

Results of competition: Motorsport Valley Launchpad

Total available funding for this competition was £1m from the Technology Strategy Board.

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
Advanced Fuel Systems Limited	Lightweight Fuel Tank	£183,000	£100,000
Project description - provided by applicants			
<p>This is a project to create a lightweight fuel tank (safety fuel cell) through the use of innovative materials technology.</p> <p>Our proposed technology potentially offers benefits in a wide variety of markets, especially where fuel needs to be safely contained in vulnerable situations such as found in defence, marine, and emergency, plus where other fluids need to be stored e.g. water in disaster relief areas"</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Axon Automotive Limited	RACEBIKE SWINGARM AS FIRST LICENSING APPLICATION OF NEW MATERIAL	£116,000	£69,600
Project description - provided by applicants			
<p>A technology that has been developed for initial application to Caterham Sportscars and for Energy Efficient Motor Sport is being applied for the first time in manufacturing vehicle chassis components.</p> <p>The Technology Strategy Board support has enabled Axon to partner with an Asian motorcycle company to make carbon fibre components under license from the UK company. These components weigh half the weight of steel equivalents and are part of a global trend to reduce vehicle mass to reduce CO₂ emissions.</p> <p>This project will open up a wide market for Axon to design, manufacture or license vehicle components to Axon's customers around the world.</p>			

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Equipmake Limited (lead) Delta Motorsport Limited	High Performance Inverter	£205,501	£123,301
Project description - provided by applicants			
<p>Under the High Performance Inverter project, Equipmake, in collaboration with Delta Motorsport, will develop a class leading inverter for automotive applications.</p> <p>Equipmake, based at the Hethel Engineering Centre in Norfolk, specialises in control system, power electronic and electric motor development. Delta Motorsport, based at Silverstone, is a leading engineering consultancy specialising in motorsport and niche vehicle projects, including the ground up development of a lightweight EV.</p> <p>As electric and hybrid vehicles continue to gain market acceptance, the niche vehicle sector will see significant growth. As the market is maturing, the industry has developed a new functional safety specification, ISO26262, to ensure these new technologies will meet the expected safety levels.</p> <p>The current inverters on the market are not compatible with this new standard, which is a significant barrier to vehicle developers. Additionally, the niche vehicle developer has a limited choice of specification. Under this project, Equipmake will develop an inverter incorporating the necessary diagnostic coverage and software functionality to enable it to be incorporated into an ISO26262 compliant system. The inverter will also be modular, allowing a range of specifications to be derived from the same core package.</p> <p>The system will also incorporate a user friendly front end, allowing easy configuration with a wide range of motor types, making the system "plug & play". The project will further enhance the UK's abilities in Low Carbon Vehicle technology, and provide a step forward in inverter technology.</p>			

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Flybrid Automotive Limited	Flybrid Ultra Low Cost KERS	£199,812	£119,887
Project description - provided by applicants			
<p>This project will develop an entirely new high speed flywheel based Kinetic Energy Recovery System (KERS) suitable for first application on a racing Kart. The KERS unit will be unique in that it will use a novel control system that has no electrical connection to the vehicle. This entirely mechanical control system is key to achieving the very low unit cost target necessary for market success in this very low cost form of motorsport.</p> <p>As part of the project Flybrid will design, manufacture, test and develop two complete KERS units. This will be done on the existing test rigs at Flybrid which will need only minor adaptation. In order to meet the maximum cost cap of the Technology Strategy Board competition the project has been abbreviated to only include the test rig phase, but it is the intention to go on to test the system in vehicle as a follow on activity that will be completed without matched funding under the control of project partner, a major international manufacturer of karting engines.</p>			

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Juno Racing Cars (lead) EPM Technology Limited	Affordable Structural Composites	£167,379	£100,427
Project description - provided by applicants			
<p>The Motor Industry faces a tough challenge. Increasing fuel costs and increasing environmental concern means that fuel efficiency is top of the agenda. It is unlikely that targets will be met through driveline development alone.</p> <p>Vehicle "lightweighting" offers efficiency from another point of view as it leads to an overall reduction in vehicle inertia - less energy required to speed up, slow down or change direction. Advanced composites such as carbon fibre/ honeycomb construction offer the key but as yet remain the domain of high end motorsport or very high end road car production due to the high material and labour intensive processing costs. As is often the case, it is likely that motorsport developments will, enable such technology to trickle down into the mainstream of the motor industry.</p> <p>Race car constructors, Juno Racing Cars are to collaborate with composite specialists EPM Technology in the project named "Affordable Structural Composites". The project aims to develop innovative manufacturing processes to make advanced composite structures a commercially viable choice for a new evolution of Juno's successful sports prototype racing car and also for a planned road legal trackday car. Whilst the project doesn't claim it will provide the solutions to enable advanced structural composites to be used in everyday car manufacture, it is expected to push the technology forward and provide information as to how the technology can be developed further such that it is soon a reality.</p>			

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K.W. MOTORSPORT LIMITED	ToPCat-M1 : ThermoPlastic Carbon Tub for Motorsport	£199,482	£119,600
Project description - provided by applicants			
<p>ToPCaT-M1 (ThermoPlastic Carbon Tub, Manufacturing stage 1) will deliver a proof of concept of a new type of low cost carbon composite intensive monocoque/ tub. Currently almost all carbon composite chassis for race cars and automotive applications are thermoset composite parts that require long cure cycles and are difficult and costly to recycle.</p> <p>Thermoplastics, commonly used in Aerospace applications are often formed rather than moulded and since heating and forming process can be reversed the materials are easily recycle-able. These materials are well established and are being used in many aerospace applications, being used for fabricating a motorsport or automotive tub application however is an innovative application that has some technical challenges and design constraints to overcome. KWM intends to solve these problems through Research and Development to build of a proof of concept prototype that will be tested initially in an existing race car application.</p>			

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Lyra Electronics Limited (lead) SMT DEVELOPMENTS LIMITED University of Manchester	DC-DC Converter control board	£152,455	£91,473
Project description - provided by applicants			
<p>One of the major challenges facing the adoption of electric vehicles for motorsport is the time and energy required for recharging. Charging vehicles from the electricity grid or generators limits the charging power and, for most race circuits, 25 race vehicles charging at the same time would exceed the electricity supply to the circuit. A solution to this problem is to have a dump battery or fuel cell supply which is capable of very high levels of energy supply and could recharge the vehicle in less than half an hour. In order to manage this energy supply a DC-DC converter is required.</p> <p>This project addresses the issue of the high cost of DC-DC converter by developing a generic electronic control board for a DC-DC converter with the capability of being rapidly programmed for different applications. This will be demonstrated on a high powered DC-DC converter to rapidly charge an electric race vehicle from a dump battery pack.</p>			

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Oxford nanoSystems Limited	Application of innovative nanocoating to Formula 1	£200,000	£120,000
Project description - provided by applicants			
<p>Oxford nanoSystems (OnS) is developing a nanocoating technology for application on component surfaces to increase efficiency and lifespan for domestic products as well as automotive products.</p> <p>OnS aims to create a benefit to every member from the primary manufacturer to the end consumer while achieving reduced fuel consumption and promoting a greener economy.</p> <p>Newly deployed products incorporating this technology will add value so that society can take advantage of the financial, environmental, and efficiency benefits.</p> <p>OnS has done significant work in preparation which gives this project a high probability of success by assembling a well-rounded team and leveraging its networks and resources in terms of finances, knowledge, and support. This Industrial research project focuses on R&D to create a product that can be easily assimilated into the market.</p>			

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Race Technology Limited	Distributed Power Control Network	£96,139	£57,683
Project description - provided by applicants			
<p>Race Technology Ltd is a Midlands based company that designs and manufactures high technology electronic products. These products are primarily for use in motorsport and road vehicle development.</p> <p>We are often faced with problems when we have to interface new electronic systems with existing vehicle wiring looms. Traditional wiring looms are heavy, complex, expensive, difficult to modify, and can be unreliable and difficult to troubleshoot. These problems are getting worse due to the amount of electronics in modern vehicles.</p> <p>Race Technology has a highly innovative solution to this problem. The old fashioned wiring loom is replaced with a network of small solid state electronic modules that is more robust, easier to install, easily expandable, cheaper, uses less raw material and allows improved electrical power management - thereby reducing carbon emissions through reduced weight and improved efficiency. The traditional wiring loom is replaced by a single wire that connects the modules and carries power and data around the vehicle. The aim of this project is to develop the core technology to prove that the concept works and yields the anticipated functional and environmental benefits.</p>			

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SS Tube Technology	SSTT - Next Generation Material Development	£199,596	£119,758
Project description - provided by applicants			
<p>SS Tube Technology (SSTT) designs and manufactures metallic based exhaust and insulation products for the m/sport and energy markets. Current Insulation products are heavy, have temperature limitations and costly to produce.</p> <p>SSTT sees an opportunity to overcome these problems by developing a commercially available ceramic matrix insulation solution. This project will develop a lightweight insulation product with; operating capability above 1000degC, high structural performance, low thermal conductivity, processable under 200degC and all at a low cost. The product will be based upon a chemical composition part developed by a UK University, SSTT will work with the University to refine then tailor the manufacturing process to be suitable for commercialisation.</p> <p>The exploitation strategy will initially target SSTT's existing customers within the m/sport industry, allowing them to become more competitive within their category whilst addressing the longer term objectives that the industry must address. This will be achieved by improving waste heat recovery in turbo compounding systems where this heat is used to drive a generator.</p> <p>SSTT will also exploit synergies within the Automotive, Aerospace, Defence and Energy sectors, generating fuel savings and reducing carbon emissions through improving turbo efficiency and optimising catalyst working temperatures. SSTT expects to generate additional sales of ~ £5m pa, create ~ 50 new jobs and increase the quantity of exports thanks to the innovative cost effective product.</p>			

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Weald Technology Limited (lead) GEM MC LIMITED Lyra Electronics Limited Weald Technology Limited	Electric Drag-Race Motorcycle Powertrain	£236,251	£119,232
Project description - provided by applicants			
<p>Developing a low-carbon powertrain for the automotive, rail, aerospace, and military sectors is a large step towards reducing emissions and the reliance on fossil fuels. This consortium of UK engineering companies is using the Technology Strategy Board's Motorsport Valley Launchpad to develop a complete powertrain package for 21st Century transport.</p> <p>They are developing a matched 'power source-control system-motor' package to deliver high-energy, ultra efficient, power for peak loads and incorporating energy regeneration. The team will analyse every component along the whole powertrain from source to drive and minimise every cause of energy loss. Matched to a novel high-performance electric motor the consortium envisages a powertrain package with efficiencies far higher than ever seen before, suitable for the smallest car through to huge earth-moving machines.</p> <p>To demonstrate the solution the team have turned to drag racing as the motorsport discipline with the most extreme power demand. The aim is to produce a high efficiency electric drivetrain for adoption by mainstream vehicle manufacturers which can be readily adapted to application-specific use across other transport and industrial sectors. The inherent efficiencies within the system, and its cost effective mass production, will challenge all known and existing electric drive systems.</p>			