The levels of automation

According to industry standards, there are 6 levels of automation from Level 0 (No Automation), to Level 5 (Full Automation) where the vehicle can perform all driving functions and other than setting the destination, no driver intervention is required.

Vehicles which are Level 1 (Driver Assistance), Level 2 (Partial Automation) or Level 3 (Conditional Automation) have at least one automated vehicle feature, and require the driver to complete the critical driving tasks. In these vehicles, drivers must keep their hands on the wheel at all times.

About the RAC Intellibus

What makes it an automated vehicle?

The RAC Intellibus is a Level 4 (High Automation) vehicle which means that all aspects of the driving task are automated in certain environments.

RAC’s Intellibus uses a number of different sensors and telecommunications systems. It uses these sensors to localise, that is, to know where it is, and to detect obstacles so that it can react and interact within a dynamic road environment.

For localisation, RAC’s Intellibus uses a combination of three main technologies. The Intellibus has two 3D Light and Detection and Ranging or LiDAR sensors. LiDARS use laser beams to create a 3D map then uses the map to track its location.

Second, an Inertial Measurement Unit or motion sensor uses odometry to know how far it has travelled and in which direction. Lastly, it has a Global Positioning System (GPS), which communicates with a number of satellites to know its exact location. Specifically, the Intellibus uses Real-Time Kinetic (RTK) GPS technology, or differential GPS to know where it is in relation to its base, or zero point. It communicates with up to 18 satellites to pinpoint its exact location to within one centimetre accuracy.
RAC’s Intellibus also uses its 3D and 2D LiDARs as well as the stereovision cameras to detect obstacles movement and changes to the traffic environment.

Other features
The Intellibus can carry up to 11 people and has a maximum speed of up to 45 km/h, with a lower operating speed. The Intellibus is symmetrical, allowing it to travel forward in both directions. It also has 2 x 2 steering and a turning circle of less than 4.5 metres.

Battery specifications
RAC’s Intellibus is fully electric and has an 80 volt lithium iron phosphate (LiFePO4) battery. The battery capacity is 216Ah and takes about 3 to 5 hours to charge using a 32 amp charger. On a full battery, the shuttle can run anywhere between 6 to 8 hours.

The Intellibus can be charged either by plugging a charger directly into the vehicle, or by using a wireless induction charger, which can charge by simply parking over the charging pad.

How do I take part in the Trial?
RAC’s Intellibus® operates 5 days per week and takes trial participants along a 3.5 kilometre route in South Perth. Any one over the age of 7 years can take part by registering at www.rac.com.au or at the RAC Intellibus Hub®, located at the furthest eastern end of South Perth Esplanade.

“...will reduce accidents, injuries and deaths on the road. Clean electric vehicles are better than petrol and I hate driving so a fantastic future is in store for me!”

Trial Participant

About RAC
RAC works collaboratively with Government and other organisations to ensure our members and the community can move around our State safely, easily and in a more sustainable way.

We give back by reinvesting our profits for the benefit of our members through projects aligned to RAC’s Mobility Agenda, such as the Automated Vehicle Trial.