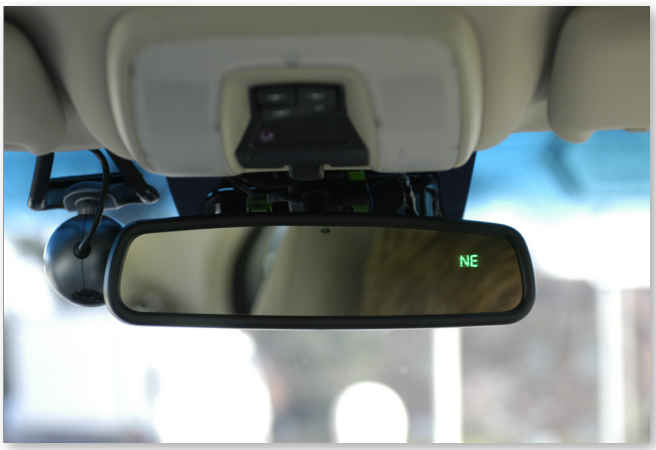
A CAR LOAD OF GADGETS

Those of us of a certain age remember when cars used to have a less than bewildering array of gadgets; typically a radio cassette player which gave you the exciting option of winding the tape back onto the spools with a pencil, and maybe electric front windows.

BUT TODAY'S CAR HAS A MUCH GREATER GADGET ASSORTMENT, SOME WE ARE AWARE OF, SOME WE'RE NOT, AND SOME ARE FAR MORE USEFUL THAN OTHERS.

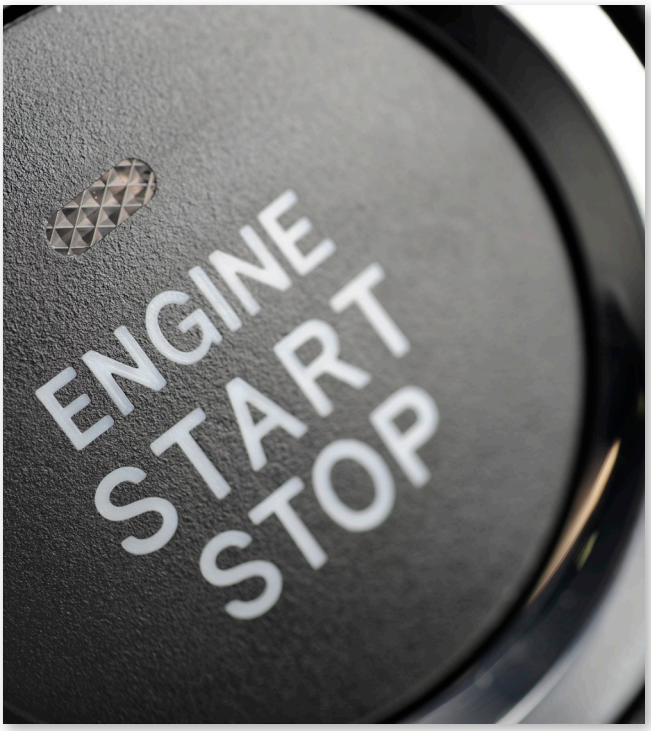


IT'S CERTAINLY WORTH REMEMBERING JUST HOW FAR TECHNOLOGY IN GENERAL HAS MOVED ON, AND HOW MUCH OTHER TECHNOLOGIES SUCH AS DIGITAL CAMERAS AND MOBILE DEVICES HAVE INFLUENCED THE CAR OF TODAY. YOU AS A CONSUMER EXPECT A CAR TO BE RELIABLE AND SAFE AND FOR YOUR BUSY LIFE TO CONTINUE EVEN WHEN YOU'RE TRAVELLING; YOU CANNOT ALWAYS PUT YOUR LIFE ON HOLD FOR PERIOD OF A CAR JOURNEY.

FIRSTLY LET'S CONSIDER THE RELIABILITY, ECONOMY, AND SAFETY DEVICES.

STOP/START SYSTEMS ARE QUITE A COMMON FEATURE ON TODAY'S CAR.

These systems are often switched off as people misunderstand them, but they can be quite beneficial to reducing pollution and fuel consumption. The idea is to stop the needless consumption of fuel when we are inevitably stuck in traffic queues on our daily commute, with the engine ceasing to run until we need to move forward again. What often confuses people are the different occasions when these systems cease to operate as expected. It is not commonly understood how sophisticated the controlling electronics are for these systems but, for example, it probably won't switch off the engine if the engine hasn't reached its optimum operating temperature, or if the air-conditioning system is still trying to change the cabin air temperature to our desired level. For conditions such as these it is more efficient for the engine to keep running to reduce demands on the car battery. A newer generation of stop/start systems may use a capacitor device that stores energy for short periods; enough to restart the car without needing to use any energy from the main car battery.



ENERGY REGENERATION SYSTEMS ARE AN INCREASING FEATURE ON MODERN CARS.

These typically use the momentum of the vehicle to generate energy when the driver lifts his/her foot off the accelerator pedal. There are a number of ways these systems do this, but usually it involves the engine/gearbox providing the inertia to slow the car, with the mechanical brake at each wheel being used for the final part of braking or if emergency braking is required. Again the control electronics are quite sophisticated so that the maximum energy is provided through the alternator to the battery during each period of deceleration. In this way, as well as providing energy during braking, the alternator itself is not required during acceleration so that all the energy from the engine is going toward moving the car itself rather than powering our air-conditioning, stereo, lights and other items.

AIR CONDITIONING IS FREQUENTLY MISUNDERSTOOD,

and just as often not maintained so as to be functional. It employs a refrigerant gas, much as your fridge/freezer at home, which condenses the warm moisture from the air and blows cooler or warmer (dependent on the requirements of the user) air through a series of ducts in the dashboard, doors, under the floor, and even through the seats in some cases. Commonly this gas needs evacuating and replacing as the system will degrade over time dependent on how it's used, and the air conditioning system will be much less effective unless the refrigerant is at its optimum level. These refrigerant gasses are 'greenhouse gasses' and therefore should not be released into the atmosphere, but should be correctly extracted and replaced. Typically it is the lack of refrigerant, or that the system has been leaking and sucked in moisture, that leads to many cars having fairly ineffective air conditioning. But perhaps just as frequently, the cause of air conditioning not performing is that it isn't switched on as the controls haven't been explained.

ELECTRONIC STABILITY CONTROL (ESC) IS A CRITICALLY IMPORTANT FEATURE.

It's often overlooked and sometimes even switched off. Thatcham believes that where available, and it is on most cars in the UK, it should not be switched off. ESC, or ESP amongst its many names, utilises sensors to detect the car losing stability, whether that is down to road surface conditions, contamination of the road surface by oils, or just the driver making excessive emergency steering corrections. This immediately engages the anti-lock braking system, applying appropriate braking individually to the wheels to maintain stability. It is not uncommon to see the ESC light activated momentarily in the display; often indicating that the system is maintaining stability whether or not the driver realised the car was losing grip and stability. It is beyond dispute that these systems can respond far quicker and with more capability than the average driver, so this is why we recommend it is never switched off.

MOBILE PHONES AND OTHER DEVICES ARE INCREASINGLY INTEGRATED INTO THE MODERN CAR.

We are a society that is connected and expect to be able to communicate and to be able to send/receive emails and texts at all times. Now we know we are not supposed to talk on our mobiles when we drive, but people still attempt it, or can at the very least be distracted by the phone ringing with an incoming call or message. Phone integration can support safe handling of our communications needs. More and more cars are specifically enabled to be compatible with the core mobile device operating systems such as windows, android, or Apple systems. In many cases this enables many of the mobile device applications to become available within the display, and that display to replicate the familiar mobile device we are used to. Some systems will allow SMS text messages to be received and read out by an automated voice, and with some cars allowing a response to be input. However, for obvious safety reasons this is restricted to when the vehicle is not moving so as not to distract the driver.

This is being applied to the increasing number of applications becoming available, ensuring that these do not become a distraction that could lead to an accident. In some cases we will see email/text message notifications delayed until it is safe to receive without distracting the driver. The days of typing a postcode into your satellite navigation system in-car are nearing an end as 'send to car' function grow, whereby you can select your destination and route in the comfort of your office or home, and send these to the car when required.

PARKING SENSORS AND PARKING CAMERA SYSTEMS ARE ANOTHER AREA OF INCREASED FOCUS.

Initially these were fitted to rear bumpers as proximity sensors that emitted a 'beep' as the car reversed toward an obstruction. However these sometimes were limited in effectiveness as users were unfamiliar with the systems and at what point to apply the brakes. These have been superseded by far more advanced systems, with front and rear sensors not being uncommon. In addition cameras are fitted to the tailgate and boot lid with a TV screen in the instrument display so that the driver can see obstructions behind their car with screen graphics to better enable them to judge the distances with more accuracy. Finally, systems that can physically park the car are appearing with greater regularity and sophistication. These typically steer the car whilst the driver operates the gear selection and pedals to the instructions provided, but in the latest systems the car completely automates parking with the driver having no input other than to instruct the vehicle to do so. These systems are of great interest to consumers as most of us find parking difficult, and it won't come as a surprise that parking is responsible for nearly a quarter of all insurance claims!

All these systems together will lead us toward far more automated cars in the future. Already the US manufacturer Tesla has given us cars that can have software updated remotely, much as our computers and smart devices do, negating the inconvenience of taking the car in to a car dealer and in a recent case Tesla told the customer of a fault on their car that the owner was unaware of.

This is not to say we could and should ignore the servicing requirements stipulated in the warranty agreement, but cars are becoming increasingly capable of advising the owner of maintenance requirements.

Service warning lights on the instrument display are already commonly included, and tyre pressure monitoring systems identify a problem with a tyre. But current developments mean that very soon the car will be capable of contacting a local repairing garage through the GPS satellite navigation and the inbuilt internet link to arrange repairs and servicing. Audi is already trialling a system where parking charges are automated and customers in the scheme can just drive in and out of car parks without the hassle of making sure they have sufficient loose change.

The 'send to car' function of sat-nav will be enhanced by live interaction and links to social media with your friends or colleagues being able to send you links by social media to where they are and what they're doing, so that you can opt to join them. Or appointments in your calendar will automatically get updated and the information you need will be available in-car.

PERHAPS THE WELL-PUBLICISED GOOGLE CAR WILL BE THE SORT OF THING THIS ALL LEADS TO?

This is not the only example, with many manufacturers working on cars that can interact with their surroundings to automate most or all of the tasks of driving. Certainly cars that brake to avoid accidents are already available with increasing popularity, as are cars that can steer to stay within their lane.

Cars that can follow the flow of traffic in a queue are a natural progression of this. The automation of safety functions will increase as the technology reaches ever greater levels of sophistication. Combining these automated control functions with sat-nav will naturally lead eventually to cars that are fully autonomous. Although many of us enjoy driving and consider ourselves to be skilled behind the wheel, maybe we should consider that automation means that we could eventually continue working productively, or socialising, in the safe automated environment of our car, rather than the hours wasted in traffic queues every day.