

Development and Tendency of Intelligent Mechanical Automation

Yueping Guo

Liuzhou Cigarette Factory, China Tobacco Guangxi Industrial Co., Ltd., Liuzhou, Guangxi, China545005

Keywords: Intelligence; Mechanical automation; Development; Trend

Abstract: With the development of science and technology, automation technology began to appear in people's production and life, bringing a lot of convenience to people's work and life. The application of automation technology in industrial production greatly shortens the production time and improves the production efficiency. Among them, the use of large-scale mechanized and automated equipment for agricultural production can greatly improve labor productivity. With the increasing population of the world, the traditional food production can not meet people's needs, so all countries in the world are actively developing automatic production technology to promote the development of agricultural production. At present, the automated production technology with computer has been widely applied, and the unattended automated operation and production have been realized. In recent years, the comprehensive national strength of China has been continuously strengthened, the level of science and technology has been significantly improved, and various industries have been improved to some degree. But compared with developed countries, there is still a big gap in China, especially in the area of mechanical automation.

The development of intelligent mechanical automation technology has greatly promoted the development of China's economy. Now the application of mechanical automation technology in various fields of our country is more and more extensive, and the comprehensive national strength of our country has been greatly improved. Mechanical automation technology generally refers to the computer-aided technology, which controls the automatic operation of mechanical equipment by inputting relevant instructions into production equipment to realize remote control of equipment. It reduces the human and material resources of enterprises to a great extent, and has high production safety. It is the main production mode in modern enterprises^[1].

1. Development Status of Intelligent Mechanical Automation Technology in China

Mechanical automation technology has been continuously developed since the 1920s. It has been widely used in the production of various industries. In recent years, with the high integration of computer technology, the development of mechanical automation technology has been greatly accelerated. In China, it can be said that mechanical automation technology determines and influences the development of machinery manufacturing. In summary, the development of mechanical automation in China mainly focuses on the following aspects.

1.1. Automated Processing in Factories

In the traditional industrial production, a pipeline requires countless workers to keep the production work going. The mechanical automation technology replaces the labor of the workers with automated production. With the electrical automation control technology, it can complete the various processing tasks and the quality of the products adopting automated processing is higher and the rejection rate is very low, which greatly saves the production cost of the factory. The production and processing of the product can be achieved as expected without the direct involvement of the worker. Automation technology involves technologies such as machinery, computers, and microelectronics, and has become the main means of improving productivity in factories^[2].

1.2. Automated Testing

Mechanical automation technology is an intelligent technology, which is applied to the production of various industries to realize automatic testing of plant equipment and production conditions, and real-time monitoring of production equipment. With the automation technology, it is possible to carry out automated data collection and data processing analysis of the working conditions of the mechanical equipment in the production, and ensure the normal operation of the equipment at all times, which greatly reduces the maintenance cost of the mechanical equipment and the safety of production. Intelligent production has not only greatly improved the production efficiency of the enterprise, but also provided a safer and more reliable working environment for the staff.

1.3. Automated Assembly

Under the background of automation, various enterprises began to adopt new processing technology. With the rise of digital technology, automatic assembly technology began to appear, and has been applied to a certain extent. This technology can assemble all kinds of parts according to certain assembly relationship, and eventually become a complete machine. Compared with traditional manual assembly, the quality of automatic assembly is higher and is easy to succeed. In addition, in the development of mechanical automation technology, communication technology will be applied to the production of mechanical automation products, so that mechanical automation products have communication interface, communication module and central processing unit to achieve centralized control and information exchange of mechanical automation technology^[3].

2. Advantages of Intelligent Mechanical Automation Technology

First of all, the intellectualization and automation of enterprise production greatly improve the production efficiency of enterprise, and provide a more secure and reliable working environment for staff. Compared with manual management, automatic management is more efficient, and the accuracy and scope of management are very high. It can ensure that the work is completed on time to a certain extent. In the wave of economic development, it can improve the competitiveness of enterprises and enable them to adapt to the social development. Secondly, intelligent mechanical automation technology can alleviate the working pressure of employees. Traditional factory production can become efficient after adding intelligent technology, and staff do not need real-time control. Mechanical automation equipment can monitor the whole production process according to the settings, timely and effective solve the problems in the work, so that the work that would require a lot of manual control is replaced by the machine, which can increase the efficiency of the work and the economic efficiency of the enterprise. In peacetime work, there are often various unfavorable factors, which make the work progress slow. With the use of intelligent mechanical automation technology, we can achieve uninterrupted work, strictly control the whole production, avoid problems in traditional work, and greatly reduce production costs. In addition, the staff can give orders to the production equipment through the computer system, which realizes the automatic production and processing of products, and promotes the development of enterprises^[4].

3. Trend of Intelligent Mechanical Automation Technology

At present, China's manufacturing industry is moving in the direction of manufacturing power, and intelligent mechanical automation technology is an indispensable factor. Although China's manufacturing industry has developed rapidly, the manufacturing quality is not high, and the core manufacturing technology has not yet been mastered. Compared with advanced countries, mechanical automation technology in China still has many defects. In the long run, intelligent mechanical automation technology will become the mainstream of market development. The trend of intelligent mechanical automation technology in China is mainly reflected in the following aspects.

3.1. Adjusting Product Structure

The competition in the current market is intensifying, and the competition among enterprises is becoming more and more fierce. If a company wants to survive in such an environment, it must deepen its reform of production technology, strive to improve production efficiency, to ensure product quality, and to reduce unnecessary personnel expenses. It promotes the overall improvement of the company's economic interests and social interests, adjusts the product structure, improves the market competitiveness of enterprises to further promote the development of enterprises. When the structure of the product is adjusted, the traditional production mode is changed, the production technology is improved, and the production efficiency is increased to the greatest extent, and the production cost is reduced.

3.2. Grasping the Direction of Social and Economic Development

Intelligent mechanical automation technology is a comprehensive technology, including computer technology and automation technology. It has been applied not only to the industrial field, but also to many other fields. It is developed on the basis of mechanical automation technology. The enterprises of various countries have set their sights on the development of intelligent mechanical automation. They have focused on information and network construction to accelerate the construction of information and networking. Combining with the construction of network and market demand, The enterprises deeply study the problem of product research and development, solve the problems in production, and make full use of intelligent mechanical automation technology to meet the needs of enterprise development. For enterprises, how to achieve product adjustment, equipment renewal and technology update is an important factor in the application of intelligent mechanical automation technology, and it is also the essential requirement for the long-term development of the enterprise. Enterprises should firmly grasp the direction of economic development, continuously improve their own production technology, expand the application scope of intelligent mechanical automation technology, and lay a good foundation for the construction and development of economic society in China^[5].

4. Conclusion

With the development of computer technology and the popularization of Internet technology, the information age has come quietly. In daily production and life, the application of information technology has become more and more extensive. In the era of rapid development of computer technology, China is strengthening the research on computer technology, which promotes the development of mechanical automation technology in China, and lays a solid foundation for the development of intelligent mechanical automation technology. At present, economic construction in China is in the process of rapid development. Industrial development plays an important role in the development of the whole economy. How to use intelligent mechanical automation technology to promote the development of industry in China is a key issue in the process of industrial development research. Intelligent mechanical automation technology covers every corner of industrial development from automatic processing of industrial products to automatic assembly of products. As a new generation builder of our country, we should keep pace with the development of the times, constantly learn new automation technology, digest, absorb and improve new automation technology, and promote the development of automation technology in our country.

References

- [1] Gao Guangyu, Guoxin, Zhang Qirui. *Analysis on the Development and Application Trend of Intelligent Mechanical Automation* [J]. Sichuan Cement, 2017 (1).
- [2] Liu Shuai. *Analysis on the Development and Application Trend of Intelligent Mechanical Automation* [J]. Sichuan Cement, 2018 (2): 352.
- [3] Dong Hao, Li Bingbing, Liu Xiaoguo. *Analysis on the Development and Application Trend of*

Intelligent Mechanical Automation [J]. Engineering technology (abstract edition): 00267-00267.

[4] Wu Shubin. *On the Development and Application Trend of Intelligent Mechanical Automation* [J]. Private Science and Technology, 2013 (6).

[5] Ma Longtian. *On Trend in the Application of Intelligent Mechanical Automation and Its Impact on Life* [J]. Global Market Information Report, 2018 (21): 257-257.