MEDIA RELEASE

Winners announced: NSSN Grand Challenge Fund 2022

The NSW Smart Sensing Network (NSSN) announced today four research teams have received funding under the second round of the NSSN Grand Challenges Fund.

Sharing in more than $350,000, the funding enables researchers to team up with industry and government partners to develop innovative solutions to NSSN Grand Challenges, including bushfires and smart places.

NSSN Board Chair Dr Susan Pond AM congratulated the winners noting the program had received an impressive number of competitive applications.

"NSSN Grand Challenges respond to some of the most pressing issues in NSW. The projects funded in this round will boost the state's ability to address these through technological innovation."

NSSN co-Director Professor Julien Epps said the funded projects would develop solutions in areas ranging from instantaneous detection of high-risk lightning and autonomous detection of smoke by drones to smart energy asset management and structural health monitoring of bridges.

"The devastating bushfires that ravaged Australia in the summer of 2019-20 galvanised the need for fresh thinking in how we live with and fight bushfires. The projects funded in this round will revolutionise the state's bushfire response capability."

Led by Associate Professor Marta Yebra, researchers from the Australian National University (ANU) and Western Sydney University will work with industry and government partners to develop a system capable of instantaneous sensing of high-risk lightning with pinpoint accuracy.

Fires started by lightning accounted for more than 90% of the area burned during the 2019-20 Black Summer Bushfires said Professor Yebra.

"Existing lightning networks can provide some information about the location of lightning strikes but are not able to identify which strikes are more likely to start a fire.

"Our group responds to the NSSN Grand Challenge with a project addressing this gap and developing a solution incorporating innovative lightning detectors and data processing algorithms integrated with precise vegetation and climate analysis techniques to pinpoint bushfire ignitions in real-time."

Another project, also funded under the NSSN's Bushfire Grand Challenge, takes advantage of advances in drone technologies to frequently monitor fires in water reservoirs. The drone data will assist in identifying and tracking fires remotely and helps keep firefighters safe. This project is led by Associate Professor KC Wong from the School of Aerospace, Mechanical and Mechatronic Engineering at the University of Sydney.

Responding to the NSSN Grand Challenge in Smart Places, a group of researchers from the University of Sydney and UNSW will develop a novel sensing system to provide a holistic structural health monitoring strategy that effectively integrates embedded sensors, artificial intelligence and computational modelling for real-time remote monitoring of critical infrastructures such as bridges. This project is led by Dr Ali Hadigheh from the University of Sydney's School of Civil Engineering.

The fourth project will see a team of researchers from UNSW and UTS develop a system for automatic performance monitoring of distributed energy systems such as solar panels and energy storage systems.

Australia has world-leading per capita installation of solar panels, but most of these are not monitored for performance due to high costs and technical challenges. The knowledge, methods and algorithms developed as part of this project will provide asset owners with the actionable intelligence required to maintain their portfolio of systems. This project is led by Dr Fiacre Rougieux from the School of Photovoltaic and Renewable Energy Engineering at UNSW.

Launched in 2020, the NSSN Grand Challenges Program promotes the development of innovative, collaborative research projects that advance smart sensing solutions to the eight NSSN Grand Challenges in ageing, bushfires, COVID-19, water, mining, and smart places and buildings.

Through the NSSN Grand Challenge Fund, grants of up to $100,000 per project support the development of R&D projects that link industry or government partners with NSSN member universities to translate world-class research into impactful smart sensing solutions, either through commercialisation or operationalisation.

The next round of the NSSN Grand Challenges Fund will be offered in late 2022.

Declaration

The NSW Smart Sensing Network (NSSN), a consortium of eight leading universities across NSW and the ACT, is a not-for-profit innovation network funded by the NSW Government through the Office of the NSW Chief Scientist & Engineer. The NSSN brings together universities, industry and government to translate world-class research into innovative smart sensing solutions that create value for the economy, environment and society of NSW and beyond.

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