Assignment 1 Basic Knowledge

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**1. RFID系统的基本组成是什么？简述RFID系统分类的方法。**

**label**

**The tag is composed of coupling elements and chips. Each electronic tag has a unique electronic code and is attached to the object to identify the target object; Each tag has a unique ID number in the world - uid, user identification, which is stored in ROM when making tag chip and cannot be modified, which has a very important impact on the development of the**

**Internet of things.**

**reader**

**Reader is a device for reading or writing label information, which can be designed as handheld or fixed and other working modes. To identify, read and write labels, generally, the collected data information will be transmitted to the background system, which will process the data information.**

**antenna**

**The antenna is used to transmit RF signals between the tag and the reader. The antenna in the RF circuit is the bridge between the reader and the electronic tag. The RF signal energy sent by the reader is radiated to the space in the form of electromagnetic wave through the antenna. When the antenna of the electronic tag enters the space, it receives electromagnetic wave energy, but only a small part of it.**

**––Digital husband software**

**There are four main classification methods of RFID Technology:**

**The whole system can be divided into high frequency, intermediate frequency and low frequency systems according to different working frequencies. Low frequency system generally works at 100-500khz; If system operates at about 10 to 15MHz; The high frequency system can reach the microwave band of 850-950mhz or even 2.4-5ghz. High frequency system is used in occasions requiring long reading and writing distance and high reading and writing speed, such as train monitoring, highway toll collection and other systems, but the antenna beam is narrow and the price is high; The IF system is in the range of 13.56MHz. This frequency is used for access control and applications that need to transmit a large amount of data; Low frequency system is used in short distance and low-cost applications, such as most access control, animal supervision and cargo tracking.**

**According to different RF cards, they can be divided into three types: read write card (RW), write once multiple readout card (worm) and read only card (R0). RW card - generally much more expensive than worm card and RO card, such as telephone card, credit card, etc. Worm card is a card that users can write at one time. The data cannot be changed after writing. Worm card is cheaper than RW card. The RO card has a unique number that cannot be changed one by one, which provides security. The RO card is the cheapest. RF cards can be made very thin and small, such as 1 cm in length or less.**

**RF cards can also be divided into active and passive. The energy and identification distance of the battery in the active RF card are long, up to several meters, but its service life is limited and the price is high; The passive RF card does not contain a battery. It uses the electromagnetic field energy emitted by the reader and writer of the coupling station as its own energy. It has light weight, small volume, long service life and low cost. However, its transmission distance is limited, generally tens of centimeters to one meter, and the transmission power of the reader and writer is large.**

**According to different modulation modes, it can also be divided into active and passive. The active RF card actively sends data to the reader and writer with its own RF energy. The passive RF card uses the modulation scattering method to transmit data. It must use the carrier wave of the reader to modulate its own signal. It is suitable for access control or traffic applications, because the reader can ensure that only RF cards within a certain range can be activated. In the case of obstacles, the energy of the reader / writer must come and go through the obstacles twice by means of modulation scattering. The signal transmitted by the active RF card only passes through the obstacle once, so the active RF card is mainly used in the application with obstacles, and the distance is longer (up to 30 meters).**

**––Baidu Wenku**

**2.RFID读写器的基本组成和功能是什么？有哪些常用的结构形式？**

**1. Read and write label information.**

**2. When the tag is passive or semi passive, the reader / writer needs to provide energy to activate the electronic tag around the field and read information.**

**3. The reader and writer can use some interfaces to communicate with the computer network and transmit information to the computer.**

**4. Be able to correctly identify multiple labels within its working range.**

**5. For some errors in the recognition process, the reader / writer can send error messages.**

**6. It can read the total battery power, remaining power, etc. of the active tag.**

**--- Jianyong technology RFID**

**RFID main forms of structure are fixed RFID readers, handheld readers, all-in-one readers, separation component readers, industrial readers, OEM modular readers.**