

Innovate UK

Results of Competition: Smart Round 1 2015-16 - Development of Prototype
Competition Code: 1503_SmartRnd1_DoP

Total available funding for this competition was £7.8M from Innovate UK

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| Participant organisation names | Project title | Proposed project costs | Proposed project grant |
|---|--|-------------------------------|-------------------------------|
| SimPrints Technologies Ltd | Development of a mobile biometric system to solve identification and verification challenges in developing countries | £535,792 | £241,106 |
| Project description - provided by applicants | | | |
| <p>The ability to identify individuals accurately and reliably is an essential condition for providing quality health, finance, and government services. In developing nations the lack of reliable identification methods is a major factor impeding the delivery of such services. The past 10 years have seen rapid expansion of mobile phone penetration in emerging economies. This shift has powered a rising wave of ingenious mobile health, finance, and governance platforms designed to do everything from mobile medical diagnostics to opening digital bank accounts. Despite this huge potential, client identification and authentication remains a key bottleneck in expanding the reach of such mobile services in developing nations, especially with the many users who lack any form of government ID. SimPrints provides a solution to this problem by linking clients to records through their fingerprints. While mobile biometric scanners in devices such as the iPhone 5S are penetrating developed markets, these systems are far too expensive for mass use in developing nations. Leveraging research from the University of Cambridge, SimPrints aims to develop a novel fingerprint scanning system that works with existing mobile applications to provide users with biometric tools at a fraction of the cost of current systems.</p> | | | |

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| ParcelVision Ltd | ParcelVision Retail Smart Grant Application | £554,603 | £249,571 |
| Project description - provided by applicants | | | |
| <p>ParcelVision Limited plans to develop carrier optimisation technology that can reduce carriage costs for retailers by up to 30%. ParcelVision will integrate with all major carriers and automatically select the optimum carrier for each shipment processed by the retailer. The reduction in delivery costs that ParcelVision will facilitate, will enable retailers to compete more effectively, and lower delivery costs for consumers. ParcelVision's powerful technology will notify consumers if goods are delayed, advise what steps are required to resolve, and empower them to deal directly with the courier to expedite delivery. Additionally ParcelVision will reduce delivery failures, by pro-actively notifying consumers by email and SMS when their order is shipped and enable them to re-schedule their delivery by simply replying to the message. ParcelVision innovative technology will enable retailers to offer their customers a complete range of delivery services including click and collect, and even a choice of multiple couriers. We expect this level of flexibility and service choice to significantly improve conversion rates and customer satisfaction</p> | | | |

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| Pragmatic Printing Ltd | PACES+ (Printed Analogue Circuits for Embedded Sensors) | £325,698 | £146,564 |
| Project description - provided by applicants | | | |
| <p>This project addresses a growing need for integrated printed electronics (PE) to provide innovative and value-adding features on plastic and other cheap substrates (paper/card) to sectors such as medical, automotive and consumer goods. The PE market is estimated to be £1.5B today, growing to £30B by 2021 and £200B by 2027 (IDTechEx), including electronics smart packaging devices (projected to grow from £0.02B in 2012 to £1B/35B units in 2022). Printed logic circuits, predicted to be the largest sector (38%, IDTechEx), will introduce intelligence and interactivity in form-factors that don't currently exist in the marketplace. This project builds on previous PoC project PACES which successfully demonstrated a novel comparator circuit design based on PragmatlC's thin-film semiconductor technology. Comparator circuits built from printed electronic (PE) components are key requirements to interface flexible analogue sensors with PE digital logic, enabling large-scale, flexible smart sensing systems to be realized. These are a necessary building block for wider applications where conventional Si approaches cannot be applied due to cost or form-factor. The most promising of these emerging markets are the near-term, wireless sensing network (WSN) and the longer-term emerging vision, the Internet of Things (IoT). These technological developments will allow everyday objects to transmit data that can be processed through the Internet and reacted upon accordingly. Examples include smart tags that can monitor temperature or humidity on food or pharmaceuticals packaging. PE devices have to date been applied to digital applications, but there is now a requirement for thin-film analogue circuitry to interface digital electronics with sensors. Several product demonstrators will be produced to validate the systems, and these will be investigated for temperature and lifetime stability.</p> | | | |

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| The Exchangelab | TEL Detective - The Exchange Lab Media Transparency and Fraud Management System | £708,496 | £247,974 |
| Project description - provided by applicants | | | |
| TEL Detective will research and develop a prototype system for detecting and preventing programmatic media fraud, and weeding out the unproductive placement of on-line advertising. Internet advertising has now overtaken print advertising in spend and programmatic media, whereby computer systems automatically buy and place advertisements in electronically targeted web pages, is the fastest-growing area of advertising. However, there is a growing concern among leading brands about the risk of misplaced adverts, wastage and deliberate fraud. The Exchange Lab (TEL) uses its technology platform to purchase programmatic media from multiple vendors. As a leader in aggregating multiple DSP information into a single view, TEL is ideally placed to analyse patterns in the data flows, identify unscrupulous behaviour and outright fraud. By automating and extending algorithms, applying machine learning for detecting and removing fraudulent or unsatisfactory sites, and real-time analytics to detect problems during a campaign, TEL Detective will provide the level of safety and transparency that brand advertisers demand. The results of the project will be incorporated into The Exchange Lab's 'Proteus' platform to offer a new level of anti-fraud and ensured viewability, with services that provide reliable confidence measures. This will increase a brand's transparency of the media purchased on their behalf through open exchanges, help to accelerate the growth of the market, improve the quality of advertising placement, and improve the exclusion of unscrupulous and fraudulent media from the ecosystems of all the DSPs connected to the platform. | | | |

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| CherSoft Ltd | Universal Chart Service | £272,765 | £122,744 |
| Project description - provided by applicants | | | |
| <p>CherSoft are a leading supplier of charts and navigation technology to maritime users. Over the last three years we have developed the concept of the Universal Chart Server (UCS). This is in response to a unique market opportunity, arising from future requirements for commercial vessels in terms of electronic chart supply. These require commercial vessels to carry Electronic Chart and Display Systems (ECDIS) from 2017. Up to date Electronic Navigation Chart (ENC) data is essential and a legal requirement for their correct use. Authorities may impound vessels without updated charts and impose fines of \$50,000 a day on the owners. Operators also lose precious 'slots' in at-capacity shipping lanes. Our commercial experience has taught us that maritime shipping is slow to adopt internet technology. Intuitively, this is due to the high cost of satellite connectivity, which is the only practical mechanism for offshore vessels to access the internet. Furthermore, vessels incur large fees associated with the necessary data subscription tariffs. Data transfer via satellite typically costs several \$ a minute via a data subscription, or costing vessels \$9,500 per year on an annual tariff. We propose meeting these badly met market needs by developing a universal chart integration and display system that integrates all 15,000 charts from all major global providers in a single coherent form. We will deliver an innovative step change through new compression and decompression technology that will reduce the bandwidth requirements for satellite ENC updating. We will make ENC update leaner still, by targeting only essential and relevant information. Our target is a 50% reduction in total data transferred per update. This will significantly reduce the user's costs, from individual sailor to commercial fleet alike. Enhanced safety from 24/7 updated maps, bringing all users in line with necessary legislative compliance are further benefits.</p> | | | |

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| Image Scan Holdings PLC | PLD – Precision LineScan Detector | £235,983 | £106,192 |
| Project description - provided by applicants | | | |
| <p>Portable X-ray inspection systems are frequently the first technology used by the authorities to assess the potential threat from a suspect device and their ability to generate an image of the device has allowed both terrorist incidents and false alarms to be avoided. A portable X-ray system consists of an X-ray generator, an X-ray detector panel and a user terminal, typically a PC or tablet computer. Important performance parameters include X-ray penetration, good image resolution, and more recently the ability to discriminate between materials. Our proposal is to utilise the IBEX materials classification technology, which uses a MultiAbsorption Plate (MAP) and advanced software algorithms to create materials discrimination from a conventional amorphous silicon detector with a single energy scan. The enhanced capabilities of the proposed system are expected to lead to higher detection rates of small threat objects, and greater discrimination of organic-based materials such as homemade explosives and biological threats</p> | | | |

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| Microply Ltd | MICROPPLY LIMITED - Developing a Prototype (DOP) of a flameless device for installing thermoplastics in hazardous and confined areas | £553,960 | £249,282 |

Project description - provided by applicants

Surface Markings are a versatile and essential addition to asphalt or concrete surfaces. They play one of the most important safety functions on pavements and roads, as well as giving facilities owners the ability to construct education, leisure, and advertising in prime locations on the ground. This has led to a wealth of global opportunities in playgrounds, theme parks, car parks, stadia and other forecourts; in addition to road markings. The global markings industry is estimated at \$50bn USD, and employs over 250,000 people (Gartner, 2014). There are 178 UK companies operating in this market. There are currently four main typologies of surface marking materials (paint, thermoplastic, resin, and tape), each differ in terms of cost, performance, durability, speed of application, and suitability. There is a growing trend towards using thermoplastics because of their zero solvent/VOC (Volatile Organic Content) level, safety, high retro reflectivity, variable thickness, bright colours, and ability to easily re-apply over old markings. However, there are commercial and technical issues with current installation processes that have prevented the use of thermoplastic markings in lucrative hazardous area industries e.g. Oil & Gas, PetroChem, Underground networks - not least the requirement to install with a naked flame (which is banned in hazardous areas). Further, current methods are expensive, labour intensive, slow and give inconsistent results. This project addresses these problems. Following three successfully funded TSB grants (POM, HVM Business Model, and POC - File Refs 700255, 221214 and 710487 respectively), we address the problems by developing a DOP Stage flameless device that can simultaneously apply heat, measure temperature, and apply the correct volume of anti-slip aggregate over the thermoplastic surface evenly, deploying it at the correct time to give optimised visual/retro reflective qualities, and without the use of a naked flame.

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| Newtec Vascular Products Ltd | Development of an innovative medical device to promote healthy blood flow in bypass surgery | £302,261 | £136,017 |
| Project description - provided by applicants | | | |
| <p>Cardiovascular diseases (CVD) account for ~31% of all global deaths. Atherosclerosis -hardening & narrowing of the arteries thus restricting blood supply to essential organs - is the dominant cause of CVD responsible for ~75% of all cardiovascular deaths. Surgeons perform complex bypass graft surgery using sections of a patient's own healthy vessels or synthetic grafts to reconnect the blood supply when blood flow is restricted, however bypass graft failure rates are staggeringly high (~50%). The primary cause is Smooth Muscle Cell Intimal Hyperplasia (SMCNIH), an overreaction of a natural healing process for the vessel wall in response to the trauma of surgery. The severe overgrowth of scar tissue causes the vessel lumen to narrow & constrain at the join thus restricting/blocking the blood flow -resulting in a high risk of clot formation. ~2M vascular grafts are implanted globally p.a. at >\$8k/patient. Revision surgery after graft failure is expensive, carries further morbidity/mortality risk & causes severe distress to patients. Newtec recognises the major business opportunity that exists for a cost effective medical device that addresses this problem. The novel patented technology is a metal-free, drug-free device designed to support a vascular join & promote healthy healing following arterial or venous bypass surgery, promoting optimal healing of the joined vessels through its unique bilayered structure. PoC trials showed that the intimal hyperplasia (causing vessel lumen narrowing) reduced by a significant 30-50% - demonstrating the potential for routine use. This project will advance the tech to develop a validated 'works-like'/'looks-like' prototype to be used in a first in man trial prior to commercialisation. The device will be targeted towards the cardiovascular surgical device mkt (est. globally to reach ~\$47.2bn by 2018) with initial applications in vascular grafts, peripheral grafts & subsequently coronary artery bypass grafts.</p> | | | |

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| Trace-in-Metal Ltd | Trace-in-Metal Ltd, a new, unique and resilient method of providing traceability of metals throughout the recycling process, primarily aimed at reducing the incidence of metal theft and lowering its impact on the UK economy. | £268,294 | £120,732 |

Project description - provided by applicants

The Association of Chief Police Officers announced in 2011 that metal theft cost the UK £770million. The British Transport Police (BTP) reported 2000 incidents of metal theft over the same period with Network Rail estimating the cost to £16 million every year (BTP bulletin). Metal theft is a recognised threat to national infrastructure and has a negative impact on the UK economy. In addition, irreplaceable cultural heritage was being destroyed following water ingress as a result of lead being stolen from roofs. Ecclesiastical Insurance, the main insurer for the Anglican Church's over 16000 buildings, had 2500 claims in 2011. Several marking methods were already being used, but were simply not working as theft of lead from church roofs and other metals was increasing. A meeting was held in October 2011 by the company founders to come up with ideas for a technology that would enable the permanent marking of metals that would be traceable back to source even after melting. The starting point was concern about lead being stolen from historic buildings and the initial technology was specifically developed to combat such theft. Lead, the pliable, soft metal used for roofs, was chosen as the metal to prove the concept with, but with a clear objective to find marking methods for other metals such as copper and aluminium. The markers aim to contain information that would help scrap metal dealers (SMDs) to differentiate stolen from legitimately acquired metal, carry information that could be used to track metal from point of marking, assist law enforcing agencies in prosecuting those either stealing or buying stolen metals and also act as a deterrent to theft. To prevent removal by thieves (covert marking) the markers, or identifiers, should be fused in the metal and be as invisible as possible. We aim to achieve this via a novel air rifle based ballistic fusion process that overtly tags the surface of a metal for enhanced retrieval, and detection back to source.

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| TheJobPost Ltd | Recruiter matcher Prototype | £547,583 | £246,412 |
| Project description - provided by applicants | | | |
| <p>The recruitment industry has seen a pronounced trend toward polarisation in the last 10 years. The large agencies compete on volume and efficiency whilst smaller agencies have proliferated based on an ever increasing degree of specialisation. The problem is that whilst an employer may have existing relationships with a range of recruitment agencies, the increasingly fragmented market and high levels of agency staff turnover make it hard to access the right consultant in the right agency at a competitive price every time. TheJobPost have created a revolutionary approach to solve these problems, by connecting employers with recruitment consultancies using crowdsourcing techniques. In the same way that businesses such as Rightmove, PrimeLocation & Zoopla have disrupted and fundamentally changed the estate agency market so TheJobPost is doing the same, in the recruitment market. The current TheJobPost technology platform has successfully developed and tested our business model. We already serve over 40 employers including RWE Npower, Nestle, Serco and the NHS, and have achieved engagement with 125 individual recruitment companies. Our system enables employers to post job vacancies onto the platform, which are matched up to recruiters who search for candidates. Despite the inefficiency of our current system we have already delivered effective results for a number of employers. For example, Serco say that our vacancy 'fill rate' is over 75% which compares extremely favourably with their other suppliers; and that our 'time to fill' is circa 30 days compared to their other suppliers' average of 45 days. A 9 month SMART Proof of Concept grant project has helped to research new ways to add semi-automation steps to the manual process of intelligently matching roles to recruitment consultancies. The aim of this DOP project is to build on the progress already made by further substantial research to scale up the system, and add further features.</p> | | | |

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| Sepsis Ltd | Rapid Diagnosis of Bacterial Sepsis | £274,214 | £123,214 |
| Project description - provided by applicants | | | |
| <p>Based on a clinically validated biological assay the project will deliver a prototype point of care device to be used directly at the bed-side of a patient that is capable of diagnosis of bacterial sepsis within minutes of mixing serum/plasma with a reagent solution. The assay detects abnormal blood chemistry before standard physiological sepsis is diagnosed and this has been shown in children and adults in settings that include the emergency room, post surgery, oncology and intensive care units. The technology has already demonstrated some early technical feasibility with small volume reagents, but still requires coupling with a bespoke hand held reader to deliver a test result from a 'pin-prick' of blood allowing bed-side format from sample to result. The result can be both qualitative for diagnosis (Yes/No) and quantitative for repeated use. It will be designed to frequently monitor the progression of the symptoms with a view to reducing overuse of antibiotics. The ultimate aim is to develop a product that will be the most effective point-of-care (POC) device for the diagnosis of bacterial sepsis on the market and thus address the global health issue of rising sepsis mortality. The planned work scheduled over the next 12 months will consist of a series of different models that will test functionality of interacting components in order to optimise conditions for a small demonstrator device, generate new IP and interact with health care professional end users such that their requirements for appropriate intervention are met.</p> | | | |

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| Rinicare Ltd | RINICARE PRIME II | £499,813 | £224,915 |
| Project description - provided by applicants | | | |
| <p>Rinicare's Pre-hospital Information and Monitoring E-system II (PRIME II) proposes to develop a mobile health information and monitoring platform aimed to optimise patient pathways in pre-hospital healthcare and ambulance services' efficient performance. PRIME's Development of Prototype will design and implement intuitive and rich patient electronic forms (eForms) that integrates real-time continuous recordings of patients' vital signs and multimedia (written and audio notes, images and high-definition video), considering NHS requirements and the paramedics' mobile environment, procedures and workflow. PRIME eForms can be seamlessly shared with remote specialists (telehealth) to assist early and accurate assessment of patients' condition and the provision of treatment advice to paramedics on site and in the ambulance. PRIME innovation will impact pre-hospital healthcare on the ability to sustainably develop ambulance services and their increasingly active role in healthcare, improve patients' satisfaction as well as the NHS new competitive nature, cost savings effort, paperless approach and integrated care vision, in the name of quality and excellence in healthcare delivery. About Rinicare: Rinicare Ltd. is a Lancaster-based (UK) SME that offers state-of-the-art technology solutions for healthcare applications. Products and solutions provided by Rinicare utilise the latest information and communications technologies and provide solid foundation for enhancing its users' quality of life. Rinicare's state-of-the-art technology-based healthcare portfolio present ACUSCEN (electro-stimulator for pain relief), CARDIOLEAF (ECG wireless heart monitoring system), WiFIT (mHealth app), KHIMS (kids health indicators monitoring system) and RINIMED Wireless Intelligent Health Monitoring System.</p> | | | |

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| Cortexica Vision Systems Ltd | Fashion Recommendation System prototype | £555,325 | £249,896 |
| Project description - provided by applicants | | | |
| <p>The Fashion Recommendation System (FRS) will use bio-inspired visual search technology to model the relationship between outfit items worn by people in the real world. To do this, we will ingest large volumes of data from social media, retailers own databases, and by incorporating the knowledge from the retailers own merchandising decision. The system will be intelligent enough to cope with a picture uploaded from a social media platform or to a fashion blog. Our existing clients and partners are repeatedly highlighting how brands want to leverage user-generated images from social media e.g. Instagram and Twitter pics to drive user engagement and sales. Our research suggests that there is no product or technology in the world that is addressing this problem in this way</p> | | | |

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| Magic Pony Technology Ltd | PMCT - An advancement in Video Compression Technology | £550,606 | £247,772 |
| Project description - provided by applicants | | | |
| <p>Global online video consumption accounts for >66% of internet protocol (IP) traffic. Between 2011 & 2013 avg. online video viewing grew by 6mins/person/day whilst traditional broadcast TV viewing fell by 7mins/person/day, demonstrating a major shift in how video is consumed. Patterns also show a trend towards viewing on mobile devices - Ericsson predict by 2019 IP traffic from mobile devices will far exceed that from wired devices & video consumption will account for >50% of mobile traffic. Exponential growth in mobile video consumption is one of the greatest challenges facing the global telecoms industry, with an immediate need to identify new ways of handling exploding IP traffic without incurring unsustainable infrastructure costs/risking network failures. This growth also represents a substantial business opportunity with research indicating that mobile operators globally can benefit from a net gain of \$28.7bn over the next 5 years via deployment of better mobile video & data optimisation across networks. In order to allow this increased volume of video data to be delivered using existing network infrastructure, significant improvements are required to the efficiency with which video content can be digitally encoded for transmission. Existing state-of-the-art encoding methods are unable to operate at optimal efficiency due to their reliance on block-based compression algorithms which are not capable of fully benefiting from all of the redundant image info. that exists within a frame - resulting in a trade-off between video resolution, compressed file size & image quality. Magic Pony Technology Limited seek to address this need for improved video encoding technology, by advancing a novel predictive multi-scale video compression technology (PMCT) from its current unoptimised PoC implementation to beta prototype stage. PMCT will deliver significantly better encoding efficiency than is currently achievable using existing codecs without impacting on image quality.</p> | | | |

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| Whichit UK Ltd | DART (Dynamic profiling for Advertising via Recommendation and Targeting) - Whichit UK Ltd | £547,614 | £246,426 |
| Project description - provided by applicants | | | |
| <p>Targeting potential customers on social media platforms is a major challenge for advertisers. Conversion rates are low (less than 1% on average) due to poor targeting and user perception of advertising posts in social media as spam. There is currently a large gap between a 'like' and a purchase. Advertisers need a way to develop better consumer profiles to improve targeting and increase conversion rates. As users migrate from desktop browsers to mobile apps, traditional methods for online profiling such as cookies and browser behaviour, do not function, making it currently impossible to produce accurate user profiles. Whichit want to analyse user behaviour, to build user profiles and accurately predict decision making behaviour. This will allow advertisers to accurately target their intended audience with sponsored Whichit polls. These sponsored polls will include vouchers for users, enabling click-through directly to online shopping, and allowing Whichit to transform from a purely social app into an effective platform for social commerce. Whichit will develop a prototype of a profiling and targeting algorithm and Business Dashboard, that will allow advertisers to achieve high conversion rates on social media and manage campaigns with detailed market insight. With this tool, social commerce will be easier, more interactive and more profitable.</p> | | | |

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| PlasRecycle Ltd | Isolating a higher value low-density polyethylene recyclate from mixed post-consumer packaging film waste | £703,829 | £250,000 |
| Project description - provided by applicants | | | |
| <p>The collection & recycling of polyethylene (PE) based plastic bags & films has increased in recent years as a result of rising landfill tax & costs, & with retailers & FMCG groups keen to include more recycled plastics in their offerings. 700,000t of post-consumer plastic film (PCPF) waste is collected & sorted from kerbside, commerce & industry packaging by local authorities & Municipal Recycling Facilities (MRF) in the UK p.a. [1]. ~50% of film is PE from which a marketable low-density PE recyclate (rLDPE) can be produced. However, the waste stream contains a mixture of PE types & other polymers that are heavily printed, laminated & food contaminated, necessitating an extremely expensive & high level of sorting & cleaning before it can be mechanically recycled or exported. PlasRecycle Ltd have established a state of the art process at their recycling facility in Woolwich to automatically sort & process mixed PCPF supplied by MRFs at £0-£40/t to produce a marketable grade of rLDPE. However, the resulting material is mixed colour (grey/black) & as a result, the application limited to low quality/value recycled products such as refuse sacks, damp-proof membranes, fencing panels, etc. A significant opportunity lies in the ability to separate the clear & natural coloured rLDPE (~50% feedstock) from the coloured fraction to close the loop on the original household film products (carrier bags, bags for life, non-food packaging & transit/logistics bags & films) to meet growing market & consumer demands. PlasRecycle will develop a novel process to colour sort the LDPE fractions, optimising the washing & subsequent extrusion techniques to an economic level, producing a higher quality natural rLDPE. The project will trial the pre-production process which will be scaled to produce 9,000t/annum of rLDPE pellet, of which 4,500t will be higher quality natural rLDPE, with commercial production initiated in Q4 2016 & scale up to 18,000t p.a. by 2018.</p> | | | |

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Innovate UK

Results of Competition: Smart Round 1 2015-16 - Development of Prototype

Competition Code: 1503_SmartRnd1_DoP

Total available funding for this competition was £7.8M from Innovate UK

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 |
|--|--|-------------------------------|-------------------------------|
| Gelexir Healthcare Ltd | "Nucleus Pulposus Augmentation" transforming treatment of chronic lower back pain | £838,237 | £250,000 |
| Project description - provided by applicants | | | |
| Chronic lower back pain (CLBP) will affect half of the EU population at some time in their lives. CLBP affects 2.5m UK patients at any time; direct medical costs per patient are £1,074pa. Time off costs £2,276 p/p pa. Total impact including benefit/insurance is £12bn+. CLBP's most common cause is degeneration in the patient's intervertebral disc (IVD). A gap exists in the continuum of care for these patients between conservative (physiotherapy, painkillers) and aggressive treatments (surgery; fusion, disc replacement). Gelexir Healthcare Limited aim to address this gap with a novel Double Cross-linked Microgel (DXM) that swells upon injection into the patient's degenerating IVD to augment its mechanical and biological functions, and critically, relieve pain. The gel will be administered via a simple injection in an outpatient setting with minimal anaesthesia. This project will result in a CE marked medical device. Outcomes could see DXM applied to 20% of patients saving the UK (alone) £2.5bn pa. | | | |

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|--|---|------------------------|------------------------|
| Nifty Drives Ltd | Novel High Speed, Reliable, Expandable, Secure & Economical Network Attached Storage for SMEs | £408,472 | £183,812 |
| Project description - provided by applicants | | | |
| <p>The rate of increase of file size and the frequency of data use has led to changes in how companies store their data. Traditional stacked server units come with their issues that require advanced IT support. Many SMEs do not have access to this competency within their teams, and it can be an expensive resource to take on. The invention of Cloud storage has offered companies the chance to conveniently store their files off site in the 'Cloud'. These are actually large server stations spread globally that the data is stored on and it must be uploaded to this server and downloaded from it when needed. Risk is inherently outsourced to the cloud storage service providers and multiple high impact failures have cost businesses money through downtime and lost data. This project proposal is to design, build and test a working prototype of an innovative, high capacity, agile Network Attached Storage (NAS) system primarily for SME use as an alternative to cloud service provisions with inherent security concerns, maintenance and skill-heavy in house server requirements. The system will utilise state of the art file architectures and operate at market leading data transfer speeds. It will give a company physical ownership over its own data, and also guarantee data security through a specialised back up routine. It will eliminate the requirement for expensive IT savvy employees and high initial and ongoing investment. The project will take 12 months and will require an additional 3 skilled staff members to join the Nifty Drives team. The project will build on Nifty Drives existing product range, currently sold through Apple premium Resellers and other professional outlets.</p> | | | |

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|---|---|------------------------|------------------------|
| Craftsman Tools Ltd | Developing a range of Through Coolant toolholder adapters | £684,744 | £239,660 |
| Project description - provided by applicants | | | |
| <p>In the machine tool manufacturing sector, which deals with shaping metal & other rigid materials, an integral part of the manufacturing process is high precision cutting. The conventional method of removing heat from the cutting tool area is spraying coolant from an external nozzle onto the cutting zone. This is an ineffective method as the coolant is unable to penetrate deep into the cutting site. The speed of the cutting equipment & hence feed rate is limited to prevent heat related damage to the cutting tool, and the metallic waste product that is produced is hot & malleable, resulting in a long swarf that curls in on itself. Poor management of this waste product can result in damage to the machinery, so the machine must be regularly switched off to dispose of it, resulting in decreased productivity. To tackle this problem, SECO Tools, owned by Sandvik, have developed Jetstream tooling, a range of cutting tools where the coolant comes directly out of the tool itself, delivering a concentrated, high pressure stream straight to the cutting edge, resulting in a >50% improvement in productivity at a coolant pressure of 70 bar. Currently, Jetstream technology is a bespoke solution, involving the removal, refitting and sealing of an external pipe to the back of the cutting tool each time a tool is moved to a different turret station, a process that takes ~45 mins. In order to overcome this problem Sandvik have proposed a new range of 'Through Coolant' cutting tools that can fit directly onto a range of different manufacturers' machines without the need for bespoke piping. Sandvik have asked Craftsman Tools to develop a range of Through Coolant Toolholder Adaptors whereby the coolant can pass directly from the machine tool through to the cutting tool, allowing it to be directed at high pressure into the cutting area. This adapter will enable a 2 min tool changeover, leading to decreased costs & increased productivity.</p> | | | |

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| Product Health | Product Health Integrated Monitoring Kit | £332,322 | £149,544 |
| Project description - provided by applicants | | | |
| <p>Millions of devices around the world rely on a battery for their critical power, including solar power generation systems, telecoms towers, ATMs, traffic signals, hospitals backup, streetlights and rail signals. The failure of these devices is not only inconvenient but can result in serious disruption. This is particularly true in locations such as Sub-Saharan Africa, Asia and other locations where there isn't a reliable grid connection. At present, when these devices fail, the fault cannot be remotely diagnosed and requires an engineer to visit the site, diagnose the problem, order parts and then revisit the site to fix the problem. This process is not only time consuming but inefficient, expensive and in some cases results in leaving critical services without power. At Product Health, we have developed a series of advanced innovative algorithms that give customers the ability to detect failure of their batteries weeks before it occurs, enabling even earlier detection and intervention. This technology has been developed with Oxford University and is proven in the field however, in order for us to take advantage of it commercially our market research has shown that it we need to develop a scalable hardware solution and expand our software analytics service. The aim of the project is therefore to develop a ruggedized hardware remote monitoring kit, expand the analytical capability of our technology to improve battery performance and finally trial the prototype with Network Rail, GSMA and Chloride Exide, before launch. The market for non-automotive batteries is currently worth in excess of \$10 Billion per year and growing at 7%. Combining our innovative analytics, with a remote monitoring hardware device will enable us to supply manufacturers and operators with new data that could reduce maintenance costs by up to 30% and develop our 'software as a service business' model, disrupting the traditionally high cost of remote monitoring in this market.</p> | | | |

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| Ulogize Ltd | O2O-ExP (Online-2-Offline Exchange Platform) | £513,581 | £231,111 |
| Project description - provided by applicants | | | |
| <p>The Online-2-Offline Exchange Platform (O2O-ExP) project will deliver a marketing performance management platform that enables a broad range of Brands (producers of high profile products) and Publishers (providers of consumer-accessed content) as well as Retailers to comprehensively understand their marketing and advertising inter-relations and to engage more informatively with their consumers. This engagement will result in mobile device-based real-time multi-channel marketing campaigns and promotions being undertaken in a cost/revenue-effective manner. The retail sector creates a significant amount of financial and social value for the UK economy. The sector is worth over £300bn p.a. but is under serious pressure from an unprecedented series of economic, social and technological changes. High-street retailers must therefore adapt to stay competitive in a rapidly changing landscape where competition is strengthening, particularly from giant US Internet retailers without the burden of bricks and mortar premises and sometimes UK Corporation Taxes. Failure to respond quickly to these changes has already resulted in the insolvency of several high profile UK retail brands and high-street businesses. The O2O-ExP will provide integrated management of online and offline purchasing activities and correlate these to the associated marketing and advertising into personalised incentives for consumers that they can redeem at their local stores. The associated data analysis and reports will enable Brands, Publishers and Retailers to drive their marketing and advertising activities to:</p> <ol style="list-style-type: none">1) Better understand and communicate with their consumers2) Increase footfall3) Change consumer expectations and purchasing behaviour. <p>Furthermore, it will explicitly enable and encourage the sharing of consumer footfall by cross marketing consumers, creating more vibrant retail communities and revitalising bricks and mortar outlets in the high street and shopping centres.</p> | | | |

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| LuJam Security Ltd | NetPicket Cyber Security Solution for SMEs from Lujam Internet Security | £809,015 | £250,000 |
| Project description - provided by applicants | | | |
| <p>Cyber Security is now a major issue that impacts every country's social and economic standing. Current Cyber Security solutions have largely been the preserve of Government and Enterprises with large budgets. SMEs are limited to products that are ineffective in detecting the latest generation of banking and data leakage malware. Additionally, most of these are targeted at protecting Windows PCs but ignore mobile, tablet and other IoT devices. This project will develop a Cyber Security Reporting and Alerting service that prevents attacks based on a risk assessment of network traffic. Key components:- An Intelligence sensor installed onto a client's network- A cloud based analytic engine, proactively examining connections in real time utilising big data fraud analytics to assess risk- A Graphical user-friendly portal to indicate suspicious or malicious activity for non-technical users. The advantage of this approach is that it ensures reporting of all devices on a network without the need to install invasive software agents. Initially targeted at SMEs, a working PoC has already been completed. The prototype will build on this to create a feature rich reporting and alerting system which blocks devices from accessing risky Internet sites. Simultaneously an alert is disseminated identifying the nature of the threat. The innovation comes from:- Proactively spotting suspicious/malicious behaviour via big data analytics based around proven fraud prevention methodology.- Correlating open and closed intelligence with own bespoke sensors. The key benefits of this solution are to:- Provide a safer Internet experience for SME businesses by alerting them to any suspicious activity on any device, especially protecting against online banking malware, Intellectual Property and Personal data leakage.- Reduce time of exposure to any new threats via a proactive intelligence approach in real time.- Deliver regular reporting on all Internet related activity.</p> | | | |

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| Oxford Biomaterials Ltd | Silk-based haemodialysis graft | £555,460 | £249,957 |
| Project description - provided by applicants | | | |
| <p>The project will deliver preclinical data for a novel silk-based haemodialysis graft, ultimate validation which will bring the graft to the first human trials. There are 3.2 million patients treated for End Stage Renal Disease worldwide, a number increasing by 6% each year. Those treated by dialysis require blood filtering 3 times a week to replace kidney functions. The most effective approach is to create a fistula connecting an artery directly to a vein in the patient's arm. Where the veins are unsuitable or exhausted following long standing dialysis, a synthetic graft is implanted to connect an artery to a vein. However, current commercial grafts on the market are inefficient, as a consequence of their material composition. Most grafts require 2 post-operative interventions a year to remain functional and over 75% are replaced within 2 years. By comparison, over 70% of fistulas are functioning after 18 months. This project will deliver a novel, more biomimetic haemodialysis graft based on natural silk proteins, material very different to those used so far in dialysis grafting applications. The graft leverages silk's natural properties and OBM's proprietary silk processing technologies to combine the advantages of existing biological and synthetic grafts. In vitro evaluations performed against competitor's products have produced very promising results, showing a significantly improved performance over existing grafts. We therefore aim to offer the first efficient alternative to the gold standard fistula by simultaneously addressing the multiple factors contributing to current graft failure. The prototype has been optimised in previous development phases and will be ready for ultimate validation in-vivo to be carried out in this project. By reducing multiple post-operative interventions, our silk graft promises to improve the quality of life of this large, growing and currently underserved patient population and significantly reduce the overall dialysis costs</p> | | | |

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