

Delivering the extraordinary: Academy announces 19 winners of its special engineering awards for transformative work during the COVID-19 pandemic

- **Engineering's 'COVID 19' - exceptional individuals and teams of engineers to be honoured**
- **Pandemic service achievements span the whole field of engineering from ventilators and vaccines to hospital building and infection tracking**

The Royal Academy of Engineering has awarded 19 individuals and teams of engineers with the President's Special Awards for Pandemic Service for exceptional engineering achievements in tackling COVID-19 throughout the UK.

The awards have been made to teams, organisations, individuals, collaborations and projects across all technical specialities, disciplines and career stages within the UK engineering community who have contributed to addressing the challenges of the COVID-19 pandemic. Specially commissioned silver medals will be presented to all 19 winners later this year.

The winners are:

- **Ventilator Challenge UK Consortium** Dick Elsy CBE led the initiative to combine the knowledge and skills of 33 UK technology and engineering businesses across the aerospace, automotive and medical sectors, to produce more than 13,000 Smiths and Penlon ventilator devices for the NHS.
- **University College London-Ventura CPAP** breathing aids were developed by a team led by Professor Rebecca Shipley working with Mercedes-AMG High Performance Powertrains. The team manufactured 10,000 breathing aids for use in UK hospitals and shared the designs with organisations from 105 other countries at no cost.
- **University of Cambridge Open Ventilator System Initiative** team led by Dr Tashiv Ramsander developed a high-performance ventilator for manufacture in low and middle-income countries that became the first intensive care quality ventilator to be manufactured in Africa.
- **University of Southampton for PeRSo** the engineering team developed the Personal Respirator Southampton, a respirator for healthcare workers providing a much higher level of protection than surgical masks.
- **Babcock International Group Plc** for the rapid development and manufacture of a new medical ventilator product, Zephyr Plus, coordinated across several major companies in the UK and Germany, with 39 suppliers and MoD logistics.
- **Jean Morris** and a team of young engineers from the National Physical Laboratory (NPL) took a central role in building and testing prototype ventilators against a developing MHRA specification.
- **Dr Antony Robotham** at the University of Plymouth, who designed an environmentally friendly face shield, manufactured from recycled materials that are compostable or recyclable at the end of life.
- **Dr Dominic Pimenta** of Imperial College London is a cardiology registrar at one of London's busiest hospitals who led the design and manufacture of face shields with the team at Makerversity for frontline NHS and care home staff. His charity, HEROES, has produced 100,000 reusable face shields as well as thousands of reusable gowns and scrubs.

- **Institute for Manufacturing University of Cambridge** The IfM team helped local hospitals to make the best use of their resources, streamlining logistics for sourcing and storing vital PPE, informing decision-making on emergency demand, and developing a ventilator sharing system to be used in emergencies.
- **Tharsus** for Bump, a social-distancing system providing real-time alerts when wearers get too close. Led by CEO Brian Palmer FEng and CTO Dave Swan, the technology's smart data insights inform rapid decision making, allowing employers to maximise workplace capacity and providing data on team contact in the event of an outbreak.
- **Dr Ravi Solanki and Raymond Siems**, volunteers for the charity HEROES. In less than two days, their team turned an idea into a platform with genuine impact: creating a secure website to provide much-needed support for frontline NHS workers.
- **Professor Chris Toumazou FEng FRS FMedSci** of Imperial College London for developing a rapid, affordable COVID-19 test based on a lab in a cartridge technology that provides test results in just over an hour. A total of 5.8 million tests are now being deployed throughout NHS in preparation for the flu season.
- **Professor Zhanfeng Cui FEng and his team** from the University of Oxford for the Oxford rapid viral RNA test for COVID-19. It can detect SARS-CoV-2 infection in 30 minutes and could be invaluable in developing countries because no specialist equipment is needed.
- **Professor Harris Makatsoris** from King's College London for developing a 'factory-in-a-box' that allows the rapid manufacture of synthetic RNA vaccines against the SARS-CoV-2 virus and minimises the space required for high-volume vaccine production
- **Professor Catherine Noakes** from the University of Leeds for her role in advising the NHS and the government at the highest level during the pandemic, shaping life-saving guidance based on her expertise in environmental and engineering controls.
- **Sewers4COVID** from the University of Exeter: a team led by Professor Dragan Savic FEng applied machine learning to sewer epidemiology to estimate the number of infected people in a certain geographical area to track the spread of infection.
- **BOC Customer Engineering Services**, who maintained the oxygen supplies to treat COVID-19 patients across the UK. BOC engineers set up oxygen systems at six Nightingale centres, including the largest medical oxygen system ever installed.
- **Matt Benson, Elliot Dervish and Jonathan Parker** of Teledyne-e2v, who developed and manufactured the Handy Hook for front line NHS staff across Essex and London, to limit their interaction with surfaces carrying the virus.
- **Martyn Frackelton and Ian Watkins** from Mott MacDonald, who project managed both NHS Nightingale London and NHS Nightingale North West, enabling the massive field hospitals to care for patients within two weeks of being announced.

Professor Sir Jim McDonald FEng FRSE, President of the Royal Academy of Engineering, says: "The COVID-19 pandemic is the biggest public health crisis of our time and has presented society with multiple challenges. Engineering expertise and innovation has been central to the global fight to save lives and protect livelihoods.

"I am also incredibly proud of engineers everywhere who have worked round the clock to maintain essential services, critical supply chains and infrastructure in unprecedented circumstances, using their training and skills to find innovative solutions to a host of problems and to help mitigate the impact of COVID-19 on our daily lives."

Professor Raffaella Ocone OBE FEng FRSE, Chair of the Academy's Awards Committee, says: "Engineering skills—including innovation and interdisciplinary collaboration—have proved to be of vital importance during the current pandemic. We were delighted that the breadth of nominations for these awards reflected so much of the extraordinary work engineers have been doing.

“While I am delighted that we are able to recognise some of these outstanding achievements with these awards I am mindful that the important work of the vast majority of engineers will remain largely outside the public’s consciousness. They are all deserving of our thanks and admiration for their continuing positive contribution to society.”

ENDS

Notes for editors

1. **The President’s Special Awards for Pandemic Service** were overseen by the Academy’s Awards Committee, which identifies winners for all of the Academy’s prizes and awards (with the exception of the Queen Elizabeth Prize for Engineering and the MacRobert Award for UK Engineering Innovation).

Professor Raffaella Ocone OBE FEng FRSE (Chair)
Dr Alan Belfield FEng
Professor Mojtaba Ghadiri FEng
Tony Graham FEng
Professor Yike Guo FEng
Professor David Johnson FEng
Dr Raouf Kattan FEng
Professor Andrew Lewis FEng
Alan Newby FEng
Professor Graham Reed FEng
Dr Richard Taylor FEng
Dr John Tubman FEng
Jane Wernick CBE FEng

2. **The Royal Academy of Engineering** is harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone. In collaboration with its Fellows and partners, the Academy is helping to tackle the greatest challenges of our age by growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public.

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