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Design and Field Programmable Gate Array Implementation of Radio Frequency Identification for Boosting up Tag Data Processing

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Abstract : Radio Frequency Identification systems are used for automated identification in various applications such as automobiles, health care and security. It is also called as the automated data collection technology. RFID readers are placed in any area to scan large number of tags to cover a wide distance. The placement of the RFID elements may result in several types of collisions. A major challenge in RFID system is collision avoidance. In the previous works the collision was avoided by using algorithms such as ALOHA and tree algorithm. This work proposes collision reduction and increased throughput through reading enhancement method with tree algorithm. The reading enhancement is done by improving interrogation procedure and increasing the data handling capacity of RFID reader with parallel processing. The work is simulated using Xilinx ISE 14.5 verilog language. By implementing this in the RFID system, we can able to achieve high throughput and avoid collision in the reader at a same instant of time. The overall system efficiency will be increased by implementing this.

Keywords : antenna, anti-collision protocols, data management system, reader, reading enhancement, tag
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