

## 一种改进的动态帧时隙 ALOHA 算法

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**摘要:** 在射频系统应用中, 多标签同时存在的环境下, 阅读器快速准确地鉴别冲突并识别标签、获取信息, 成为提高系统性能的重要途径. 为了解决标签识别过程中的冲突问题, 通过对现有的防冲突算法进行分析, 在动态帧时隙 ALOHA 算法的基础上, 借助扩展的生日悖论概率理论, 提出了一种改进算法. 通过算法仿真, 验证了算法可以有效地提高标签识别的精确度, 减少了识别过程中的时间, 从而提升了射频系统信道的使用效率, 提高了系统性能.

**关键词:** 射频识别; 动态帧; 时隙; ALOHA 算法; 生日悖论

## An Improved Dynamic Frame Slotted ALOHA Algorithm

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**Abstract:** In the application of radio frequency system, readers can quickly and accurately identify conflicts and identify tags and get information, which is an important way to improve system performance in the presence of multiple tags. In order to solve the conflict problem in the process of tag identification, an improved algorithm is proposed based on the dynamic frame time slot ALOHA algorithm and by using the extension of the birthday paradox probability theory. Through the algorithm simulation, the algorithm can effectively improve the accuracy of tag identification, reduce the time in the process of identification, so as to improve the efficiency of the radio frequency system, improve the performance of the system.

**Key words:** Radio frequency identification; dynamic frame; time slot; ALOHA algorithm; Birthday paradox

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