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Design and Test of a Software Defined RFID Tag and Reader

ABSTRACT - Masterthesis

Radio Frequency Identification is a powerful, emerging technology, enabling total business visibility. As it is time consuming and of high cost to test and implement a new system in hardware directly, Software Defined Radio (SDR) is a convenient and flexible experimenting tool to demonstrate the RFID system. In this project, a software defined RFID Tag and Reader for testing RFID communication has been developed. GNU Radio, an open source software under Linux is used to replicate the modulation and demodulation scheme. A High Frequency (HF) band (ISO/IEC 14443 standard) and a passive RFID tag were used to create a complete system. A host computer along with the help of Universal Software Radio Peripheral (USRP) was used to design a complete RFID system using GNU Radio and output was successfully verified on a digital oscilloscope.

Key words- RFID, Software Defined Radio, GNU Radio, High Frequency, Passive Tag, USRP