Fraunhofer
SINGAPORE

**Boosting maritime safety with cutting-edge technologies**

*First prototype of Fraunhofer Singapore's virtual reality marine simulator guides seafarers through equipment failure*

Singapore, 20th June 2018

Singapore aims to be a global maritime hub for connectivity, innovation and talent. With technologies developed at Fraunhofer Singapore, new possibilities open up for safer overall outcomes for maritime training.

At the International Safety@Sea 2018 held at Marina Mandarin hotel, Fraunhofer Singapore introduces a mobile, low-cost prototype of a virtual reality training platform for seafarers that has a short development time.

In one operational scenario, the seafarer faces engine failure amidst choppy waters. With the gamification of training scenarios, seafarers can rehearse difficult situations in virtual reality before going live. This can provide a safer and better overall outcome in the real world. Simulations enhance learning by repetition and can occur in safe environments and in convenient locations.

"There is a proverb that says 'What I experience, I understand'. Providing immersive scenarios where seafarers are faced with challenges, allows them to gain understanding by doing. Virtual reality training makes the kind of deep impression that classroom training on 2D monitors do not." Prof. Wolfgang Müller-Wittig, director of Fraunhofer Singapore comments on the virtual reality simulator prototype developed with research engineer Benedikt Tschoerner.

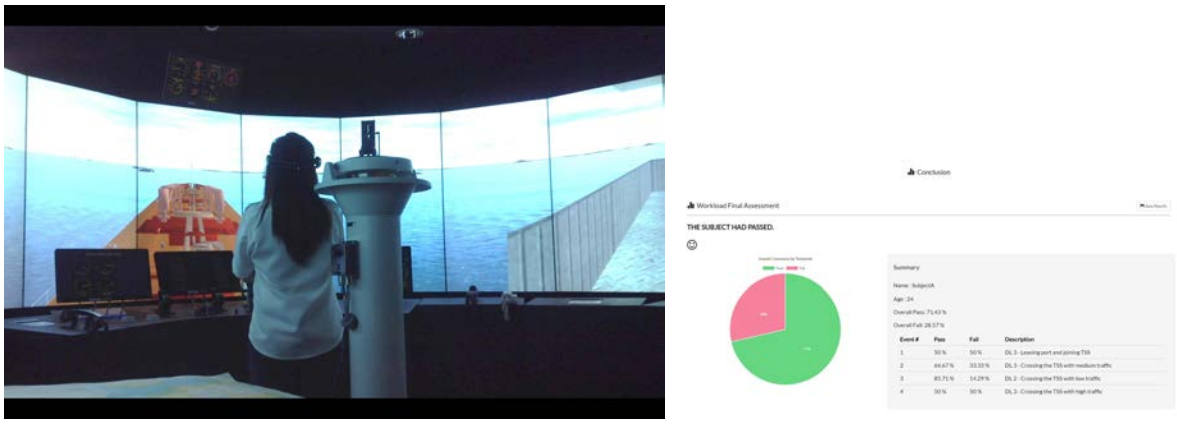
A proprietary emotional recognition technology that Fraunhofer Singapore will showcase at the Safety @ Sea week assesses seafarers' response to difficult scenarios. This, in turn, assesses the seafarer's readiness to handle difficult situation.

At the International Safety @ Sea conference, it was announced that a Centre of Excellence for Maritime Safety would be set up at Singapore Polytechnic.

In collaboration with Singapore Polytechnic, Dr. Olga Sourina, head of Cognitive Human-Computer Interaction at Fraunhofer Singapore, and scientist Dr Liu Yisi have developed novel EEG-based emotion recognition algorithms that assess emotional states and readiness via a non-invasive system.

Measuring the mental workload of seafarers brings on board a quantifiable element to enhance teamwork on board ships.

Former Capt. Krishnan, Principal Investigator at Singapore Polytechnic notes that, "Assessing seafarer's soft skills should be part of standard competence evaluations, and going forward we would like to develop this further. This interdisciplinary and interinstitutional collaborative approach with Fraunhofer Singapore allows cutting-edge technology to be applied to maritime safety."




*Assessing the cadet's emotional workload at the Maritime Academy's virtual bridge simulator with Fraunhofer Singapore's non-invasive, real time EEG based system*

Maritime accident statistics show that the majority of accidents/incidents are attributed to human element like situational awareness as the initiating cause.

As various stakeholders come together at the International Safety @ Sea Week 2018 exhibition and conference, Fraunhofer Singapore looks forward to working with maritime industry partners to enhance training and reduce human errors for safer outcomes at sea.

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