

Factsheet on Workplace Safety and Health Technology Challenge

Five technology prospects selected to develop and test-bed vehicular safety solutions

1 The Ministry of Manpower (MOM) issued a Workplace Safety and Health (WSH) Technology Challenge on 4 September 2017, with support from the Land Transport Authority, Traffic Police, Enterprise Singapore (ESG) and GovTech. This Call for Collaboration invited research institutes and companies to submit proposals for:

- i) Research and Development (R&D) projects for new technology that can improve vehicular safety; and
- ii) Ready-to-Go (RTG) products for test-bed deployment in vehicle fleets.

2 Two R&D proposals and three RTG products were selected from 36 applications, to receive funding for prototype development, and for installation and testing in commercial vehicles to substantiate the solutions' effectiveness and viability.

3 The details of the selected technology prospects are given below.

Details on Selected Proposals

Research & Development Proposals			
Proposal	Objectives	Funding & Timeline	Description
<p>R&D Proposal 1</p> <p><i>Company:</i> Neeuro</p> <p><i>Title:</i> Intelligent Fatigue Management System</p> <p><i>Contact:</i> <i>Dr Alvin Chan</i> <i>alvin.chan@neuro.com</i></p>	<p>To detect and warn drivers of fatigue.</p>	<p>Funding: \$285,000</p> <p>Completion: June 2019</p>	<p>Current technology to detect driver fatigue relies on cameras to track eye movement and closure, which does not work with reflective sunglasses. Neeuro aims to detect driver fatigue using brain signals instead of cameras. They will develop a wireless headband to acquire Electroencephalography (EEG) and photoplethysmography (PPG) signals, with software to translate the signals to the driver's state of wakefulness. The device will alert the driver when he loses concentration and begins to fall asleep.</p>
<p>R&D Proposal 2</p> <p><i>Company:</i> Quantum Inventions</p> <p><i>Title:</i> Drive Safe – Work Safe</p> <p><i>Contact:</i> <i>Mr Beavan Chua</i> <i>beavan.chua@quantuminventions.com</i></p>	<p>To improve driver situational awareness, discourage unsafe driving behavior and warn drivers of fatigue.</p>	<p>Funding: \$300,000</p> <p>Completion: June 2019</p>	<p>Current vehicle safety technology (cameras, on-board telematics, fatigue sensors) monitors the situation around a single vehicle. Quantum Inventions aims to integrate systems for external situational awareness, driver behavior tracking, and fatigue detection between different vehicles and with objects/pedestrians, within a data mesh. The technology will allow devices on multiple vehicles, stationary infrastructure and pedestrians within a worksite to “talk” to each other to better warn drivers of nearby hazards, objects or pedestrians, even when not visible (such as around blind corners).</p>

Ready-to-Go (RTG) Proposals			
Proposal	Objectives	Funding & Timeline	Description
<p>RTG Proposal 1</p> <p><i>Company:</i> Astrata Group</p> <p><i>Title:</i> Advanced Integrated - Driver Assistance and Safety System (AI-DASS)</p> <p><i>Contact:</i> Mr Marius van den Berg Mvandenber@astratagroup.com</p>	<p>To improve driver situational awareness, discourage unsafe driving behavior and warn drivers of fatigue.</p>	<p>Budget: \$25,000</p> <p>Completion: February 2019</p> <p>Industry Partner: LTH Logistics</p>	<p>AI-DASS provides drivers with improved visibility of their surroundings including blind spots through cameras, motion detection, and sensors.</p> <p>It is integrated with telematics to monitor unsafe driving behaviour (such as speeding, rapid acceleration or harsh braking) and cameras for fatigue detection.</p> <p>The system will alert the driver in event of potential collision, unsafe driving habits or fatigue. The data collected can be used by employers for driver coaching.</p>
<p>RTG Proposal 2</p> <p><i>Company:</i> Goldbell</p> <p><i>Title:</i> Acudrive and AcuAssist</p> <p><i>Contact:</i> Mr Eugene Lim Wei Yap EugeneLimWY@goldbell.com.sg</p>	<p>To improve driver situational awareness and to discourage unsafe driving behavior</p>	<p>Budget: \$11,340.00</p> <p>Completion: November 2018</p> <p>Industry Partner: Koh Kok Leong Enterprise and SH Cogent</p>	<p>Goldbell proposed a solution with 2 modules:</p> <ul style="list-style-type: none"> • AcuAssist – Collision Alert System (CAS) to detect and alert the driver to potential forward collision, lane departure, or inadequate following distance. • Acudrive - A device to measure vehicle state such as fuel consumption and driving behavior, such as speeding, braking, acceleration, cornering. <p>The modules will both alert the driver to unsafe situations, and provide data to the employer for driver coaching.</p>
<p>RTG Proposal 3</p> <p><i>Company:</i> Guardian SEA</p>	<p>To detect and warn drivers of fatigue.</p>	<p>Budget: \$25,000.00</p> <p>Completion:</p>	<p>Guardian uses sensors and image processing technology to track the micro-movements of a driver's eyes, facial expressions and head to identify a fatigue or distraction</p>

<p><i>Title:</i> Guardian by Seeing Machines</p> <p><i>Contact:</i> Mr Jeff Tan Wei Ping jefftan@guardiansea.com</p>		<p>December 2018</p> <p>Industry Partner: SIA and Woodlands Transport</p>	<p>event. In the event of fatigue or distraction, a vibration motor attached to the driver's seat and an audible buzzer will be activated to alert the driver.</p> <p>A web based Driver Safety System Interface (DSSi) provides a view of the vehicles' location in near real time, with a 24/7 Safeguard Monitoring Center for live data analysis, intervention, and reporting.</p>
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