BORDER PROTECTION SECURITY SOLUTION

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SWIZERLAND

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INTRODUCTION

Keeping people and goods from entering a country illegally is a considerable challenge.

To overcome these challenges, CREDAL's leverages a combination of state of the art technologies by linking detection technology with a command-and-control system to provide a common operating picture needed to detect and deter threats to land borders and facilitate the interdiction of persons and vehicles that have crossed illegally.

CREDAL's border security solution offers intelligence and situational awareness — with the power to respond in real time, empowering agents and officers to respond to border problems quickly and effectively.

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CREDAL BORDER SECURITY SOLUTION

The CREDAL border security solution is multi-tiered with the following layers:

AiGUARD

Integrated Surveillance & Reconnaissance platform solution based on a multi-sensor security device, AiPOD, leveraging AI (Artificial Intelligence) to detect, recognize, and identify threats, to proactively trigger intervention and mitigate potential risks.

AiPUCK

A Perimeter security solution, AiPUCK, comprising of a smart self-organizing clustered sensor network using the AiGUARD which releases a drone equipped with Vision recognition, LIDAR and FLIR to track, tag and follow intruder whilst signalling and summoning response team.

Tunnel FAiNDER

A Tunnel detection system based on FAiNDER, an AI-powered, first of its kind autonomous UAV that can detect underground activities for up to 100 feet depth with precise detail.

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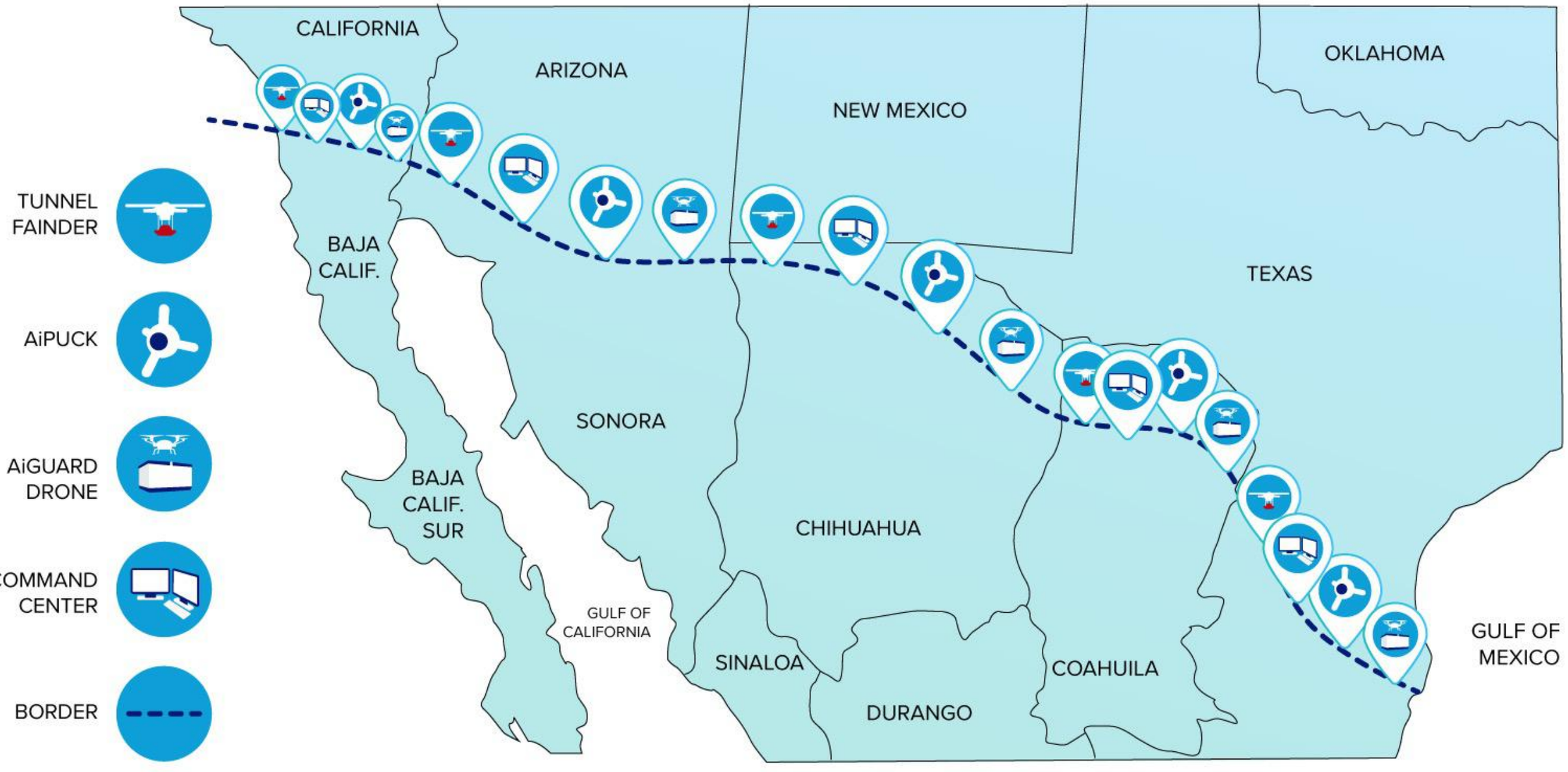
NEW SCHEME



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AIGUARD: AN INTEGRATION PLAT-FORM

Combination of sensors

A combination of sensors: AiGUARD provides a groundbreaking form of Artificial perception that fuses LIDAR, Thermal Vision (FLIR), and hyperspectral Imaging (HSI) and leverages AI to produce a high level of certainty in detection and reconnaissance.

LIDAR

Thermal Vision (FLIR)

Hyperspectral Imaging (HSI)

Command Center

That aggregate, correlate, and analyze various forms of data and produces an easy to use dashboard for real-time decision support.

Automated set of incident

Triggers an automated set of incident response actions for proactive, real-time intervention.

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AIPUCK: SMART BORDER SECURITY

- AiPUCK® is a cutting-edge monitoring system based on a set of ground sensors linking themselves into an ad-hoc wireless network, and capable of sending alerts to a central monitoring station responsible of collecting and displaying information gathered in a geo-referenced map(HCI).
- AiPUCK's ground sensors are connected to each other by means of a Wireless Network, are freely combinable and include:

Seismic sensors (MEMS accelerometers or geophones) to identify ground vibration caused by pedestrians or vehicles;

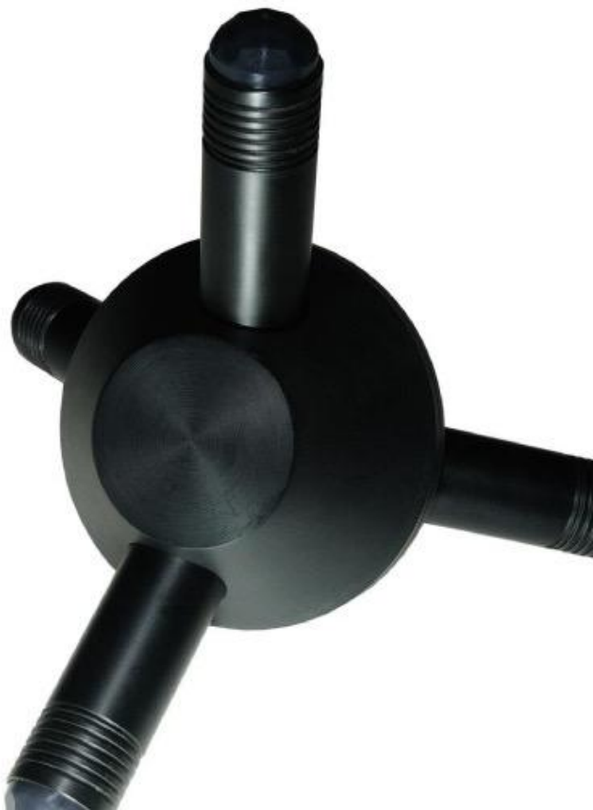
Magnetic sensors (MEMS magnetometers) to monitor movement of metal objects such as vehicles;

Acoustic sensors to detect targets by specific acoustic signatures (noise of engine, tracks etc);

x-Band Doppler Radar sensors to detect movements of objects in a narrow field of view;

GPS receivers for sensor geo-positioning;

- Events detected will trigger an intervention from a UAV to track intrusions with AiGUARD devices.



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AIGUARD: SPECIFICATION

AiGUARD is a fully automated drone solution for surveillance. It provides around-the-clock service and security, without human intervention. This system can be connected to any security network to provide

Automatic Quick Situation Assessment

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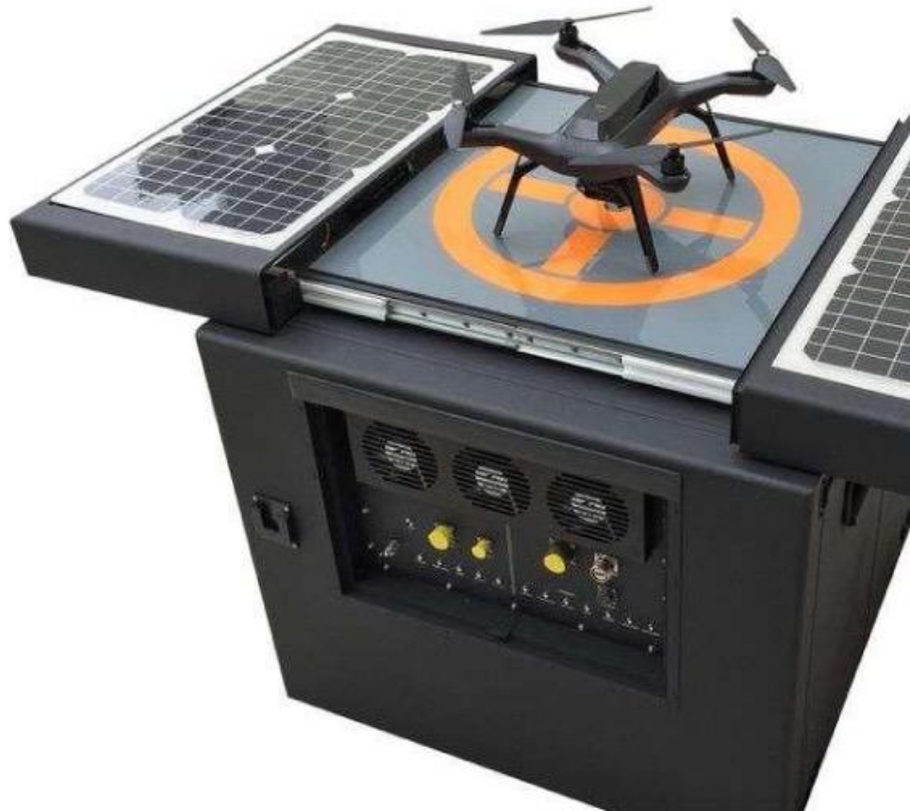
Automatic Patrols

AiGUARD drones can also carry out daily scheduled surveillance missions and routine inspections all around the site.

Operational Support

If an intervention is needed, AiGUARD drones offer a precious aerial vantage point to the coordinators of the operation.



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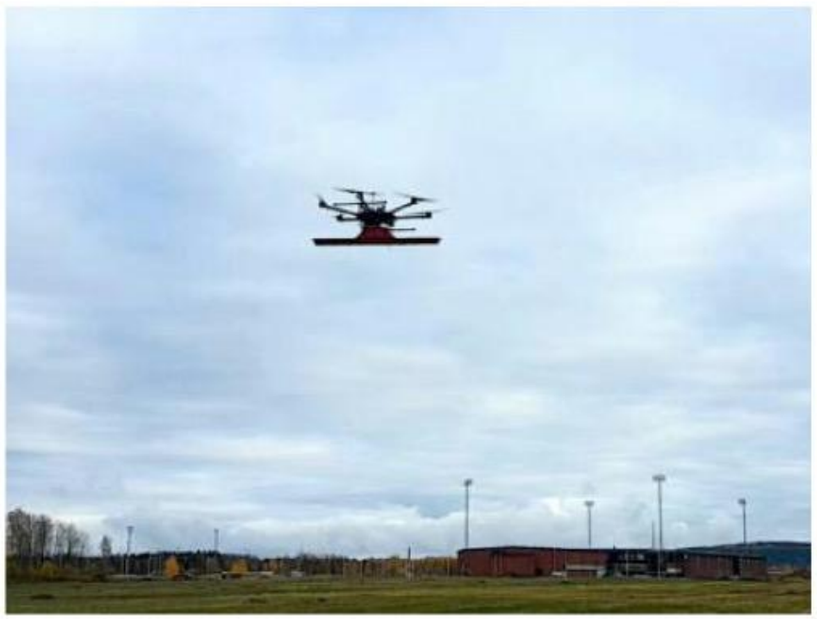
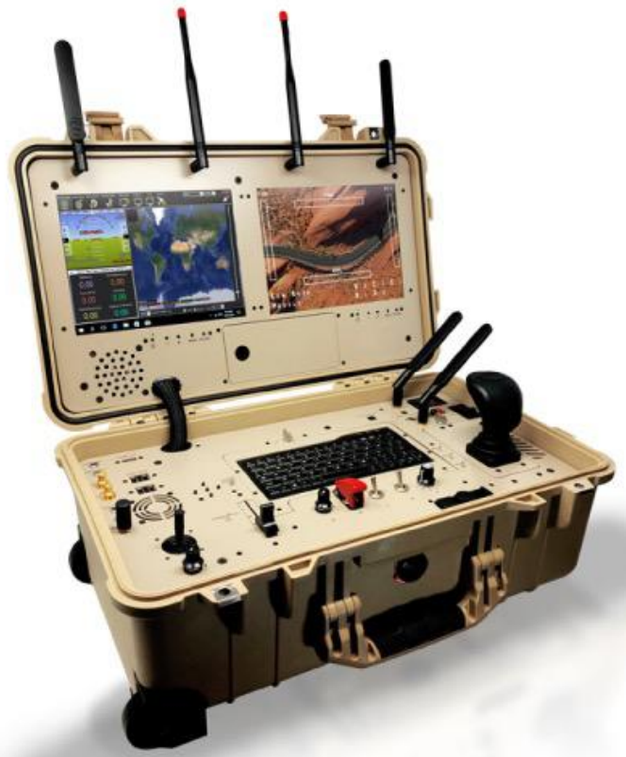
FAINDER: TUNNEL DETECTION SOLUTION



Tunnel FAiNDER which is equipped with a heavier duty GPR. It contains all the other sensors in order to provide detection of dangerous and hazardous materials as well as narcotics using HSI.

The drone patrols on a weekly basis border area to detect any tunnel formations. If detected it alerts base station. This is unmanned and more efficient than current manual methods.

A lot has happened to the advanced of GPR and HSI as can be seen from this passage from an article in 2011, nowadays GPR can break the 100ft barrier with precise detail. There are various technologies the US can use to detect tunnels, but all have their limitations. Ground penetrating radar does a poor job at detecting anything before 40 feet. This does little good considering that one tunnel discovered between San Diego and Tijuana travelled at a depth of almost 100 feet below the surface. Ground radar readings are also affected by ground conditions and give poor results in urban settings or in damp, clay-rich soils.



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