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Project Work Master
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Implementation and Evaluation of a Markov Model Based Predictive Wireless Medium Access

Abstract

Cognitive radios are radio systems which can sense and detect temporarily free available channels for data transmission to improve the spectral efficiency and their coexistence behavior. However, there are considerable challenges in order to generate an accurate model for predicting an appropriate channel for transmission. E.g. an appropriate channel might turn to an inappropriate one during the transmission process causing harmful collision and data loss. In this paper, we present a Markov model based predictive wireless medium access. This is a solution to sense and detect free channels for data transmission which is capable to detect changes in the state of the current channel from free to busy and to recommend another free channel. Based on the investigation, a real-time test-bed is implemented using a CC2500 TRX and MSP430 microcontroller based platform.

Examiner: Prof. Dr.-Ing. Uwe Meier