Abstract

Efficiency of the wireless communication depends mainly on how the Radio Frequency (RF) spectrum is allocated to the end users. Inadequacy of the RF spectrum resource transpires due to fixed frequency allocation by the regulatory bodies in each region is one of the major problems in allocating it to specific applications. Moreover the allocated RF spectrum is not fully utilized efficiently. Cognitive Radio (CR) is the promising technology used for the detection of the spectrum holes or white spaces, and to reallocate this idle spectrum to Unlicensed Users or Secondary Users (SU) or CR user without causing harmful interference to Licensed Users or Primary Users (PU). In this paper, we present a novel approach for high precession spectrum sensing for CR using Hidden Markov Model (HMM). Current research assumes the presence of a Markov Chain for sub-band utilization by PU, but this consideration has not yet been validated, here we validate the existence of a Markov Chain for sub-band utilization and formulating the HMM for spectrum sensing by Prediction Accuracy (PA). The throughput and accuracy of the proposed method is substantiated using extensive simulations.
References


Index Terms

Computer Science Wireless Communication

Keywords

Cognitive Radio  Hidden Markov Model (HMM)  Spectrum Sensing  Markov chain

Sub-band utilization

Prediction Accuracy