SOR Autonomous Security Vehicle Collaboration for WA Prison

Perth, Australia, 19th June 2020 – Strategic Elements Ltd (ASX:SOR), an ASX listed Company backing Australian innovation is pleased to release a presentation on a collaboration to create a fully autonomous security vehicle for the Eastern Goldfields Regional Prison. The presentation was made by representatives from Stealth Technologies (100% owned by ASX listed Strategic Elements), the WA Department of Justice and Honeywell Building Technologies (part of U.S. Fortune 100 company Honeywell).

A video highlighting the collaboration can be viewed at www.stealthtechnologies.com.au. The key terms of the collaboration were initially disclosed to the ASX on 12/09/2019.

The presentation discloses how the parties are collaborating to research and develop a fully autonomous security vehicle to inspect, test and confirm the integrity of the secure perimeter, and how this innovative new technology will enable these inspections to be carried out with no human intervention while integrating seamlessly into the existing technology stack in place at the Eastern Goldfields Regional Prison.

Potential outcomes include a) reducing labour intensive tasks to empower prison officers to concentrate on managing the safety, security and rehabilitation of the prisoners and b) providing staff with a greater ability to randomise testing and additional patrols to investigate incidences (especially at night). Features of the Autonomous Security Vehicle under development for the collaboration are depicted in the image below.

Development is being conducted to enable real-time integration with Honeywell Enterprise Buildings Integrator. The EBI helps connect, monitor and manage core building functions, from comfort to security to safety and is a solution with thousands of EBI systems deployed globally. Honeywell Building Technologies (HBT) is a global business with more than 23,000 employees. HBT creates products, software and technologies found in more than 10 million buildings worldwide.

The Honeywell Pacific Apps team is working with Stealth to build an interface between their Security Management System (SMS) and the autonomous security vehicle for a) alarm activation and acknowledgement between the SMS and the vehicle b) streaming live video to the SMS operators and two way voice communication and c) real-time location and status information of the vehicle providing greater situation awareness.

The next steps for the collaboration are a) ASV will have 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.

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

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

Outdoor Terrain and Conditions
- 50 degrees Celsius (ambient)
- Water
- Dust
- Variable Terrain
Autonomous Perimeter Security and Surveillance – Outside Honeywell Collaboration

The ASV is under collaboration for the **correctional** sector with Honeywell. Under the agreement Stealth can market independently to sectors such as:

- **Transport** critical transport services across rail, air, road and sea.
- **Energy** critical to the supply of both non-renewable and renewable sources.
- **Defence** highest levels of security and surveillance.
- **Government** facilities that require the highest levels of security and protection.
- **Utilities** critical services include, water, gas and electricity supply.

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).*

AxV Autonomous Vehicle and Robotics Platform

Although the first release is in the form of the ASV for security, the underlaying 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**.
AxV Platform Research and Development

Stealth Technologies is currently seeking to establish further research and advisory partnerships and alliances across both government and industry. The goal of this program is to unlock and advance Australian based automation and robotics technologies and apply this to solving real world use cases.

The Company is actively seeking out further research and advisory collaborators in autonomous driving, computer vision, artificial Intelligence, robotics and data science. To date, an Electric Drive Systems and Driverless Vehicles collaboration has been formed with The University of Western Australia with approx. $500,0000 in Federal Government funding support. Interested parties are to contact through www.stealthtechnologies.com.au.

Company Comment

Managing Director Charles Murphy said “Stealth Technologies is really starting to gain momentum and the technical and commercial teams respectively led by Elliot Nicholls and James Hemmings are establishing a level of sophistication capable of operating on a global stage. Our focus in the short term is the successful completion of the Autonomous Security Vehicle with Honeywell, however the AxV platform is attracting significant interest from industry and research sectors and we look forward to the period ahead”.

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.

NOTE: THE PRESENTATION CAN BE FOUND ATTACHED TO THE BACK OF THIS DOCUMENT
BACKGROUND

EGRP is a DFBM PPP.
• Contract with Project Co (AMP Financier's).
• Unique funding opportunity and source
• Mutual benefit in Innovation and testing

Where is EGRP.
• 600 Klm (373 miles) East of Perth Western Australia
• Desert region
• Multi security level and mixed gender prison
PERIMETER TESTING AUTOMATION

Testing fencing security systems - inner and outer perimeter and security systems

Current method:
- Requires 2 staff, 3 times a day check each perimeter fence and security system, plus MCR officer to confirm alarms
- Typically 1 hr per check

Issues with current method:
- Inconsistent testing
- Damage to fence/Security Systems “22k in 2017”
- Mundane repetitive task
- Same times everyday
- Staff time taken to carry out tests
- Non compliance
- Using skilled staff for routine mundane jobs
COLLABORATION

Building the Infrastructure to Support Innovation

Secure WIFI mesh network
Implemented a WiFi Mesh, site wide to provide a secure communication layer to build upon

Connected Workers
Implemented mobile technology to connect workers in the field

ICT & Cyber
Secured the ICT infrastructure
Penetration testing at every stage

Command Console
Introduce CCS to provide the operators with better situational awareness
THE JOURNEY

Commercial UAV
- Cheap to deploy
- Simple to integrate
- Lacked the mass required
- Regulatory issues

Military Grade Vehicle
- Extremely expensive
- Lacked the mass required
- Lacked the autonomous control
- Required 3rd party to repair

The ASV
- Purpose built
- Had the required mass
- Built on a common platform
- Easy to maintain
Our Pacific Apps team worked with Stealth to build an interface between our SMS and the vehicle to:

- Alarm activation and acknowledgement between our SMS and the vehicle
- Stream live video to the SMS operators
- Two way voice communication
- Provide real-time location and status information of the vehicle providing greater situation awareness
We believe automation and robotics can make the world a safer and smarter place.
Stealth Technologies AxV Platform

"Purpose built for outdoor environments and all weather conditions"

“Scalable to any size”

“Adaptable to any physical task”

STEALTH AUTODRIVE HARDWARE
Autonomous vehicle technology scalable to multiple vehicle sizes

STEALTH OS SOFTWARE
Sensor Fusion
Computer Vision
AI and Neural Networks

STEALTH CUSTOM ROBOTICS
Purpose built robotics adaptable to meet industry specific use cases
Autonomous Security Vehicle ASV

Fully Autonomous Perimeter Security Testing and Surveillance
1. Complete 3x fully autonomous missions a day around the perimeter of the facility

2. Complete automated testing of the facilities inner and outer perimeter security systems
   - Microphonics Sensor testing
   - Microwave Beam testing
   - Photo Electric Beam testing (PE)
   - Electro Magnetic Field testing (EM)

3. Report back to in real time to the Honeywell Security Manager System via Enterprise Buildings Integrator (EBI)
   - Testing outcomes
   - Status of mission
   - ASV diagnostics

4. Undertake surveillance to via live video feed
1. ASV mission is selected from the Patrol Control Centre

2. ASV is deployed from charging station and mission commences

3. End-to-end testing of the Perimeter Intrusion Detection Systems (PIDS) is completed on a zone by zone basis

4. Zone testing is configurable right down to the number and location of individual test points

5. Real time communication between ASV and Honeywell Security Manager occurs throughout end to end testing

6. PE beam, Microwave beam and EM field tests completed as ASV passes through test zones
1. Microphonics fence sensor tests performed by robotics that automate the physical engagement with the fence.

2. Real time integration with Honeywell EBI updating fence section status:
   - Alarm status
   - Maintenance status
   - Send pre-test commencement notification to Honeywell EBI
   - Receive Honeywell EBI notification of test result

3. Complete additional test cycles per Honeywell EBI notifications.

4. End of mission testing status report back to Honeywell EBI.

Security Testing Automation #2
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INTEGRATION DOJ – HONEYWELL

- This is the continuation of the partnership with Honeywell and DOJ
- Following our Roadmap to the future for a fully Integrated Technology & Connected Prison
- Proves that Public and Private can work collaboratively for a common goal
- This will allow 2 staff to do the duties they were trained to do
- Added efficiency in the MCR
- Staff have embraced new technologies at EGRP
- Give staff a greater ability to randomise testing and additional patrols to investigate incidences especially at night
NEXT STEPS

• ASV Will have final validation & acceptance testing beginning Q3 2020

• Can be rolled out to other facilities with some changes, using 4 or 5g networks
THANK YOU

Honeywell