

Research on the Integration of Intelligent Technology and Mechatronics in Mechanical Manufacturing

Jinyan Zhao, Bingyuan Huang

Fujian University of Technology, Fujian, 350118, China

Abstract

With the arrival of the era of technological revolution, the speed of scientific and technological development has been gradually accelerated, which has effectively promoted the integration of electromechanical equipment as soon as possible and further strengthened the production level. In short, at present, we are in the era of industrial informatization, and electromechanical integration technology has also developed, which has effectively promoted the perfect combination of machinery and electronics. Over time, it has developed into electromechanical integration technology, which can intelligently control various mechanical equipment. For mechatronics technology, the intelligent manufacturing technology can interact closely with the system during the specific use, build an all-round and multi-level intelligent manufacturing, and effectively promote the development of industrial production in the direction of humanization and scientization.

Keywords

Mechanical Manufacturing; Intelligent Technology; Electromechanical Integration; Fuse.

1. Significance of the Combination of Mechanical Manufacturing Intelligence and Electromechanical Integration

Mechatronics technology is a comprehensive technology, which covers a wide range of contents. It effectively combines microelectronic technology, computer network technology, automatic processing technology, sensor measurement and control technology and automatic control technology, and thus promotes the integration of mechatronics and automation after the energy consumption of shymli port a is reduced. It is a reform of the traditional machinery manufacturing industry, and is conducive to meeting the requirements of computer integrated manufacturing, Therefore, the combination of mechanical manufacturing intelligence and electromechanical integration is the reform of traditional mechanical manufacturing industry and the personalized needs of different customers. It can also improve the overall mechanical production automation level of the manufacturing industry and improve the overall work efficiency of the industry at the same time.

2. Analysis of Application Technology of Intelligent Technology and Electromechanical Integration

2.1. High Speed Data Analysis Technology and Intelligent Decision Technology.

In the mechanical manufacturing numerical control center integrating intelligent technology, the centralized control unit is often connected with the intelligent data analysis unit. At this stage, most CNC machining centers will add expansion interfaces related to network information in the interface expansion structure. By applying such interfaces, network management of CNC machining centers can be realized. From the perspective of its intelligent technology application form, during the operation of such mechanical manufacturing CNC

machining center, the centralized control unit will simulate the tool path according to the preset program, and show the rationality of the tool path with the visual results. At this time, the staff can re optimize and simulate the machining path according to the actual tool path, so as to select a more reasonable machining process. In this process, the technology application module related to intelligent decision-making will record the process processing habits of the CNC machining center, and also conduct big data analysis on various process links of mechanical manufacturing, so as to screen and record the processing behaviors related to the data in combination with the characteristics of such data. In this way, if similar or identical processing actions need to be performed in the subsequent processing process, The previously accumulated data can be directly applied. This application form of intelligent technology based on data analysis is the application form of high-speed data analysis technology, which needs to be based on intelligent decision-making technology. At this stage, in the intelligent CNC machining center, the arrangement of dynamic capture camera angle has been realized. The system can diagnose the machining conditions and machining states by itself, so as to realize the independent decision-making process with a higher degree of freedom.

2.2. Application of Numerical Control Production Technology.

Under the effect of mechatronics technology, the development speed of China's mechanical processing enterprises is gradually accelerating. In the early stage of development, machining enterprises tried to carry out production and manufacturing through numerical control technology, which belongs to the formal development of electromechanical integration technology. In the process of applying numerical control production technology, it focuses on information processing and data simulation, which can integrate all data, process, simulate and analyze, and is conducive to improving the accuracy of intelligent manufacturing production. Moreover, by integrating the drawing and statistics functions of numerical control production technology and computer technology with numerical control production, the relevant data and production process can be displayed in an intuitive form, which can improve the reliability of intelligent manufacturing. In addition, when manufacturing products, based on the terminal design, CPU operation mode, intelligent control and real-time diagnosis, the enterprise can conduct three-dimensional simulation of the production and processing process, and consolidate the data base of mechanical manufacturing in production.

2.3. Machinery Manufacturing is Developing Towards Green.

The concept of green and sustainable development has a far-reaching impact on the machinery manufacturing industry. For the combination of intelligent technology of mechanical manufacturing and electromechanical integration technology, green development is an important direction of the combination of the two. First of all, the introduction of intelligent technology into mechanical integrated manufacturing requires attention to the green production mode, adding environmental protection control technology in the mechanical manufacturing process, and using intelligent production to reduce the loss and reduce the possible impact on the ecological environment. Secondly, with the great changes in people's lifestyle, both the productivity level and people's living standard have been greatly improved, so people pay special attention to the ecological environment. The combination of mechatronics technology and artificial intelligence can better express the coordination between human machines by changing the color and shape of machinery manufacturing machines, so that the machinery manufacturing industry can meet people's needs and human-machine relations, and there is a natural and comfortable relationship between equipment production and mechanical control. Finally, green production and green development concept are affected by intelligent technology and electromechanical integration. It is necessary to give consideration to the production technology and green development level, and promote the diversification of green development from the technology itself. In particular, for the producers and operators of sharp

machinery manufacturing industry, both the production technology and production output of products need to be more targeted, so as to promote the green production and green development concept into the machinery manufacturing industry.

2.4. Dynamic Feedback Technology and Intelligent Regulation Technology.

During the operation of the intelligent system, it is necessary to make correct judgments under different processing and manufacturing environments, and select more appropriate processing and manufacturing forms according to the specific requirements of production and manufacturing. In this process, whether a correct judgment can be made is the key, and the factors that affect the accuracy of the judgment result include not only the operating performance of the mechanical manufacturing system itself, but also the operating efficiency of the dynamic feedback mechanism of the system. Especially in the context of electromechanical integration, this dynamic feedback mechanism needs to take into account the mechanical manufacturing system and the electrical technology system. At present, the application form of this dynamic feedback technology in complex machining systems is mainly closed-loop feedback control technology. In fact, the application form of such control technology has been very mature. However, in order to adapt to the scene expansion attribute of intelligent technology, after selecting such control technology, it is often necessary to add an intelligent regulation mechanism to such technical systems, that is, it is necessary to link feedback control and intelligent regulation, Improve the overall application efficiency of dynamic feedback technology. In this process, to ensure the application quality of dynamic feedback technology, technicians also need to reasonably select the comprehensive application form of electromechanical integration technology, and add this technology application form to the specific technology application system. Based on the feedback mechanism, relevant system operation data are collected, so as to realize data feedback at the system level and give play to the application advantages of intelligent regulation technology. Especially in the intelligent control process of mechanical equipment, this dynamic feedback mechanism can provide safety guarantee for the operation of equipment and avoid unreasonable operation behavior during the operation of equipment, which is also one of the technical bases for improving the operation quality of mechanical manufacturing equipment.

2.5. Application in Computer Integration.

As we all know, the human brain is controlled by numerous nervous systems, and the human mind is operated by the nervous system. At the same time, it helps people to complete the operation process of receiving, analyzing, sorting and calculating external information. For computer integrated system, it is shown as simulating human neural network, thus forming a set of standardized and sound intelligent information processing system. With the help of computer integration, it is possible to collect, analyze and sort out a large amount of digital information, so as to obtain accurate results and analyze the correlation among them, so as to meet various technical data and production operation requirements and ensure that managers can make more accurate decisions. Computer integration is based on the cooperation with various departments, upgrading a single computer subsystem and transforming it into an intelligent manufacturing system, so that it has inherited characteristics. It can not only meet the production needs of enterprises, but also maximize the development potential and creativity of enterprises.

3. Conclusion

In a word, in the new period of economic development, the development demand for the integration of intelligent technology of mechanical manufacturing and electromechanical integration technology is obviously increased. The process of this technology integration is also

the process of intelligent technology development. In this process, the staff need to start from the technology application practice, accumulate the technology application practice experience, and optimize the application form of intelligent technology in combination with such technology application experience.

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