

Knowledge Transfer Partnerships

Novel electronics design penetrates Far East markets

Company name: PSM Instrumentation Ltd

Location: Haywards Heath

Employees: 19

Project length: 2 graduate programme, each project was 2 years in duration with a 16 month crossover

University school: School of Computing, Engineering & Mathematics and School of Environment & Technology

Shortlisted for the 2015 Engineering Excellence Award

The Challenge

PSM Instrumentation designs transmitters and systems to measure liquid level, pressure, temperature and density, specialising in marine applications. The shipboard environment is extremely hostile and reliability and accuracy of measurement is vital to safe and efficient operation. PSM developed a novel transducer prototype but lacked the expertise to develop interfaces and data communication systems to take a novel, low-power product to market. The two complementary KTP projects sought to redesign the company's intelligent ceramic transmitter and provide the foundations for the development of future innovative products, by employing novel approaches such as low power and modular design.

The Solution

With support from University of Brighton academics providing expertise in electronic design, measurement principles and systems, and embedded microcontroller systems, PSM's Intelligent Ceramic Transmitter (ICT 1000) prototype was re-engineered. Low-power and modular design philosophies were adopted to enhance the product's robustness, maintainability and versatility and ensure compliance with marine sector requirements, and the potential for wireless connectivity was explored. Electron microscopy techniques were also used to investigate behaviour patterns of the transmitter in order to enhance and improve the product.

The Benefits

The enhanced ICT 1000 product generated £400k of additional sales in-programme, with features such as compatibility with battery operation

or energy harvesting overcoming operational barriers. Substantial revenue growth is forecast in line with protracted shipbuilding processes, with major shipyards in the Far East responding positively to potential savings resulting from the use of digital bus-connected transducers significantly reducing cable and installation costs compared to standard star-connected transducers. The environmental benefits are also significant with the average container ship saving 7-10,000 metres of cabling, equating to 5 tonnes of copper and 1 tonne of plastics per ship. The partnership also participated in the establishment of a long-term floodplain research site, giving PSM access to an environmentally challenging test-bed for long-term field testing of sensor developments. Ultimately, one of the graduates was employed permanently following the KTP as Principal Electronics Engineer.



Pete Cooper (PSM) and graduate Ayodele Lawal

Find out what KTP can do for you

You can find out more about what a Knowledge Transfer Partnership with the University of Brighton can do for you at www.brighton.ac.uk/ktp, or you can email ktp@brighton.ac.uk or call **01273 642426** to speak to one of the team.

