

Cognitive Positioning System

Researchers at the University of South Florida have developed an adaptive cognitive positioning system for radio communications in both indoor and outdoor settings.

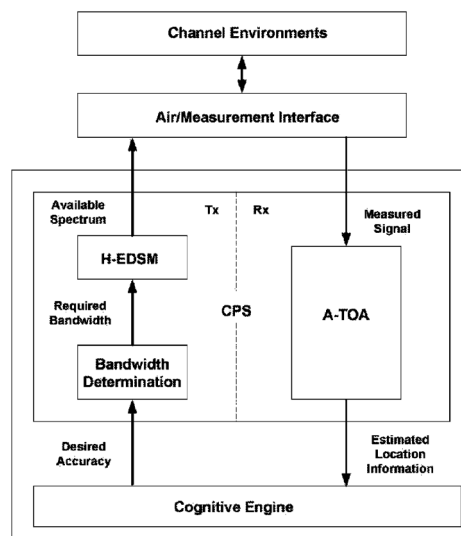
Cognitive radio (CR) is an optimized wireless communication technique in which a transceiver intelligently detects which communication channels are in use and which are not. A fundamental characteristic of CR is location awareness of the devices involved, and applications of location awareness can require different levels of positioning accuracy. For instance, indoor positioning systems demand higher precision accuracy compared to outdoor positioning systems. In order to support different location awareness based applications using CRs, an adaptive positioning system that can achieve accuracy adaptation in both indoor and outdoor environments is required.

To address this challenge, USF inventors have developed a cognitive positioning system (CPS) that allows radio communication devices to adjust the positioning accuracy adaptively in both indoor and outdoor environments. This invention can support different indoor and outdoor wireless positioning applications requiring arbitrary positioning accuracy. Moreover, it enables changes to be made to the accuracy of positioning systems in real-time, and it allows optimization to the radio communication complexity. The CPS may be used for personal, commercial, government agency, and military applications of cognitive radio communications. Specific applications may be location tracking of children by parents, tracking animals in wildlife conservation efforts, and keeping track of industrial equipment at work sites.

ADVANTAGES:

- Adaptively adjusts positioning accuracy in real-time
- Functional in both indoor and outdoor environments
- Optimizes radio frequency complexity

Accurate Position Detection Using Cognitive Radio Technology



Block Diagram of the Cognitive Positioning System