

Discussion on the Application of Intelligent Technology in Electrical and Mechanical Engineering

Jie Jin*, Xinyan Yang, Changlan Lu

Taishan University, Tai'an 271000, Shandong, China

*Corresponding author

Abstract: With the continuous development of technology, intelligent technology is gradually becoming the focus of promoting social development and has been widely applied in various industries. In electrical and mechanical engineering such as construction, transportation, and industry, intelligent technology has also played a very important role. Due to the continuous development of intelligent technology and electrical and mechanical engineering, it is of great practical significance to deeply explore and analyze the application of intelligent technology in electrical and mechanical engineering. This article first briefly introduces the current development status of intelligent technology, and then focuses on a comprehensive discussion of the application of intelligent technology in electrical and mechanical engineering. I hope that this study can provide some reference and inspiration for relevant workers.

Keywords: Intelligent technology; Electrical and mechanical engineering; Application.

1. Introduction

Since entering the 21st century, the speed of human technological development has been increasing. As the most eye-catching technology in modern technology, intelligent technology has produced very positive application effects in various industries. In the field of electrical and mechanical engineering, the application of intelligent technology has significantly improved the level of the entire industry, not only in terms of efficiency, but also in terms of safety. The application of intelligent technology in the future will undoubtedly bring even greater value.

2. The Current Situation of Intelligent Technology in Electrical Engineering

Intelligent technology is an emerging technology based on the continuous development of computer technology and information technology. This technology can fundamentally simulate human thinking to replace manual labor, thereby achieving the goal of improving work efficiency, improving work quality, and ensuring work safety. The application of intelligent technology can create greater economic value and increase more social wealth. Currently, intelligent technology has been widely applied in many fields and has played a very significant role. It has also generated tremendous value for electrical and mechanical engineering, becoming an important driving force for the future development of electrical and mechanical engineering. And with the continuous progress of technology, intelligent technology is also constantly developing and improving. Artificial intelligence comes from computer technology, but its application will inevitably break through the computer field and gradually become an indispensable and important technology in production and life.

For electrical and mechanical engineering, intelligent technology not only improves operational efficiency and quality, but also provides tremendous impetus for the integration and progress of industry technology. The most

significant characteristics of intelligent technology applied in electrical and mechanical engineering are mainly reflected in the following two aspects: on the one hand, unmanned control. Compared to traditional electrical engineering control, intelligent technology can not only achieve faster control speed and shorter response time, but more importantly, it can simulate human thinking to solve more complex control problems, thereby truly achieving unmanned control. This is undoubtedly very important for reducing manual load and improving production safety. On the other hand, it has extremely high accuracy. The application of intelligent technology can greatly improve the accuracy and scientificity of control; Many control systems in electrical and mechanical engineering have high complexity, so it is necessary to fully consider the actual situation in the control process; The application of intelligent technology meets this requirement, which can make decisions more quickly by simulating human thinking, and meet the needs of accuracy and control. It is under its influence that the industry scope of electrical and mechanical engineering is constantly expanding, and its application fields are also constantly expanding. The development of IoT technology, information technology, and control technology has also provided stronger impetus for intelligence, which is crucial for the sustainable development of the electrical and mechanical engineering industry.

3. The Practical Application of Intelligent Technology in Electrical Engineering

Intelligent technology has been widely applied in various industries today and has had a huge driving effect on these industries. So in order for electrical engineering to continue to develop, it is necessary to rely on intelligent technology. In fact, current intelligent technology has been widely applied not only in electrical engineering, but also in daily production and life.

3.1. Application in the construction of smart cities

The development of smart cities cannot be separated from intelligent technology. The living supporting facilities supported by electrical engineering intelligent technology in urban intelligence have been widely applied in all aspects of urban construction. Many innovative services rely on intelligent technology, whether it's traffic lights on the road, entrance gates for smart transportation, self recharge points for citizen cards in public places, intelligent access control at building entrances, intelligent electronic price tags in supermarkets, or intelligent explanation functions in museums, and so on.

3.2. Applied to supporting power supply

Substation is an indispensable component of the power system, and the continuous development of substation technology also reflects the continuous progress of China's power system. Whether it is daily electricity consumption or high-voltage transmission, substations play a very important role. The function of a substation is to regulate voltage, including boosting or reducing voltage, in order to ensure that the voltage level meets the corresponding usage standards. In traditional substation related work, on the one hand, the danger is very high, and on the other hand, the professionalism is extremely strong. So there is a high demand for the professional skills of the staff; And once the relevant work is not done properly, it may cause losses, and the accuracy of manual work cannot be guaranteed. The application of intelligent technology in substation work can replace manual work, which not only reduces operational risks but also effectively improves operational accuracy, thereby ensuring the stability and reliability of the power grid operation.

3.3. Application to fault diagnosis of electrical and mechanical equipment

In electrical and mechanical engineering, equipment management has always been a crucial task, and how to effectively avoid equipment failures and improve equipment operation efficiency has always been a very important issue. In traditional homework modes, regular maintenance of equipment is required, but various equipment failures are still difficult to avoid; Moreover, once a malfunction occurs, a comprehensive analysis of the entire system needs to be carried out, gradually troubleshooting from each operating link, in order to understand the root cause of the malfunction and find solutions. This type of homework method cannot completely avoid malfunctions, and the efficiency of troubleshooting and maintenance is relatively low. The application of intelligent technology can effectively solve this problem. By implementing monitoring for each link of electrical and mechanical equipment, and then combining intelligent technology to comprehensively analyze the monitoring status, it is possible to make very accurate judgments on the equipment status; Once the abnormal operation status of the equipment is detected during the monitoring process, an alarm can be quickly issued to inform technical personnel of the abnormal point and cause, so that the equipment can be repaired as soon as possible. This not only enables effective control of faults, preventing them from causing significant damage, but also greatly improves the efficiency of troubleshooting and maintenance [3]. This

undoubtedly greatly improves the management level of electrical equipment.

4. Application Optimization Path of Intelligent Technology in Electrical and Mechanical Engineering

4.1. Improving the overall design of electrical and mechanical engineering

Electrical and mechanical engineering has high complexity and professionalism, so it has high requirements for design. In the traditional design process, designers must constantly review and revise the design scheme, identify and modify problems, in order to ultimately obtain a satisfactory solution. This process not only has extremely low efficiency, but also the degree of optimization of the design scheme cannot be guaranteed, which leads to many design schemes only discovering problems after being applied in practice, resulting in unnecessary losses. In addition, this design pattern requires extremely high professional skills from designers, and the workload is heavy. The application of intelligent technology has effectively changed traditional design patterns. Designers only need to control the relevant parameters, and intelligent technology can search and optimize the shortcomings and problems in the design scheme, thereby ensuring the accuracy and reliability of the scheme and providing effective technical support for electrical and mechanical engineering design.

4.2. Implementation of Automation Construction for Control Systems

With the continuous development of electrical and mechanical engineering, the integration level of control systems is also constantly improving. The application of intelligent technology has effectively improved the integration ability between application frameworks and technical models, thereby significantly enhancing the scientific and rational operation mechanism of the entire systematic project, and effectively improving the efficiency of the entire system. In addition, after the application of intelligent mechanisms in electrical and mechanical engineering, the entire system can handle resources and collect faults completely based on display requirements. This undoubtedly greatly optimizes its management path, allowing for more effective cost control and ultimately achieving a comprehensive innovation of resource conservation and efficiency improvement.

5. Summary

In summary, the application of intelligent technology in the field of electrical and mechanical engineering has significantly improved the level of the entire industry, not only in terms of efficiency, but also in terms of safety. The application of intelligent technology in the future will undoubtedly bring even greater value. As a current hot technology, the application of intelligent technology in electrical and mechanical engineering has produced very positive effects; It also provides tremendous impetus for the development of the electrical and mechanical engineering industry. In addition, it can also be said that intelligent technology is an important direction for the development of electrical and mechanical engineering, and is the trend of industry development. Therefore, relevant personnel must attach great importance to the application of intelligent

technology, actively learn skilled technology, and continuously optimize design schemes and technical means to promote better development prospects for China's electrical and mechanical engineering.

References

- [1] Huang Haizhong Application analysis of intelligent technology in electrical and mechanical engineering [J] Rural Staff, 2017 (18): 282.
- [2] Chen Jinfeng, Wang Yulun, Fu Bangtai Exploration of the Application of Intelligent Technology in Electrical and Mechanical Engineering [J] Shandong Industrial Technology, 2018 (19): 118.
- [3] Zhang Lilian, Liu Chuanxin Briefly describe the application of intelligent technology in electrical and mechanical engineering [J] Technology Innovation Report, 2015,12 (02): 234.