研究、探讨

帧时隙ALOHA的快速防冲突算法

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摘要　 标签防冲突算法是影响RFID系统效率的关键。目前基于帧时隙Aloha算法的改进算法主要是调整识别过程中的帧长，但都存在着帧长计算不准确、算法复杂和识别时间长的缺点。提出了一种新的防冲突算法，该算法将一个识别周期分为标签检测和数据读取两个步骤，充分利用标签检测的冲突信息，提高数据读取的效率，减少了识别的时间，提高了识别率。理论分析和仿真结果均表明，该算法可以更加高效快速地识别标签，特别适用于标签数目较多的场合。

关键词　 射频识别（RFID）　 防冲突算法　 Aloha算法　 帧时隙

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Fast anti-collision algorithm based on framed slotted Aloha

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Abstract

 Tags anti-collision algorithm is the key to the efficiency of radio frequency identification system.At present the main improvement on framed slotted Aloha algorithm is to adjust the frame size in the process of identification，but there are such disadvantages as inaccurate calculating frame size，complex algorithm and long identification time.This paper proposes a new anti-collision algorithm that divides the identification period into two steps，which are collision detection and data reading.It makes full use of collision information of the tag detection to increase the efficiency of data reading，reduce the identification time and improve the identification rate.Theoretical analysis and simulations show that the algorithm can identify the tags more efficiently and rapidly，especially in the case of multi-target recognition.

Key words　 radio frequency identification　 anti-collision algorithm　 Aloha algorithm　 frame slotted

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