Summary of the Application of Automobile Electronic Logo in Traffic Management

Yitong Niu

Henan Agricultural University, Zhengzhou 450002, China

Abstract: With the rapid development of China's economy, people's living standards have been continuously improved, and people's pursuit of a better life has promoted the vigorous development of China's automobile industry. Nowadays, no matter in China or other countries, as people's means of transportation, cars play an increasingly important role in people's lives. However, in recent years, due to the explosive growth of the number of cars, the traffic congestion is becoming more and more serious,Only relying on manpower and traditional intelligent management is not enough to support the normal operation of traffic. Therefore, in order to solve the traffic problems, people have researched and innovated a new way of collecting traffic information-automobile electronic identification.

Key words: automobile electronic identification; Traffic management; prospect

1.Forward

What is automobile electronic logo? Why can it become the preferred way to collect traffic information in the field of transportation today? What are its advantages? What is its influence in transportation nowadays? What is the future prospect? In this paper, the automobile electronic identification is taken as the research object, which mainly focuses on the above-mentioned problems and answers from three aspects: the advantages of automobile electronic identification, the application experience of automobile electronic identification in the field of traffic management, and the application prospect of automobile electronic identification.

2.Principle and advantages of automotive electronic identification

Car owners know that if a car does not have an "ID card", it belongs to unlicensed driving, which violates traffic regulations. Generally speaking, automobile electronic identification is equivalent to the second generation ID card of automobile. It is mainly composed of three parts, namely: tag, reading and writing equipment and antenna. This tag is mainly installed on the inner side of the front windshield inside the vehicle,Once the vehicle is installed with this non-detachable electronic identification, it can realize networking and intercommunication, and with it, it can read the relevant information of the owner of the vehicle and detect the vehicle characteristic information, such as the contour and shape of the vehicle, the color of the vehicle, the brand, the style, etc. Its operating principle is: the antenna emits electromagnetic wave signals, while the tag receives such signals, which are transmitted to the reader-writer, and the reader-writer receives the signals of the owner's relevant information, and then feeds back the signals. So what are the advantages of this kind of automobile electronic identification? This paper summarizes the advantages of four aspects, which are described one by one in the following. [1]

2.1   Performance advantages

Electronic automobile logo, academically called passive UHF RFID card, is also called electronic license plate. Its

performance is mainly reflected in its storage function, which mainly stores the related basic information of car owners and vehicles, and the stored related data information can be kept for ten years,Besides, this electronic identification operates around the clock, and can realize data transmission and reading no matter what time period. Compared with the traditional license plate, this electronic license plate has the following performance advantages: anti-interference. The interference is mainly caused by some natural factors, such as smog weather, high temperature, low temperature and other environments,In this environment, the logo can run normally, but it is slightly better than other detection methods such as video and microwave.

2.2 Security advantages

In terms of security, this electronic logo also has great advantages. It is very safe both on the equipment and on the data collection, transmission and storage. On the device, the read-write device has an independent security module, under which the read-write device is difficult to disassemble. In addition, because our country has a complete security management system on the security protection of electronic identification, and because the algorithm used in this identification belongs to the state secret algorithm and has strong anti-counterfeiting performance, it is difficult to have information leakage, information tampering, information forgery and other phenomena when reading information.

2.3 Management advantages

The logo also has advantages in management, because the logo chip is unique, the electronic logo of each car is orderly, and the serial number is bundled,As the second-generation ID card of the car, the basic information of the car can be read and collected even tens of meters away, and the collected information is very accurate,Even when the car is driving at high speed, it can be said that it is very convenient. [2]

2.4 Sharing advantages

The electronic identification is not only applicable to traffic management, but also applicable to many departments and industries such as community owner vehicle identification, insurance, parking lot management, public safety, road and bridge toll, environmental protection, congestion toll and so on. In addition, each application field has its own specific and independent information storage space to realize the "one-card" mode. It not only realizes one-stop service and information transmission, but also brings convenience to people's lives to a great extent.

3.Application experience of automobile electronic identification in the field of traffic management

As mentioned above, automobile electronic identification is used in many fields, but at present, it mainly serves traffic management. Therefore, this part focuses on the application of electronic vehicle identification in the field of traffic management. The author detailed the field of traffic management, which is divided into two aspects:

3.1Fine supervision of key vehicles

(1) electronic traffic management mode.

In the traditional sense, the electronic identification of license plate makes the supervision process clearer and more conducive to the fine supervision of vehicles. For example, in truck transportation, for those large trucks, it is necessary to go through the passage formalities when entering the urban traffic line,After the passage formalities are completed, in terms of passage efficiency, once a safety accident occurs, it will be found and solved more quickly because of the electronization of signs. [3]

(2) Convenient service for independent accreditation.

This kind of convenient service is mainly based on the Internet,Due to the rapid development of the Internet, today's society is in the Internet era, and there are many "internet plus" models, such as "Internet+education",

"Internet+medical care", "internet plus government affairs" and so on. Based on "internet plus government affairs". This logo replaces the paper license plate in the traditional sense, unlike the traditional license plate, it can only provide the license plate number and the place where the vehicle belongs. This electronic traffic management mode can provide more information about car owners and vehicles,In addition, for some large trucks, it is necessary to provide a certain pass certificate when loading certain goods, which takes a certain time from application to approval and then to issuance,In the process of approval, there may be random approval. Therefore, the traditional traffic flow is cumbersome, which may not only delay transportation time and reduce transportation efficiency, but also have some potential safety hazards. If the electronic identification is used, the car owner can apply for the truck pass online independently through intelligent terminals such as mobile phones and networking,In this case, the car owner can operate online independently, which not only simplifies the accreditation process and improves the accreditation efficiency, but also accurately records and stores the information of the car owner on the terminal for backup.

3.2 Accurate investigation of illegal vehicles

Investigation on serious illegal acts of fake cards and deck cards. Because some drivers always take a chance and use fake cards to avoid traffic supervision, the appearance of electronic signs will effectively solve this situation. In the traffic law enforcement, sometimes the vehicle information can not be detected because the vehicle owner maliciously blocks the license plate information, and even it can not distinguish the authenticity of the license plate. If electronic identification is used, the information stored in the identification is encrypted and will not be maliciously tampered, cloned, etc., and the reading and writing equipment is equipped with a detachable device, so the data cannot be destroyed artificially.

3.3 Seamless supervision of automobile inspection

In recent years, the inspection of both motor vehicles and non-motor vehicles has greatly increased, especially the traffic control of motor vehicles, which has realized socialized operation. If the electronic identification is installed on the motor vehicle detection line, it will effectively avoid the phenomenon of traffic violation by car owners out of luck when reading vehicle license plate information and owner information, besides, it can also avoid the possible regulatory loopholes caused by artificial input of license plate information, promote seamless supervision of automobiles, and standardize traffic order scientifically and reasonably.

3.4 Intelligent operation of parking management

Although this part does not belong to the field of traffic management, it does touch other fields.

Construction of intelligent entrance guard management system based on automobile electronic identification. Since the electronic identification is transmitted through the identification reader installed on the vehicle, the antenna will feed back the signal after receiving it. Based on this kind of automobile electronic sign, an intelligent entrance guard management system is installed in the community, and the owners of the community do not need to show their access cards when driving in and out of the community. In this way, people's travel procedures will be facilitated to a certain extent, and the time consumption for replacement due to lost access cards will be reduced,In addition, even if vehicles in non-residential areas have electronic signs, they are forbidden to pass because they do not enter information with the residential management and cannot inquire about the relevant information of the residential owners,This can also ensure the safety of the residential areas and improve the safety management level of the residential areas.

4. Application prospect of automobile electronic identification

4.1 Further improve the management and control ability of key vehicles

Because of the high accuracy of the electronic identification, it can be monitored even if it is several tens of meters

away, even if it is moving along a diagonal line, which will further improve the control ability of vehicles. In the past, when drivers traveled at night, they would directly choose to run the red light when there were few vehicles,Because of luck, there were no fewer traffic accidents. The emergence of electronic identification will effectively reduce the occurrence of this situation, because it has a high degree of recognition, even in harsh environments, it can still read the relevant information data of the owner and the vehicle.

4.2 Further improve the scientific level of traffic control

With the continuous development of economy, cars are becoming a necessity in people's lives. Due to the diversification of demand, all kinds of cars are produced. With the appearance of cars and convenient people, the travel time and the time and space distance to the destination are shortened. However, its appearance has also led to many problems: because of the saturated growth of automobiles, the exhaust emissions of automobiles are gradually increasing, and because of the high concentration of carbon dioxide in automobile exhaust, it has caused great damage to the environment, and one of the real killers of global warming is automobile exhaust. Besides environmental problems, it will also cause traffic congestion. In some big cities, if there is traffic jam, it can even be blocked for more than several hours, which runs counter to the goal of facilitating people's travel. In addition, the increase of automobiles leads to frequent traffic safety accidents,If traffic accidents occur in places where monitoring and supervision are not available, this test is the sense of responsibility of illegal drivers. The traditional traffic control ability needs to be changed,If electronic signs are used, the situation of illegal driving of automobiles will be reduced to a great extent, and even due to scientific control, the pressure of traffic congestion can be linked.

4.3 Further expand the diversified application of car-related services

To expand diversified car-related services, it is mainly to build a comprehensive information platform for car owners, and to communicate relevant information and data of car owners with the Internet, so as to realize networked information sharing, and finally achieve the effect of facilitating people's travel. This comprehensive information platform is mainly based on the relevant information and data of vehicle owners and vehicles. It is assumed that if electronic identification is extended to residential streets, offices, shopping malls and parking lots, even some gas stations and some 4S shops, it will be very convenient for people of different subjects. Because it is not only convenient for people to travel, but also conducive to the normal traffic. Suppose a scene: people go shopping in the morning,If they walk, the distance is too far, but if they drive, it is difficult to find parking spaces,Maybe they buy food for two hours, and one hour is spent looking for parking spaces. Let's assume a scenario: if the vehicle is driving illegally, for example, running a red light. Generally speaking. Modern monitoring equipment can directly capture the license plate information of vehicles running red lights and the photos of their owners, but some people choose to use deck plates or even fake license plates in order to avoid fines and deduction points. Because monitoring can only take pictures but can't distinguish the true and false license plates, there will be some mistakes in supervising the traffic management order.

5.Summary

To sum up, as the second-generation ID card of modern automobiles, automobile electronic identification is derived from the upsurge of big data, is needed by smart cities, and is also the inevitable product of the development status of smart transportation. Through deep learning, taking automobile electronic identification as the core, a data information sharing platform is constructed, which makes information more accurate, predictable, reliable and intelligent. The author thinks that, at present, the development of China's automobile industry is still in a rising development period,By reading relevant references, the author finds that electronic identification, as a product of intelligent transportation, has a broad development prospect and is of great research significance.

References:

1. Zhang Xiaoduo. Sun Zhengliang-Accelerate the development of automotive electronic identification technology innovation, intelligent traffic management and law enforcement services [J]. Police Technology, 2017(3):27-29.

2. Wang Wei. Application of Automobile Electronic Logo in Traffic Management [J]. China Public Safety, 2016,10(10):76-78.

3. Qiu Huimin. Research Institute of Traffic Management Science, Ministry of Public Security leads the formulation and application of national standards for automobile electronic identification [J]. Road Traffic Science and Technology, 2014(5):62-62.