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**An efficient Bit-Detecting Protocol for Continuous Tag Recognition in Mobile RFID Systems**

**Existing System:**

In a mobile RFID system, a large number of tags move in and out of the system continuously, so that the reader has very limited time to recognize all the tags. As a result, the effective and efficient identification of tags in mobile environments is a more challenging problem compared to conventional static RFID systems. In this paper, we propose an efficient bit-detecting (EBD) protocol to accelerate the reading process of large-scale mobile RFID systems. In these systems, some previously recognized tags, i.e., known tags, may stay in the reader’s reading range for two consecutive reading cycles, and some unknown tags may newly participate in the current reading cycle. In the proposed EBD protocol, a new bit monitoring method is proposed to detect the presence of known tags using a small number of slots, and to retrieve their IDs from the back-end database. Next, an *M*-ary bit-detecting tree recognition method is proposed to rapidly recognize unknown tags without generating any idle slots. This new protocol is shown to perform better than existing methods reported in the literature. Both theoretic and simulation results are present to demonstrate that the proposed protocol is superior to existing protocols in terms of lower time cost.

**Existing System:**

There are also some two blocking protocols focusing on reducing the identification time of known tags3, such as the pair resolution blocking (PRB), re-blocking (RBA) and multi-paring unknown tag identification (MUIP) protocols. The PRB and RBA protocols can identify the known tags without generating any collision slots through recording the recognition indices of all the recognized tags in the preceding reading cycle. However, repeatedly collecting the IDs of known tags in such protocols greatly increases the time taken for monitoring. On the other hand, the MUIP protocol uses the hash method to monitor the known tags. Without collecting the ID information, MUIP only needs to transmit few bits to identify every known tag. However, MUIP suffers from the same drawbacks as the aforementioned missing tag identification protocols.

**Proposed System:**

We propose an efficient bit-detecting (EBD) protocol for continuous tag identification in mobile RFID systems. In the proposed protocol, two new methods, i.e., the known tag bit monitoring and *M*-ary bit-detecting tree recognition methods, are developed to identify the known and unknown tags separately. The new bit monitoring method can identify multiple known tags in one slot simultaneously, which greatly reduces the time for known tag identification. The new*M*-ary bit-detecting method reduces the number of collision slots and eliminates all the idle slots, which accelerates the identification process for unknown tag recognition. Armed with these two efficient methods, the proposed EBD protocol is demonstrated to outperform previous methods for continuous tag recognition through both theoretical analysis and simulation experiments.

A new EBD protocol for continuous tag identification is proposed. Both theoretical analysis and simulation experiments are conducted to prove that the proposed EBD protocol outperforms the state-of-the-art protocols reported in the literature.

*\_* In this protocol, two new methods are proposed to accelerate the identification process:

– An efficient bit monitoring method is proposed to detect the presence of known tags and to retrieve their IDs from the backend database, which outperforms existing tag monitoring protocols;

– An *M*-ary bit-detecting tree method is proposed to rapidly recognize unknown tags and to collect their IDs, which performs better than previous tag ID collecting protocols.