

Application of the Internet of Vehicles in Logistics Management System

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Keywords: the Internet of Vehicles, logistics management system, application

Abstract: With the continuous development of social science and technology, China's services offered by the Internet of Vehicles are also constantly improving, and the value-added services that it brings are more concerned and valued by people. In China's logistics industry, there is a new demand, that is, new energy logistics vehicles. This paper focuses on the analysis of new energy logistics vehicles. At the same time, according to the characteristics of value-added services brought by the Internet of Vehicles, the application of the Internet of Vehicles to new energy logistics vehicles is discussed. With the development of the Internet of Vehicles, the characteristics of value-added services have become more and more important, and have been widely used in the field of logistics.

1. Introduction

With the rapid development of science and technology in our country, our country has also developed unique functions of autonomous vehicles and the Internet of Vehicles, which is also a great breakthrough and innovation for our automobile industry. For the above functions, our country has formulated corresponding plans. With the continuous reform and innovation, great breakthroughs have also been made in automotive technology, such as engine performance and ride comfort. Now in the era of network, automobile technology is gradually tending to networking and intelligence, which also means that the automobile industry in China has been a breakthrough development. In order to achieve the effect of Intelligent Networking for automobiles, the relevant departments and units of China's automotive industry are also constantly exploring and innovating the Internet of Vehicles. At the same time, in order to promote their own development, relevant industries also discuss the value-added services of the Internet of Vehicles according to their own characteristics. New energy vehicles, whether for China's automotive industry or foreign automotive industry, are a great breakthrough, and also attract the attention of people at home and abroad. With the continuous improvement of new energy vehicles and the improvement of their performance, the function of the Internet of Vehicles services is also planned in China, which is a breakthrough development for new energy vehicles. This paper combines the value-added service of new energy vehicle network with logistics field, and discusses the application of vehicle network to the field of logistics according to the characteristics and needs of logistics field ^[1].

2. Value-added Services of Functions of the Internet of Vehicles

The so-called value-added service is a kind of service that continuously expands the function of vehicle network, so that its function can be added value. For traditional automobiles, the value-added service of the Internet of Vehicles covers value-added car repair services, car washing and car rental services, etc. However, combined with the particularity of traditional vehicles, many functions of the Internet of Vehicles can only be applied in passenger cars. With the continuous development of functions of the Internet of Vehicles, new logistics vehicles and buses need to upgrade the value-added services. Only in this way can the needs of users be met. Meanwhile, expanding the business of the Internet of Vehicles service can also broaden its market, which is more conducive to the development and application of the Internet of Vehicles and driverless functions. To apply these functions to logistics vehicles, firstly, it is essential to combine the characteristics of logistics industry itself including the size, types and status of logistics products,

which are the service contents of the Internet of Vehicles. Therefore, the organic integration of value-added services with new energy logistics vehicles not only promotes the development of vehicle network industry, but also makes a breakthrough in the development of new energy logistics vehicles. The combination of these two new technologies is crucial for the innovative development and functional development of logistics field ^[2].

3. New Energy Logistics Vehicles

With the continuous development of new energy vehicles, they are facing great opportunities and challenges. New energy vehicles need to increase their mileage in terms of batteries, the materials of batteries need to be explored constantly, and the weight of their bodies should also tend to be lightweight, and the charging time should be reduced accordingly. In the development process of new energy vehicles, the above-mentioned content also proves that the relevant technologies are constantly being reformed, which means that with the rapid development of new energy vehicles, great progress has been made in the field of new energy, and new energy vehicles also consequently have greater development space ^[3]. Therefore, the application of new energy vehicles is no longer limited, and the field of application is expanding with its development. Since the gradual application of new energy bus, the bus industry has also achieved greater development. It can be seen that with the continuous development of new energy vehicle technology, its application field will also get a breakthrough, and now there are new energy ferries, which also proves that the application scope of new energy vehicles is gradually increasing. In the logistics industry, the demand for new energy vehicles is more urgent.

With the application of new energy vehicles in the logistics industry, logistics units will also be divided into two types, one is inter-city logistics vehicles and the other is inter-city logistics vehicles. Among them, inter-city logistics vehicles refer to vehicles used for logistics traffic between short-distance cities. During this period, the distance between cities, transportation time and cost issues need to be carefully considered by the logistics industry. Because of the limitations of the battery endurance of new energy vehicles, when new energy logistics vehicles are applied to the logistics traffic between cities, most of them choose the shorter route between cities, and the types of goods and modes of transportation also need to be operated according to the requirements of new energy logistics vehicles. Among them, whether the cargo transported by the new energy logistics vehicle will cause harm to the power source of the vehicle if there are problems in the process of transportation, and whether the cargo transported by the new energy logistics vehicle will deteriorate in a short period of time, all these problems need to be analyzed by the logistics unit, so as to formulate the corresponding model, so that the new energy logistics vehicles should be allocated reasonably during inter-city logistics transportation. In addition, the charging technology of new energy vehicles is also developing continuously. In the future, when new energy logistics vehicles are transporting between cities, they will surely achieve the goal of charging for a short time and driving for a long time ^[4].

Moreover, logistics vehicles in cities are usually used to distribute logistics within cities. Their main task is to distribute logistics products in a certain distribution area, which can also be understood as that within the scope of logistics distribution, such vehicles distribute logistics products. At present, most of the ways of logistics distribution are based on the quality of logistics products, which are distributed by logistics distributors. There are also some characteristics and drawbacks of logistics distribution in cities. In cities, logistics distribution points are relatively dispersed while most of the logistics units are located in the center of the city. In the fringe areas of cities and the busy areas of logistics distribution, logistics units will establish some logistics distribution points correspondingly, so that they can quickly carry out their pick-up, assembly and distribution in these areas. Secondly, there is no clear distribution sequence for logistics products and no clear stipulates for the location, route and size of logistics products, so it often causes logistics distributors to take heavy roads, wrong paths or phenomena that distribution products can not be placed without the signatory's signature. This will not only waste the human and material resources of logistics units, but also greatly reduce the distribution efficiency of logistics

distributors, which is extremely disadvantageous to their own quality of work. Moreover, the logistics units do not strictly supervise the logistics distributors, so the location of distributors and the distribution of products are not known to the logistics units, which has a very negative impact on their logistics management work ^[5].

In a word, if the new energy logistics vehicle wants to realize the scientific allocation of logistics resources, it needs the help of technology of the Internet of Vehicles. Applying the value-added service of Internet of Vehicles to the new energy logistics vehicles will easily complete the distribution of goods, charging and picking-up of vehicles.

4. The Internet of Vehicles and Logistics Management System

For new energy vehicles, China has established a perfect platform for their convenient management. Through this platform, vehicle charging, running status and speed can be effectively detected. For new energy vehicles, the state has also carried out a comprehensive monitoring, through which, the location and related status of new energy vehicles can be effectively understood and the safety of logistics distributors and goods are guaranteed. In addition, it is also a good platform for the development of the services of the Internet of Vehicles. For the monitoring of new energy vehicles, the state has also formulated relevant standards. Related enterprises must establish corresponding data platforms to monitor new energy vehicles. The data displayed on the data platforms should also be reported by relevant enterprises in accordance with national regulations, which also lays a good foundation for the integration of logistics management system and services of the Internet of Vehicles in the logistics industry.

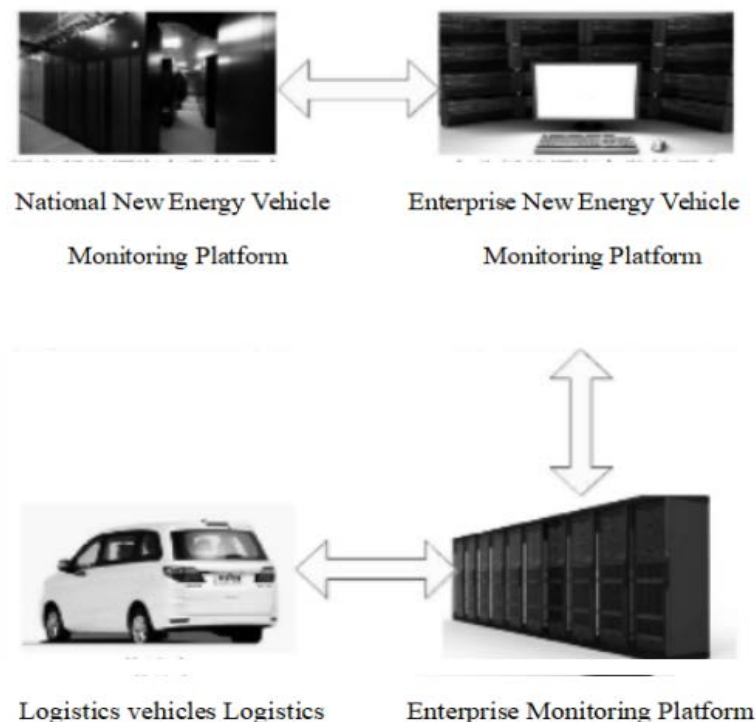


Fig. 1 Framework of the Logistics Vehicles of the Internet of Vehicles

Fig. 1 is the framework of the logistics vehicles of the Internet of Vehicles. In this process, the national new energy vehicle monitoring platform and the enterprise new energy vehicle monitoring platform should be designed in strict accordance with the national standards. In the framework, the docking process between the logistics enterprise management platform and the enterprise platform management, and the docking process between the logistics enterprise management platform and the logistics vehicle are also added. The framework of the logistics vehicles is designed on the premise that the logistics unit has its own server platform. If the logistics unit does not have its own management platform, it can use the new energy platform of the automobile unit to carry out

systematic data analysis. The process is as follows: the location, load, residual electricity and other automobile-related information needed by the logistics unit management platform can be provided by the new energy platform of automobile units^[6]. While logistics unit management platform can also receive and process the data information through network interface. Logistics unit can also analyze the size and weight of logistics cargo and the data of logistics cargo as well as the data of new energy vehicles provided by the automobile unit, so that the logistics unit can design related information algorithm such as the weight of cargo and residual electricity of vehicles, so as to provide new energy logistics vehicles with logistics service such as distribution routes and advantages of distribution. In addition, for the distribution route of the new energy logistics vehicle, the logistics unit pushes it to the navigation map of the new energy logistics vehicle through the management platform, so that the logistics unit is able to push the logistics task to the new energy logistics vehicle in real time. Besides, through some small program software, the management platform of logistics units can also be accessed. Therefore, logistics unit will carry out comprehensive statistics on the information of related logistics goods, and then combined with the load of new energy logistics vehicles, provide a more reasonable pick-up route, which can also maximize the logistics services of logistics units. For new energy logistics vehicles, logistics units are also capable of monitoring them in real time, and the task of dispatching and picking up parts can also be carried out more quickly and smoothly.

5. Conclusion

To sum up, if the industry wants to break through and develop, it needs to be integrated with other fields. Only in this way can the service of the Internet of Vehicles be widely used, and can its development be faster. Integrating the Internet of Vehicles into other industries can not only expand the functions of service of the Internet of Vehicles, but also update and improve its own functions according to the actual needs of users. The application of technology of the Internet of Vehicles to other industries can also make a breakthrough in its development. As for new energy vehicles, there will be more service contents in the process of application. At this time, combined with the characteristics of new energy vehicles, services of the Internet of Vehicles can also expand their own service functions and contents, which can also make new energy vehicles more widely used, improve their service quality and content effectively, and make our country's automobile industry have greater development.

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