An Overlap Aware Technique for Redundant Reader Elimination

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Abstract

Due to the recent technical advances, the Radio Frequency Identification (RFID) systems are deployed in large-scale for a variety of applications during the last decade. The collisions between readers and tags are important problems in RFID systems. There are many techniques have been proposed in literature to solve the collision problems in RFID systems. The redundant reader problem in RFID systems was proposed in recent year. Eliminating redundant readers can decrease the number of probability of reader collision. Additionally, it reduces the power consumption. In this paper, we proposed a method based on overlap-aware technique for eliminating redundant readers. In order to accurately evaluate the performance of the proposed method, it was performed in a variety of scenarios. The experiment results show that the proposed method eliminates the most number of redundant readers as compared with several well known methods, such as the RRE, the LEO, the hybrid algorithm (LEO+RRE) and the DRRE.

Keyword：Redundant Reader Elimination, RFID, Reader Coverage, Collision Problem