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基于标签识别码分组的连续识别防碰撞算法研究

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An Uninterrupted Anti-collision Algorithm with ID-based Grouping for RFID System

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摘要 标签碰撞增加了射频识别(RFID)系统的时间开销和无源标签的能量消耗，降低了识别速率。该文提出了一种适用于标签识别码连续的防碰撞算法——UIG算法，该算法首先根据公司编码和产品编码将所有标签分组，再由产品序列号的碰撞信息生成每组的两个初始标签识别码。最后，通过对初始标签识别码分别连续减1和加1识别出所有标签。性能分析和仿真结果显示，该算法在时间复杂度和通信复杂度上都有很大改善，吞吐率得到了大大的提高。

关键词： 射频识别技术 防碰撞算法 时间复杂度 通信复杂度

Abstract： Tag collision in RFID system increases the time overhead and energy consumption of passive tags, reduces the recognition rate. An Uninterrupted anti-collision algorithm with ID-based Grouping (UIG) is proposed. Firstly, it separates tags into different groups resort to the company code and product code. Then, the algorithm generates two initial tag identification codes of each group by the collision information of products' serial number. Finally, it identifies all tags via add or decrease 1 of the initial tags. Analysis of performance and the results of simulation show that the proposed algorithm improves the time complexity and communication complexity, the throughput is also greatly improved.

Keywords： Radio Frequency IDentification (RFID) technique Anti-collision algorithm Time complexity Communication complexity

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