Application Status and Development Trend of Electronic Technology in Automobile

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Abstract: With the continuous development of electronic technology, the field of application is becoming more and more extensive. Cars as the main means of transport for people to travel, in order to be able to make it have more excellent performance, in which the application of electronic technology and equipment is also more and more. Whether it is the automobile engine, transmission system and other power systems, driving, steering and other control systems or combination alarm equipment, communication equipment and other security systems, such as the shadow of electronic technology. Reasonable application of electronic technology can greatly improve the safety and convenience of the car. In this paper, we will analyze the application status and development trend of electronic technology in the car, hoping to make some suggestions and opinions.

Keywords: Electronic technique; Automobile manufacturing; Current situation and development

Introduction

Application of electronic technology in automobile manufacturing early in the sixties of the last century had been put into the formal production activities, but because of the development of automobile production technology and electronic technology is not perfect, most of them are just used in a car a special system, to control work. Although the use of electronic equipment is relatively small, but the effect is obvious to all. Using electronic technology to control and transform the automobile fuel injection system and the ignition system can effectively improve the working efficiency of the automotive power system. At this stage, if you want to increase the scope of application of electronic technology, it is necessary to increase the car's electronic circuits, which is very difficult for the automobile production environment at that time. In recent years, with the continuous development of electronic technology, the emergence of integrated circuit provides an important channel for the application of electronic technology in automobile manufacturing. In
addition, the speed of operation of the electronic equipment is increasing rapidly, and the control ability of the electronic equipment is greatly increased. In addition to the above-mentioned power system, electronic technology has been applied to every system in the car, and it is managed by a unified controller, which is called centralized control system [1].

1. The important role of electronic technology in the development of automobile

The application of electronic technology in the automobile brings a great improvement in the whole performance of the vehicle. In the traditional automobile manufacturing industry, it is necessary to develop a new automobile manufacturing technology to effectively improve the performance of the automobile. After a long period of practice, it can be put into use. And electronic equipment, because of their own performance in the production before the professional has been detected, so there is no need for these tedious steps. From this we can see that the application of electronic technology for the development of automotive technology provides a fresh blood into the blood.

1.1 Application of electronic technology in engine

The engine is the heart of the car, the car is running all the power of the test is derived from the engine. With the continuous development and improvement of electronic technology, there are a lot of cars have been used in a large part of the electronic control engine. The so-called electronic control engine is will electronic equipment and the traditional automobile engine through the combination of all kinds of sensors will be engines of various physical quantities conversion into an electronic signal, and transmitted to the electronic control equipment to carry on the analysis to determine the should take. Through the electronic control system, the automobile can control each component of the power system and reduce the operation error. Including ignition system, fuel system, engine operation and even exhaust emissions, are subject to the control of the control system. In this environment, the engine can show the power performance will be greatly improved, which can also improve the economic performance of the car, reduce fuel consumption and emissions of exhaust emissions. In addition, because the control system can make each control object work more efficient and real-time adjustment of the work, it also can let the car components achieve the optimal working condition, reduce loss, improve the service life.

1.2 Application of electronic technology in chassis parts

When the car is running, the antilock braking system and automatic transmission of the two devices plays a very important role. The former can adjust the braking ability to prevent automobile axle locking to reduce the braking effect of the vehicle; and the latter by the vehicle speed in the process of adjustment to reduce the impact of external factors on the car. The application of electronic technology in the automobile also can not be separated from the two devices. Controlled by the antilock braking system of automobile electronic technology, can effectively improve the driving ability. By adjusting the driving wheel, the traction force generated by the automobile
wheel is changed, and the adhesion between the tire and the ground is further improved. This will not only improve the stability of the vehicle in the direction of the stability, but also to ensure that the vehicle in the steering operation and climbing operation on the ground grasping force. Not only that, when the car needs an emergency brake, the system also allows the car to stop the car in the shortest time, greatly reducing the probability of occurrence of the accident. And the use of electronic control system in the automobile automatic transmission can effectively regulate the speed change of the car in different circumstances. Like cars in its load increases suddenly can self absorb shock and vibration, to prevent overloading the engine flameout, ensure the service life of the engine; operation is simple, without requiring the driver to operate on their own, shorten the time strain; greatly improve the dynamic performance of the car, so that cars can be under the current condition of the most suitable for the speed of travel, avoid engine excessive operation causing the increase in emissions.

1.3 Application of electronic technology in driving safety

With the continuous improvement of people's living standard, the demand for the safety of life and property is also more and more high. Although the application of electronic technology in the automotive safety, although not completely eliminate the risk of danger, but it can reduce the accident occurred when the driver's injury. Among them, the most common example is the car's airbag. In modern cars will be equipped with airbags, acceleration of the acceleration sensor determination of vehicle running, if the car suffered violent impact, the driving speed in a very short time drops to zero, the process has the acceleration. And if the sensor detects the acceleration exceeds the desired maximum value, a corresponding quality of the gas generator, the current ignited airbag chemicals and release large amounts of gas and make a soft fluffy airbag pop. After the air bag is ejected, the driver can not directly collide with the steering wheel, thereby greatly improving the survival probability of the driver in the vehicle collision accident. In addition, in some smart car, passengers will fasten the safety belt after the car to start, thus forcing the passengers to take a series of security measures; and in some smart car, the car will automatic measurement of vehicle and the vehicle in front of the distance, if in a short period of time away from the car more obvious changes, take the emergency brake to avoid vehicle collision accident. Similar electronic control technology is still a lot, whether it is for vehicle driving safety or application in vehicle anti-theft security, and its undoubtedly play a very important role in \[^2\].

1.4 The application of electronic technology in other areas

In addition to the above application to automotive and automotive safety aspects of electronic technology, the use of other aspects of the car is still a trace of electronic technology. For example, the most of the cars can be real-time monitoring of vehicle interior air temperature, thus the adjustment, to ensure the comfort of drivers and passengers; car seat can according to the different stress conditions and adjust the angle and the height of the parameters and improve the comfort of the car; the car can
be of various components within the work analysis, real-time display of the amount of oil, battery voltage, tire and vehicle speed, so the driver can be more intuitive understanding to the car running parameters and according to the actual situation take corresponding measures, avoid the fault occurrence. It can be said that the use of electronic technology in the car to make the car become more intelligent, humane, to achieve the desired design standards at the same time to meet the needs of human use.

2. Development trend of electronic technology in automobile

With the continuous improvement of living standards, people's demands for cars is not only a means of transport so simple. It is often hoped that the car can be more secure, more energy saving, more environmentally friendly, more beautiful, but also to facilitate the work and life of people, and to meet the needs of people for entertainment projects. Such cars in the past is absolutely expected and can not be, but in today's highly developed electronic technology, this type of problem can no longer hinder the further development of automotive technology. When the automobile is gradually transformed from mechanical system to electronic system, the function of automobile can be increased gradually. Clearly, the current car manufacturers are also aware of this, the majority of foreign cars in the electronic equipment has reached more than 30% of the cost. Compared with foreign countries, our country still has a very big gap. In this field, we still need to increase investment and research.

2.1 Sensor technology

Sensor is one of the most common electronic devices in the automobile manufacturing industry, which converts the physical quantity of the measured physical quantities into electronic signals and transmits them to the host computer for processing. It is not only low prices, but also a strong functional, for the car this kind of work environment is more complex machines, it has a very significant advantage. With the increasing demand for electronic technology, the use of sensors in the car is more and more. In order to allow the sensor to play a better role, we must constantly improve the production technology of the sensor, the accuracy of the sensor, anti-interference ability can be greatly improved.

2.2 Safety system

The importance of the safety of the attention from some point of view directly affects the direction of the development of the car. Although the current car can be dangerous in the moment to make a response, emergency brake and pop up the airbag, but the number of people died each year because of traffic accidents is still increasing year by year. Even if the data is constantly changing and the current traffic management system also has some contact, but if the car's security system is more perfect, the same can greatly reduce casualties. Therefore, in the future of the automobile manufacturing industry, how to use electronic technology to improve the safety warning system and the safety brake system will become an important issue. In addition in the emergency car can make the appropriate response, sensor for car also need to actual driving of drivers were detected, determine the driver energy is strong,
if the driver is in a state of fatigue driving, you need to warning to ensure driving safety.

2.3 The development of electronic technology in the field of data transmission

Although the current all kinds of sensors are already used in the automobile manufacturing industry, but often sensor signal transmission fault and other issues, further lead to automotive electronic system to the problems take corresponding measures. Car in the running process, the working environment of the sensor is extremely complex, are often subject to the influence of electromagnetic signals, high temperature, vibration and dust and other harsh environment, resulting in signal distortion. In this regard, the use of more excellent data transmission technology is particularly necessary. The car used in the data transmission technology for optical fiber high speed data transmission network, which not only improve the quality of data transmission. At the same time, it will automobile internal sensor system integrated control, and improve the efficiency of electronic systems, reduces the sensor overall volume and cost.

Epilogue

Through the above we can see that the application of electronic technology in the car has a very broad prospects, and the continuous development of electronic technology has gradually promoted the automobile manufacturing industry. The progress of automobile manufacturing industry is closely related to the continuous improvement of electronic technology. I believe that with the rapid development of electronic technology, the car will be completed "transport" to "intelligent tools".

References