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Research on Data Fusion Algorithm and Anti - collision Algorithm Based on Internet of Things

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Abstract—Internet of Things is involved in all aspects of human life, work, health and social areas, which will have a significant impact on the future development of the global economic society. Perception and recognition technology is the basis of the Internet of things, and data fusion and anti-collision technology are the sensor network and radio frequency identification research focus. This paper focuses on the key technology of the sensing layer of the internet of things, that is, the data fusion of the sensor network and the multi-label anti-collision technology of the radio frequency identification system, which mainly includes the following work. This paper introduces the hierarchical architecture of the internet of things and its key technologies, and introduces the sensing and recognition technology of the internet of things, and expatiates the data fusion model and routing algorithm of the sensor network and the working principle and anti - collision problem of the RFID system. The improved clustering routing protocol Leach based on distributed data fusion effectively prolongs the lifetime of the sensor network. A data fusion algorithm based on Gauss membership function has introduced, and the fusion technology and routing technology have combined to process the data, which improves the efficiency and accuracy of data acquisition in Sensor Networks. An efficient binary search anti-collision algorithm called AEBS, with unknown tag number estimation, which has proposed to recognize unknown tags in the range of reader's function. Theoretical analysis and experimental simulation results show that the AEBS algorithm improves the efficiency and stability of the system identification and reduces the recognition time of the whole system.

Keywords— Anti-collision algorithm; data fusion; Internet of things; RFID system; sensor network

1 Introduction

The concept of internet of things includes two aspects, that is, extending and extending the network based on internet, and realizing the information exchange and communication between

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