IMPLEMENTATION OF SDR BASED RECEIVER USING FPGA AND RF TRANCEIVER MODULE

**Abstract:**

This report presents the development of a Software-defined Radio (SDR) system using a Field Programmable Gate Array (FPGA) alongside a specialized RF Transceiver module. The FPGA boosts the processing capabilities, while the RF Board handles signal pre-processing and filtering. Data transmission from the RF Board to the FPGA Board can be achieved through a Serial Peripheral Interface (SPI), allowing for high-speed, full-duplex mode of communication. The SDR system's adaptability lies in the reprogramming of these components for various functions such as modulation and filtering and relying on software tuning. The significance of the project is to use the versatility of FPGA based SDR systems in telecommunications and amateur radio applications. This approach signifies a shift towards more flexible and reconfigurable radio systems, offering enhanced functionality and performance in modern communication environments.

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