

CONNECTED & AUTONOMOUS VEHICLES - CAV (CULHAM)



RACE (Remote Applications in Challenging Environments)

A £5,800,000 project has been completed by the United Kingdom Atomic Energy Authority (UKAEA) at the Culham Science Centre. The project has been built adjacent to the Remote Applications in Challenging Environments (RACE) centre and is built to support the development of connected and autonomous vehicles (CAV) a sector estimated to be worth £907bn by 2035. The project includes four purpose-built workspaces, each approximately 2,377 sq. ft. in size, providing CAV companies with the opportunity to work on two vehicles in the workspace with office accommodation above where technicians can analyse huge quantities of data generated from the vehicles. This facility has been named the 'Pit Lane' due to its resemblance of a Formula 1 garage. Pit Lane also includes a control centre from where vehicle movements are monitored which acts as the hub for a site-wide fibre optic network that links with dedicated 5G phone masts and wireless units, something which boosts Vehicle to Vehicle (V2V) connectivity (the ability of vehicles to communicate with each other) and further enhances testing capabilities.



Installing prototype
secure communications



StreetDrone and Oxbotica
testing at Culham

The project is based at the Culham Science Centre site as it includes 10km of varied and mixed private roads as well as more than 2,000 people working at the site which provides a unique environment for controlled testing of driverless vehicles before they venture out onto public roads. The substantial increase in their physical assets has helped cement their position within the UK CAV sector.

The project was supported by Oxfordshire Local Enterprise Partnership (OxLEP) with a grant of £2,300,000 from the Government's Local Growth Fund with significant leverage achieved by the Delivery Partner from the UK Government's Centre for Connected and Autonomous Vehicles (CCAV).

The project began in July 2018 and completed in September 2022.

The project has achieved the outputs and outcomes of:

- Constructed the 'Pit Lane' complex with four (4) purpose-built workspaces and the control centre
- Ensured that the site has resilient connectivity infrastructure of a dedicated Wi-Fi system alongside a private mobile phone network.

- Installed a dedicated CCTV network that allows them to monitor vehicle testing across their network for safety and tracking.
- Installed connected/smart traffic lights at the T-junction where Pit Lane joins the main Culham site road network.
- Increased the connectivity of the site by adding DRSC and a 4G LTE network that is being upgraded to 5G
- Installed programmable, connected road signs.
- Purchased a pedestrian dummy on a 'motorised skateboard' to increase safety testing options.
- In addition to the substantial increase in physical assets the investment has helped cement RACE's position within CAM Testbed UK.
- 51.5 long term jobs created as at 30 September 2022 against a target of 48 by March 2025 with more expected in the next few years; in addition the hot-desk space has been used to allow SME's to utilise the facilities on a short term basis. SMEs make intermittent use, on-demand, of these facilities with there being growing interest in this option. Such, targeted short-term support helps SMEs develop, but as the jobs this represents will not be based at Culham they have not been included in the total.