two spectrums, WIFI and Bluetooth were used to verify the sensing and detection efficiency. Results show that the proposed sensing and detection scheme efficiently is about 83%.

Keywords: Cognitive Radio Network, Spectrum Sensing and detection, Bluetooth, Wi-Fi, and Cognitive Radio Test Bed