Discussion on the feasibility of applying electronic technology in the field of industrial control

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Abstract: In the design and generation of industrial modernization, automatic production equipment has gradually popularized, and the industrial generation efficiency has been continuously improved. Of course, on this premise, significantly reducing consumption and generation cost is the key. In industrial automation production, realizing effective industrial control is a more important problem in current industrial production, which plays an important role in improving industrial production efficiency It is of great significance to reduce costs and improve industrial production accuracy. In view of this, this paper takes the application of electronic technology in the field of industrial control as the research theme, discusses the feasibility of the application of electronic technology, and provides a supporting basis for the improvement of the situation of industrial production control.

1. Introduction

With the improvement of China's scientific and technological level and the rapid development of economy, China's industrial production and construction has also been further developed. In China's current industrial production process, modern electronic technology has been applied, which has effectively improved the production efficiency of the industrial industry. However, due to the late start of the development in the field of electronic technology in China, there is still a certain gap between electronic technology and other developed countries. However, with the reform and opening up, China's electronic technology has made continuous progress and has been closer to the electronic technology level of developed countries step by step.

2. Development and present situation of industrial control in China

2.1 Development of industrial control field

In the 1860s, western countries began to enter the period of capitalist industrialization, but China was still in a natural economic situation. With the launch of the second industrial revolution, western countries began to enter the industrial era. However, China's top leaders, who had become a semi colonial and semi feudal society, did not actively participate in the industrial revolution, But it is still in the state of competing for power and profit. Therefore, when western countries vigorously develop their economy, China's economic development is at a standstill and the production efficiency is low. Therefore, the gap between China and Western countries began to widen. With the founding of new China, China began to vigorously develop economy and industry, and introduced many advanced technologies and equipment from western countries. With continuous efforts, China's economy also began to enter the stage of rapid development, and people clearly realized the importance of economic development and industrial development to a country. However, with the development, it is found that the improvement speed of China's industrial level is not very obvious. The reason is that there are some differences and conflicts between the imported equipment and China's industrial production, and there is a long transition period in the introduction of technical means. Therefore, in the actual industrial production, there are always problems, but the relevant staff themselves do not have the corresponding technical ability and knowledge level. They can only operate the equipment simply, but can not effectively solve various faults and technical problems of the equipment. Finally, they can only invite technicians from western countries for maintenance, This increases the consumption of economic costs. Until entering the 21st century, the effect of reform and opening up is extremely obvious, and China's economic development and industrial technology level have been significantly improved. With the improvement of industrialization and modern automation technology, automation technology is also integrated into the field of industrial control. At the same time, electronic technology is also widely used in industrial production, making the development of China's industrial control field more growth. Gradually, in industrial production, the traditional mechanical equipment has become electronic mechanical equipment, which greatly improves the accuracy and efficiency of production, reduces the utilization of human resources, and significantly strengthens China's industrial production capacity.

2.2 Current status of industrial control

With mechanical equipment gradually replacing the traditional production mode, China's production efficiency has been significantly improved for a period of time. For China, which is in the early stage of industrial development, it can meet the needs of industrial production. With the progress of our society, the demand for production and life has become higher and higher. There are high requirements for both the quality and quantity of industrial products. These traditional mechanical equipment can not meet the needs of the society in the new era until the application of electronic technology has gradually solved these problems. In recent years, programmable logic controller and single chip microcomputer are used in the field of industrial control to write the required control program, which meets the needs of industrial control, reduces the labor intensity and saves a lot of manpower and material resources, The problems of production efficiency are solved. At the same time, with the progress of science and technology, the emergence of modern intelligent system has also been applied to industrial production, which can effectively solve some simple problems in production. However, because China started late in industrial production and there is a big gap in the level of Electronic Science and technology compared with developed countries, which limits the development of China's industrial control field. Therefore, China is still facing severe problems in the development of electronic technology(Figure 1).



Figure 1 Industrial control field

3. Development of electronic technology in industrial control field in China

With the deepening of China's social and economic reform, the economic tension has been released and the level of industrial production has been continuously improved. Of course, the contradiction between the backward production efficiency and the growing demand of the people and the demand for a better life makes it a problem to improve the degree of industrial production

automation. In order to ensure the sustainable stability of China's economy, the introduction of electronic technology into industrial production has become a technical way. Industrial production automation provides a strong guarantee for the follow-up industrial production to achieve large-scale and high efficiency. Although China was the second largest economy, there was a certain gap between China and western developed countries in electronic technology at that time, which obviously widened the productivity and economy between countries, which was unfavorable to the improvement of China's international status and influence. At present, China's industrial control industry is widely distributed and has its own characteristics, which leads to the closeness between industrial production. The application and development of network and open mode has improved the estrangement between various links, but also brought the problem of information security to a certain extent. In addition, the core electronic technologies are mastered by developed countries. The introduction of these technologies means high patent fees, which restricts the development of China's electronic technology in the field of industrial control to a certain extent. In the future, we must do a good job in the innovative development of electronic technology, develop core science and technology, gradually replace the technical products of developed countries in the field of industrial control, and gradually realize localization, so as to get rid of the situation of being controlled by others(Figure 2).



Figure 2 Electronic technology in industrial control field

4. Feasibility of applying electronic technology in industrial control field

4.1 Improve industrial production efficiency

Through the systematic analysis of the development process of China's industrial production, it can be found that the traditional industrial production process usually takes the manual production mode as the core, resulting in the low overall operation efficiency of industrial production. At the same time, manual production can not always maintain a good working state. After a long time of work, it will inevitably produce a sense of fatigue. At the same time, people are prone to Burnout Based on the high load working environment for a long time, and finally form various omissions in industrial production, which directly reduces the overall industrial production efficiency. However, the integration of electronic technology into industrial production control is very different. In the process of using electronic technology, some specific programs can be successfully written into the corresponding electronic equipment, so as to further improve the control level in the industrial field. In actual industrial production activities, relevant staff can also reasonably control the overall operation of electronic chips by connecting with the electronic equipment and electronic chips

written in the program, so as to promote the automatic operation of industrial production. Compared with the manual production mode under the traditional mode, the electronic chip will not feel tired during long-time operation, and does not need any rest time. It can ensure that the same working state can be maintained for 24 hours, ensure the overall quality level of industrial production, and further improve the industrial production efficiency. Compared with the general mechanized production mode, the integration of electronic technology for industrial production can carry out intelligent management for various production machinery and equipment, contact the industrial production objectives and actual needs, take into account the actual situation of current industrial production, flexibly adjust each production machinery, optimize the operating parameters of machinery and equipment, and effectively control the whole production process, This is also a goal that cannot be achieved by relying solely on artificial mechanical equipment. Electronic technology is a high-tech production technology, which needs to invest a lot of production costs in practical application, which is also the key consideration of most industrial production enterprises. Based on the perspective of long-term development in the future, the integration of relevant electronic technology into industrial production can promote the long-term development of industrial production and optimize the production benefits in the industrial field. In addition, it is also necessary to take into account the development advantages of the application of electronic technology in industrial control, which can further strengthen the overall production efficiency, and comprehensively transform and optimize the industrial control process. With the support of electronic technology, most enterprises have implemented comprehensive transformation for their own industrial control process and achieved good results, which is conducive to the transformation and upgrading of enterprises.

4.2 Optimize machining accuracy in industrial field

In industrial production, the processing accuracy of products can have a direct impact on the quality of products related to industrial production, which is related to the relevant economic benefits and production costs of industrial production enterprises. It is analyzed that if the product has obvious accuracy error in the actual production operation, and the product can not meet people's application requirements, and then can not successfully open the market, most industrial products begin to form various inventory accumulation, form a large waste of resources, and affect the smooth return of funds in industrial production. The problem of machining accuracy can usually be reflected from the aspect of manual production. The specific staff are negligent in the actual production operation, resulting in various errors or some error problems in the actual mechanical operation. Based on the application background of electronic technology, it can successfully avoid various production errors under the traditional industrial production mode, and further optimize the industrial production quality, especially in terms of production accuracy. Through intelligent and automatic mechanical control and optimization of production process, it can effectively improve the overall processing accuracy of industrial production. This is also the incomparable advantage of traditional human eye recognition. In the current social development, the production accuracy requirements of most equipment and products have reached the nano level, and this accuracy requirement can be successfully realized only by applying electronic technology in the field of industrial control. The use of electronic technology in the field of industrial control can promote the whole production process to realize the control of various equipment by external circuits and electronic chips. The operation control parameters of relevant equipment are all controlled through programming, which can effectively ensure the product processing accuracy. Moreover, because different products have different processing accuracy requirements and parameter requirements, it is necessary to reasonably set the relevant processing procedures in connection with the actual processing conditions, which is also one of the outstanding advantages of electronic technology, which can not be realized by mechanical control and traditional manual control. Electronic technology is based on various electronic chips, which writes the process flow and processing process in industrial production into corresponding electronic programs, and then the relevant electronic equipment will carry out processing operations according to the established procedures, which can essentially reduce the probability of industrial error. For example, in common industrial production, only CNC machine tools can automatically process the corresponding components according to the established procedures, which improves the processing efficiency and ensures the processing accuracy.

5. Conclusion

In short, with the continuous progress of society, in order to meet the needs of modern production, the application of electronic technology in the field of industrial production control is the inevitable trend of industrial production development in the future. The application of electronic technology has effectively changed the problem of low efficiency and low precision of traditional industrial production, effectively reduced the cost required in industrial production, and further promoted the production development of China's industrial field.

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