Research on Application of wireless Communication System in Middleware of Internet of Things

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Abstract. With the popularization of mobile communication technology and Internet of things, wireless data transmission operation occupies an important position. Massive data generated by the Internet of things system is applied to the Internet of things system by wireless communication network and wireless resource management. Wireless network communication technology is the use of radio waves for data transmission, is a new type of communication information system, for the future development of communication system has established the direction. The wireless communication system is introduced into the middleware of the Internet of things system to improve the security and reliability of the Internet of things and ensure the timely and effective dissemination of information and data in the Internet of things system.

1. Raising of the problem
As the most rapid development branch of communication technology, wireless communication has become an important pillar industry affecting China's economic development. In the development process of hundreds of years, wireless communication has been involved in education, finance, scientific research and other industries, and penetrated into many fields of economic construction. With the rapid rise of the mobile Internet, the amount of data transmitted by mobile communication shows a blowout growth. Massive data makes the international telecommunications and radio management institutions step into the era of big data management. By collecting and sorting the data information in the Internet, these information resources can play their value. Big data has important functions of data mining, prediction evaluation and visualization. These functions not only provide reliable decision support for wireless communication technology, but also play an important role in network planning and resource management of wireless communication technology. Therefore, the research on the development trend of wireless communication technology under the background of big data has important theoretical significance.

Since 2000, with the emergence of CDMA2000, wcd-ma and TD-SCDMA systems, the public has entered a new era of 3G. In 2014, the advent and wide application of 4G technology has realized the development of information technology from mechanical to intelligent. At the same time, multimedia communication technology has also emerged to promote the popularization of big data in mobile communication, and the public has gradually bid farewell to the traditional mechanical information transmission The way. Intelligent service technology can meet the diversified information transmission needs of the public, such as: Internet of things, Internet, cloud, wechat, microblog, etc., which can not only communicate one-to-one, but also realize many to many big data exchange. Therefore, in the rapid innovation stage, mobile communication gradually realizes the big data
information exchange among groups.

2. Composition and basic principle of the system
(1) Hardware composition of wireless serial communication

![Diagram of hardware composition of wireless serial communication]

(2) The basic principle of wireless serial communication
Serial interface is a device that can convert the received parallel data characters from CPU into continuous serial data streams and send them out. At the same time, it can convert the received serial data streams into parallel data characters and supply them to CPU. The concept of serial port communication is very simple, which is the communication mode of sending and receiving bytes by bit.

The basic principle of serial communication is to send and receive bytes by bit. Although it is slower than byte by byte parallel communication, the serial port can use one wire to send data and another wire to receive data at the same time. And it can realize long-distance communication. For the serial port, the length can reach 1200 meters. Typically, the serial port is used for the transmission of ASCII characters. The communication is completed by three wires, which are ground wire, transmitting wire and receiving wire. Because the serial communication is asynchronous, the port can send data on one line and receive data on the other line. The most important parameters of serial communication are baud rate, data bit, stop bit and parity. For two ports communicating, the parameters must match.

(3) Software block diagram of wireless serial communication
Serial port communication is a kind of communication mode that transfers data by bit between peripheral and computer through data signal line, ground wire, control line, etc. This kind of communication mode uses less data lines, which can save communication cost in long-distance communication, but its transmission speed is lower than parallel transmission.

Serial port is a very common device communication protocol on computer. Most computers (excluding laptops) contain two RS-232 based serial ports. Serial port is also a common communication protocol for instruments and meters. Serial port communication protocol can also be used to obtain the data of remote acquisition equipment.

RS-232 is a serial connection standard for standard and compatible computers. It can be used for many purposes, such as connecting mouse, printer or modem, as well as industrial instruments. For the improvement of driving and wiring, the transmission length or speed of RS-232 often exceeds the standard value in practical application.

3. System communication process
With the progress of science and technology and the development of scientific and technological activities, the amount of data transmission will increase. The communication demand of Internet of things will continue to increase, as the most basic network transmission will also be developed. From the technical status, many factors affect the stability of wireless information transmission, including mileage, signal strength and equipment capacity. The concept of multi array elements is used, that is, technical transformation is carried out at the wireless communication terminal to increase the effect of wireless signal capture and collection, so that all information can be effectively collected, and then the communication stability can be improved.

(1) Application of wireless communication in middleware
Figure 3 Schematic diagram of wireless communication in middleware

Wireless communication process description:

Through data acquisition, the data is transmitted to the sensor layer, from the sensor layer to the communication layer, and from the communication layer to the application layer.

(2) Timing analysis of wireless communication application in middleware

The hardware structure of dual computer wireless communication system is established, and RS-232 serial interface standard and protocol are used, and the wireless communication program of Internet of things middleware is developed.

Based on different Internet of things application environment, reasonable selection of communication mode, strengthen the application of wireless communication technology in sensor network. Develop a common wireless communication protocol, so that wireless communication technology can better serve the field of Internet of things. We should further improve the data transmission rate of wireless communication technology, increase the coverage area of wireless network and expand the service scope.

4. Conclusion

The progress and popularization of Internet of things technology provide more development space and possibility for wireless communication technology. The framework of Internet and Ethernet network technology has been basically improved. Wireless communication technology is gradually replacing traditional wired communication technology, becoming a new leader in the field of communication technology. Wireless communication technology has good application advantages, can provide high-quality communication services in complex application environment, improve the stability and reliability of communication information in harsh environment, and better provide services for Internet of things system.

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