

Abstract: Relay Transmission Scheme for Distributed MAC Protocol based Warehouse Management Systems

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Abstract

Since there are frequent changes of inventory status and some kinds of contents are influenced by environment, such as temperature, quick and accurate management of the stock and its environment is very important for Warehouse Management Systems (WMS). However, because of absence of a unified standard for the communication between RFID nodes, it can be cut off due to protocol mismatch in case of movement of the RFID reader to a region of a different protocol. Moreover, centralized MAC schemes for RFID communication in previous studies have severe problems. For instance, if a cluster header disappears from the cluster due to the cluster header's movement or channel condition, the member nodes of the cluster waste lots of time and energy to re-elect a new cluster header. Therefore, in this paper, we propose a cooperative relay transmission scheme for WiMedia Distributed MAC (D-MAC) protocol for logistic applications in WMS and demonstrate performance improvement via simulation results.

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