

## SOR Multiple Patents Filed On Autonomous Robotics Technology

**Perth, Australia, 23rd June 2020** – Strategic Elements Ltd (ASX:SOR) is pleased to announce multiple patent filings over autonomous robotics technology being developed by subsidiary 'Stealth Technologies'. The strategic use of 3D printing technologies by Stealth is enabling the rapid advancement of Intellectual Property and prototyping.

The Stealth Autonomous Robotics Platform (AxV) is designed for rugged and remote environments. As such, robotic vehicles are designed to operate autonomously in the absence of people for extended periods. Two patent applications cover low cost solutions developed by Stealth Technologies that greatly increase reliability and mitigate against system failures in autonomous robotic vehicles. A third patent application covers robots designed to automate perimeter security intrusion detection systems. Intellectual Property covered by the patents has potential commercial use in security, mining and agriculture.

Stealth Technologies has collaborations with USD 100 Billion 'Honeywell'<sup>1</sup> to develop an Autonomous Robotic Security Vehicle for the correctional justice sector<sup>1</sup> and with the University of Western Australia for Electric Vehicles<sup>2</sup>. Stealth has the right to retain all Intellectual Property it develops under these collaborations.

### Redundant Compute Patent

A patent filing has been lodged to cover redundant compute technology developed in-house by Stealth Technologies. Autonomous vehicles rely on their onboard compute to control driving. The onboard compute is analogous to the 'brain' of the vehicle, and performs multiple critical roles including taking input from multiple sensors, determining the vehicle's location, navigating and avoiding obstacles. Failure of the 'onboard compute' is a catastrophic failure that could cause an accident or injury to people. To overcome the potential failure of compute, Stealth has developed a low-cost innovative solution allowing the vehicle to seamlessly continue its missions.

### Emergency Braking Patent

Onboard power failure is another critical event that could cause autonomous vehicles to continue under their momentum to roll forward or even down an incline without the ability to brake. Stealth has developed a low cost innovative solution to enable emergency braking for autonomous vehicles should power failure occur, activating brakes and bringing the vehicle to a halt.

### Automated Perimeter Intrusion Detection Robotics Patent

Perimeter Intrusion Detection Systems (PIDS) testing is a physical process required to be completed regularly to ensure PIDS are functioning properly and will detect intrusion attempts. Testing is a mundane and repetitive task that can use significant human resources as facility perimeters often span stretches of numerous kilometres and can be infeasible to test manually, leaving facilities open to undetected intrusions through untested perimeters.

Stealth developed custom robotics built on top of its autonomous mobile platform to solve this problem, enabling a fully automated PIDS testing 365 days a year, 24 hours a day including at night. This enables the testing of multiple technologies including microphonics, microwave, buried electromagnetic cable and photoelectric beams. PIDS technologies are deployed across vast numbers of facilities worldwide that could potentially benefit from fully automated physical testing that the Stealth technology can provide to increase security and reliability without increasing operating costs.

### 3D Printing to Enhance IP and Prototyping

The Stealth Technologies team is using data computer-aided-design (CAD) software to direct hardware to deposit material, layer upon layer, in precise geometric shapes. 3D printing takes a digital 3D model and turns it into a physical object using a print head, nozzle or other printing technology. Rapid prototyping has enabled the team to develop in days what could have potentially taken months.

<sup>1</sup> key terms disclosed to the ASX on 12/09/2019.

<sup>2</sup> key terms disclosed to the ASX on 29/04/2019.

## Autonomous Perimeter Security and Surveillance – Honeywell and Department of Justice Collaboration

The next steps for the collaboration are: a) **final** validation and acceptance testing beginning Q3 2020 and b) to investigate the potential use in other facilities with some changes i.e., using 4 or 5g networks. Please view a video on the collaboration at <https://vimeo.com/430645832>.



### Fully Electric

- Lithium ion batteries
- 8hrs drive time
- Fast charging

### Outdoor Terrain and Conditions

- 50 degrees Celsius (ambient)
- Water
- Dust
- Variable Terrain

## ASV Features

### Automated Perimeter Security Systems Testing

- Microwave sensor testing (Purpose Built Robotic Actuators)
- Photo electric sensor testing (PE)
- Electro magnetic sensor testing (EM)

### Fully Autonomous Missions

- 24\*7 365 Day Operational Capability - Day and Night Vision
- Collision Avoidance System
- Autonomous Navigation Between Map Points
- Emergency Braking System
- Imposing Physical Presence

### On Board Surveillance Features

- Autonomous Object Tracking System
- Incident Alert Lighting
- Live Military Grade Video Feed
- High Definition Camera Zoom
- Two-Way Intercom

### System Integration

- Fully Integrated Into Honeywell's EBI Platform
- Capable of Operating within Secure Isolated Networks
- Capable of Advanced Computer Vision



## Autonomous Perimeter Security and Surveillance – Outside Honeywell Collaboration

The ASV is under collaboration for the **correctional justice** sector with Honeywell. Under the agreement, Stealth Technologies can market independently to sectors such as transport, energy, defence, government and utilities providing critical services. Perimeter security enables security to protect employees and assets from unauthorized intrusion in sensitive areas. 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).<sup>3</sup>

### AxV Autonomous Robotics Platform

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](http://www.strategicelements.com.au)

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

<sup>3</sup> <https://dataintelo.com/report/perimeter-security-market/>