



## Design Concept for Future Autos

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### Abstract

As the primary transportation tools for modern people, Autos are facing a tremendous transform. With shortcomings which couldn't be overcome, Ancient animal-drawn vehicle had been replaced by motor vehicles. However, motor vehicles still have inextricable malpractices such as lower security, lower speed, dependent for energy sources, lacking of environmental protection, single purpose, lower efficiency, single directional and manual control etc. Future autos will settle these problems out and out. In the design concept, future autos will take multiple comprehensive values such as security, high speed, self-supporting power, environmental, all-purpose, high efficiency, multiple directional and intelligent controls etc., which will bring profoundly influences for human lives in many respects.

**Keywords:** Future Autos, Environmental Autos, All-purpose Autos

As the primary transportation tools for modern people, Autos are facing a tremendous transform. Auto industry is entering into the most important phase of "optimizing the integrated relationships from people to auto to environment". (Liang, 2006, p.22). Electronic technology of autos is developing for the direction of network and intelligence, in which electronic controlled equipment will offer stable, reliable and low-cost network connections by the CAN bus unit, engine, switches and sensors will be connected through LIN network and the intelligent control will completed. (Kang, 2007, p.60). In the future soon, when the traditional autos become the items on display in museum, people will feel the same feelings to the luxury autos such as Benz and BMW just like moderns feel to the ancient animal-drawn vehicles. With shortcomings which couldn't be overcome, Ancient animal-drawn vehicle had been replaced by motor vehicles. However, motor vehicles still have inextricable malpractices such as lower security, lower speed, dependent for energy sources, lacking of environmental protection, single purpose, lower efficiency, single directional and manual control etc. Future autos will settle these problems out and out. In the future, computer network or artificial intelligence will replace drivers to drive autos, in the process of driving drivers only need input the address of destination to automatic drive system in the car and the car will automatically run, and the vehicle collision avoidance and intelligent control system timely identifies the safe running distance through ultrasonic ranging, radar ranging or laser ranging and automatically avoids barriers in virtue of automatic brake protection system, the computer network connected with satellites continually offers navigational information for car, in the critical fork or on the point of destination, intelligent system will remind drivers to select or resume "manual control" through sound hints, then the car will automatically bear off intelligent driveway and arrive at the destination. With the development of ITS, various intelligent autos will be applied broadly. (Xiao, 2006, p.52). From the strict meanings, future intelligent autos have exceeded head and shoulders above the implemental meanings which are included in the traditional word "auto". In the design concept, future autos will take multiple comprehensive values such as security, high speed, self-supporting power, environmental, all-purpose, high efficiency, multiple directional and intelligent controls etc. This article will introduce these characteristics of future autos in the following text.

The first characteristic is the strong security. The high sensitive detector with collision avoidance will be installed in the car. When some dangerous things appear in the precautionary scope from every directions during driving, the vehicle detector will make rapidly reaction and perform the control orders for avoiding crash, so the bodywork can automatically avoid collision successfully. So, there are no cause troubles in the traffic, unless some most occasional accidents happen. Driving safety factor can be described by no risk at all. The approach which lets car predict forthcoming crash, and then adopts automatically measures to stop crash mainly is in virtue of a sort of technology which is called "V2V" to make effective communications among autos. Increasingly advanced and well-rounded GPS will make you accurately know where your car is in any time. The control system can track your speed and directions, input these information into your vehicle computer, so the computer can automatically control your car. In this aspect, General Autos did better than Volkswagen. They install the equipments of "special short-range communication" in their

cars of Cadillac, which can predict the front car with the same equipment, the vehicle computer will automatically brake without driver's operation, and the effect is very excellent. (Ke, 2007, p.8). In future, more advanced and scientific equipment with avoiding crash and stable and safe control will come out in succession. The VIOS and PRIUS produced by Japanese Toyota equip the automatic parking system which indicates driver enter into the parking space through the radium facility. A new type of 18-wheelers super vehicle equips eyeball scan system which can record the driver's blink times even monitor the activity status of pupils through recorder to judge driver's tiredness extent and alcohol concentration and keep driving safe. A type of HYBRID auto produced by Honda can assist driver automatically modify the right way when the car departs the driveway. New type of Acura ML car equips brand-new GPS, except for directing way for driver, and offering traffic status in time. (Zhou, 2006, p.10). At present, ABS, REF, ASR, AFU, ESP and fixed speed cruise system have been applied broadly in middle and super level autos.

The second one is the higher speed. Instant starting speed can achieve hundred or hundreds kilometers, and moving speed is still can not be gained at all by traditional autos. The mph of the future high-capability autos can correspond with velocity of sound or light.

The third one is the self-supporting power. Future autos will not depend on biologic energy or mineral energy any more. The non-renewable resources such as petroleum will quit market for ever, and which will be replaced by new reproducible clean energy sources such as electric energy, wind energy, sun energy and nuclear energy. Future auto only needs equip a generating set with little volume and storing electricity set with big capability. The generating set only offers energy for auto's start, after that during the running with high speed, frictions which are produced in bodywork and atomies, ions in air will generate tremendous static which will be collected by vehicle set and stored in the storing electricity set. At the same time, some instant energy such as sun energy and wind energy surrounding the bodywork will be transformed and stored, which can ensure however far the car goes, the storing electricity set all can offer ceaseless energy. The traditional autos only can supply energy from outside, but intending autos can live up to supply energy from itself and even can have a little remnants.

The fourth one is the environmental protection. Because the traditional autos let exhaust gas, waste residue which pollute environment seriously, so many countries all pay more attention to the R&D of "green autos", for example, the American General Autos and German Opel autos had manufactured the fuel cell cars of "hydrogen power No.1" in the year before last. And Daimler-Chrysler had manufactured the fuel cell cars of "new energy No.5" based on the "A" series of Benz. (Liu, 2006, p.61). Future autos use green and environmental clean energy sources which will not produce any pollution and threaten to the surroundings during driving. By way of many years' research, we can obtain the possible energy sources including electricity energy, hydrogen, carbinol, ethanol, CNG, LNG, LPG, twain methyl aether, sun energy, and biologic energy etc. which can replace petroleum. (Huang, 2006, p.38). The R&D of new environmental cars and new energy cars has become the new area where famous domestic and foreign auto manufactures compete. The General Autos' strategy of environmental cars in America is divided into three steps: the first one is to improve the present fuel cars, the second one is to develop mixed power cars, and the third one is to research and develop hydrogen power cars, which is replanted to China. (Yin, 2006, p.44). Japanese Toyota, American Ford and domestic Chery, BYD and Brilliance are all taking part in this competition one after another.

The fifth one is all-purpose characteristic by which cars can be drove on water, on land and on air. The traditional autos only can be drove on land and require a very high quality road. Future autos will can run on land, also swim in water, and even fly in air. The first flight car in the world, Skycar M400 which was manufactured by Neiman Marcus Group Inc which was the world famous shopkeeper of luxury products is the primary attempt of future auto which centralizes environmental protection and performances. Terrafugia Corporation located in Cambridge City in the State of Massachusetts in America also manufactured its new flight car which was named "Transition". (Yi, 2006, pp.6-9). It ought to say all these attempts are a good dayspring and also a good omen.

The sixth one is the high efficiency. Just because future autos possess high grade performances which can be drove on water, on land and on air, the phenomena such as traffic jam almost will not happen, and the circulating efficiency will obtain huge improvement.

The seventh one is the multiple directions to drive. In the process of driving, the traditional autos only can go to the one direction and can not drive to multiple directions such as left, right, up and down. So when the car meet dangerous obstacle in the front, the only way to avoid danger is instant brake without other approaches. Future autos can rapidly run in any directions without the restriction of two dimensions, and possess very strong maneuverability and flexibilities. The future optimal design of vehicle appearance should be ellipse, roundness or annulus which can ensure autos more flexible and harmonious.

The eighth one is the intelligent control. In the area of traditional autos, the car driving is an occupation which acquires strict examination, management and auditing. But with the popularization of future autos, the traditional drivers will face entirely unemployed dangers. As a sort of occupation, driver will not exist any more, because future autos are all

droved by artificial intelligence. Robots will replace manpower drivers to offer completed services with inexhaustibility, silence and willingly bearing the burden of hard works for the vehicle master. The behaviors of drunk driving, tired driving, rushing red light and converse violation will be erased from the highway code and the number of traffic polices in highway will be greatly decreased. Of course, such intelligent function must recur to the artificial intelligence system or equipment to implement. With the help of developed computer network, to realize intelligent vehicle driving, the car will equip intelligent collision avoidance system, intelligent security ballonet, intelligent head lamps, attention monitor system, intelligent speed control system and intelligent vehicle key etc. Intelligent vehicle key is just like a credit card, which make proper reaction through inquiring about driver's individual information such as fingerprint, password and smell etc., not only with powerful functions and higher nicety rate but only increasing the security of autos, and this technology has been adopted by CLK double-door cars of Benz. I-swing concept cars of Toyota has realized intelligent isochronous dialog between people and car and Fine-F concept cars of Toyota has also realized individual, environmental, free moving and people-oriented intelligence. Future driving will not only depend on hands, but voice and other ways will become one of assistant driving ways, which is the information that Model U series concept cars of Ford which voice driving is one of its dazzling points want to convey to us. (Wang, 2006, p.19).

The last one is the people-oriented design. Look into the high-tech products in the market, all science and technology is being perfected continually because of the manufacture concept of "people oriented", which prominent indications are more and more advanced technology, more and more humanism design and more and more simple operation. It is even as so in the auto industry, the era which high-tech enters into human nature has quietly been along our lives. (He, 2006, p.71).

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