

A Subjective Insight of the Future Automobile

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The future car, lets say a 2025 model will be a very different machine to its present day Grandfather. They will be packed with computers and safety devices ensuring that not even a stunt driver can crash, and they will run on carbon dioxide and emit strawberry scented oxygen. Well they might.

Predictions of future vehicles are usually wildly inaccurate, by now we should all have space programs to rival NASA based out of our backyard. However some of the automobile related cutting edge technology emerging now may well make it into production models of the future. But how much of this technology will be needed or even wanted? Car design of the present is already influenced by politicians, bureaucrats, health and safety regulations and emissions regulations and the stunning concept seen at the motorshow emerges into the world as a 1.0 litre shopping cart, but at least its legal.

Personally I like the idea of fuel efficient hybrid cars, and fuel cell cars emitting nothing but water. However, like most enthusiasts I also like powerful loud convertibles with with the ability to snap a vertabrae at 10 paces. A sensible mix therefore is required and this will be the job entrusted to car designers and engineers of the future, to make a politically correct car that is also desirable.

Another imminent problem facing designers of the future is coming up with styling ideas that are fresh and new. Some of the more recent concepts are certainly striking but not necessarily beautiful in the classic sense of the word. But if there is one thing the automobile industry is good at that is innovation, and I for one am confident that radical and extreme concepts never before imagined will continue to appear at motorshows around the world.

Computer technology has already taken a firm hold of the automobile and the modern driver is less and less responsible for the actions of their vehicle, soon crash victims will try to sue the electronics companies for accidents they caused because their computer system failed to brake the car even though they were fast asleep at the wheel on a three lane highway. Until you have automation of every single vehicle on every single road computer driven cars are just not feasible, in my mind there are just far too many on-the-road variables, with all the logic in the world you cannot beat a brain. Now computer assisted driving is already available in certain Mercedes models which brake for you if your not looking where your going and your too close to the car in front, but there is still a driver in control of the car, or is there. What if for some reason you wanted to get closer to the car in front, you needed to get closer to the car, if you didn't get closer to the car something terrible would happen to civilization. Where do you draw the line with vehicle automation?

In advanced cities of the future CCTV will be so prevalent that visible crimes such as car theft are all but wiped out, but that still won't stop the determined thief. GPS (Global Positioning System) units fitted as standard to all new automobiles will be able to track any vehicle at anytime anywhere, this technology is already common but more widespread use is inevitable. In the UK the government is already talking about fitting GPS to charge motorists depending on what road they travel on and at what times to cut spiraling congestion. This technology coupled with an improved mobile phone and bluetooth network can be used to track and recover stolen vehicles. When the vehicle is found to be stolen a call can be made which shuts down the engine of the car. At the same time a call is sent out which alerts available nearby police, by using the GPS installed in both the stolen car and the police car officers can track the car even if they cannot see it. The police will also have much more insight into a vehicles record when out on patrol, using bluetooth technology a police car can tail a vehicle and receive information on the owner, the current driver and their driving history, and even find out recent top speed and acceleration figures. Of course who wants that, you think you've just had a fun little blast on your favorite bit of road you get pulled over five miles later and the officer gives you a speeding ticket for something he didn't see. But if this technology is mandatory then what choice do you have.

Access to future automobiles may be very different to the keys of today, push button code entry and keycard systems where the key doesn't even leave you pocket, already available, will become common place. You hear the term keyless entry but it still uses a remote control attached to a key which is then used to start the car. Biometrics which are available on some computer systems and use fingerprinting as a password could be an effective alternative to the key, you could even program it for members of your family deciding between access only for the children or access and drive functions for those with licenses. However I believe it will be some time before this is the only means of vehicle entry or start up, what if you are lending your car to a friend and you cannot be present to allow start up.

Multimedia systems will continue to develop in cars until the point where the "are we there yet" phrase develops into "can we stay here". Manufacturers are continuing to cram more and more video screens into increasingly ingenious places providing a rolling cinematic Dolby 7.0 surround sound experience. DVDs are going to go the way of the VCR with hard disk recording of video being the dominant power much as MP3s are killing off CDs. This MP4 technology will save space in the car and allow for far more footage to be kept on board. Improvements in wireless Internet connections could mean that the larger roads can support Internet capable vehicles and constantly inform the driver with up to date relevant road information. A screen in the dash can display live images to show traffic reports and also predict traffic jams by using the GPS systems in all vehicles to show areas where vehicles have been stopped or are congested, and then supply alternate routes. The sound systems of cars will also improve and become more personalised for the various passengers, with headphone sockets and multiple sound outlets, there might be four

different radio stations that can be played at once through the different jacks, and a variety of MP3s that can be played at once.

Passenger safety is already a priority for modern day car manufacturers and this will only increase in importance into the future. The widespread use of airbags will increase, the side impact protection airbags featured in some models have proved to be extremely effective in saving lives, more research and better positioning will continue to improve their performance and reliability. Airbags at the moment can only be deployed once so in a multiple collision crash their effectiveness is voided after the first impact, future airbag systems however may take this into consideration and incorporate multiple single use airbags in one position or reusable airbags which can be inflated several times. Some manufacturers use a dynamic headrest in some high-spec models, these move forward during a collision to stop the head snapping back quite so far and reducing the chance of spinal injury (whiplash).

It has been found that a vehicles bumper and frame height is a very important factor when it comes to safety during a collision, if a vehicle has bumper which is too high it can override the bumper of the other vehicle and plough directly into the passenger compartment putting the occupants at severe risk. Accidents like this usually occur when a average size car collides with a truck or SUV, this mismatch can be avoided by having adjustable ride heights on the larger vehicles, when they are on a smooth road lowering the vehicle to a suitable height would reduce the dangers normally associated with these sorts of collision, as a by product this would also reduce the top heavy nature of trucks and SUVs and rollover accidents could be avoided.

Sensors will be increasingly responsible for predicting and safeguarding against avoidable accidents. Sensors will monitor the road surface scanning for black ice and hazardous conditions, this information will then be displayed to the driver and the vehicle may take appropriate steps to improve traction thus reducing the chance of an accident. The information gathered may also be relayed to a central road monitoring network which can inform other motorists of changing weather conditions, in effect every vehicle would become a roving weather station.

Sensors will also monitor the cars position on the road and if the vehicle is found to be straying from the road or traffic lane an alarm would sound this feature is already found on the Citroen C4 amongst others. Sensors could also monitor the drivers well-being, imaging sensors would track eye movement and if the eyes close for more than a few seconds an alarm would sound to alert the driver. Audi uses sensors on its new A6 which monitor for wet conditions, if found the BOSCH brakes are applied intermittently to wipe off the water and ensure good contact when they are needed, the pressure applied in this process is so slight the driver does not notice. Improved night vision and spatial awareness would help cut down on night time crashes which account for half the road related fatalities each year even though only a quarter of all driving occurs at night. Cadillac already includes infrared night vision as an option on some of its more desirable models, infrared vision does not see light it sees heat and the warmer an object is the more it stand out on the screen. The screen is a heads up display projected onto the windscreen in front of the drivers line of sight allowing the driver to see the real world and also the digital projection. Honda has a similar system with the added ability to identify objects and pick out pedestrians and digitally highlight those which are likely to step into the vehicles path and then emit an audible warning.

New materials are constantly brought into the automotive field, in 2005 Chrysler Daimler began using biological composite materials made from coconut, sisal, jute and other plants. This biological material is used mostly on the interior of the car and finds its way into seat cushions, seat backs, underfloor body panels and interior door panels. One of the benefits of using these biological compounds is that they can be recycled and reused and the manufacturing process involved is far more environmentally friendly than that of conventional synthetic compounds. Ceramics first used in braking by Porsche are becoming increasingly popular, although still very expensive limiting them to exclusive vehicles. The benefits of using ceramics is their high tolerance to intense heat making them suitable for high performance vehicles, and where the heavy use of the brakes is needed regularly. Their ability to perform under these extremes help reduce the brake fade associated with excessive use and high temperatures. Materials first such as carbon fibre and carbon kevlar first used on race cars and famed for their high strength and lightweight properties have now filtered down to the production car level, mainly in high-end vehicles but in due time these composites will begin to appear in the average car, cutting weight and increasing fuel economy whilst maintaining structural rigidity.

In the future car designers will have to explore new themes and find alternative influences for their designs. In an effort to catch peoples eye the designs will have to be increasingly bold and brash often sacrificing the aesthetic balance of the design in attempt to be different in an increasingly 'done before' market. This is not to say all designs are going to be hideous, just some. Another influence to exterior design will be made by law as stricter pedestrian protection laws are enforced requiring the front ends of cars to be 'softer', this thinking has already been introduced on some models, overall though it is difficult to project how this will ultimately affect the face of car design. With the increased use of alternative fuel sources such as the hydrogen fuel cell and hydrogen combustion engine, vehicle bodies may begin reflect the green nature of their power. However I believe this to be a mistake. The Honda Insight Hybrid might have been more of a success had it not been utterly repulsive, people were already wary of its power source and to then make them vomit in disgust at its styling is just not intelligent. Why do all the eco-friendly cars look like a 60's psychedelic nightmare, why can't they just look like a decent concept car with an alternative engine. Things seem to be improving however and BMW's H2R is an undeniably stunning vehicle if somewhat impractical. And hybrid technology is finding its way into mainstream production vehicles as an optional power source.

The interior of vehicles will also change, becoming more user friendly and personalised. Ergonomically positioned controls and lumbar support seats with adjustable everything will come as standard to increase driver and passenger

comfort and reduce chronic pain and discomfort. Customisable and personalised interior space will also become desirable features on the future automobile. Just as you swap mobile phone covers an entire dash could be swapped to match your mood, if your a little bigger than average why not fit an XXL seat in two easy steps, the possibilities will be endless in order to cater for an increasingly demanding consumer.

Alternative power sources for vehicles are becoming ever more popular. Government incentives will eventually force all but the super rich into environmentally friendly cars, no problem, by then fuel cell cars will be just as rapid as their fossil fuel counterparts but with none of the mess or stench. However it may take some convincing to get a 'petrol head' to put down his piston and pick up a proton exchange membrane cathode, its just not the same is it. Eventually common conventional fuel cars will become classics and extremely sought after by collectors, but not for a long long time. The author, Jeff Darling studied transport design at Coventry University and currently works as a design consultant for small engineering companies. Jeff also writes for <http://www.diseno-art.com> a site covering the latest in concept vehicles.