Research on Information Perception and Interaction Technology of Internet of Things

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Abstract. With the rapid development of today's society, the continuous application of network technology has been able to gradually meet the pace of social development. The main purpose of this technology is to transmit and store data and information produced by users in their daily production and life. This technology is widely used in reality. Specifically, it refers to the information connection of the Internet of Things in the facilities with sensors in the user's home, so as to process the data generated by the user in life. We can found that in real life is often the case, the information in the process of pass due to the inaccuracy of data information, leads to the iot on data transmission in the process of information processing, storage, and there will be a lot of the problem, the emergence of these problems will reduce the intelligent level. This technology mainly includes the interaction between the network and the user, the interaction between the network and the content, the interaction between the user and the content of these three main forms. This paper starts from the perception and interaction of the technology, analyzes the advantages and disadvantages of the Internet of Things technology in our life today, and makes a rational interpretation of the technology fundamentally.

Keywords: IoT Sensing Technology, Interactive Technology for The Internet of Things

1. Introduction

Nowadays, with the continuous development of computer technology, it has been widely used in many fields. And the computer technology in the application of the continuous maturity of people's eyes are looking at this. This technology is with the aid of intelligent equipment, through the continuous application of computer technology, to achieve the collection, supervision and integration of data information on the network, and the technology in the actual application can provide users with a good
network environment [1]. Therefore, to improve the application of computer technology in this area, through continuous practice, so that the technology can get great development and promotion.

2. Overview of the internet of things

The level of science and technology in the continuous progress, the continuous application of the technology, has been able to gradually meet the pace of social development. The core function of the technology is to transport and store data generated by users in their daily production and life. And the technology also has the function of collecting, supervising and integrating the data information produced by users in daily production and life. With the help of intelligent equipment, each function of the technology can be fully played. With the advance of time, the technological level is getting higher and higher, and the application of this technology in production and life is gradually becoming stable and developing [2]. The transmission quality of data and information is also getting higher and higher, and its functions are gradually being greatly played.

3. Information sensing technology for the Internet of Things

The Internet of Things information perception technology is widely used in reality. Specifically, it refers to the realization of the Internet of Things information connection by the facilities with sensors in the user's home, so as to process the data generated by the user in their daily life. We can find that in real life is often the case, the information transmitted in time due to the inaccuracy of data information, led to the Internet for information transmission, storage, and to deal with data and information will be very many problems, the emergence of these problems will reduce the Internet of things intelligent level [3, 4]. In real life, in the practical application of this technology, because the data information of form and content is different, can lead to difficult to achieve unity in the transfer process, on the information data acquisition, and finishing, as a result of the information data is not unity, will lead to inaccuracy information, causing the system to feedback on the received information data processing, inaccurate information problems. In the practical application of this technology in real life, because the device sensor in the user's home can only obtain information and data within a certain range, it leads to the existence of instability in the information receiving. (figure 1)
Figure 1. IoT sensing technology

3.1. Gather information

Data collection mainly refers to the unified collection of data generated in daily life by the user equipment using this technology. In this process, the most critical is data transmission. In order to ensure high security and accuracy during data transportation, it is required to avoid data inaccuracy caused by data inconsistency during data transportation. Under the current technical conditions, the most effective method for data information collection is multi-path transmission, which can meet the relevant requirements of data transmission on this basis. Multipath transmission of data refers to the establishment of multiple paths for data transmission in key nodes of the Internet of Things [5]. At this time, data can reach key nodes through multiple paths during data transmission, so as to achieve high speed and accuracy of data transmission.

3.2. Packed data

Information sensing technology is very cumbersome to a certain extent. Is the main cause of this effect, the connections of equipment during run time generated by the amount of data is very huge, led to the key node for the capacity of information is bigger, and at the same time as the key node resources, and data storage space, under the influence of the system for data information perception becomes slow. In order to fully solve these problems, we need to compress the data information, so that in the case of large volume of data information, the system's perception of data information can run stably and quickly, and you can ensure that the data information has a high degree of accuracy during transportation. In the actual application, for the data information compression method of these two, the first kind is sorting method, the second kind is pipeline method. But in practice, the effect of these two methods is not very ideal [6]. Therefore, according to the characteristics of information awareness technology and the specific situation of data information, it is necessary to adjust and optimize the traditional compression method accordingly. At present, a mainstream data compression method called distributed compression method is proposed. In practice, this method has shown excellent performance in data compression.

3.3. Fusion data

In the practical application of this technology, a particularly important technology node is data fusion. The main purpose of this technique is to filter out large volumes of information data, thus reducing the space for data to be used. The information data eliminated by this technology has a data structure of multivariate and heterogeneous data. This method of filtering and eliminating data information to reduce the space occupied by data packets is called drifting mean filtering glass method [7]. To a certain extent, data fusion technology can effectively avoid the conflicts occurred during the transportation of data and information, and improve the efficiency of data transmission, thus improving the communication efficiency and greatly enhancing the user experience.

3.4. Cleaning data

In data cleaning, the perception technology mainly uses the key nodes of the perception system and part of the network, so as to achieve the classification and statistics in the mathematical sense.
process of data cleaning, the degree of data cleaning has a high correlation with the missing information. The missing value is taken as the test standard. In the process of data processing, data cleaning can be used to realize the identification and elimination of missing information and data.

3.5. Aggregate data

In the perception system of the Internet of Things, in order to grasp the perceived data and information in time, the main method used is to collect and compress the data. At this stage, the data and information mastered by the perception system are all similar data and information. However, in the actual application, the data information perception system only needs to perceive a small part of the data, combined with the actual needs of users so that the data information can be transferred quickly and efficiently [8,9]. To a large extent, the data aggregation technology realizes that the sensing system only needs to perceive part of the data. At the same time, this technology can also control the volume of the data, so as to reduce the pressure of data transmission and improve the efficiency of data transmission.

4. Internet of Things information exchange technology

4.1. Interaction between networks and users

The connection between people and objects is fundamental to the interaction of the Internet of Things. Users operate and use the electronic computer, and maintain and detect the stable operation of the network through deep perception of the data information provided. The interaction between network and human is called human-computer interaction. This interaction means to obtain the required information through analyzing the collected nodes, and to process and store the information, etc.

4.2. Interaction between network and content

The interaction between the network and content specifically refers to the ability of the Internet of Things to deliver data and information to users through the network platform. In the process of transmission, it includes the process of data consolidation, fusion, storage and so on. At present, information storage is divided into two forms, one is the information stored in the cloud, which is stored in the web server, another belongs to external storage, namely the use of external links the data storage equipment information is passed to the equipment in the last disconnect device connected to the network so as to achieve the aim of data storage. At present, the most commonly used storage is memory cloud storage, which is also an important way to interact between the network and data information.

4.3. Interaction between users and content

In real life, the main purpose of our use of computer network is to be able to get the information we want from the computer network, or through the computer network instruction input, after the computer processing calculation, feedback to us want data information [10]. Therefore, the interaction between users and content is extremely important. Through the link of the Internet of Things, users can interact intuitively with network content so as to complete the exchange of information.
5. Conclusion

In the practical application of the Internet of Things, the two most commonly used technologies are sensory technology and interaction technology. Sensory technology can make it more convenient for us to let the computer know our specific requirements in our daily production and life, and provide timely data processing feedback for us. The application of interactive technology can enable users to carry out deep interaction between the network and the content, so as to meet our needs. Through the continuous study of technology is to ensure that the quality of our life will not reduce the premise, so in the improvement of technology must continue to maintain growth, so as to ensure that people's growing needs of life. This paper starts with two technologies of perception and interaction, analyzes the advantages and disadvantages of this technology in our life today, and rationalizes the interpretation of this technology fundamentally.

Acknowledgments

Guizhou Provincial Department of education Youth Science and technology talent growth project (qjh KY Zi [2018] No. 271); Guizhou Provincial Department of education Youth Science and technology talent growth project (qjh KY Zi [2018] No. 279).

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