

Application of Wireless Mobile Communication and Internet of Things

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Abstract: with the continuous development of wireless mobile communication technology, more and more people are benefiting from them, and the internet of things also appears in people's eyes. Wireless networks achieve seamless coverage, which solves the access problem for the last kilometer of the internet of things. The internet of things can use wireless network as an access means to effectively link things and establish a comprehensive internet of things platform system. According to the development of the internet of things and some characteristics of wireless mobile communication, this paper makes a preliminary discussion on the strategy of integrating the two and applying them to life, and analyzes the application model of the internet of things.

1. Introduction

The rapid development of wireless mobile communication network can not only give users the most basic service support, but also provide more convenient high-tech services [1]. The combination of wireless mobile communication and internet of things will bring more convenience to people's life. In recent years, with the promotion of internet of things technology, the development of internet of things technology should be based on the development of wireless mobile communication and technical support. Only if the two can cooperate well and continuously improve the application technology, can the internet of things and wireless mobile communication technology make common progress [2]. The internet of things can effectively identify goods, collect information, and effectively identify goods based on information. In order for people to get the information of goods better and faster, it is necessary to use wireless mobile communication to carry out data transmission and effectively integrate it with the internet of things.

2. Structure and Development of Wireless Mobile Communication Network

The network of wireless mobile communication has a framework mainly composed of wireless terminals, access networks and core networks. At present, the wireless terminals are mainly computers and mobile phones. In the future, the wireless terminals will have more intelligent embedded chip devices. The access network is mainly realized by RNC devices. RNC is mainly used to access and control the mobile phones (and other intelligent terminals) into 5G wireless network, which is embodied in the implementation of call processing, wireless link management, mobility management and handover mechanism. The RNC system can be used as the access network and the access section of the whole network system, so as to regulate and distinguish other related similar access networks. It also performs the control and call functions [3]. During the operation of the access network, the most important equipment is RNC equipment in the access network. The network in the wireless radio terminal is accessed into the communication network through the scheduling of RNC equipment. In addition to supporting the most basic voice functions, RNC also needs to support data packet transmission and other functions. In the future, RNC platform will also support some other functions, such as IPV4, IPV6 and so on.

The core network is mainly composed of circuit domain (CS), packet domain (PS), registers, etc. The circuit domain mainly carries voice call control, signaling processing and receiving messages, and performs functions such as call routing from the terminal to the mobile switching center and voice part billing. Session management, user-related billing interface and other functions are implemented for packet services. The circuit domain is often responsible for signaling processing,

message acceptance, voice call control and billing for voice parts. This can ensure that devices such as mobile phones can support the use of other functions of mobile phones on the basis of voice calls, which can better meet the growing spiritual needs of the people at this stage [4]. Of course, with the development and progress of technology, RNC technology can also be continuously promoted and improved. It can adjust the gateway in the communication process and adjust the equipment and communication nodes in the wireless network. In the process of wireless network communication, it plays a very important role in the mobility management of equipment and the management of session and charging in the grouping process. When a terminal carries out a new area, it needs to register, and the user will enter the local VLR to register and accept relevant information [5]. AUC mainly verifies whether the IMSI of each subscriber is legal, and sends authentication data to VLR, MSC, SGSN, etc. through HLR. In a broad sense, many of its characteristics will be more obvious in the future stage, such as higher speed, convenience and unity, and it also supports multiple network environments and is compatible with various transmission resources.

3. Research on the Structure of Internet of Things

3.1 The Main Structure of Internet of Things

The Internet of Things needs to sense, recognize and control objects. The Internet of Things designed according to this goal should embody the following characteristics: (1) The whole and comprehensive perception of objects, and the monitoring and acquisition of object information at all times through two-dimensional code, RFID and other information engineering technologies. They can complete the functions of session management, mobile line management, packet transmission and exchange, and user billing excuse provision of packet services, and authenticate packet users through some registers. (2) The realization of remote identification should be achieved through reliable transmission. This process needs to integrate the Internet and other networks to accurately send information of various objects anytime and anywhere. (3) There is a certain degree of controllability, that is, the accurate analysis of objects and their comprehensive processing. The dissemination of all kinds of information and resources in the Internet of Things can be guaranteed. Only with the support of the network can we be helped to input or output the required information, images, audio and video resources to the required places so as to truly realize communication and communication. Perception layer refers to the ability to control data through Internet of Things technology. The main operation mode is to analyze data, control objects through data, and control data through AI technology [6].

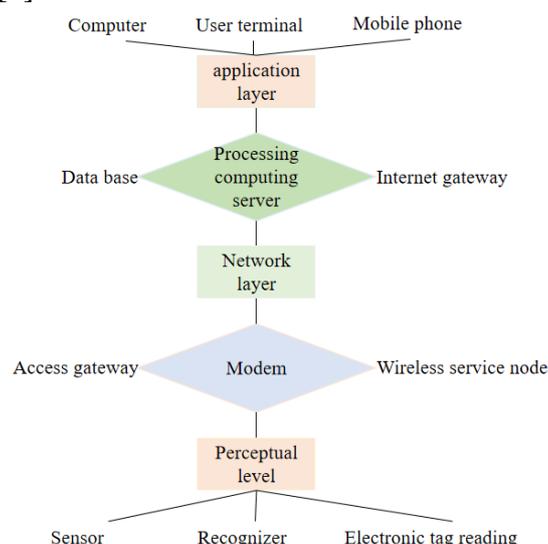


Fig.1 The Main Structure of the Internet of Things

The realization of these needs many technologies, such as computer real-time processing and analysis information, intelligent identification technology, etc. According to this part of

requirements, it is recognized at present that the Internet of Things has three layers: the first layer is the sensing layer, which uses RFID and other sensors; The second layer is the network layer, which mainly transmits all kinds of data information reliably. The third layer is the application layer, which is convenient for users to use. The overall structure is shown in Figure 1.

3.2 Characteristics of Each Layer in the Main Structure

3.2.1 Perception Layer

In the Internet of Things, this layer is the infrastructure layer. In this layer, the information of the equipment is collected through the sensor needle, and then the identification and emission functions within a certain distance are realized through radio frequency identification related technologies. Using radio frequency identification technology to realize transmission and identification within a certain distance, the sensing layer should consist of sensing nodes and access gateways. There is an identifier at the sensing node to retrieve and identify objects, but when remote users need to monitor the sensing node information, they need to access the network. The gateway processes the collected information in the background through the transport layer and finally provides it to users for use [7].

3.2.2 Network Layer

This layer accurately transmits all kinds of information collected by sensors, analyzes and processes the collected information, and then provides the analyzed and processed results to the application layer. The network layer should have database storage, reliable data transmission and network management functions. At the end of the day, the network layer is the management and processing technology of perceived data. Including storage, query, analysis, comparison, mining and intelligent processing of data collected by sensors. Such as analysis, inquiry, storage and processing of various data collected by sensors. In the Internet of Things, the network layer is a crucial component. In addition to data information identification, it is also necessary to carry out more intelligent processing and analysis for multi-functional platforms.

3.2.3 Application Layer

The application layer provides users with rich service functions. Users customize the required service information on the application layer through intelligent terminals, such as inquiry information, monitoring information, control information, etc. With the development of the Internet of Things, the application layer will be greatly expanded to various industries, bringing us real convenience.

4. Let Wireless Mobile Communication Technology and Internet of Things Application Realize Fusion

4.1 Description of Wireless Internet of Things Application

In order to be more convenient, many people will choose to move when accessing the network. The wireless terminal completes the access to the Internet of Things via the mobile communication network, and can identify, control and monitor the target object. At this time, the Internet of Things is considered as the wireless Internet of Things. The wireless terminal accesses the Internet of Things through the wireless mobile communication network and can realize the functions of target object identification, monitoring and control, etc. The Internet of Things at this time is called the wireless Internet of Things. At present, the Internet of Things is mainly concentrated in exhibition areas. Radio frequency identification devices are placed in fixed areas to realize the intellectualization of the area. The wireless Internet of Things has not been truly applied on a large scale. Using wireless mobile network, wireless terminal equipment is connected to the Internet of Things, which can realize various objects identification, management supervision and various debugging functions [8]. In various exhibitions, the application of the Internet of Things system is very extensive. The intelligent identification function within the layout range can be realized by arranging radio frequency identifiers in specific directions. The main way of use is to use mobile

phones as terminals to carry out remote data transmission and inquiry for the Internet of Things. For example, the sweep function in Taobao can effectively identify items, that is, the product of the combination of the Internet of Things and the Internet to query the information of the required commodities. People use mobile devices to access network data, query related information, and control related household appliances through wireless Internet of Things, thus fully improving people's quality of life.

In the future, through the application of wireless Internet of Things, people can access relevant databases of Internet of Things through mobile phone terminals and complete the query of target information. Wireless Internet of Things can also be used for intelligent monitoring. Mobile phone terminals can be used for video viewing of traffic conditions in target areas through communication network transmission so as to select convenient and fast routes. Similarly, we can apply this technology to many areas, such as hospitals, warehouse logistics, etc., to realize remote intelligent monitoring. Through the improvement of technical means, different objects can be sensed, thus various data can be collected, statistics and investigations can be carried out, and information can be managed and collected. Only when the information of objects is collected can it be better used and can it really serve the life and production of residents. And the Internet of Things technology has been applied in many fields, such as intelligent household appliances and complex control fields have been effectively used. Typical ones, such as warehouse logistics and hospitals, realize intelligent and remote monitoring. The application of wireless Internet of Things can also complete the control of household appliances through mobile phone terminals, such as setting the TV on time, setting the air conditioning temperature, etc.

4.2 Research on Implementation Model of Wireless Internet of Things

According to the above functions, this paper establishes the design model of wireless internet of things, which is shown in Figure 2.

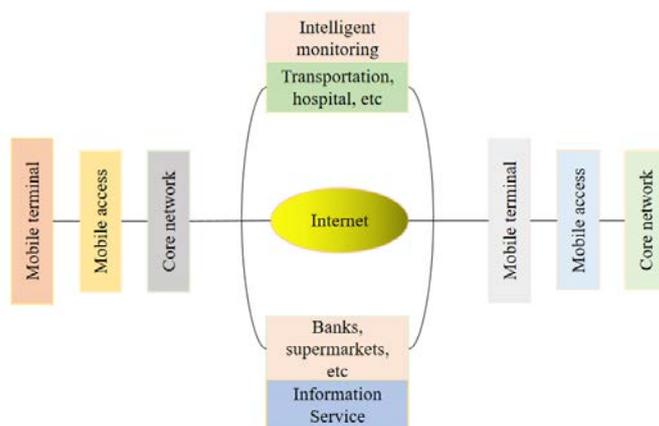


Fig.2 Implementation Model of Internet of Things

We can clearly see that the entire Internet of Things is a big circle outside, and the small circle inside is the Internet. Smart terminals (one of the mobile phones) are accessed through the core network, while there are many network nodes on the Internet of Things, such as intelligent monitoring, information inquiry, etc. Intelligent sensor devices are installed at the nodes, such as monitoring devices installed at traffic intersections and hospitals, and information inquiry devices installed in banks and supermarkets. In the process of integration, the Internet of Things and the Internet of Things are accessed by mobile terminals such as mobile phones. The scanning technology and data transmission function of the Internet of Things are applied to transmit the data to the Internet. These nodes are equipped with intelligent sensors, which can collect the target object information in real time, such as monitoring in various places, querying supermarket and bank information, etc. Through the network layer, the transmission process is carried out to provide users with effective information.

According to the above, in order to ensure the smooth operation of the wireless Internet of

Things in the future, it is necessary to ensure that the mobile terminal is faster, more convenient and has a fast bandwidth when accessing. These are the key development directions of wireless mobile communication networks. Secondly, there are ubiquitous network nodes to place the areas we need, such as supermarkets, hospitals, warehouses, etc. Through these nodes we can monitor and process the target objects in real time. In the future expansion of application functions, various terminal devices such as mobile phones can log into the Internet of Things database through the Internet to check the required target data or information. Through the setting of nodes, the goal of monitoring and processing the target is achieved. Finally, the existence form and application depth of the Internet are the main core of the formation of the wireless Internet of Things. With the connection of the Internet, real objects can achieve the effects of monitoring and processing, making objects more intelligent.

5. Conclusion

To sum up, with the economic development and social progress, the application of the Internet of Things adapts to the trend of society, and indeed plays a very good role in the development of life and the improvement of the quality of life. With the vigorous development of network information technology, relevant technical staff should fully understand the connotation of the Internet of Things, promote the effective application of wireless mobile communication technology in the Internet of Things, and improve the quality of related work, so as to truly realize intelligent development and give more convenience to the broad masses of the people. In this paper, the Internet of Things and mobile communication technology are analyzed in detail, and the wireless mobile communication technology and the application of the Internet of Things are analyzed in detail, hoping to promote the development of the Internet of Things and wireless mobile communication technology and better serve people.

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