Innovate UK

Results of Competition: Newton Fund - China - Guangdong Province

Competition Code: 1707_CRD1_NEWTON_CHNGDST

Total available funding is £3 million

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
Phase Change Material Products Ltd	Compact Solar-Powered Thermal Energy Storage Battery (SolarHeatStore)	£200,981	£140,687
University of Nottingham		£119,990	£119,990
Geo Green Power Ltd		£149,755	£104,829
Project description - provided by applicants			
SolarHeatStore will encourag the use of energy-efficient solutions in urban areas, especially cities in Guangdong where insolation is high, as well as being adaptable to the less sunny British weather. By helping the shift from fossil fuel to sustainable renewable energy to provide domestic hot water, SolarHeatStore will both reduce carbon emissions and users' energy costs. The first of its kind, the main compoanent of the SolarHeatStore system is the supercooled PCM which comes in five innovative panels will provide "heating on demand". Apart from a possible modest loss of sensible heat just after charging, the thermal energy will be effectively stored at room temperature, without loss, until required. This makes a key contribution to the efficiency of SolarHeatStore compared to conventional PCM of water tank heat storage. Furthermore, compared to the latter its energy density is 4 to 5 times higher.			

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Innovative Technology and Science Limited	AI (artificial intelligence) based healthcare system for elderly people - iChair	£307,702	£215,391
Teesside University		£129,153	£129,153
Project description - provided by applicants			
With the level of over 60-year olds in China set to double to a predicted 440 million by 2050, a corresponding increase in the 37.5 million over 60-year old mobility impaired (18.8, while reducing medical intervention and trips to the hospital for the patient. In the long-term this will reduce and/or delay the need for the elderly to go to care homes. Users improve and maintain their independence, functional capacity, health status as well as preserving physical, cognitive, mental and social well-being.			

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Cambridge Environmental Research Consultants Limited	Air Pollution Monitoring and Very High Resolution Early Warning Platform for Guangdong	£376,559	£263,591

Project description - provided by applicants

The Pearl River Delta agglomeration in Guangdong is the largest urban area in the world. Despite the significant regional investment into improving the environment, the magnitude of the problems faced frequently results in hazardous air pollution levels being reached. Hence it is imperative both to provide short term air pollution forecasts with alerts and to develop control measures to reduce short term impacts and improve the longer term air quality. Using a combination of state-of-the-art and well tested regional and local air quality models, this 24 month project seeks, for the first time in Guangdong, to forecast air quality at very high (street level) resolution and to disseminate both real time and forecast air quality together with high pollution alerts via an integrated smart platform. An important additional application will be the development and testing of air pollution control strategies. The system will be tested and optimised using reference air quality monitors already in place across Guangdong and additionally innovative low cost, small sensors deployed in Guangzhou for the project. Primary beneficiaries will be Environmental Monitoring Centres, urban planners and residents

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Satoshi Systems Limited	Triple-Network Air Quality Monitoring and Carbon Credit Trading Platform for Sustainable Urban Environments	£311,906	£218,334
Loughborough University		£131,630	£131,630

Project description - provided by applicants

In response to a growing demand for air quality monitoring and carbon control solutions, the project aims to develop an intelligent air quality monitoring, analytic and carbon trading platform. It will allow the measure and forecasting of air quality status, pollution levels and carbon emissions, thus to provide timely scientific evidence which can be used for carbon trading. The system is optimized for speedy deployment with minimal additional infrastructure investment. Compared to a traditional monitoring system, the system has the characteristics of low-cost, installation portability and easy information access with comprehensive air quality sensors for ozone, PM2.5, .as well as carbon dioxide emissions linking directly to a carbon trading platform. The system will be built on the combined advantages provided by three networks. It adopts advanced technology in wireless sensor system, intelligent multi-sensor fusion, cloud and distributed computing for big data processing. In- depth back-end analytics and predication models are built using the state of art technology in machine learning and data mining to enable a carbon trading platform to be developed allowing a series of end-to-end trading.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
NPS Humber Limited	Advanced Carbon and Energy Management and Eco-design Platform for Urban Districts	£349,722	£209,833
University of Hull		£149,948	£149,948
Project description - provided by applicants			
Through close collaboration between the leading UK/Chinese universities and the top Chinese/UK companies, this project will develop an advanced cloud-computing platform for urban/district level carbon & energy management and eco-design, which is functioned to evaluate and manage the fossil fuel energy consumption and saving, predict and control carbon and other contaminants emissions, manage the renewable energy and energy efficiency technologies application, and develop eco-designs at urban/district levels. In the Consortium, each partner has specific knowledge & expertise in individual technologies, while CABR-SZ has the capacity to integrate these technologies into a platform and transmit it into market. This will enable smart urban/district planning and energy & environment systems monitoring and optimisation, thus achieving 25, 30, and 10, thus generating significant economic/social benefits to China and the UK.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Ranplan Wireless Network Design Ltd University of Sheffield	Powering Urban Smart Mobility with Data Analytics (PUBLIC)	£531,543 £27,401	£320,980 £27,401
Project description - provided by applicants			
With the development of ICT infrastructure that comprises mobile, WiFi and IoT networks and online social networks (OSNs), there are now large volumes of data generated in these networks that can be analyzed to characterize and predict the traveller mobility, identify traffic congestion, and help the police, public transport operators and travellers to take proactive actions and enhance smart mobility. In this project, we will apply the latest big data analytics techniques and explore the data from mobile, WiFi and social networks to predict traveller mobility, traffic demands and provide relevant information to the government, police, transport operators, road network controllers to facilitate smart mobility in urban areas, including intelligent traffic light control, public transport scheduling, policing for large events, seamless connection between different modes of public transports.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Block Dox Limited Queen Mary University of London	SPOC-APP - SPatial big data & OCcupancy analysis and APplication research on resources and environment management auxiliary decision-making Platform	£350,000 £149,972	£245,000 £149,972
Project description - provided by applicants			
Buildings account for ~40, & are the largest single contributor to wasted energy – significantly in servicing unoccupied buildings. Despite representing the primary challenge facing all building operators & facility managers obtaining a precise and reliable measurement of occupancy remains difficult based on current solutions, the impact being that most buildings are inefficiently managed with poor energy performance. BlockDox combines a patent-pending sensor fusion method with unique machine & deep learning algorithms to deliver an accurate assessment of real time & predictive people counting/flow. Their interoperable solution can be integrated with mass, multi-scale, multiple source spatial data research from the consortium partners to create a sophisticated Big Data decision making platform to support environmental & resource planning by Government. The solution addresses an unmet market challenge with 90, improving energy efficiency, & supporting decision making aimed at reducing emissions & pollutants from the most occupied areas & providing an environmental capacity warning system.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THERAPYAUDIT Limited Anglia Ruskin University	A big-data-centric hearing impairment rehabilitation solution using a novel, affordable hearing aid tailored for tonal language speakers, personalised hearing screening, online therapeutic calibration and motivation service	£275,044 £106,845	£192,531 £106,845

Project description - provided by applicants
China is facing major healthcare challenges as its population ages. One of the major clinical problems many elderly people in China are facing is hearing impairment. There are over 75 million people with hearing impairment and 40, based on the non- tonal English language, rather than the tonal Chinese, and they are also very expensive. Normal hearing screening requires appropriately quiet test environment. Frequent hearing aid calibration is also very difficult in China due to the shortage of hearing screening centres. Therefore, there is an urgent unmet need to develop a hearing aid which is tailored for the Chinese population and to provide a simple way of screening and monitoring hearing aids frequently at home. Our proposal is to develop a novel and low cost hearing aid and a cloud-based hearing rehabilitation solution with personalised hearing screening, online therapeutic calibration and motivation service specifically for Chinese population at home.

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National Air Quality Testing Services Ltd Lancaster University	Intra-urban air pollution exposure prediction: a smart platform and applications using a land-use regression model	£460,896 £24,868	£320,000 £24,868
Project description - provided by applicants			
Air pollution is a global threat with an estimated 7 million people dying worldwide from exposure to both indoor and outdoor air pollution every year, making it the world's largest environmental health risk. This problem is particularly evident in China, as its burgeoning urban environments face substantial pressures to both grow economically as well as to simultaneously improve resident's health, quality of life, and productivity. This project seeks to develop a publicly accessible smart platform to forecast air pollution exposure at an intraurban scale. This will be achieved by using big data" on land-use type, conventional air quality monitoring data, real-time traffic flow, meteorological data, high-resolution mobile air pollution mapping using integrated air quality monitoring equipment, and other big data sources. The project will demonstrate the technical feasibility to support a franchise based rental model for a high-volume, low-cost, holistic air quality monitoring network. This approach will foster sustainable development			

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