Joining Forces to Create a Communication System for USVs

SEA-KIT International, a provider of hi-tech solutions for the maritime and research industries, is joining forces with Essex academics to create a secure and intelligent communication system for the control of unmanned surface vessels (USVs).

Essex (UK)-based SEA-KIT has won funding as part of a Knowledge Transfer Partnership (KTP) by the UK government's innovation agency, Innovate UK. The funding will help SEA-KIT to commercialize its USV offer by building bespoke vessels for its clients in the offshore energy sector who conduct surveys for offshore wind and oil and gas infrastructure.

Create New Jobs

Innovate UK and the University of Essex are meeting the challenges posed by COVID-19 by continuing their business support activities for both current and prospective partners in this unsettled time. This new project aims to boost the local economy and create new jobs over the coming year.

The University of Essex is passionate about helping businesses, boasting more than 100 expert academics across multiple disciplines who are engaging with ambitious businesses throughout the East of England, London and beyond through KTPs and other business-focused research-led projects.

Potential Commercial Impact

Head of Business Engagement at Essex, Robert Walker, said: "The SEA-KIT and Essex collaboration, valued at more than £200,000, will create a stable framework for SEA-KIT to scale up their business operation. I am excited by the potential commercial impact for SEA-KIT from this partnership, in addition to the broader benefits across both our teaching and research. This project adds to our growing portfolio of research collaborations involving drones and autonomous vehicles."

The intelligent communication system developed through this KTP will support SEA-KIT's ambition to reduce the need for large, fuel-hungry vessels. As a result, SEA-KIT forecasts a potential reduction in carbon emissions of up to 95% in its operations.

Peter Walker, director of technology at SEA-KIT International Ltd, said: "The team here at SEA-KIT is intent on coupling our proven USV designs with robust communications systems that function even in the harshest offshore conditions. Everyone working in the offshore energy sector is in pursuit of greater efficiencies. We want to disrupt the current market offering with innovations that enable the control of USVs for over-the-horizon missions and reliable retrieval of sensor data from equipment onboard, whilst also reducing cost and carbon footprint. This partnership with the University of Essex taps into their vast network science and AI knowledge base and we are looking forward to working with the team there."

Shell Ocean Discovery XPRIZE Competition

The SEA-KIT collaboration with the University of Essex will seek to commercialize the technology that was developed as part of the winning entry to the Shell Ocean Discovery XPRIZE competition. This global competition recognizes advances in ocean technologies for rapid, unmanned and high-resolution ocean exploration and discovery.

As part of the KTP, the University of Essex will connect SEA-KIT with two leading academics, Dr Leila Musavian, a telecommunications expert and deputy pro-vice-chancellor (research), and Dr Nikolaos Thomas, an expert in machine learning for communications from the School of Computer Science and Electronic Engineering, who together will lead on the technology implementation.

Dr Nikolaos Thomos, deputy director of research for the School of Computer Science and Electronic Engineering at the University of Essex, said: "Network Science and Machine Learning are leading research areas for academics across the School of Computer Science and Electronic Engineering. Traditionally, these research areas have been studied separately, but due to recent advances in communications standards such as 5G, synergies between these fields are now necessary. Being able to apply our research methodologies to industry challenges, such as those presented by SEA-KIT, offers our academic team exciting research potential and a route to achieving impact within the economy and broader society."

The University of Essex will employ a researcher to work full time with SEA-KIT. They will be tasked with leading the project with support from Essex academics, to ensure that the technology developed through the KTP achieves strong commercial impact and research benefit.

Offshore Industry

Specialist business support agency Invest ESSEX introduced SEA-KIT to the University of Essex. Robert Edge, inward investment manager, said: “The University has long had a reputation in the command and control of robots and in signal processing. SEA-KIT’s unmanned vessel already offers the offshore industry significant cost savings over a crewed survey vessel and projects like this KTP will help an Essex-based SME access world-leading technological expertise locally to progress their remote telecoms communication capabilities.”

Essex is one of the top three universities in the UK for the number of Innovate UK-funded projects, and ranks as the leading university in the East of England and London for KTPs.

KTPs are Innovate UK’s flagship mechanism for collaboration. They connect businesses and social enterprises across the UK with expertise, cutting-edge technology and research in our universities and link them up with ambitious graduate talent.

Photo courtesy of John McLellan. SEA-KIT International’s unmanned surface vessel (USV) above will be controlled by a secure and intelligent communication system developed through a new partnership with University of Essex academics.

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https://www.hydro-international.com/content/news/joined-forces-to-create-communication-system-for-usvs