

Adaptive Binary Splitting with Order Stabilization for Mobile RFID Tag Identification

李銘城, 李之中

Information Management

Computer Science and Informatics

leecc@chu.edu.tw

Abstract

With the advance of RFID technology, many mobile tag applications have been realized in our daily life. One instance of these applications occurs when a passenger holds a RFID ticket to pass a gate and then enters a station in the MRT system. In this instance, most of passengers expect to receive fair service, that is, the order of the passengers arriving at a gate is the same as the order of the passengers passing through the gate and leaving. From the RFID technology viewpoint, the fairness of this service is regarded as the order of tags recognized complies with the order of tags arriving. If these two orders are the same, the present research says that tag identification is in order stabilization. However, the issues of finding a metric to measure order stabilization and how to provide order stabilization in mobile tags identification have not been explored in the existing mobile tag identification research. The present research, therefore, proposed the order stabilization degree as a metric to measure the order stabilization and proposed the Adaptive Binary Splitting with Order Stabilization (ABS-OS) method to recognize mobile tags. The present research, finally, evaluated the performance through simulations. The results showed that the performance of ABS-OS outperformed that of ABS.

Keyword : Adaptive Binary Splitting, Order Stabilization, Mobile RFID Tag Identification