Application of Internet of Things Technology in Management of Logistics Machinery Equipment

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Abstract: The Internet of things is an extension and expansion of the network by taking the Internet as the core, which effectively improves the efficiency of information exchange and communication between things; therefore, it is widely used in all fields of production and life in society. Based on this point, this paper first introduces the basic concepts and key technologies of the Internet of things, further discusses the necessity of the application of the Internet of things technology in the management of logistics machinery equipment, and finally proposes the main points of the application of the Internet of things technology in the management of logistics machinery equipment.

1. Introduction

With the development of economic construction, the status and role of logistics machinery equipment in logistics industry are becoming more and more important; the management quality of logistics machinery equipment directly affects the efficiency and benefit of logistics activities. The the Internet of things technology is used to optimize the management of logistics machinery equipment, so that the management of logistics machinery equipment can be continuously adjusted and innovated, which has important theoretical and practical significance. The Internet of things technology is an emerging network technology, by using the Internet of things technology, the logistics machinery equipment management system can be gradually established, which has an important role in optimizing the management process of machinery equipment, improving the management method, improving the level of mechanical equipment management, and improving the economic benefits of logistics industry. The research results show that in the future, the Internet of things technology should further strengthen the research on the application of Internet of things technology in logistics machinery equipment management, so as to promote the sustainable development of the logistics industry.

2. Internet of Things Technology

2.1 Brief introduction

The Internet of things technology is another technological revolution after computer technology, Internet technology and mobile communication technology. The Internet of things adopts sensors, radio frequency identification, global positioning system, infrared sensor, laser scanners, gas sensors and other information sensing devices and technologies to monitor, connect and interact object need, the collected information includes sound, light, heat, electricity, mechanics, chemistry, biology, location, etc., and form a huge network in combination with the Internet. Its main purpose is to realize the connection between things and things, things and people, things and the network to facilitate identification, management and control. In this way, the supercomputer group is used to conduct real-time management and control of the personnel, machines, and infrastructure of the "integrated network", fine and dynamic management of production and life can be achieved,

resource utilization and productivity can be continuously improve, and the relationship between man and nature is gradually improved.

2.2 key technologies

Radio frequency identification is actually a communication technology, it does not need to identify the optical or mechanical foundation established by the system and specific targets, and can achieve the identification of specific targets only through radio signals, moreover, data related to the target is quickly read..

Sensing technology is a comprehensive engineering technology that obtains relevant information from natural sources and transforms and recognizes it, it mainly includes the research and development, testing, and application of sensors and sensor-based information processing and identification.

Intelligent embedded technology uses Internet access and embedded security technology to embed the corresponding information processing components in the system, and then centralizes the hardware and software systems, so as to quickly realize the technology of information exchange with the outside world.

Cloud computing conduct unified management and dispatch a large number of network-based computing resources, thereby forming resource pools and providing related services to users according to their needs, strong data storage and processing capabilities are the most distinctive advantages and features of cloud computing, which have good adaptability for processing massive data.

3. The Advantages of Application of Logistics Technology in the Management of Logistics Machinery Equipment

3.1 Internet of things technology can realize the precise management of logistics machinery equipment

Realizing accurate management is one of the important goals of logistics machinery equipment management information. If the Internet of things tag is embedded in logistics machinery equipment; all logistics machinery equipment can be uniquely identified and accurately managed, the information recorded by the tag will accompany the full life of the machinery equipment from the factory to the end of life. Through this tag, we can know all kinds of information on this machine at any time.

Internet of things technology can realize real-time visual management of logistics machinery equipment

3.2 Visual management has always been the goal pursued by modern mechanical equipment management

As far as logistics machinery equipment management is concerned, visual management will greatly improve management efficiency, thus better achieving management goals. By using the Internet of things technology, through the Internet of things tag on each mechanical device, the current status of each mechanical device can be sensed at any time and reflected on the background management platform. Through intelligent processing, managers are reminded to conduct corresponding management, thereby achieving the goal of visual management.

3.3 The Internet of things technology can realize the intelligent management of logistics machinery equipment

There may be some sudden and dangerous situations in the use of logistics machinery equipment, at present, these emergency treatments mainly rely on manual labor, and the response time is long. By using the Internet of things technology, the technical status of machinery equipment can be reflected in the management information system in time, which helps managers control the overall

situation of machinery equipment in real time and assist managers make decisions, thereby avoiding dangers and improving utilization efficiency of machinery.

4. Necessity of Application of Internet of Things Technology in Logistics Equipment Management

4.1 Improve the accuracy of machinery equipment management

Achieving accurate management of logistics machinery equipment is an important goal of logistics modernization and information-based transportation management, through the introduction of the Internet of things technology, fast and accurate identification of logistics machinery equipment is realized, the life cycle management of the equipment can be realized based on the information recorded by the tag, it undoubtedly plays an important role in improving the management accuracy and efficiency of equipment.

4.2 Realize real-time visual management of machinery equipment

Visual management has always been an important direction and goal of modern logistics machinery equipment management. As far as logistics machinery and equipment is concerned, after the Internet of things technology is used, by setting up the Internet of things tags in machinery equipment, thus the operating conditions of machinery equipment can be better sensed, and it reflects the operation condition of equipment to the management platform to realize the visualization of equipment management and improves the efficiency of equipment management.

4.3 Improve the intelligent level of machinery equipment emergency management

In the process of logistics transportation, related machinery equipment will inevitably have some sudden dangerous conditions in the use process, and the traditional artificial emergency response measures will have a relatively long response time in the face of sudden conditions, and the application of Internet of things technology will ensure that the working status of each equipment can be reflected in the management information system in time, and provide references for equipment managers to make correct decisions quickly.

5. Application model of Internet of Things Technology in Logistics Machinery Equipment Management

5.1 Overall architecture model of Internet of things technology application

The structure of Internet of things can be roughly divided into three parts: perception layer and transmission layer and application layer. The perception layer is equivalent to the nerve endings of human eyes, ears, throat and skin, mainly including RFID, barcode, sensor, etc. its main function is to identify mechanical equipment, collect the performance parameters, use and maintenance of machinery equipment and other data information. The network layer is composed of various private networks, the Internet, wired and wireless communication networks, network management systems, etc., which is equivalent to the human nerve center and brain, it is responsible for transmitting and processing the information obtained by the perception layer, including all available networks that can transmit data. The application layer is the interface between the Internet of things and users; it combines with the needs of the industry to realize the intelligent application of the Internet of things, including various practical application software and integration.

5.2 Business process model of Internet of things technology application

The application process of Internet of things technology is mainly r to acquire information through RFID, sensor and other technologies, and then transmit it to information system. The business process of RFID technology involves the reading and writing of information, which is bidirectional. The RFID technology is used to tag the machinery equipment, and then the machinery equipment information is read by RFID reader and transmitted to the background information system

for information processing. If it is necessary to modify and update the machinery equipment information, it can also be written into the mechanical equipment through RFID again to rewrite the RFID tag.

5.3 Application function architecture model of Internet of things technology

The application of Internet of things technology in the management of logistics machinery equipment mainly focuses on the following three aspects: the first is monitoring function, in the logistics machinery and equipment management activities, the work involved in monitoring mainly includes: the use condition of logistics machinery equipment, storage, maintenance, repair, operation status, time of logistics machinery and equipment entering and leaving the site, etc. By using the Internet of things technology and adding various sensors in relevant parts, such as temperature and humidity sensors, pressure sensors, cameras and other equipment, the real-time monitoring of the safety management of logistics machinery equipment can be realized. The second is intelligent analysis function; the data obtained from the sensor can be analyzed. The third is safe disposal. After analyzing the data obtained by the sensor, the corresponding safe disposal methods are proposed.

5.4 Information flow model of Internet of things technology application

The essence of Internet of things technology is to realize the communication among things, so the information exchange in the Internet of things system is mainly from objects to objects. In the management of logistics machinery equipment, the information flow model of the Internet of things technology is that mechanical equipment forms information form through identification technology and perception technology, transmits information through various bearing networks, stores and processes data through relevant software systems, and then processes data through the system intelligent processing, the execution structure issues commands, and transmits them to mechanical equipment through the network, the execution status is fed back to network, then transmit information to the system data space.

6. Conclusion

To sum up, the Internet of things technology is a new network technology, the Internet of things technology is used to gradually establish the logistics machinery equipment management system, which has important theoretical and practical significance for optimizing the logistics machinery equipment management process, improving the management mode, improving the logistics machinery equipment management efficiency and improving the economic benefits of logistics enterprises. With the continuous development of social and economic construction, the status and role of logistics machinery equipment in the logistics industry is becoming more and more important. The quality of logistics machinery and equipment management directly affects the benefit of logistics enterprises. Therefore, the application of Internet of things technology is used to optimize the management of logistics machinery equipment, so that the management of logistics machinery equipment is constantly adjusted and innovated, so as to promote the healthy and stable development of the logistics industry.

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