



WILL THERE BE ACCIDENTS IN THE FUTURE?

And what does this mean for the collision repair industry?

BY TIM KELLY

The Institute of Traffic Accident Investigators (ITAI) had its yearly “Accident Reconstruction” day in June at Darley Moor in Derbyshire. I attend every year to further my education and, as ever, it was superbly run. Many thanks to all the volunteers who make it happen. And if you have never been, I highly recommend that you do. Visit www.itai.org to find out more.

The day did, however, create that worm in my head that burrows away with thoughts and ideas to ignite a spark, a recollection of a white paper on research I read on “P2P network” “traffic infrastructure data management,” “V2X” and “smart safe” intersections that protect vulnerable road users.

Much is referred to in the motor industry about ADAS systems fitted to vehicles. We are seeing a move towards semi-autonomous and fully autonomous vehicles. Combined with traffic management systems linked to V2X (vehicle to everything), there is a potential to virtually eliminate accidents.

When that happens, where does that leave the repair industry?

Somewhere, in a place called Area XO – an autonomous test facility on Ottawa, Canada – someone has conducted a comprehensive two-year study commissioned by Transport Canada. This research is aimed to explore the integration

of machine vision systems and infrastructure to vehicle communications to enhance the safety of interactions between connected autonomous vehicles (CAVs) and vulnerable road users (VRUs) at road junctions.

How do we know how AI in vehicles will perform in real-life situations? AI, working with and communicating by combined systems of infrastructure, could lead to safer interactions between CAVs and VRUs.

The full report is 290 pages long and is an interesting read. The primary/fundamental question was:

“Can infrastructure sensors and V2X communications at city intersections make a measurable improvement to VRU safety?” In other words, could intersection sensors be better at detecting VRUs compared to the vehicle, especially in time-critical road safety scenarios? Could advance warning from these sensors significantly increase the time available for a vehicle to react?

The short answer is, “Yes, they can”, but there are limitations relating to weather; small children; daytime is better than night; but detectors at junctions that can see pedestrians on the pavement assisted vehicles that could see them (due to parked cars obscuring the vehicles view) is a challenge that the roadside infrastructure detection intends to overcome.

Simultaneous to the research ongoing in Canada, Geomatics Group, Institute of Geography, Ruhr-University Bochum (RUB), has also just released its research in

this topic in which is it using virtual reality in its AI modelling. Visit <https://www.mdpi.com/2076-3417/13/10/6020>

The affects of road pollution and climate change are also drivers behind the need to review and rethink our traffic systems. Where in the Area XO paper I read there was a real world two-year-long exercise, the research in Germany was done through virtual reality with an AI traffic controller. This allowed them to run through millions of different operations of vehicle use and paths of way at junctions.

You might think a system like this would now run faultlessly, every vehicle knows where another vehicle is, the traffic network knows where both vehicles and the people are, and can plan accordingly.

Interestingly, vehicles still had accidents. One of the main issues was due to having vehicles such as buses stopping, and then autonomous vehicles trying to get past. If another vehicle was doing the same thing, or a vehicle was coming towards the vehicle trying to pass, or the traffic lights change at that moment, who has the right of way?

It caused gridlock, as they rightly saw there was a blockage present and could not get past.

It is clear from what I have read, we will see a significant reduction in vehicles becoming damaged in the future or in people becoming injured as a result of RTAs.

By 2050, I have no doubt that we will be way down the route of having autonomous vehicles – though this could be as soon as 2035.

While we continue to have non-autonomous vehicles mixed in with autonomous vehicles (and if driving standards continue to decline as they have), I would suggest you have a good 30 years to make hay while the sun shines.

To do so, everyone involved in repairing vehicles today needs to be investing in their knowledge, not merely keeping “up to date”. You need to be an oracle, predicting what is coming.



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