

Innovate UK

Results of Competition: Connected and Autonomous Vehicles 2 - Stream 2 CRD
Competition Code: 1608_CRD1_TRANS_CAV2S2

Total available funding is £15m (across Stream 2 & 3) from CCAV

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
HORIBA MIRA Ltd	5*StarS	£415,990	£207,995
Ricardo UK Ltd		£362,956	£181,478
Axillium Consulting Limited		£113,227	£79,258
Thatcham Research		£394,433	£236,659
Roke Manor Research Limited		£228,545	£114,272
Project description - provided by applicants			
The rapidly proliferating wireless connectivity & automation of road vehicles offers many benefits to society, and significant commercial opportunity, but also brings a potential explosion of Cyber Security threats. 5*StarS partners HORIBA MIRA, Ricardo, Roke, Thatcham Research with Axillium support will deliver an innovative assurance methodology to assure that CAV components, systems & vehicles have been designed & tested to the relevant cyber security standards throughout their whole development lifecycle, and a Euro NCAP 5 star type consumer rating framework for assessing the Cyber Security of new vehicles, clarifying risk for the insurance industry			

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AVL Powertrain UK Ltd	Smart ADAS Verification and Validation Methodology (SAVVY)	£822,476	£411,238
Vertizan Limited		£199,500	£139,650
Myrtle Software Limited		£158,077	£110,654
University of Warwick		£523,714	£523,714
HORIBA MIRA Ltd		£354,422	£177,211
Project description - provided by applicants			
<p>There is an emerging and strong demand for new techniques to enable the robust design and verification & validation (V&V) of ADAS features in a safe, repeatable, controlled and scientifically rigorous environment. This is driven by a number of challenges: reduced engagement of, and reliance on, the driver in the driving task; the very high number and complexity of use cases & test scenarios; reduced access to prototype vehicles; and limited test time, human resources and cost constraints.</p> <p>This project will therefore deliver a novel, efficient and accelerated simulation and simulator based V&V process for ADAS technologies. This project will create the building blocks for the V&V of future technologies based on Field Programmable Gate Array (FPGA) using deep learning and Convolutional Neural Network (CNN) algorithms. These methodologies will be evaluated throughout a product development lifecycle of a real-time ADAS control system.</p> <p>This project will facilitate collaboration between AVL (consortium lead), Vertizan, Myrtle Software, Warwick University and Horiba MIRA, and will bring together the learning and innovations from 3 current Innovate UK funded feasibility studies.</p>			

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IDIADA Automotive Technology UK Limited	Multi-Car Collision Avoidance	£1,510,656	£755,328
Cosworth Electronics Limited		£457,042	£228,521
Cranfield University		£707,728	£707,728
Secured By Design Limited		£34,043	£20,425
Transport Systems Catapult		£489,638	£489,638
Westfield Sports Cars Ltd		£1,403,736	£982,615

Project description - provided by applicants

The Multi-Car Collision Avoidance (MuCCA) Project will develop a multi-car collision avoidance system that aims to reduce the occurrence and consequences (injuries and damage) of multi-car collisions on motorways. The technologies developed and used will be very similar to those that will be included within a fully autonomous vehicle including sensor systems, machine learning, vehicle-to-vehicle communications and vehicle control systems.

To support the system development the project will also configure, integrate and develop a number of simulation tools to create a vehicle automation modelling and test environment that will facilitate a more rapid development of automated vehicles. This environment will include a human driver model to allow simulation and collision avoidance prediction of ordinary non-equipped vehicle paths, so that this technology provides immediate real-world benefits on today's roads.

The technology, systems and tools being developed will be readily adaptable to the broader vehicle automation domain, facilitating a significant evolutionary step in vehicle cooperation and automated driving development in the UK.

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Richmond Design and Marketing Limited	SWARM - Self-organising Wide area monitoring systems for Autonomous pods, enabling Real-time Marshalling	£1,394,716	£976,301
University of Warwick		£550,038	£550,038
Milton Keynes Council		£41,902	£41,902
Project description - provided by applicants			
<p>Autonomous, or self-driving, vehicles have been hard to miss in the news recently, whether this be Tesla's partially automated 'Auto Pilot' feature, or the fully driverless 'Pods' that arrived on the streets of Milton Keynes in October 2016. As the technology becomes more familiar, people are becoming increasingly confident that individual vehicles will be able to drive and navigate themselves on roads and around people. But a single self-driving car is of limited value, it needs to work as part of an existing transport system – therefore conversations are now moving towards 'how will they actually work in a city network'. Currently one Pod can move one person (maybe two if sharing), but it needs a trained safety driver to be in the vehicle, plus traffic cameras to monitor its every move and to make sure it does what is expected. This is expensive, so to make autonomous urban transport more efficient - while maintaining safety - we need to share this supervision between the Pods and external systems (cameras and humans). We aim to achieve this by using Swarm Intelligence (what bees or ants do when part of a colony) to enable real-time, collaborative supervision of pods – meaning individual Pods are locally supervised, not only by cameras or humans, but by neighbouring Pods in the Swarm colony.</p>			

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AECOM Ltd	CAPRI	£472,930	£236,465
Westfield Sports Cars Ltd		£1,253,154	£877,208
Fusion Processing Limited		£497,840	£348,488
University of Warwick		£350,001	£350,001
Nexor Limited		£85,337	£59,736
University of Bristol		£220,161	£220,161
Test and Verification Solutions Ltd		£200,018	£140,013
Loughborough University		£390,782	£390,782
ESP Systex Holdings Ltd		£240,208	£120,104
University of the West of England		£356,199	£356,199
TSS - Transport Simulation Systems Ltd		£272,180	£190,526
Dynniq UK Ltd		£370,886	£185,443
Conigital Limited		£264,000	£184,800
Thingful Limited		£266,263	£186,384
YTL Property Holding (UK) Ltd		£133,116	£93,181
South Gloucestershire Council		£199,370	£199,370
Heathrow Enterprises Limited		£14,556	£7,278
AXA UK PLC		£133,363	£66,682

Project description - provided by applicants

The CAPRI project will design & deliver a complete, market ready, mobility service deployable in urban scenarios using trusted secure PODs and systems supported with a 'complete package' of viable business cases, legal, regulatory, insurance recommendations to enable quick and easy deployments. A series of trial deployments demonstrate increasingly complex POD-based mobility services. Whilst addressing all CCAVs priority areas, including cyber security of vehicle and data validated real-time control systems, our focus is on innovative business models based around POD mobility services.

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Westfield Sports Cars Ltd	Project Synergy	£1,602,418	£1,121,693
Heathrow Enterprises Limited		£36,769	£25,738
Manchester City Council		£39,906	£39,906
Stockport Metropolitan Borough Council		£151,152	£151,152
Fusion Processing Limited		£966,192	£676,334
Transport for Greater Manchester		£313,067	£313,067
Cisco International Ltd		£276,015	£138,008
Manchester Metropolitan University		£251,198	£251,198
Conigital Limited		£758,397	£530,878
Harper Adams University		£496,798	£496,798

Project description - provided by applicants

The aim of this project is to further develop innovative technologies for connected autonomous vehicles to accelerate adoption of driverless vehicles and allied technologies in the UK. This project will introduce innovative technologies to operate connected autonomous cars in a platoon formation from Stockport directly to the arrivals terminal at Manchester Airport. Concurrently, a platoon of three pods will transit passengers to and from a car park in the airport to the passenger terminals. Project Synergy will facilitate inclusive accessible transport for the aged and the visually impaired. Innovations include: rapid battery charging using graphene supercapacitors enabling power sharing between vehicles. An Artificial Intelligence system will provide natural conversation concierge service to users. Development of control strategies and sensor technologies to facilitate platooning. Design of secure connectivity solutions for real-time communications of the platoon convoy within urban infrastructure. Deployment of resource sharing such as audio and video between the vehicles during platooning operation. This project will lead to the formation of new business models to improve mobility and the environment whilst providing economic growth through new job and business creation.

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Ashwoods Lightfoot Ltd	Connected Fully Integrated Driver Ecosystem (Con-FIDE)	£1,129,956	£564,978
Jfloat Ltd (T/A Guevara)		£173,768	£86,884
Securious Limited		£91,042	£45,521
Institute of Advanced Motorists Ltd (The)		£73,584	£36,792
Revolve Technologies Ltd		£111,692	£55,846
University of Bath		£205,928	£205,928
Project description - provided by applicants			
<p>The Con-FIDE project will develop Lightfoot Connected Car technology, which will be the only technology in the world that truly connects the car to the driver, and connects the driver to an entire driving ecosystem that gives a vast array of social, economic and health benefits, making motoring cheaper and safer for all. The product will build a fun, competitive community of drivers who will benefit from economic, social and health advantages including reduced fuel usage, lower insurance premiums, better privacy and an all-round safer, more enjoyable driving experience.</p> <p>This will be achieved by further developing our successful Lightfoot real-time driver coaching technology, that has been proven in the commercial fleet sector, into a full "connected vehicle" solution in conjunction with a leading UK insurer and other key players in the driving eco-system.</p>			

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