

ESP1858

## **Improvement in Multiple Access Channel Allocation for Sensor Node Configuration Based on RFID Communication**

Wireless sensors are expected to be low cost and to reduce their power consumption so that a large number of sensors can be installed for collecting real-world information. Passive radio-frequency identification (RFID) is proposed to assign communication channels to sensors that only send analog sensing signals for their multiple access control. In this method, the RFID reader-writer assigns channels to all sensors by writing channel numbers to the RFIDs attached to the sensors. We propose a method that more efficiently assigns a multiple access channel to the controlled sensor by using passive RFID. We determine the channel by using the electronic product code (EPC) of the RF tags. This approach results in a large reduction in the number of writes. However, it is shown that there is a trade off between the reduction in the number of writes and the total number of channels. In addition, our method has a trade off between the reduction in the number of writes and the spectral efficiency.