Internet of Things Application Practice and Information and Communication Technology

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Abstract: The Internet of Things (IOT) technology has developed rapidly in China, and it has been applied in various fields, which greatly improves the efficiency and quality of production and life. There is also a close relationship between the citation of the Internet of Things and information and communication technology. The combination of the two is an important measure to optimize the application of the Internet of Things. This paper first elaborates on the composition of the Internet of Things and the application mode and application practice of the Internet of Things, and then explores the application importance and technical application of ICT in the Internet of Things. I hope that this theoretical research can have a deeper understanding of the importance of the application of Internet of Things technology.

1. Introduction

The application of Internet of Things technology can bring many conveniences to people's production and life, improve people's life style. The role of Internet of Things in the current social development has become more and more important, and it has become an increasingly dependent application technology. The connection between the Internet of Things and information and communication technologies is relatively strong. In the future development, there will be more breakthroughs between ICT and the Internet of Things, and both will have greater development.

2. Internet of Things composition and Internet of Things application model and application practice

2.1 The main components of the Internet of Things

The Internet of Things (IOT) is an application technology that promotes social development by establishing communication links between things and implementing data exchange. The Internet of Things (IOT) is composed of many parts, among which the more important part is information perception, which uses various types of sensors and satellite positioning system to accomplish information perception tasks. With the application of precision sensor technology, more forms of non-electric signals can be transformed into electrical signals for monitoring. The embedded controller is also an important part of the Internet of Things. This is the part that carries out the control information and can be in direct contact with the terminal object [1]. In addition, the information transmission portion uses wireless communication technology and communicates with other objects of the network. Embedded devices in this aspect have relatively clear information processing capabilities, and access to the Internet using wireless communication technology can also achieve good application results.

2.2 Internet of Things application model and application practice

2.2.1 Application mode

There are several key technologies in the Internet of Things. Among them, sensor technology is one of them. The current computer processes digital signals. The application of sensors is to convert analog signals into digital signals for computer processing. Embedded system technology is also critical, and this is a complex technology that combines many other technologies. Different

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applications can be adopted in the application of the Internet of Things. In general, there are two application modes, one is the intelligent control mode of the object, and the Internet of Things is applied on the basis of the cloud computing platform and the intelligent network. It can combine the data information acquired by sensor networks to make decisions and change the behavior of objects to achieve the effect of control and feedback. Commonly used are adjusting the brightness of street lights combined with light intensity and adjusting the interval of traffic lights combined with traffic flow. These are intelligent control application modes of objects [2]. In addition, the application mode of the Internet of Things also has a distinct reflection in the intelligent label mode of objects. Internet of Things (IOT) application mode mainly identifies specific objects by two-dimensional code and NFC technology, which is also common in life, such as smart cards and bar code labels.

2.2.2 Application practice

The Internet of Things is widely used, such as in intelligent buildings. It improves people's quality of life, brings convenience and guarantees people's safety under the application of Internet of Things technology. Intelligent building system is a typical example of the application of Internet of Things technology, such as elevator guard, which is realized under the application of Internet of Things technology. Set the sensor on the periphery of the elevator. If the elevator is abnormal, the common ones are roof punching and power failure. At this time, the abnormal information can be received by the sensor, and the collected data can also be transmitted to the elevator guard platform under the use of the wireless transmission module. The system can automatically perform fault management and monitoring functions, thus ensuring the safe operation of the elevator [3]. The current development of intelligent buildings is relatively rapid, and IoT technology has become an indispensable technology. By relying on the Internet of Things technology, information images and alarm information can be effectively transmitted to users, so that they can fully play their role in automated management functions.

The application of Internet of Things technology can also play an active role in the field of agricultural animal husbandry. With the rapid development of China's agricultural animal husbandry, the realization of intelligent development goals is becoming more and more important, and the application of Internet of Things technology is also a trend. For example, in the field of agriculture, the application of Internet of Things technology can achieve greenhouse monitoring and forest fire monitoring and agricultural production monitoring. Through multi-level monitoring, problems in agricultural production can be discovered in a timely manner and solved in a timely manner [4]. The application of the Internet of Things in the agricultural field, using intelligent sensors and energy management technologies, can obtain agricultural environmental information, and then use the network and the M2M platform to transmit the collected information. Processing data in the Agricultural and Animal Husbandry Safety Center can realize the monitoring and guidance of resources, which helps to promote good development in the field of agriculture. For example, the combination of Internet of Things technology and animal husbandry can record meat and animal husbandry and sales. These are realized under the application of the Internet of Things, which effectively improves the efficiency of work. The whole process of animal husbandry products can be supervised by the Internet of Things.

Internet of Things is also widely used in the field of logistics. At present, China's logistics and transportation industry has developed rapidly, and has gradually realized intellectualization. Logistics reader in logistics supply can send radio frequency signals directly, and detect the area of electronic tags can directly generate inductive current, so that the RFID is activated and the encoded information is fed back to the reader. The radio frequency signal emitted by the reader and the electronic tag carrier can be decoded to process the decoded information through the computer system. The control logic in the system can use the corresponding operations to complete the data transmission and storage of the demodulated data received, so that the advantages of the Internet of Things technology can be exerted in each link of the logistics supply. For the configuration of logistics personnel and the configuration of logistics and transportation vehicles, optimization can be achieved, which can promote cost saving and work efficiency.

Integrate IoT technology with industry to improve the quality and efficiency of industrial control. The introduction of enterprise security system can play the role of storage alarm and monitor the operation status of security equipment. The system can meet the requirements of customer management companies by refining the coverage interval, and it can also play an active role in data processing [5]. The application of Internet of Things in industry can also play an active role in digital oilfields. China Telecom proposes the integration of production control system, analysis management and data acquisition and transmission system for oil wells. Thus, it can help the direct transmission of parameters information, which provides convenience for the analysis and management of production links, and ensures the safety and reliability of production. All of these require the application of Internet of Things technology to achieve this goal.

At present, China's medical and health undertakings are developing rapidly, and the application of Internet of Things technology is becoming more and more common, which has played a promoting role in promoting the development of China's medical and health undertakings. The application of the Internet of Things can realize the direct registration of electronic medical card, improve the efficiency of patient registration, and save time. The electronic registration method can save more time for doctors to treat patients, and also has a positive significance to protect the life and health of patients. The use of the Internet of Things has replaced manual registration, which can also reduce the occurrence of errors [6]. The application of the Internet of Things in the field of health care has a positive effect on understanding the patient's condition and querying the patient's medical record, and is able to grasp the patient's medical history and physical condition at any time. The application of the Internet of Things can also change the hospital's monitoring of patients, and can understand the patient's physical condition in the first time. By integrating the application of the medical sensor wristband, timely measures can be taken to treat the patient's discomfort.

3. Application Importance and Technology Application of Information and Communication Technology in Internet of Things

3.1 Importance of Information and Communication Technology in Internet of Things

There are many ways to apply information and communication technology in the Internet of Things. Communication is to build sTable and efficient transmission channels between information sources and receivers. When applying the Internet of Things, there is a high demand for its data transmission efficiency and accuracy. The performance of the transmission channel will have a great impact on the experience of the Internet of Things. To improve the quality of information transmission, it is necessary to ensure the reliability of the mobile terminal and the transmission channel, and to track and manage the entire process of information transmission. Do the appropriate network maintenance work to protect user privacy, eliminate the interference information, and improve the network information quality and network communication level as a whole. With the application of the Internet of Things and information and communication technology, the reliability of the Internet of Things is guaranteed, which can improve network operation security and user satisfaction.

3.2 Application of Information and Communication Technology in Internet of Things

The application of information and communication technology in the Internet of Things is relatively important and is indispensable at present. Among them, RFID technology is one of the important information communication technologies. The RFID technology technology obtains the data related to the target object through the radio frequency signal, and cannot be manually introduced to automatically complete the data management. Based on the current energy source, the RFID tag can be divided into active and passive types. The passive tag is composed of a coil, an antenna and a chip, and can communicate with the reader. Another active tag type is the built-in battery, which is suiTable for special environments such as metals and liquids. If the working frequency is taken as the basis, the technology can be divided into high frequency and low frequency, microwave and other main types, and this technology is mainly high frequency

technology, so it can maintain a high antenna directivity, and the amount of data in the tag is relatively large. Low-frequency RFID has no advantage of antenna directionality, it is difficult to perceive things from a long distance, and the functions of technology application are different. The application of software can ensure that users have a correct understanding of the original business events after transformation. The complete REID system includes reader, antenna and middleware, application software and so on. The functions of different parts are also different, among which the application software is directly oriented to the human-computer interaction interface of the end-user of the RFID application. Assist users to effectively complete reader instruction operations and middleware logic settings, and to achieve visual operations.

In the application of information and communication technology in the Internet of Things, Bluetooth wireless network technology is the global standard of wireless data and voice communication openness. Low bandwidth radio is a low-cost point-to-point or multi-point and short-distance connection Bluetooth technology. Under the application of Bluetooth technology, it can effectively confirm and frequency hopping to ensure the overall stability of data link [7]. The application of the frequency hopping technology mainly divides the frequency band into a plurality of frequency hopping channels. During the connection process, the radio transceiver hops from one channel to another according to the corresponding code sequence, so that the transmitting and receiving parties can communicate according to the corresponding rules. Interference can not follow the rules of a certain signal will not affect the quality of information communication, so the application of Bluetooth technology can ensure the stability of data transmission of Internet of Things applications, improve the overall quality of the application of the Internet of Things.

The Wireless Fidelity technology in the Internet of Things is also more critical. The application of its technology has distinct features, fast and reliable, relatively fast network construction, flexible networking and strong mobility. Wireless Fidelity system is mainly composed of basic service unit, site and distribution system, access point and gateway, which also plays an important role in improving the application quality of the Internet of Things.

4. Conclusion

In a word, in the practical application of the Internet of Things technology, it plays a more prominent positive role. The combination of information and communication technology and Internet of Things technology is also the trend of development. Through the optimized application of these technologies, the operation quality of the Internet of Things can be further improved. The above application of the Internet of Things and the related theoretical research on information and communication technology are only carried out from the theoretical level. I hope that it can play a role in inspiring the jade, and promote the practical application of the actual Internet of Things and information and communication technologies.

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