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Full Baseband to RF Reader Design for a Passive RFID Tag with Multiple Environmental Sensors

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ABSTRACT

Radio-frequency identification (RFID) readers are being widely used for transmitting and receiving information from chips or tags. The RF reader in this project will be used for communicating with previously designed self-powered sensors for humidity and temperature. The design has two main components, the analog frontend and digital baseband. Transceiver is operating at 1.2 GHz. For digital baseband, a field-programmable gate array (FPGA) is used for interpreting data coming from RF frontend circuit. The FPGA decodes, processes, and then stores the data. The data rate of reader is 333 kbps.

KEYWORDS

RFID, RFID Reader, RF Frontend, Transceiver, RF Reader, FPGA