Vehicle biometrics is a way of blending biology and technology. It can be geared towards a person (in the case of vehicle biometrics, the driver) for better security, a more comfortable ride and one day possibly, helping save lives.

For the uninitiated, some common examples of biometrics are fingerprint scanners on your smart phone and face scanners at airports to confirm identities. The technology uses a person’s unique features to provide better security (in these examples), or a more personalised experience going forward. A recent study predicts that a third of new cars in 2025 will use biometrics.

The journey so far

The very idea of biometrics seemed a far off science fiction concept, out of reach for the most part – like jet packs and hover boards. This changed in 2013. With the mass uptake of smart phones and innovation being a key differentiator for manufacturers, Apple added fingerprint recognition to their iPhone, quickly followed by most of their competitors as they added it to their phones too. The next technological leap was made by Fujitsu, who added iris recognition to their phone in 2015 – letting customers unlock their phone with a simple glance.

As the adoption of biometrics becomes easier for consumers to swallow in their phones, attitudes to car biometrics have softened too – car giants have started taking notice.

1 Biometrics in the Global Automotive Industry, 2016–2025 – Frost & Sullivan
Where the technology is now

The main applications for vehicle biometrics lie within enhanced security. By being able to unlock your car with your thumb means that car keys won’t be required. This security feature also means vehicles will be much harder to steal, especially if the car won’t start without the driver’s finger print too. Another example of how biometrics secures vehicles is with iris recognition in the rear view mirror, confirming the driver as someone authorised to operate the vehicle.

Payment services also make the most of biometrics. Once the car is connected, filling up at petrol stations and making payments through sites accessed from the car could all become cashless. Your car could interact with the petrol station pump to simply allow the driver to step out, fill up and leave, with even less fuss than a pay-at-pump system.

The other main use for biometrics at the moment and near future is a more personalised driving experience when sat in the driving seat. When the car ‘recognises’ the driver, features like temperature, music, maps and driving position could all be automatically adjusted based on the driver.

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2 How will the car of the future use biometrics? – How Stuff Works
3 Global Automobile industry inclined towards adopting automotive biometrics – Bayometric
What are the implications for insurance?

Many companies are researching ways to use biometrics and driver authentication to further focus underwriting decisions – being able to apply premiums which are bespoke to whoever is driving. This could create an ever more accurate approach to underwriting, potentially benefitting safe drivers who perhaps have paid more based on traditional underwriting methods by their risks being more accurately reflected.

The technology has the potential to be a much richer way of gathering data than telematics is now. It could track the driver’s eye movement to see how often they use their mirrors and look away from the road. It could also monitor hand movements to know how often a driver takes their hands away from the wheel and for how long. Used in conjunction with telematics, it could yield the most thorough representation of the insured risk.

Insurance could become a more fluid concept. For example, a fleet van with iris recognition could let the insurance company know if the driver changes and adjust premiums accordingly based on the new information. For fleet drivers, they could have their own policy based on what different vehicles they drive regularly, instead of being insured on one van, for example. The biometrics comes in to help distinguish which driver at a firm can drive which vehicle.

Biometrics has the potential to revolutionise and speed up the entire claims process. By obtaining data directly from the car, a claims handler could find out exactly who was driving at the time and how many passengers were in the vehicle. Biometrics could therefore help reduce the number of fraudulent claims by not having to rely on information obtained from different parties.
The risks

The various uses and applications described above are all very interesting, but they also raise many questions surrounding data protection, cyber security and the morality of a big brother like car experience.

The threat of your car being hacked into by faking a fingerprint or simply tricking the system is one that is all too real for this technology. Biometric cyber security needs to be iron clad in order for consumers to fully trust in its abilities. As has often been the case (and widely reported) with other Internet of Things devices, security is often third or fourth on the respective developmental list, after design and innovation. Even if considered from the outset, hackers are known to be persistent, which means the software within the car’s biometrics systems will need a continual stream of updates and refinements, as the hackers create different ways of getting in.

Another consideration for this developing technology regards driver data. There is a vast amount of potential data that cars could soon gather about their driver. From what position you like your seat in, to your favourite radio station, to how often they look in the rear view mirror — all of which needs to be considered. Can drivers opt out of anything happening with the data their cars gather about them? What will the manufacturers do with their potentially personal data? Big questions like this need answering before vehicle biometrics can be considered a mainstream option.

No less important are moral implications. The UK is already the most heavily ‘watched’ country on Earth, and people’s cars offer a refuge from the near all-seeing eyes of various CCTV and camera systems. Technology is advancing at a rate that is unprecedented, especially within the digital space, the nature of development is ‘can we do this?’, maybe the ‘should we do this?’ shouldn’t get neglected as often.
The future of vehicle biometrics

There are many developments for vehicle biometrics on the horizon. Cars could track eye movement and sense when the driver is getting tired and alert them. Even more sci-fi, the car could drive itself to safety. Ford is currently exploring this area with Flex. They are also looking to add CO2 sensors in vehicles to detect dangerous levels before it’s too late.4

There are more potential medical benefits to biometric vehicles in the future too. General Motors have developed a relatively simple sensor that prevents child and pet deaths after being accidentally left in hot cars.5 This is due to be rolled out on selected models in 2018.

The Internet of Things, connected devices, devices on our person and in our homes will all be connected and could include the car soon with biometrics. Amazon’s Echo (better known as Alexa) has already been integrated within some cars to merge connected home capabilities with driving experiences. This creates a continuity for end customers and takes their preferences with them from their door, into their car.

Mark Ashwood, Motor Trade Underwriting Account Manager at Allianz had this to say about vehicle biometrics:

‘The possibilities of vehicle biometrics are very exciting, for both customers and insurers. Adoption of this technology could end up leading to safer roads and less stolen cars. Obviously, the technology will evolve over time and we’ll be monitoring developments as it progresses’.

Vehicle biometrics is an interesting development. It could end up being incorporated into autonomous cars, but where the technology is now, it feels like something to keep us busy until fully autonomous driving arrives.

4 Why Ford wants to put biometric sensors in your car – Fortune
5 General Motors has a simple solution for a preventable tragedy – Fortune