The Radio Frequency Identification (RFID) system is a non-contact automatic identification technology that is not only widely used in various modern industrial fields, but also in many new applications due to its advantages of small size and low cost. An important research area in RFID systems is how to quickly identify all tags which are located within the interrogation range of a reader. In order to achieve fast identification, we need to develop an effective anticollision protocol between the reader and the tags. The dynamic slots collision tracking tree algorithm (DSCTTA) which based on the collision tracking technique can reduce the prefix and iteration overhead by using the time-divided responding scheme. The DSCTTA protocol performs well when consecutive collisions occur. However, for non-consecutive collisions, DSCTTA generates many idle time slots which in result the identification time cannot be reduced. In this paper, we present an enhanced dynamic slots collision tracking algorithm (EDSCTA) to reduce the identification time regardless of the collisions are consecutive. Simulation results show that the proposed algorithm can effectively reduce the identification delay and improve the slot efficiency.

Keyword: RFID systems, anticollision algorithm, dynamic slots collision tracking tree