

The Application of Digital Technology in Industrial Electrical Automation

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Abstract

In the rapid development of social economy, the level of science and technology is also improving steadily. At this time, the application of digital technology in the industrial field can not only provide effective power for the development of electrical automation, but also fully show the advantages of digital technology in the construction and innovation. Industry, as the basic part of China's economic construction and development, plays a positive role in promoting domestic economic strength and competition level. To raise the domestic economy to a higher level, industries should increase their gross domestic product based on rational use of advanced science and technology. Therefore, on the basis of understanding the concept of digital technology, this paper defines the future innovation goals according to the direction and content of practical application, so as to lay a foundation for technological innovation in the industrial field.

Keywords

Digital technology; Industrial field; Electrical automation; The economic construction.

1. Introduction

With the continuous development of digital technology following the pace of scientific and technological innovation, digital technology gradually occupies an important position in the national economy, and various fields have enhanced their competition level and improved practical production efficiency according to the advantages of digital technology. From the Angle of industrial development, in the traditional sense of the operation mode of production has been a lag, in today's market competition, only to fully demonstrate the advantages of advanced technology, pay attention to strengthening its comprehensive strength, can in the increasingly innovative market environment to achieve industry spanning development, to make the industry rises to a higher level.

Digital technology is also known as digital control technology, the use of computer related equipment to collect information technology digital conversion, can facilitate subsequent storage and operation processing. Digital technology can effectively process multiple types of information, such as text and image, as shown in Figure 1 below. From the practical point of view, digital technology has the following characteristics during its application: Firstly, the operation process of digital technology is simpler, and the application status of electrical automation equipment can be visually presented by using computer binary coding, such as high and low level of equipment and equipment failure [1]. Because the circuit design of the basic unit is relatively simple, and the actual parameters have a certain degree of dispersion, the distinguishing state of the equipment can be intuitively clear, in line with the requirements of electrical automation operation; Secondly, digital technology has certain adaptability, the overall information security level is high, staff can use standardized logic components of various types of digital systems, in line with user control needs. Encrypting technical equipment during data transmission can further enhance the security of information technology. Finally,

digital technology has a certain anti-interference, the actual results of obtaining data information is more accurate, the use of binary coding data transmission will not be affected by external factors, so as to ensure that the final result is consistent with the actual demand.

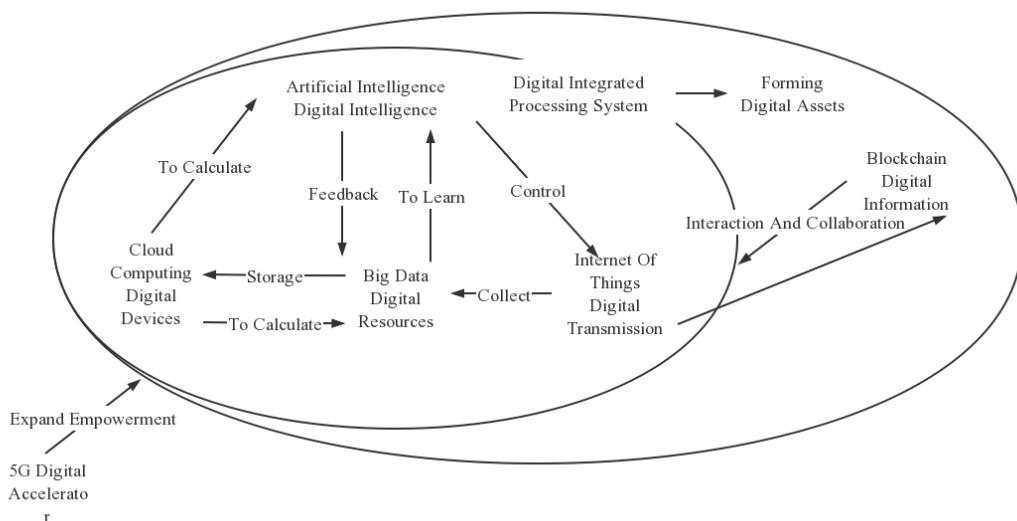


Figure 1. Structure diagram of digital technology

2. Application of digital technology in industrial electrical automation

2.1. Windows Control Platform

In the operation of industrial electrification system, the rational use of digital technology to build a control platform needs to design a graphical control interface with the help of computer technology, so as to improve the integration of the overall system operation and fully show the performance advantages of the system operation. In addition, in order to ensure convenient operation of the practical system, maintenance work with simplicity and efficiency should be put forward during the design of the system platform, and the expansion of system operation should be enhanced. At present, Windows control platform has been regarded as an important standard for electrified systems.

2.2. Fieldbus technology

At present, the most digital characteristic of industrial electrification system is field bus technology. The proper use of this technology can ensure the real-time transmission of information and data during the operation of the system platform, so as to improve the production efficiency in the industrial field. From a practical point of view, fieldbus technology can effectively connect intelligent devices and electrified systems, and efficiently transmit important information through network media such as optical fiber [2]. Because this transmission is bidirectional, system operators can obtain all kinds of feedback information according to the data transmission. If problems are found, effective countermeasures should be put forward to avoid unnecessary losses caused by the impact of faults in the system, and then improve the overall operation quality of the system.

2.3. Managing Device Applications

From the Angle of enterprise management, to correctly deal with the increasingly innovative market environment and enterprise dynamic management model, to collect information platform to run the data on a large-scale, such not only can quickly clear practical operating conditions, can also help managers put forward effective measures of decision, in turn, strengthen enterprise comprehensive management ability, truly achieve long-term

development goals. By using digital technology to improve the mode of information collection and collation, it is conducive to practical analysis and management to become more effective. Therefore, the application of digital technology must be paid attention to during the management of industrial enterprises. From the point of view of equipment, it has become an inevitable trend to continuously improve electrical equipment based on digital technology in industrial development. Especially for more technical equipment such as actuators and sensors, effective integration of digital technology can improve the overall working mode and improve the efficiency of practical operation.^[3,4,5]

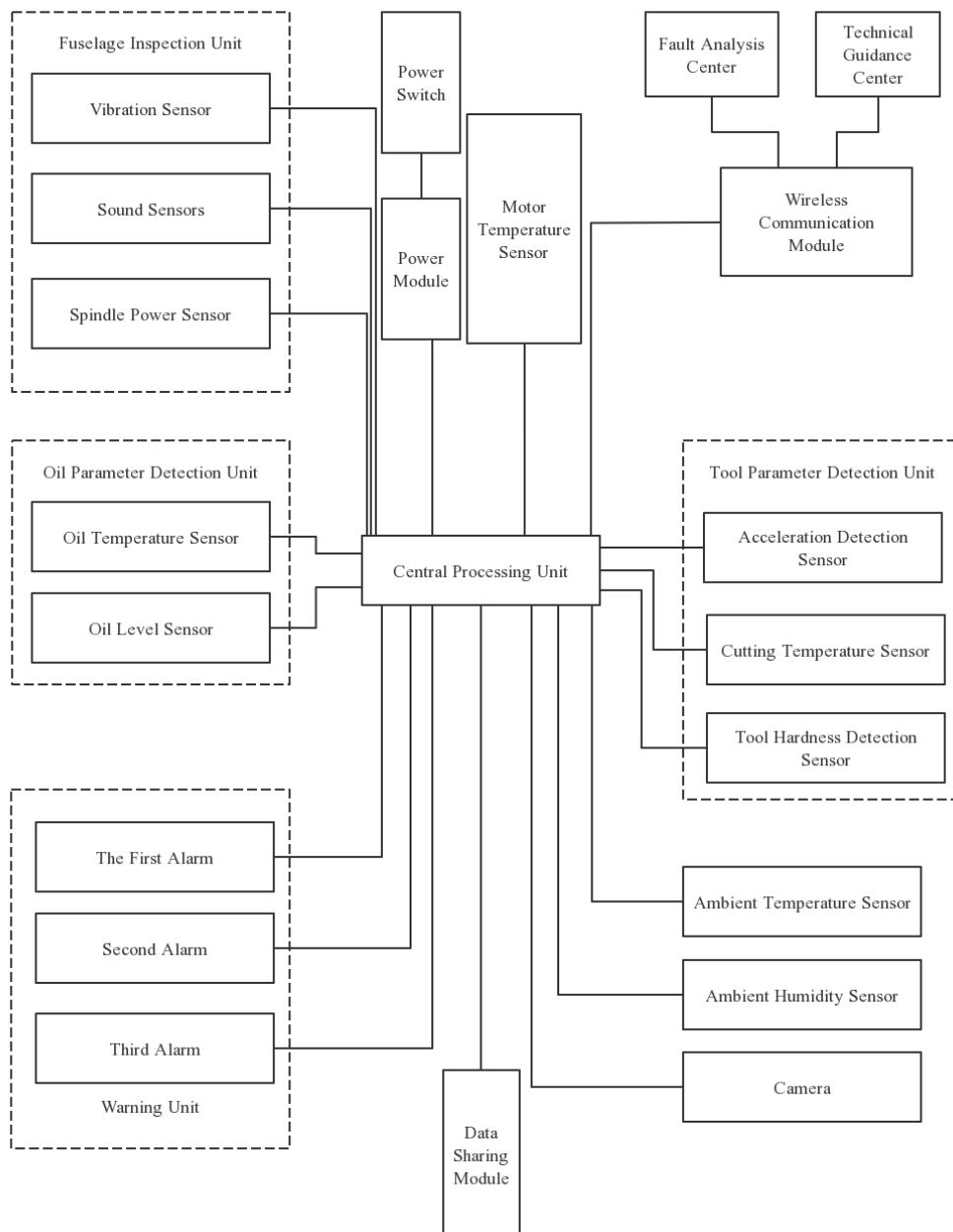


Figure 2 Operation flow chart of intelligent terminal

3. How to use digital technology in industrial automation

3.1. Improve the application concept

The innovation is mainly in execution, in other words, the ability to give orders early after the use of digital technology. For example, the bill information that has passed the examination is

stored in the computer system, the manual interface is scientifically designed during the actual operation, and the processing authority of each operation is clarified, which is helpful for the system to become more specific and perfect. During the operation simulation, the information can be identified and analyzed under unmanned conditions, so as to realize the automatic operation of the system platform.

3.2. Improving intelligent terminals

In essence, smart terminals can be used to connect application devices to optical fibers, ensuring that smart terminals can fully analyze data and information while having a dual configuration, on the one hand to effectively control the transmission signal, on the other hand to continuously protect the circuit. Digital program interface is the basic condition of system operation, which helps to scientifically deal with platform automation problems. At this time, intelligent terminal can improve the communication level of the system in the construction and application, and guarantee the automation advantage of the overall platform operation. The actual operation flow chart is as follows:

3.3. Using virtual Terminals

As a new technical means, this content has a wide range of practical application, and employees with little work experience or weak ability can also operate it accurately. During the design of equipment, virtual terminals will effectively control the connection line switch in continuous innovation, and can also remotely control the system equipment, which not only simplifies the signal processing and transmission steps, but also ensures the safety of the electrified system operation.^[5.6.7]

4. Conclusion

To sum up, in the continuous improvement of industrial electrification, the level of social and economic development and construction in China has also been improved. Especially under the background in the era of big data, as in an increasingly important position in the market development of digital technology, gradually got all the attention and concern of the enterprise, the technical personnel and management personnel to use digital technology to improve its running efficiency, guarantee the electrification system running stability and security, only in this way can fully demonstrate the unique advantages of digital technology.

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