

基于编码的跳跃式树型防碰撞算法

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摘要: 针对射频识别系统中, 基于树的防碰撞算法因存在较多空闲时隙和无效碰撞时隙导致系统效率低的问题, 提出了基于编码的跳跃式(CJT)树型防碰撞算法.通过对标签 ID 信息按指定规则编码, 明确系统中存在的标签前缀, 优化查询命令; 当发生碰撞时, 判断 R 序列是否相同, 检测碰撞的有效性, 仅将有效碰撞的 ID 码入栈, 跳过无效碰撞.实验结果表明, 新算法避免了空闲时隙, 减少了碰撞时隙, 从而降低标签识别时延, 系统吞吐率提高达 0.625.
关键词: 射频识别; 防碰撞; 编码; 跳跃; 碰撞有效性

Anti-Collision Algorithm Based on Coding

and Jumping Tree Structure

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Abstract: To resolve the problem of the tree-based anti-collision algorithm which produces many idle time slots and invalid collision time slots in the RFID system, an anti-collision algorithm based on Coding and Jumping Tree(CJT) structure is proposed. By coding tag ID information and determining tag prefix in the system, the inquiry command was optimized; when the collision happens, judging whether the R sequence was the same, detecting the validity of collision, put the ID codes for effective collision into the stack and skipping invalid collision. Simulation results show that the new algorithm avoids idle time slots, reduce the number of collision time slots, then can lower the delay of tag identification and improve the throughput of the system up to 0.625.

Key words: RFID; anti-collision; coding; jumping; collision validity

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