Driver Zone

DRIVERLESS CARS

ARE THEY REALLY JUST ROUND THE CORNER?

There's been a lot of recent publicity over the advent of driverless cars – many find the idea quite terrifying and enthusiastic drivers refuse to contemplate that they will ever become a reality. However, concept vehicles already exist and technology is evolving at a rapid pace, signalling that driverless cars are not that far away.

Major car manufacturers and technology companies are predicting we will gradually see more autonomous car technology over the next few years, and by 2020, Mercedes-Benz, BMW, Renault, Audi, GM and Nissan all foresee that they will be selling vehicles that are autonomous, or at least fitted with semi autonomous functionality.

source: Nissan Autonomous Drive

Further on, US based information analysts IHS Automotive predict that most self-driving vehicles will be operated completely independently from a human occupant's control by 2035 and the IEEE (Institute of Electrical and Electronics Engineers) forecast that 75% of all vehicles will be fully autonomous by 2040.

Here at Thatcham Research, we have been advocating and testing autonomous braking systems for several years, on the basis that these have the potential to substantially reduce the number of fatal and serious road accidents. These systems empower a vehicle to automatically brake to avoid an accident, taking over control of the vehicle if the driver fails to react in time (thatcham.org/aeb). As such, they are an essential element of driverless cars.

SIMILARLY, ORGANISATIONS IN SUPPORT OF AUTONOMOUS VEHICLES BELIEVE THAT DUE TO SOPHISTICATED FAIL-SAFE TECHNOLOGY, AND THE ABSENCE OF HUMAN ERROR, DRIVERLESS CARS WOULD BRING ABOUT A REDUCTION IN TRAFFIC ACCIDENTS AND GREATLY IMPROVE TRAFFIC FLOW. THERE WOULD BE A REDUCTION IN THE NEED FOR TRAFFIC POLICE OR INDEED PHYSICAL ROAD SIGNAGE.

Moreover, in a fully autonomous vehicle, the driver has become redundant and a driver's capabilities are therefore no longer relevant. This means a vehicle could have occupants of any age with any physical impairment. The car is automatically programmed to get from 'A' to 'B, selecting its own route. Parking no longer need be an issue as cars could drop off passengers, park where space is available and return to pick up its passengers when required.

YET THERE ARE SO MANY OTHER IMPLICATIONS RESULTING FROM DRIVERLESS CARS. IF SITUATIONS AROSE WHICH REQUIRED INTERVENTION OF MANUAL DRIVING, WOULD AN OCCUPANT BE EXPERIENCED OR ABLE ENOUGH TO TAKE OVER?

Autonomous vehicles are totally reliant on the intelligence software and vehicle sensors – if either is not functioning properly, not only would the safety of a vehicle's occupants be threatened but the safety of other road users, too. The potential to compromise a vehicle's security through computer hacking is a concern as well as the communication system between cars.

Then there is the situation when an autonomous car's intelligence software must choose between multiple courses of action, some of which may cause harm.

There are of course many driving related jobs which would be replaced by autonomous cars. Product liability could also increase dramatically with a potential increase in insurance costs and purchase price of products.

source: Google Self-driving car

So there are many potential barriers to overcome before implementation of the driverless car could feasibly go ahead, foremost being damage liability both to property and people. A whole new legal framework would have to be established as would appropriate government regulations. Guidelines for situations where human-driven vehicles interact with autonomous ones would have to be put in place. Work on this has already begun in the US and Germany.

In addition, in order to fully prepare for the advent of driverless cars, a great amount of controlled testing is necessary. Testing has already begun in some parts of Europe and America, and the UK Government recently announced that it has chosen 4 cities to run formal trials starting in January 2015 to see how driverless cars fit in with everyday life.

Until results are known and any problems resolved, and until necessary regulations are in place, we are unlikely to see self-driving cars on the majority of public roads.

HOWEVER, IN THE MEANTIME, ADVANCED DRIVER ASSISTANCE SYSTEMS WHICH ALLOW A VEHICLE TO ACT INDEPENDENTLY OF THE DRIVER SUCH AS AUTONOMOUS EMERGENCY BRAKING ARE ALREADY BEING FITTED INTO CARS AND THE MORE THESE SYSTEMS ARE RECOGNISED BY MOTORISTS IN GENERAL, THE QUICKER THE BENEFITS TO ROAD SAFETY WILL BE RECOGNISED.

source: http://www.futuristspeaker.com/wp-content/uploads/Driverless-Car-Network-1.jpg