

The development trend of modern automobile electronic technology: - An Empirical Study

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Abstract

With the continuous development of records era, the extent of development of car enterprise for a rustic is essentially primarily based on the level of car electronic generation. To put into effect current electronic generation and computer era within the car enterprise has been swiftly carried out; fast improvement of modern-day automotive industry is the software of modern vehicle electronic era. Therefore, on this paper, the meaning of modern-day vehicle digital generation will be analyzed, the studies of the programs field for present day car electronic technology, and producing characteristics and improvement trend of current vehicle digital era.

Keywords: Modern vehicle, Electronic era, Characteristics, Trends.

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Introduction

Modern automobile development is more often than not technical elements combined within the shape of digital records era, mechanical technology and electronic merchandise, data technology, and can enhance the automobile's dynamic performance, handling performance and protection performance and different factors. Today, the automobile's advanced technology and digital era have carried out a unified model, across devices were substantially utilized and created a broader area for development. So, in recent years, electronic generation has become an inevitable trend of present day car industry.

Meaning of modern automobile electronic technology

Modern car digital technology in accordance with the development of electronic technology to construct from the improvement of incorporated circuit era inside the electronic device to the pc, no longer best to deepen the development of car electronics era, additionally contributed to the consistent development of the automobile industry. They also improve the utility and development of automobile electronics era, automobile electronics generation development in particular within the practical implications of electronic manages era and the software of automotive electronics and facts technology in methods Electronics and

records era within the automobile industry, especially within the car environment, its miles feasible from the overall performance of the automobile itself, and independently-automobile electronic gadgets. It is the use of electronic records technology, on-board laptop structures are being developed, not simplest capable of technique the statistics, however additionally has speech reputation, navigation and picture display. For useful digital manipulate era, particularly based totally sensors, digital control units and actuators composed it with the auto itself can shape close ties, to complete computerized control of the automobile itself. Such as: electronically controlled suspension, electronic gasoline injection systems, etc. Currently, electronic gadgets inside the car manufacturing have been greater packages, in particular the installation of a few limousine microcontrollers, developing more cost and improvement energy for automobile development.

The application of modern automobile electronic technology

Application on the chassis

Modern automotive digital era inside the chassis mainly in five regions, one for the electronically managed computerized transmission, it can accord load, speed, vehicle pace and the state of the engine parameters, using pc calculations and determined that the shift the unique position of the lever, therefore ensuring the transmission can be maintained within an affordable time. The principal gain of this system is to gain desirable acceleration impact, high sensitivity, and might produce accurate analysis travelling load, road conditions. Second, the anti-lock manage gadget, which is specially utilized in some of the extra critical safety additives. Able to manipulate the auto tires, automobile tires with the floor to ensure an affordable price slide, making the automobile in the street surface throughout braking, to ensure that the wheels and reasonable adhesion coefficient is shaped among the floor, so one can reduce drag locking slide, unsafe elements cannot most effective improve balance and secure operation of the auto, however additionally to reduce the braking distance of a vehicle Third. For EPS, it is the use of a DC motor powered, this pc manage device, compared with the conventional use of fewer components, small size and relatively light weight. Optimization of steerage effort, steerage again to the advantageous features no longer only enhance the automobile's guidance capability, but additionally increase stability and maneuverability motors at some stage in car. Fourth, the self-adapting structures to well-timed regulation, to ensure the auto in the course of journey can reap a positive balance and maneuverability. Fifth, the regular pace cruise manipulate gadget, it's far in particular utilized in excessive-velocity lengthy-distance, the using resistance in step with the throttle establishing suspension gadget which in step with the suspension of the load on the suspension stiffness of the spring, shock absorber damping traits development robotically situations and convenience for the motive force to deliver the automobile velocity throughout the adjustment.

Application on the engine

Automotive electronics era inside the engine, first, for the digital manipulate of gas injection apparatus capable of computerized operation, the output beneath sure energy, to maximise gas economic system and smooth air. According to the actual situation and the engine control law throughout the fueling operation, can exchange those laws compiled for the objective programs and saved in the laptop garage. During engine sporting out its paintings, the use of sensors for air exceptional, exhaust oxygen content and temperature parameters had been measured, and primarily based on pre-programmed to enforce the calculation, after which in comparison based on affordable parameters, alter the best amount of oil Secondly, digital ignition devices, mainly primarily based on pc, sensors, actuators and interfaces and other additives. It can stumble on the sensor in step with the engine parameters evaluation, judgment, after which the ignition is adjusted to store fuel and reduce air pollution. Moreover, the brand new engine digital tool can attain computerized control, shrewd manipulate and automation of diagnostic and other operations. Finally, intelligent variable valve timing era, it allows the engine to achieve an inexpensive share of the gasoline, the engine pace beneath one of a kind occasions, can acquire special gasoline supply. Variable valve timing technology by using the portion of the sensor, the controller and the ECU and different additives, which can be adjusted in step with the ignition timing, with a purpose to gain most beneficial working conditions

Characteristics of modern automobile electronic technology

Car security

The use of current automobile digital era to enhance automobile protection, the protection of the phenomenon in particular manifested as lively and passive safety control safety manipulate. Since the auto lively protection of electronic control systems set up, not simplest reduces driving force fatigue, however additionally increase the safety of riding with a relaxed period. Active safety manipulate gadget to be able to keep away from the principle driver seems injuries and enhance driver safety at some point of riding. However, because of the reaction of electronic generation within the control manner of the formation of fantastically fast, it skilled, speedy car operation, manage, so throughout an emergency, can shape a bigger cost in use. If a vehicle twist of fate, with the intention to reduce the collision of the auto, to make use of traction manipulates, anti-lock braking system to reduce the monetary losses of the coincidence. For instance: collision prediction device, it is able to use radar, infrared obstacle detection, and manage the strolling velocity of the car, notwithstanding an emergency vehicle phenomenon will arise previous alert to manipulate the speed of the automobile.

Control car

Automobile brake control era has been substantially advanced, and to reap extra capability. Automotive manage, anti-lock manage system for the improvement from the current power skid device, traction gadget and digital stability software structures. For a driver tracking gadget, that could make a warning based totally on the behavior and reactions of the driver. For advanced show machine, it may use language to offer data to the motive force, and the driver can effectively keep using cautiously. For ESP, which prevents the automobile in the course of emergency turns, unexpected out of manipulate, and decrease site visitors injuries. Therefore, using present day automotive digital manipulate technology implementation, the discount of the frequency of car accidents. For tire strain tracking system, tire stress in line with it, temperature detection of anomalies exists within the alarm and to save you the prevalence of unusual tire. Especially at some point of car touring at the toll road, it is viable to reduce the twist of fate to play an extra role, although automobile collision, however also to protect the protection of the driving force. Future implementations of shrewd structures have seat belts, airbags and collision prediction system is fashioned integrally, and to make certain the protection of the car with.

Car environmental protection and energy-saving

With diverse industries around the arena to gain environmental protection and electricity saving fashion within the improvement of car enterprise development and the established order of no exception Many nations during manufacture vehicles are geared up with advanced engine management device, it can't most effective improve the working efficiency of the engine, but additionally lessen the fuel consumption of substances and decrease atmospheric pollutants. In order to allow the engine to reap a good impact of gasoline all through operation, the usage of superior fuel engine manipulate machine, now not simplest the ignition timing of the engine, fuel injection for particular manipulate, but also to manipulate the variable consumption air, VVT to enhance the performance of the manipulate change machines.

The development trend of modern automobile electronic technology

Construction of vehicular electronics network system

With the auto enterprise within the growing variety of electronic gadgets, the usage of digital devices to communicate with a primary hassle, build the vehicular electronics community machine has become the main trend inside the development of its automobile enterprise. Electronic apparatus cannot most effective gain a sure set of functions, however additionally for the carrier to different digital gadgets, thereby allowing verbal exchange among digital apparatus is fashioned as a vehicular electronics network system. In this community machine, no longer handiest make the car achieve consolation and safety in the course of travel,

but additionally enhance the usage performance of the electronic tool. Construction of vehicular electronics network system however also on the road within the data obtained and transmitted can be analyzed in line with the fault control problems current in the system, and to perceive the factor of failure restore. Therefore, building vehicular electronics network systems and offering technical basis for the safe using of the vehicle.

Green and environmental protection phenomenon

As global warming continues to emerge, China has extended the importance of environmental protection. From the ever-growing environmental attention, humans within the automobile enterprise but additionally for the environmental phenomenon made extra demands, particularly for diesel engines, digital manipulate structures research and improvement and in-depth dialogue, not only to recognition on the electric strength device and the hybrid gadget innovation and development, however also to attain the inexperienced car, environmentally orientated development. Fuel to strength the auto's development and implementation of innovative research is a vital way to the improvement of inexperienced automobiles of the future. Automotive engine manipulate, a reasonable allocation of the electronic device to enhance car operation financial system and decrease vehicle emissions exists phenomenon. Today, China's automobile enterprise improvement has carried out a new innovation and improvement, we started to apply sun power, bio-gasoline and different automobile production environmental protection, however due to technical and economic issues, our trucks, heavy vehicles ought to attain the environmental safety of application form, China's vehicle industry in inexperienced development to reap a brand new task.

Energy

China's car industry programs in electronic gadgets maintain to growth, at the side of the energy use of the car enterprise, there are some problems. Such as: automobile power deliver machine voltage problems, make the motive force can meet proper riding form, might be analyzed in line with the parameters throughout the design and manufacture of cars in existence. Our gasoline fees have been growing the efficiency of vehicles via human's greater attention. So, on this form, we need to take benefit of the innovation and development of recent technologies to sell electricity development of China's car enterprise.

Sensor Technology

Sensor generation in China's car enterprise has been greatly implemented no longer only enhance the extent of China's automotive electronics industry, but also to enhance the extent of automation within the automotive, electronic era during automotive packages, to gain a spread of functions and diversity improvement of the state of affairs, so that the sensor technology to obtain new packages and improvement.

Sensor generation enables the car to preserve strong operation, and improve the running performance of motors. Whether automobile throughout development or in the course of journey, the sensor era can be broadly used, and consequently, all through the sensor research and development, may have a decrease cost of studies and development, excessive protection and reliability of sensor technology, consequently ensuring the sensor at some point of application to shape high precision. At present, China has performed intelligent sensor generation, systematic and miniaturization of manufacturing and development. Car during using, the maximum critical is to make certain protection, automobile protection effect exists especially in car using two aspects, one is an energetic safety gadget, one for the passive protection systems. For energetic protection structures, mainly for coincidence prevention within the elements, and reduces the frequency of traffic injuries occur, which includes: the use of ultrasonic sensors, optical sensors can't most effective attain a positive diploma of caution, but also to make certain safety at some stage in riding of cars sex. For passive safety systems, its miles specially applied during the accident, including: seat belts, airbags and so are mature development.

Mechatronics

With the continuous development of science and technology, mechanical and electric integration of applications within the automotive enterprise, in particular within the mechanical structure and speedy improvement of car manufacturing Mechatronics development not most effective lessen car emissions, but also lessen vehicle pollution at the surroundings.

Conclusion

Modern automotive technology has been greatly advanced; mainly the utility of digital generation, the contemporary automotive industry shaped a new impetus to the development. Modern cars use electronic generation cannot most effective enhance the electricity, economic system and car protection, but additionally to optimize the auto's balance and comfort, and to achieve new trends in the field of automobile electronics technology improvement and application.

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