



SOR Agriculture Automation Technology Development

Perth, Australia, 19th October 2020 – Strategic Elements Ltd (ASX:SOR) is pleased to announce a collaboration has commenced to apply subsidiary 'Stealth Technologies' leading edge autonomous technologies to automate weed detection and management. The need for excessive use of chemicals and production loss costs are significant issues for the global agricultural industry. The estimated cost of weeds in Australian cropping systems alone is at **AUD\$3.3 billion¹ annually**. Total annual cost of weeds in the United States are estimated at **\$US34.5 billion¹**.

Automation of 3D Weed Mapping

The Company is developing a device that will automate the capture and integration of multiple forms of data (LIDAR, GPS, IMU and High Definition Cameras) to produce 3D location maps of agricultural weeds. **3D Mapping of agricultural weeds with highly accurate georeferenced coordinates will enable farmers to target them much more effectively by applying modern agronomy to weed management.**

Leveraging Existing Development

Stealth Technologies will leverage the sophisticated 3D mapping and localisation technology already built for its AxV Automation & Robotics Platform. This technology is also used in the Autonomous Security Vehicle being developed under collaboration with Fortune 100 Company Honeywell. The technology will enable the capture and processing of multiple forms of data to locate and identify weeds amongst a crop whilst a combine harvester is in constant motion.

Stealth Technologies is collaborating with the Australian Herbicide Resistance Initiative (**AHRI**), who are leading global researchers in herbicide resistance and its management in cropping systems, and The University of Western Australia School of Agriculture and Environment (**UWA**). The collaboration has strong relationships with potential end users (farmers) who will assist with field testing and provide direct feedback into development of the commercial solution.

Milestones and Schedule of Work for the Collaboration

Initial fieldwork to detect weeds that protrude above the crop canopy with Stealth Technologies existing 3D Mapping and localisation software has commenced at a farm in Cunderdin, Western Australia.

Objectives for End of 4th Quarter, 2020

- Collect field data from real world farm environments
- Analyse data to enhance weed detection and identification technology
- Develop Stealth 3D Mapping prototype and test with data collected
- Validate technology by deploying Stealth 3D Mapping device onto a combine harvester during cropping

Company Comment

Managing Director Charles Murphy said: "Our strategy from the start was to build a platform that had applications across multiple industry sectors. Security is a huge, global multi-billion dollar market and we are successfully entering that with Honeywell. However from an Australian domestic market context other sectors like agriculture, logistics and mining also have immediate opportunities. We are following the same strategy of collaborating closely with end users to develop a solution which directly solves an existing problem with automation. Our technical team is being superbly led by SOR Director Elliot Nicholls".

¹ <https://invasives.com.au/wp-content/uploads/2019/01/Cost-of-weeds-report.pdf>

Weed Management Problem

Weed management is a critical component of crop production systems globally. Herbicides are the primary tool used for weed control in modern agricultural crop production systems, although their overuse has led to rapid evolution of herbicide-resistant weeds. Glyphosate-resistant weeds have been confirmed in more than 300 cases, and include almost 40 species in 28 countries. Furthermore, some plants can produce hundreds of thousands of seeds, some of which can remain viable in soil **for many years**. The slow pace of novel herbicide chemistries being brought to market combined with the rapid increase in multiple resistance in weeds threatens crop production worldwide.

Technology For Existing Machinery and Processes

The Company's initial strategy is to avoid the introduction of new machinery or farm practices thereby making a product that is accessible to a larger market segment of customers. The 3D Mapping Device has been designed to be fitted to a standard combine harvester and **automatically** capture and integrate data whilst a farmer carries out their **existing** crop harvesting activities. The 3D Maps are then available to be simply imported into **existing** GPS devices or agriculture management software. Farmers are immediately able to follow up using **existing** methods of treating weeds and combine this with any modern agronomic methods.

In the future 3D Maps may be used by autonomous ground vehicles or drones, however to successfully achieve automated weed treatment, the first fundamental step that needs to be solved is low cost, accurate weed detection and identification.

Collaboration

UWA and AHRI will provide technical and agronomic expertise associated with weed management and perform the biological component of the work. AHRI is focussed on crop science, weed science and herbicide resistance in the Australian grains industry.

UWA will also financially support the research component, through a PhD student, and provide the means (e.g. contacts, transport, field equipment) to test the technology in the field. UWA has the right to use project IP for future research and publication rights of non-confidential information after IP is protected. Stealth has the right to commercialise project outputs and will collaborate with UWA through the commercialisation phase.

AxV Platform and Autonomous Security Vehicle

The Company is also developing an Autonomous Security Vehicle under collaboration for the **correctional justice** sector with Fortune 100 Company 'Honeywell'. The Global Perimeter Security Market is forecast to be growing quickly at CAGR of 12.0% over the forecast period 2020-2026 (reaching USD 282.26 Billion by 2025). Although the first release is in the form of the ASV for security, the underlying technology is scalable to a range of vehicle shapes and sizes and custom robotics are adaptable to perform a variety of physical actions and tasks. Further releases from the platform could be deployed for industries such as **mining, agriculture and logistics**.

About Strategic Elements Ltd

The Australian Federal Government has registered Strategic Elements as a Pooled Development Fund with a mandate to back Australian innovation. Strategic Elements operates as a 'venture builder' where it generates high risk-high reward ventures and projects from combining teams of leading scientists or innovators in the technology or resources sectors. Most investors in SOR pay no tax on capital gains from selling their SOR shares as the Company operates under a Federal Government program setup to encourage investment into innovation. The Company is listed on the ASX under the code "SOR". More information on the Pooled Development Program should be read on the Company's website at www.strategicelements.com.au

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This announcement was authorised for release by Strategic Elements' Board of Directors.