

Cars are becoming life-saving smart

By [Mike Whitfield](#)

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Autonomous driving technology is developing at a rapid pace. Business Insider publication's research platform has forecast that there will be around 10 million cars with various self-driving features on the road in the UK by 2020. But the closer we get to our ultimate goal of completely driverless cars, the more critical it becomes for manufacturers to ensure it's safe for us to place these vehicles on the road.



Developed from NASA technology, SAM partners in-vehicle artificial intelligence (AI) with human support to help autonomous vehicles make decisions in unpredictable situations and build the knowledge of in-vehicle AI.

It's no secret that autonomous driving technology has the ability to change lives and to save them. Not only is this technology expected to reduce serious traffic incidents – the Society of Motor Manufacturers and Traders (SMMT) predicted that in the UK accidents would reduce by 25 000 a year by 2030 – but it will also make automotive transportation available to people who were previously unable to drive.

But as advances in autonomous driving technology continue, so important questions around the complexity of having these vehicles on the road continue to arise. For example, how can drivers learn to trust autonomous vehicles? How will vehicles communicate with drivers and alert them to the presence of other vehicles on the road? And, what actions will vehicles take after identifying objects, signs and other road infrastructure such as painted lanes?

Can driverless cars handle unpredictable situations?

One of the biggest questions around the safety of this technology is what would happen in an unpredictable situation? Would the system make the right decision and navigate the vehicle through the scenario safely?

At the moment the autonomous driving technology used on roads is not fully autonomous. Nissan's ProPILOT, still requires a driver to be present and ready to take over the control of the vehicle at any moment.

The technology, which launched and went on sale in Japan last year, enables cars to drive autonomously in a single lane, including in heavy stop-and-go traffic.

However, ultimate control and responsibility remain with the driver.

In fact, should the driver remove their hands from the steering wheel, a warning light will come on and an alarm will sound. The system will literally deactivate until the driver places their hands back on the wheel.

The day is approaching

The day is fast approaching, though, when completely driverless cars will become a reality.

When that day comes, the question of who takes control in an emergency situation will need to be answered.

Particularly a situation in which the technology would be required to make an ethical decision. For example, the decision to swerve and avoid hitting a pedestrian might endanger the passengers within the vehicle. How does the technology discern the right course of action in this instance?

Obstacles, solutions

Not surprisingly, the inability of autonomous vehicles to 'handle' these unpredictable situations is one of the major stumbling blocks to a future of fully autonomous driving.

The good news, however, is that Nissan's Seamless Autonomous Mobility system (SAM) has the ability to solve this problem. It can navigate unforeseen situations such as accidents, road construction and other obstacles. Ultimately, it will help us realise a future in which autonomous cars can operate safely and smoothly.

Basically, it's smart enough to know when not to navigate a potentially dangerous situation by itself.

Let's say while driving, you encounter an accident scene at which police are using hand signals to direct traffic, possibly against the normal rules of the road. In this scenario, it will bring your vehicle to a safe stop and request help from the command centre.

This request is passed on to a mobility manager – an actual person who is using vehicle images and sensor data (streamed via the wireless network) to assess the situation, decide on the correct action and create a safe path around the obstruction.

The mobility manager paints a virtual lane for the vehicle to drive itself through. Then once it clears the accident scene, the vehicle again resumes full autonomy.

Able to learn from experience

The great thing about it is that it's able to learn from experience – and as autonomous technology improves, vehicles will require less assistance from the mobility managers.

This technology can literally speed up the introduction of autonomous vehicles to our roads by decades.

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