what's rfid? essay sample

Radio frequency identification technology (RFID, Radio Frequency Identification) is a non-contact automatic identification technology, the basic principle is the use of the radio frequency signal transmission characteristics, automatic identification of objects to be identified. Attached electronic tags to identify objects by surface or internal storage of information of the object, when the electronic tag reader into a modest area, the reader with no way of contacting the electronic tag information according to certain rules within the transmission to the back of computer processing systems or electronic control systems, enabling automatic recognition function automatically collect items or items of identification information.

The basic components of the RFID：
Tags: the coupling components and chips, each tag has a unique electronic code, attached to the object to identify the target object. Reader: read (sometimes also written) device tag information can be designed for handheld rfid reader (eg: C5000W) or fixed reader. Antenna: RF signals transmitted between tag and reader.

Working principle of the RFID
The basic working principle of RFID technology: the label into the magnetic field, radio frequency signal emitted by the reader receives, by virtue of the energy induced current obtained information sent out (Passive Tag, passive tags or passive tags) are stored in the chip, either by signal (Active Tag, active tags or active tags) initiative to send a frequency reader to read and decode the information sent to the central information system about data processing.

Classification of the RFID

RFID is divided into different application frequencies LF, HF, UHF, microwave, representation corresponding frequencies were: LF 135KHz or less, high frequency 13. 56MHz, UHF 860M ~ 960MHz, microwave 2. 4G, 5. 8G . RFID according to the way energy is supplied into passive RFID, active RFID, and semi-active RFID. Passive RFID reader from the past, low prices; active RFID reader can provide further distance, but requires battery power, the cost is higher, suitable for long distance applications to read and write.

Depending on the RFID system to complete the function, the RFID system can be divided into four types: EAS systems, portable data acquisition systems, logistics control systems and positioning systems. 1. EAS system： EAS (Electronic Article Surveillance) is a need to control the items set out in front of the RFID technology. Typical applications of this technology are shops, libraries and data centers and other places, when an unauthorized person objects illegally removed from these places, EAS system will issue a warning. A typical EAS system generally consists of three parts: ① the product attached to the electronic tag, an electronic sensor. ② electronic tags inactivated device so that normal access to licensed merchandise. ③ monitor a monitoring space is formed in the outlet region.

2. Portable Data Acquisition System Portable data acquisition system is the use of hand-held data collector with RFID reader to collect data on the RFID tag. This system has a relatively large degree of flexibility for fixed RFID systems should not be installed application environment. Real-time transmission of data to the host computer system. Handheld reader (data

input terminal) can read data at the same time, data transmission via radio waves, can be temporarily in the reader, in batches to the host computer data storage data transmission system.

3. Logistics control system Logistics control system, RFID readers scattered arrangement in a given area, and the reader is connected directly to the data management information system, the signal transmitter is moving, usually installed in moving objects, people above. When an object, when people passing through the reader, the reader automatically scans the information on the label and the data input data management information system for storage, analysis and processing, in order to achieve control of logistics.

4. Positioning system Positioning system for automated processing system positioning, as well as vehicles, ships and other run-positioning support. Reader placed on a moving vehicle, boat or automated assembly line moving materials, semi-finished and finished products, the signal transmitter embedded in the operating environment below the surface. The position signal transmitter identification information is stored, the reader generally by wireless (some use in a wired manner) to the main information management system.

RFID technology was born during World War II, the first to be used to identify their own RAF and Allied fighters. In order to identify the return British aircraft in the aircraft is equipped with a Allied radio transceiver, and then when polling the control tower to return the aircraft transmits an interrogation signal, the transceiver on the aircraft after this signal is

received, return a signal to the interrogator, according to the received interrogation return signals to identify the enemy. This is the first record of an RFID IFF system, is the first practical application of RFID for the first time.

RFID radio frequency identification technology has gradually developed into an independent interdisciplinary area of expertise. RFID radio frequency identification technology will be a lot of technology (for example, high-frequency technology, electromagnetic compatibility technology, semiconductor technology, data protection and cryptography technology, telecommunications technology, manufacturing technology, etc.) from completely different areas of expertise together. Over the past decade, RFID radio frequency identification technology has been rapid development, gradually being widely used in many areas of traceability and anti-counterfeiting applications in industrial automation, business automation, transportation control management. With advances in technology, based on radio frequency identification RFID technology will become increasingly diverse range of products, applications will also be more widely used, can be expected in the next few years, RFID radio frequency identification technology will continue to maintain the momentum of rapid development. Overall, RFID radio frequency identification technology development tends to standardize the current, low-cost, low error rate, high security and low power consumption.