Results of Competition: UKRI Ideas to Address COVID-19: Innovate UK de minimis Aug 2020

Competition Code: 2007_UKRI_IDEAS_COVID19_OPEN_DEMINIMIS

Total available funding is £120m

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
SAREUM LIMITED	Investigating the therapeutic potential of TYK2 / JAK1 inhibitor SDC-1801 in severe phase Covid-19	£263,737	£174,066

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects

Use the Competition Code given above to search for this competition's results

Project description - provided by applicants
Sareum is developing SDC-1801, a small-molecule inhibitor of kinases TYK2 and JAK1, as a potential therapeutic for a wide range of inflammatory diseases such as psoriasis, lupus and Crohn's disease. Cells signal to each other using cytokines, and SDC-1801 works by blocking specific cytokine signalling pathways, leading to reduced inflammation. Covid-19 is caused by the virus SARS-CoV-2, and usually results in a mild disease that resolves on its own. However, some patients develop a potentially fatal severe disease due to inflammation arising from a 'cytokine storm' overreaction of the immune system leading to Acute Respiratory Distress Syndrome (ARDS), requiring intensive care. A major inflammatory pathway over activated in severe Covid-19 patients, known as Interferon Type 1, is blocked by SDC-1801\. We believe that SDC-1801 could therefore benefit severe phase Covid-19 patients by blocking Interferon Type 1 signals and reducing the inflammation during 'cytokine storm'. Furthermore, inhibiting the kinase TYK2 has been shown to reduce bacterial pneumonia in influenza patients. We believe SDC-1801 will have the same effect in Covid-19 patients, potentially reducing the levels of bacterial infection that have been seen in up to 50% of Covid-19 patients. The aim of this research is to investigate the effects of SDC-1801 on cytokine signalling after human cells are infected with SARS-CoV-2 to ensure that the Interferon Type 1 pathway can be blocked in this disease. We will also use mouse models to investigate whether SDC-1801 can reduce bacterial pneumonia after SARS-CoV-2 infection. If this research is successful, we would aim to begin a clinical trial of SDC-1801 in severe-phase Covid-19 patients during 2021\.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CELENTYX LIMITED	Development of a SARS-CoV-2 spike protein binding assay using human epithelial cells for COVID-19 therapy discovery and development	£176,784	£159,106
University of Birmingham		£31,499	£31,499
University of Warwick		£16,208	£16,208

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Project description - provided by applicants
The urgency of the current COVID-19 pandemic needs new treatments to be developed as quickly and as safely as possible. Whatever comes out of the many labs involved in these efforts needs to be tested in a variety of ways to help us know if they will work when given to people who might be infected by SARS-CoV-2, the virus which causes COVID-19\. For the virus to cause this disease, it needs to get inside some of our cells where it can survive, multiply and then infect other cells in the body. To do this, the virus first needs to latch onto our cells. For this, it uses a specific part on the outside of the virus, the 'spike', to fasten onto special parts on the outside of our cells ('receptors') to which if fits, like a key fits a lock. This project will recapitulate this first essential step of viral infection allowing us to test new treatments 'in a dish' in order to support the therapeutic discovery effort against COVID-19\. Whilst models to support this development are available using systems with purified components of cells (using the 'receptors' the virus uses for entry), or, using the intact virus, there is a lack of cellular models that can be used in a simple manner for testing the impact of drugs, and antibodies arising from vaccination, on specific steps of viral entry into human cells. We intend to develop a 'cell-based' model using human cells (including cells lining the lung, which are known to be a key site of entry for the virus) and SARS-CoV-2 purified spike protein. This biological model will enable us and our industrial partners to test their therapeutics on a very specific step vital for viral infection. We will use advanced imaging techniques to visualise this binding of the viral spike protein to human cells, and, we will then be able to test how drugs, or other agents such as antibodies generated by a vaccine, impact this specific step of viral entry. This will then enable candidate drugs to be selected as therapeutics, improved versions of drugs to be developed or support the selection of vaccines that generate protective antibodies against the virus.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MOORE MEDTECH LIMITED	PROTECT – 222nm far UVC light technology to treat COVID-19 infected airborne microdroplets	£210,817	£174,978
BREATHE ENERGY LTD		£55,765	£55,765
FREE RUNNING BUILDINGS LIMITED		£41,158	£41,158

Project description - provided by applicants
This proposal will develop and manufacture PROTECT -- a safe, innovative 222nm far-UVC light fixture installed in air handling units to destroy COVID-19 found in exhaled microdroplets in indoor environments. PROTECT can be used in a populated indoor environment with no harmful effects on skin or eyes.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
P2I LTD	Development of a novel textile nano-deposition process to increase lifetime, efficacy and reusability of face masks for Non-Medical Key Workers.	£156,701	£156,701

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Project description - provided by applicants

In the context of the national response to COVID-19, it is urgent to protect the UK's 7.33 million Non-Medical Key Workers (NMKW), e.g. care workers, bus drivers, breakdown services, fire/police and many retail workers.

The main mode of SARS-CoV-2 infection is aerosol particles, so the wearing of masks by NMKWs is essential to minimise transmission. With extended use, however, moisture build-up reduces mask filtration efficiency and breathability, increasing cross-contamination risk. This is an issue for long shifts. Furthermore, surgical masks are **not reusable**, making them **expensive** and **environmentally unsustainable**. Reusable cloth masks usually offer more limited protection and have high risk of surface contamination.

P2i is a world leader in the development of hydrophobic/oleophobic coatings. We have developed a unique nano-deposition technology that applies a deeply impregnated conformal coating to protect a variety of materials. Our patented process extends the time a mask can be safely used, better protecting users, reducing NMKW mask requirements and contributing to the resolution of supply issues.

This project seeks to adapt P2i's innovative nano-deposition technology, developed for chemical warfare protection, for a novel application: i.e. to significantly increase the hydrophobicity and oleophobicity of face masks made from a range of materials. We will also seek to demonstrate that treated masks maintain their performance across repeated wash cycles.

If successful, our technology will allow UK manufacturers to coat 29.5 million masks each month from 66 systems; enough to meet the UK's entire NMKW demand.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TEXTURE AI LTD	Texture Oracle: A Software Service for Predicting and Responding to COVID-19 Outbreaks in UK Regions Using Twitter Data	£156,864	£156,864
Cardiff University		£6,482	£5,186
Lancaster University		£12,256	£9,805

Project description - provided by applicants

Ambition: Texture Oracle will use Twitter data to (1) predict COVID-19 outbreaks in UK postcodes and (2) evaluate the effectiveness of public health messaging designed to prevent or tackle outbreaks. Academic research shows that disease outbreaks can be predicted by way of patterns in language use; we will use team members' original research to improve existing methods and apply them to COVID-19\. Similarly, advances in AI and natural language processing make it possible to establish a message's 'echo' in social media: this will allow us to grade the effectiveness of public health messaging. Oracle will therefore complement biomedical and public health responses to COVID-19 with an independent layer of predictive and evaluative capacity based on language data.

Predicting COVID-19: There are two ways in which we aim to predict the increased likelihood of a COVID-19 outbreak in an area:

* _Tracking risky behaviour_: COVID-19 is more likely to occur when people fail to observe social distancing and quarantine measures. Typically, people responsible for this kind of risk-taking experience future rewards as less valuable than present rewards; thus, avoiding infection is felt as less valuable than near-term gratification. The tendency to devalue future rewards can be inferred from how a piece of language refers to the future: typically, it is represented as being less certain. Using AI methods developed by project members, we will measure this tendency in region-specific tweets and use it to predict COVID-19 outbreaks
* _Tracking symptoms_: Influenza outbreaks can be predicted by tracking symptom mentions in tweets. Research by project members extends this method by providing a new resource for tracking symptom expression. The Lancaster sensorimotor norms classify 40k English words for the extent to which they evoke six perceptual modalities (touch, hearing, smell, taste, vision, and feelings inside the body (interoception)) and five action effectors (mouth/throat, hand/arm, foot/leg, head (excluding mouth/throat), and torso). This creates a much stronger link between everyday language and bodily states than symptom terms alone, allowing us to use the sensorimotor profile of tweets to predict outbreaks.

Evaluating public-health messaging: Government messaging causes priming effects, meaning that effective messages are reproduced in people's terminology and language structure. We will use AI methods to extract these 'echoes' in tweets, allowing us identify how well public health messages have penetrated on a regional basis. Doing this will give public health agencies the information needed to target (and re-target) their communications to areas most at risk.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CELLULAR SYSTEMS (GRANTHAM) LIMITED AGRIFOOD X LIMITED	PommeACE 2 -	£121,290 £134,300	£121,290 £134,300

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Project description - provided by applicants

The project addresses an identified healthcare need and commercial demand for high-quality, sustainably-produced bioactive polyphenolic compounds. Coronaviruses infect cells by binding to the angiotensin-converting-enzyme-2 (ACE2) membrane protein. This can be inhibited by polyphenols, specifically quercetin, increasing resistance to infection. Quercetin can reduce the severity of the immune-response and shorten recovery times. Quercetin is safe for consumption and is currently available as a supplement. However, there are issues concerning the security, purity and availability of supply.

The development of bioactive products derived from fruit and vegetables can help support the recovery of individuals by enhancing their immune response, leading to faster recovery time or protecting against future reinfection. A whole value-chain approach for capturing market-led business opportunities to reduce food wastage and increase availability of fruit and vegetable derived foods or supplements for consumers is proposed. Polyphenols are widely present in fruits and vegetables and consumption is known to provide a range of health benefits. Flavonoid polyphenols such as quercetin and derivatives, present in apple skin, have been shown to act as anti-viral, anti-inflammatory and anti-obesity agents.

The objective of the project is to develop a sustainable and efficient biorefinery process, to enable secure, local production of quercetin. The by-products of apple juice production (apple pomace; available in the UK/EU in large quantities), are not fully exploited and frequently disposed to landfill. The project combines recent advances in green-extraction techniques with highly-efficient separation methods, enabling quercetin recovery and purification. Additionally, the spent apple pomace can be further processed to provide a source of side-stream materials, for example nanocellulose for medical and industrial applications such as sustainable biodegradable packaging and paper manufacturing.

The combination of technologies will be innovative; enabling creation of a biorefinery to scale-up production and supply the quantities required by UK/EU industry, whilst reducing imports and creating employment. Increased competitiveness utilising environmentally 'green' extraction and separation technologies will enable sustainable production of quercetin increasing the market share. This will grow the UK/European bioeconomy and create employment opportunities, whilst ensuring security of supply.

The availability of sustainable, high purity, quercetin for use in supplements and food products will be increased. The project focuses on production of high-purity quercetin for which there is a substantial market need and consumer demand. This will reduce the requirement for importation of raw materials providing a source of additional income for apple growers, whilst reducing the quantity of agri-food waste sent to landfill.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BIOLOGIC TECHNOLOGIES LIMITED	Miniaturised transport biosecurity system hardware that is 3D printed, next-generation, data-connected, machine learning with integrated biological configurability	£99,999	£99,999

Project description - provided by applicants
BiologIC Technologies (Cambridge UK) is developing the next-generation of life science automation fabricated from, and exploiting, the digital benefits of 3D-printing. BiologIC's pioneering and highly integrated digital hardware architectures allow the creation of powerful and affordable 3D-printed bio-processing units ("BPUs"). These BPUs allow rapid development and execution of novel, high-value and high-volume biological workflows. This project, which has already attracted strong interest from major stakeholders, develops towards world leading 3D-printed next-generation 4G/5G data-connected miniaturised transport biosecurity system hardware with integrated machine learning and biological configurability. The platform enables highly-configurable, low-maintenance hardware for the continuous detection of pathogens. The final development could be applicable for civil or defence biosecurity applications for pandemic prevention purposes.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
THE COCHRANE COLLABORATION	Enhancement of the COVID-19 Open Study Register (previously app 84388)	£97,348	£97,348
METAXIS LIMITED		£34,800	£34,800

Project description - provided by applicants
It is vital that evidence is used to inform health decision making. At present, thousands of articles are published in a variety of locations on COVID-19 every week and it is impossible for decision makers to keep up. We are seeking support to further develop a one-stop- shop for primary research studies on COVID-19, a living, open and continuously updated register of studies. The 'Cochrane COVID-19 Study Register' (https://www.covid-19.cochrane.org), will provide decision makers with a comprehensive, current, reliable resource of available data. We aim to to deploy crowd and machine (AI) capabilities that will help identify, link, describe and appraise studies in near real time, significantly aiding discovery and increasing value and use for researchers and policy and decision makers. Our project will result in a repository of curated, complete and structured health data that will help to formulate the response to the COVID-19 pandemic and any future crisis in health. About Cochrane: Cochrane (https://www.cochrane.org), a UK business and charity, is made of an independent network of researchers, professionals, patients, carers and people interested in health. We strive for improved health, where decisions about care are informed by high-quality, relevant and up-to-date synthesized research evidence. Our work is internationally recognized as a benchmark for high-quality information about the effectiveness of health. As more and more data is produced, people are able to gain access an overload of information but have little way of knowing what is accurate and unbiased, that is why our mission to provide accessible, credible, information to support decision making has never been more vital.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
CN BIO INNOVATIONS LIMITED	Development of lung and lung-liver microphysiological systems for studying SARS-CoV2 infection and immunology	£164,452	£164,452

Project description - provided by applicants

The SARS-CoV-2 (COVID-19) pandemic has been met with an unprecedented global response from the scientific and medical communities, to accelerate understanding and ultimately treatment and prophylaxis of the virus. An overwhelming need for new or re-purposed medicines and tools for their discovery exists. Currently, discovering and developing new medicines is a process spanning decades. New medicines require rigorous pre-clinical development prior to clinical trials with thousands of patients. Despite the rigor, new medicines often fail when taken to clinical trial. A large portion of this development is performed _in vivo-_ in animal models and while _in vivo_ testing has proved to be a valuable resource, the inherent differences across human and animals likely results in misrepresenting the effects of the medicines when translated to a human setting. New and innovate tools are therefore required to provide a more realistic representation of the human cell and tissue environments, enabling more accurate development of therapeutics.

The team at CN Bio aims to develop a human 3D "organ-on-chip" lung cell culture model that more accurately reflects the human environment. To investigate the effects of SARS-CoV-2 in the lung we will use SARS-CoV-2 pseudoparticles, a reliable alternative to live virus. This system will also be used to investigate the effect of SARS-CoV-2 infection throughout the body by linking other organ systems including the liver and gut. We will use our state-of-the-art proprietary technology, the PhysioMimix system to meet these goals. This system is currently in commercial use for modelling the liver, and our in-house capabilities allows us to rapidly prototype, test and validated new cellular models. We will work in collaboration with academic, industrial and government partners to ensure this model is suitable to reflect the impact of SARS-CoV-2 infection.

Ultimately, this system will enable researchers across the globe to investigate and understand SARS-CoV-2 infection and will allow for development of new medicines with improved accuracy and efficiency when reaching clinical stages. The technology, know-how and information obtained from this research will aid in the global fight against the spread of the virus.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
OPENCFD LIMITED	Opensource software simulations towards understanding, monitoring and controlling COVID-19 transmission by managing air, people distancing and adapting urban environments: ventESI	£174,896	£174,896

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Project description - provided by applicants
For both providers and users, confidence in returning to more normal levels of behaviour around public utilities, leisure facilities, social and work-based interaction relies largely on informed choices to minimise exposure to Coronavirus and mitigate its transmission. COVID-19 spreads via aerosols, airborne particles from an infected person's breathing leading to direct or indirect contamination of third parties in communal settings. It can happen anywhere; restaurants, theatres, places of worship, stadia, waiting rooms, gyms, public transport, where uncontrolled air movement creates an infinite number of permutations in transporting particulates from a carrier. Hence, the simulation of air movement in fixed urban settings with controlled ventilation and manageable interventions provides highly practical means of mitigating transmission. We aim to pre-validate all the relevant physics modelling bases, establish defaulting best practices in the use of this digital technology, create measures to assess the effectiveness of urban layouts and, most importantly, provide access for non-experts to model air movement and assess several prevention interventions. The digital technology is based on Computational Fluid Dynamics (CFD). The outcomes of this projects give UK general public utility providers access to simulations of air-movement "try-out" scenarios via high performance computing (HPC) facilities in the UK and other HPC or Cloud-computing providers.

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STROMA THERAPEUTICS LIMITED	Stroma Therapy against Covid-19 induced fibrosis (STACIF)	£150,872	£150,872
JELLAGEN PTY LTD		£19,800	£19,800
University of Edinburgh		£147,039	£147,039

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Project description - provided by applicants

The immediate concern for the Covid-19 pandemic is naturally the fate of patients suffering infection. But the disease may have long term consequences for the health of some who survive the initial infection.

Covid-19 is primarily associated with damage to the lungs and respiratory distress, and there are increasing reports that some patients who recover from the viral infection are suffering long term damage to their lungs. This damage is often caused by fibrosis, the formation of an abnormal amount of fibrous tissue as a result of persistent inflammation and damage of the tissue.

Treatments for fibrosis can mitigate the symptoms and slow down disease progression, but there is no cure. Those suffering these chronic conditions have a very poor quality of life. Covid-19 is likely to increase the number of these patients, adding to the long-term cost of healthcare which society needs to bear.

Mesenchymal Stroma Cells (MSC) sourced form adult bone marrow and fat tissue have been used in cell therapies and shown to be safe and have some capacity to reduce fibrosis. In part this is a "paracrine" effect, where the MSC secrete bioactive factors which give rise to the therapeutic benefit either in cells adjacent to the MSC or elsewhere in the patient's body. But MSC sourced from adult donors have only a limited capacity to replicate. This means that the use of adult MSC requires repeated procurement of starting tissue which is expensive and leads to batch-to-batch variation.

We have developed a patented technology to produce MSC-like cells from pluripotent stem cells (PSC). As PSC can be expanded almost indefinitely, we are able to produce almost unlimited quantities of clinically identical MSC using our process.

In this project, we will investigate the capacity of our MSC to tackle fibrosis and the possibility that this can be achieved by the bioactive factors secreted by the cells. Our ambition is to develop a therapy which does not require MSC to be transplanted into a patient, but only the bioactive factors these cells produce.

During the project we will be advised by clinicians as to how the healthcare burden of post-Covid therapy is developing and will refine our therapy development strategy as this need becomes more clear. By starting this research now, we aim to have a scalable therapy available as the need arises.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
X-PERT HEALTH TRAINING AND EDUCATION LTD	Translation of the X-PERT Diabetes Digital Programme into 14 Black, Asian and Minority Ethnic (BAME) languages	£157,720	£141,948
PULSE DIGITAL LTD		£115,009	£98,908

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Project description - provided by applicants

NICE stipulate that **all people with prediabetes/Type 2 diabetes should be invited to attend structured education** so that they can develop the knowledge/understanding/confidence to self-manage their condition to improve their health/wellbeing and prevent diabetes-related complications.

X-PERT Health is a national provider of structured education. The programme was developed by Dr Deakin over several years of postgraduate research and is totally evidence-based. This was rigorously tested in patient focus groups, before development as a package of engaging education to meet needs and **rigorously evaluated by a clinical trial, which demonstrated significantly improved health/wellbeing amongst attendees.** As its reputation grew, invitations were received to address conferences worldwide and we developed our own HQ and training Centre. Courses are held to train healthcare professionals and link workers to deliver our education to their patients via group sessions. However, over the previous two years we have been working with technology companies to enable the programme to become available digitally. We realised that not all people are willing or able to attend group sessions. **The digital programme will enable people to access the education at a time and place that is suitable for them, for a period of 12 months.**

We launched the digital programme on the 6/4/20\. Healthcare professionals can refer patients to access the programme via their smart phone/tablet/laptop. This was timely due to the COVID-19 outbreak which resulted in all group education programmes being stopped. To date, more than 500 patients have been referred. It is innovative because rather than provide a platform for reading about diabetes, it is a package of engaging 2D/3D videos and games along with tracking/chatting functionalities to replicate the success of the group-based programme, based on the old Chinese proverb of "I hear, I forget; I see, I remember; I do, I understand".

However, currently it is only available in English. **Probably, the greatest need is among BAME communities, so it is our intention to adapt the programme into 14 different languages** - Arabic/Bengali/Chinese/Gujarati/Hindi/Nepalese/Persian/Polish/Punjabi/Romanian/Somali/Tamil/Turkish/Urdu. People from BAME populations are 3 to 6 times more likely to develop Type 2 diabetes and they are also more likely to develop a more serious form of COVID-19\. To our knowledge, no other UK digital diabetes structured education programme is available in these languages. **Thus, this will be a truly original project that will help people from BAME communities self-manage their diabetes and mitigate the health impacts of the COVID-19 outbreak.**

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
GLENTROX (UK) LTD	COVID-19 Secure and Clean Indoor Air Environment for Schools (COVID-SIS)	£174,800	£174,800
NOVELTRIC (UK) LIMITED		£174,200	£174,200

Project description - provided by applicants

As children across the UK are preparing to return to schools (i.e. where they spend the majority of their time after their home), it is more important than ever to ensure that children's exposure to harmful pollutants is minimised. For instance, outdoor air pollutants from vehicle emissions (e.g. PM2.5, NOx) can enter classrooms through open doors and windows during peak times. Similarly, harmful air pollutants (e.g. Aerosols, CO2) which are known to be detrimental to children's health are also being generated inside classrooms. In particular, a growing body of epidemiological evidence (e.g. Wang & Du, 2020; Huffman et al., 2020) suggests that aerosols (i.e. chemicals emitted by building materials, furnishings, electronics) can become active transporters of COVID19\.

To ensure that schools have a Clear-Air learning environment and are COVID-secure, it is vital to monitor the presence of these harmful indoor air pollutants (e.g. Aerosols, PM, SO2, CO2, NOx). Even though schools have introduced several pandemic precautions (e.g. physical distancing, staggered mealtimes, regular cleaning), no school currently has a digital tool/platform that allows **school administrators** to monitor and take proactive actions on the presence of indoor air pollutants. It is on this premise that this solution will for the first-time combine state-of-the-art technologies such as IoT and AI to develop a **COVID-19 Secure and Clean Indoor Air Learning Environment for Schools (COVID-SIS)**. COVID-SIS will have three modules; they include:

1. **IoT-Multi Pollutant Sensing Module (IoT-PSM):** will leverage low-cost, off-the-shelf and state-of-the-art IoT sensors to monitor the real-time trace amounts of indoor air pollutants in schools. IoT-PSM will collect and transmit indoor air pollutants data from areas of interests to the cloud server for insightful analyses.
2. **AI-Multi Pollutant Analytics Module (AI-PAM):** will directly communicate with the data being streamed from IoT-PSM to facilitate advanced AI analytics of indoor air pollutants data. They include:

* **(a) Descriptive-AI:** will provide in-depth information on the concentration of pollutants in areas of interests.
* **(b) Diagnostic-AI:** will provide factors responsible for specific pollutant trends.
* **(c) Predictive-AI:** will understand hidden trends in historical and current pollutant data and providing step-change day-ahead forecasting of pollutant concentration.
* **(d) Prescriptive-AI:** will provide the proven best course of action to improve the health and safety of indoor air to school administrators.

3\. **Web Based-Multi Pollutant Visualisation Platform (Web-PVP):** will allow school administrators with little-or-no expert knowledge to quickly visualise the trace amounts and advanced AI analyses of indoor air pollutants in areas of interest.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SODIKI LIMITED	The SCIBA - Self-Carried Individual Breathing Apparatus	£153,014	£153,014

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Use the Competition Code given above to search for this competition's results

Project description - provided by applicants
Sodiki, a UK based SME, will address the spread of Covid-19 for the vulnerable and provide additional PPE provisions by developing an affordable, wearable respirator - **SCIBA** - which allows long-term use and prevents infection. The SCIBA will provide full-face protection for high-risk/exposed personnel such as non-surgical medical workers, business workers who work in close proximity and consumers. The SCIBA delivers HEPA filtered positive-pressure air from a rechargeable-battery powered fan-filter assembly through a light-weight hood/face mask that can be comfortably worn for extended periods over the eyes, nose and mouth. Wide-scale adoption of the SCIBA in the market will engender public confidence to return to work and will prevent infections in high contact professions (medical/retail/transport). Whilst there has been significant effort to equip front line carers in the short term e.g. ICU nurses, little provision has been made for second tier health workers, front line retail staff, vulnerable persons and the wider population. Sodiki provides a mid-range affordable solution to these markets, including care homes, factories, high-density offices, restaurants, and the transport sector. The Sciba also assists those who have been shielding to socialise with added protection against virus contraction, mitigating the negative mental health implications of social isolation.