Research on the Development Trend of Industrial Automation Control Technology Based on Big Data Analysis

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Abstract. Industrial production automation refers to the general term for measuring machinery and equipment or production process based on big data, information processing and process control without direct manual intervention according to big data. In the context of the gradual disappearance of China's demographic dividend, supply-side structural reform has become an important focus of future policy intentions. Chinese manufacturing companies are gradually applying advanced technologies (such as human-computer interaction and intelligent machines) to the entire industrial production process to realize production automation and improve the overall productivity of industrial enterprises.

Keywords: Industrial Automation, Development Trend, Explore, Big Data Analysis

1. Sketch
Industrial automation is a kind of comprehensive technology. Through the application of computer, electronic equipment, control theory and related technology, it produces the management function of optimization, detection, control and adjustment of the whole industrial production process, so as to achieve the established goal, achieve industrial production, energy saving and consumption reduction and safety production. Specifically, the production process of light industry, oil refining, chemical industry and food industry is the abbreviation of industrial automation. Some instruments with automatic devices are equipped on machines and equipment to replace people's direct work, realize different degrees of automatic production and achieve goals. This whole process is controlled by automatic devices, which we call automatic production process.

2. Automation significance
The production scale of oil refining, chemical industry, biology, electric power and other industries tends to be larger and more complex. Therefore, with the vigorous development of modern science and technology, the important guarantee of efficient, safe and high-quality production of modern industry depends entirely on the guarantee function of various automatic control technologies. The state political commissar has also issued a document proposing: if we compare our country with developed countries only from the management level and product quality, we will find a big gap, especially the equipment technology and level of our country, and will continue to expand the gap with developed countries in the future. Where is the national way out in this severe situation? First of all, due to the national strength, we can't bear the large-scale renewal of equipment. Second, if we maintain the status quo of equipment and compare it with the production of developed countries, we can imagine the consequences. Only by transforming the traditional industry to a certain extent, making full use of electronic technology, fully integrating the two,
upgrading the quality of enterprises, and improving the overall income are the best solutions today. At present, the main means to improve China's national strength is to use computer application technology and automatic control technology to carry out technological transformation of traditional industries, so that they can improve economic efficiency and achieve the established goals. Therefore, this also leads to the fierce market competition, the country and the country, enterprises and enterprises are inevitably involved in this competition. The advantage we can see is the economic take-off competition between Japan and West Germany: while the United States has begun to devote itself to the research of intensive technology industry, it has also developed automation industry technology. They have made great achievements and economic benefits in using computer application and modern control technology to transform traditional industry.

3. Development direction of industrial automation

3.1. From analog to digital
The software module system of the field equipment network support system includes remote data acquisition software, database software, Web publishing software and communication interface software. The data collection system can establish an interface with the company's existing database, and the data structure is open. Users can easily share data based on the database and develop auxiliary functions, such as reports, statistics, query, filtering, printing, etc., to meet the requirements of enterprise production. At the same time, the pre-diagnosis function and pre-processing function are set in the hardware settings. When an equipment accident occurs or does not occur, the main terminal will issue an alarm and suggest a solution. At the same time, data and results will be uploaded directly to the server computer. The central network is constructed under the client-server model. The central server collects the data of the lower-level equipment and stores it in the database. The central server can appear in any node (control center, computer center or other location) of the corporate LAN; client software is installed in the company's dispatch room, and can be managed, modified, and set up for data collection under the authorization of the information department. The central server can be in the center of the computer or other locations in the central corporate LAN; client software is installed in the company's dispatch room, and can be managed, modified, set up or printed to the central server under the authorization of the information department report. The central server transmits data through the external Internet+ and transmits the data to the mobile client platform. At any time when monitoring the mobile phone, some personnel are authorized to operate, so as to avoid production failure due to wrong reasons. Avoid false positives and reports in time to cater to the development of the industry.

3.2. Modular development
Contactors and relays are always at multiple points of electrical automation failure. In the future, integrated modules can be used to replace contactors and relays, and point-to-point direct module control can be used. The latest wireless receiving system is used for the module.
1. The wireless intelligent digital module directly replaces the use of relays.
2. Two wireless smart inverter modules replace the old inverters and contactors.
3. Use named frequencies to distinguish the same modules to better solve point-to-point control.
4. A wireless smart module equipped with pre-diagnosis function.

Figure 3. Market scale of industrial automation industry.

Figure 4. Total cost in recent two years, cost expensive rate.

4. Conclusion
The typical feature of industrial automation technology is computer technology, which is the most widely and rapidly developing technology with remarkable benefits in the world. It has a key role in promoting the new industry and technological revolution. It is also a comprehensive integration of information and electronic technology. It shows a huge advantage of intelligence and technology intensive in technology. It is no exaggeration to say that the new industry The construction of industrialization road is inseparable from the foundation of industrial automation technology, the latter is the key technology to ensure the success of the former[6].

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