



SOR Autonomous Security Drone Collaboration

Western Australia - November 4th 2020 - Strategic Elements Ltd (ASX:SOR) subsidiary Stealth Technologies has signed an agreement to collaborate with leading US based Autonomous Drone technology Company, Planck AeroSystems. The Companies will work to enable drones to autonomously launch and land from the Stealth ground based autonomous vehicle platform (AxV).

Planck's core enabling technology is vision-based precision landing on moving platforms without GPS. In sectors such as security, defence and resources drones can augment ground based cameras and sensors to provide additional range, multi-angle coverage and additional critical data (e.g. thermal imaging).

Stealth Technologies is developing an Autonomous Security Vehicle (ASV) for perimeter security in sectors such as transport, energy, defence, government and utilities providing critical services. 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)¹.

- The Planck Autonomous Control Engine (ACE™) system is an embedded software solution that runs onboard a variety of unmanned aircraft systems to enable autonomous launch, recovery, relative navigation, and mission planning from a moving vehicle. With centimetre-level accuracy for precision take-off and landing, a drone can launch and recover reliably from small spaces. The sensor-guided flight accounts for motion of a vessel or ground vehicle, including roll, pitch, heave, and wind effects.
- ACE is deployed in five US federal agencies, and with two allied nations. The ACE system has commanded thousands of successful UAS sorties both at sea and from vehicles, on aircraft from many different manufacturers. Planck is working with the United States Department of Defense's Combating Terrorism Technical Support Office (CTTSO), the United States Department of Defense and Department of Homeland Security on various aspects of its technology.
- The precision landing system uses computer vision, artificial intelligence, and other onboard sensors, but does not require GPS or active communications. Existing unmanned aircraft systems use global positioning and are not capable of autonomous operation from moving vehicles. Planck's intelligent navigation solutions enable new capabilities for surveillance, reconnaissance, real-time situational awareness, and force protection.

The Stealth and Planck collaboration will focus on enabling the ASV to launch and land drones. This ability would enable the long runtimes of the ASV to be combined with the high speed of drones. Drones could be launched from the ASV at any time whilst on patrol, effectively doubling the ASV's surveillance coverage capabilities. Drones could also recharge once landed on the ASV and be relaunched. In addition the unique perspectives of both the ASV and its drone can be combined to give an expanded patrol and surveillance dataset, enable more powerful AI use cases for mapping, navigation, object and person recognition, object and person tracking and scene reasoning.

The parties will also assess the potential of integrating mobile tethered drones with the ASV. This will give additional deployment options for drone-equipped ASVs to work at facilities located near to controlled airspaces and at those that have safety requirements that would normally preclude drone operation (e.g. airports, energy facilities). Traditional ground tethered drones can only fly in a single location, however drones tethered from the ASV could be mobile and move with the ASV whilst airborne.

Key Terms

- Planck Aero will provide ACE technology for integration into Stealth autonomous vehicles, and any other technologies agreed by the parties. Term of the Collaboration is 6 months.
- The Parties will explore commercial, industrial and defence applications and opportunities.
- Planck grants Stealth a royalty-free, non-exclusive, license to use Software for the purposes of the Collaboration for duration of the Term.
- Stealth will pay to Planck Aero for any Hardware provided under the Project. Any further payments will be as agreed between the parties from time to time.



Fully Electric

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

Outdoor Terrain and Conditions

- o IP Rating 67
- o Heat - 50 degrees Celsius (ambient)
- o Water
- o Dust
- o Variable Terrain

1. Autonomous Perimeter Security Patrol & Surveillance

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

2. Autonomous Perimeter Intrusion Detection System Testing

- o Perimeter fence sensor testing - Microphonic and Fibre Optic (Purpose Built Robotic Actuators)
- o Microwave sensor testing
- o Photo electric sensor testing (PE)
- o Electro magnetic sensor testing (EM)

3. On Board Surveillance Features

- o Autonomous Object Tracking System
- o Incident Alert Lighting
- o Live Military Grade Video Feed
- o High Definition 30x Camera Zoom
- o Day and Night Vision Surveillance Distance: 400m
- o Two-Way Intercom

4. System Integration

- o Fully Integrated Into Honeywell's EBI Platform (DVM)
- o Capable of Operating within Secure Isolated Networks
- o Capable of Advanced Computer Vision - Facial and Number Plate Recognition

Stealth Technologies

The Company's priority focus is its exclusive collaboration with giant **US Fortune 100 Company Honeywell**² to build autonomous security vehicles for the correctional justice sector. The parties are working with the **WA Department of Justice** to build a fully autonomous robotic security vehicle for the Eastern Goldfields Regional Prison in Kalgoorlie to inspect, test and confirm the integrity of the secure perimeter.

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. 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".

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

¹ <https://dataintel.com/report/perimeter-security-market/>

² Disclosed to the ASX on 16/09/2019.