Research on Computer Network Remote Control Technology

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Keywords: Computer Network, Control Technology, Develop Trend

Abstract: With the rapid development of electronic information technology and network technology, computer network remote technology has been widely used in people's life, work, and learning. Based on this, this paper briefly summarizes the computer network remote control technology, then discusses the principle and composition of the remote control technology, and finally focuses on the application of remote technology in computer networks.

1. Introduction

With the deepening of research in the field of computer network remote technology, network remote communication technology and network remote control technology have gradually matured, and have been applied in a variety of fields in various fields. From the perspective of technology development, computer network remote communication technology is the basis of computer network remote control technology. Under the circumstances of the Internet, it fully utilizes the technical advantages of the Internet, effectively avoids the security risks existing in the Internet, and realizes network remote communication and control. Features.

2. Computer remote network communication and control technology overview

From the technical point of view, computer remote network communication is based on the data transmission between computer terminals, the communication content is computer-recognizable network message, and the process of parsing network messages between different terminals under the agreed communication protocol. On the basis of this, the computer remote network control technology increases the process of the computer terminal responding to the message content, and on the basis of the computer remote network control technology, it can form a computer network remote closed-loop control system, which can greatly improve Control accuracy and speed. At present, computer remote network communication and control technology has been promoted in a certain range in various fields of society. In the process of use, its core technologies mainly include network remote wake-up control technology, remote shutdown technology and remote monitoring technology.

3. Computer network remote communication and control technology works

From the perspective of technical realization, computer network remote communication and control technology is to use the Internet to realize data communication between different computer terminals, and complete the control function of the computer terminal. In this process, the technician needs to establish a good communication line between the computer terminals through the TCP/IP network communication protocol, and split the data to be transmitted, and the data content is transmitted through the communication link in the form of datagrams. Multi-directional transmission, in order to avoid the validity of data transmission, the receiving end needs to verify the integrity of the data. Compared with the TCP/IP network communication protocol, there is also a UDP network communication protocol. Because the protocol has certain limitations on the effectiveness of data transmission, it causes unstable factors of network remote data transmission, which limits the UDP network. Application of communication protocols.

  DOI: 10.25236/systca.18.023

4. Application form of computer control technology

Operational guidance control system is an important form of computer control technology application. The control system has a simple and intuitive structure, the system mechanism is very simple, and it has the characteristics of safety and flexibility in control. However, this system requires manual operation, so control The speed has certain limitations, and the control object should not be too much. The requirements for manual operation are high. In practice, extensive support of human and material resources is required, and the level of automation control is relatively low.

DDC system, also known as closed-loop control system, is widely used in industrial production, and is oriented to the underlying applications in industrial production. It requires computers to collect various parameters of industrial production sites through automated instruments and input and output channels. After processing and calculating the data, the corresponding control signal information is output to the industrial production according to the control law. The control scheme of the system needs to be realized by various systems and application software, and the software is also very convenient and flexible in the modification. In addition to mastering the basic control rules, it can also realize complex control law control and adapt to the production requirements. And optimal intelligent control.

The SCC system can lock the target value of the control at the optimal level and achieve optimal control of the production process. At the same time, because the system is a hierarchical control system, the safety and reliability of the whole system can be greatly improved, if the upper computer appears during operation. Any failure or poor operation of the system may result in poor control of the system. The DDC computer can perform various control operations independently; otherwise, when there is a problem with the DDC computer, it can be replaced by the supervisory control computer to perform various control tasks. The specific operation process of the system is as follows: The supervisory control computer obtains various parameter information from the production, and calculates the control value that satisfies the production environment demand by using the optimal calculation method, and submits it to the DDC controlled computer to complete the overall control. .

The DCS system is a new type of computer control system that can closely connect computers that share different functions and functions through computer networks, and strictly follow the rules of information resource sharing, centralized management, decentralized control, and their own duties. Form a control system with extremely high reliability and safety. This system combines the functions of several of these systems with features that are safe and reliable, while providing advantages in terms of maintenance and expansion.

The FCS system is a real-time network control system. Connecting the field control device to the smart instrument on site is no longer a single communication technology and a digital instrument instead of an analog instrument. It is a new generation of on-site. The bus communication network integrated control can realize the serial communication network of two-way and multiple sites, so that the tasks on the production site can be controlled in real time.

5. The development trend of computer control technology

Computer technology and modern network technology are on the track of rapid development. At the same time, the application of computer control technology promoted by different levels of computer networks has also led to the continuous expansion of the control system, the improvement of system functions, and the realization of computer control systems. Networking. The network of computer control system makes the system have obvious difference with the traditional control system when implementing the control function. Each instrument unit in the control system can complete its own control tasks independently and reliably, and finally perform each other through the network. The connection and information sharing between them enables real-time collaboration and smooth completion of various scheduled control tasks. It can be said that the use of modular thinking in the control system is a significant trend in the development of computer control

technology. It can control the increase and decrease of individual according to the demand, and the use value of the system is gradually improved.

The integration of computer control technology is the development trend of control technology. It is also a new control management mode formed under the guidance of new production principles and concepts. Through integrated control, it can greatly improve production efficiency and product quality, and it can also be effective. Shorten the production cycle and meet the realization of economic efficiency targets in various fields. The computer integrated manufacturing system will also become the new production control mode that will play a leading role in this century, further promote the innovation and research and development of integrated manufacturing systems, and develop corresponding support plans and development strategies to promote the integration of computer control technology.

Intelligentization is the inevitable trend of computer control technology, and actively researching diverse control strategies is also an important way to promote the perfection and innovation of control technology. At present, there are many different methods for calculating the intelligent control of the computer. The main ones are: (1) Fuzzy control. Fuzzy control can bypass the control constraints such as uncertain objects and time-varying, and can control the production process succinctly. At the same time, the applicable area is very wide, but it requires comprehensive control rules, which are in the control of complex industrial processes and objects. There is a certain degree of incompatibility; (2) expert control. Expert control is an effective intelligent control method with a broad application prospect, but it has not yet formed a theoretical and design method of universal significance. (3) Neural network control. This control strategy attempts to simulate human brain function, but it lacks real-time. Then the future development of computer control technology must complement each other and integrate each other in the path of achieving intelligence.

Any technology will eventually become standardized in development and progress. The future development of computer control technology will be the same, and it will surely move toward the standardization development path, and promote the improvement and standardization of computer control systems to meet the needs of different fields to improve production quality. And standard requirements. At present, the internationally recognized computer control technology standard has not yet been formed. This requires the summarization and versatility of control experience in practical application and promotion, and the establishment of internationally accepted technical standards.

From the perspective of the enterprise, combining remote technology with computer network can effectively enhance the operational efficiency of the enterprise and reduce the cost investment. Taking Lenovo as an example, in the early stage of development, Lenovo's after-sales service was mainly based on traditional methods. After-sales service stores were set up throughout the country. Although the after-sales service efficiency was ensured, a lot of money was invested. After the remote technology is applied in the computer network, Lenovo uses the special software to diagnose the product remotely, and provides users with targeted after-sales service options based on the diagnosis results. For simple "soft faults", it can be solved directly online. The hardware fault problem can choose two ways of express delivery or on-site service, which greatly enhances the efficiency of after-sales service and reduces the input of service cost. It is not difficult to see that the application of computer network remote technology has changed the traditional enterprise operation management mode, while reducing the economic cost of enterprises, it also enhances the efficiency and comprehensive competitiveness of enterprise operation management. In the process of network system refurbishment and computer maintenance, engineers and managers are usually required to arrive at the site for maintenance and refurbishment. Since the use of the remote control system, the troubles of engineers and managers visiting the site are saved. With the help of the computer network, a series of installation, configuration, maintenance and management can be directly performed on the site. This remote management means not only reduces the number of remote management methods. The maintenance staff's door-to-door time and user waiting time also enhanced the work efficiency and achieved a "win-win". With the rapid development of information technology, meteorological research has begun to get rid of the traditional manual operation mode,

especially in the harsh environment, in the process of meteorological data collection by means of remote automated weather stations. Under the influence of wireless communication technology, the observed meteorological element data information can be transmitted to the main control computer of the meteorological center, and a series of integration and processing of meteorological element data can be performed by using computer software to understand the meteorological changes in different regions by establishing a database. . In addition, computer network telecommunications technology plays an important role in meteorological research. Taking meteorological satellites as an example, the computer network meteorological center can send instructions to meteorological satellites to monitor meteorological information in specific areas and enhance the weather of the meteorological department. The level of predictive accuracy of the condition.

6. Conclusion

The popularization and application of computer network remote technology has changed our traditional way of working, living and learning. With the continuous improvement of computer network remote communication and control technology, and the in-depth development of related computer software research, it is represented by computer network remote technology. The level of social informatization and intelligence will be further improved, and will be more widely promoted and applied in various fields of society in the future.

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