ABSTRACT

In the world of modern communication systems, several newer techniques have come around to replace the conventional techniques of high speed data communication. As wireless communication protocols developed and user pressure started to increase, it became an absolute necessity to develop multi-user supporting techniques like OTA (over-the-air) receiver for data security and reliability of data transmission. In this work, an effort has been made to simulate and design a low power consuming custom hardware for OTA based on Field Programmable Gate Array (FPGA). The OTA receivers were designed in the simulation environment targeting Xilinx Spartan 6 and FPGA devices. The design was also implemented on the mentioned FPGA hardware and real experiments were carried out for the verification of the design. Our design proves that a very low power system can be designed using an FPGA device which can provide much higher data rate and very less power as compared to the conventional systems and it can also be reconfigured according to the requirement.