

Use Case Paper

TIR-ID17.41

“Targeting Border Security”

Intrusion Detection and Targeted Surveillance for Border Security



1450 West 105 North – Orem, Utah

www.thermalradar.com

EXECUTIVE SUMMARY

Border Security Agents from around the world have multiple responsibilities, including facilitation of legal travel across the borders as well as defending against terrorist intrusions. Most countries around the world have similar border protection challenges including the protection of vast areas with limited infrastructure and resources. When it comes to border security, there is never a one size fits all approach; country borders are unique and differ dramatically when it comes to security measures required to maintain a secure border. Border Security decision makers are faced with an assortment of challenges in choosing the right intrusion detection solutions for each sector of border they are responsible for protecting. Border Security Agents are looking for the best possible detection solution that is cost effective and easily deployed. Border Patrol must determine what they want to achieve; Detect / Deter / Delay and/or capture intruder and then develop a tailored and layered solution that best achieves these objectives.

PROBLEM

The United States of America shares a border with Mexico that stretches nearly 2,000 miles with 42 land ports of entry located on bridges in Texas and on highways in California, Arizona and New Mexico facilitating 250 Million legal border crossings annually. Border security continues to be an increasingly dynamic and critical area of focus for a multitude of reasons; the least of which relate to topics of terrorism and illegal immigration. Governments around the world are engaged in long-term efforts to increase enforcement and border security. Border Security requires heavy investments in manpower, technology, transportation and infrastructure to arrange a multi-layered defense against illegal border crossings. U.S. Customs and Border Protection (CBP) has put out data explaining that despite a multi-layered approach to border security, millions of illegal border crossings continue to occur annually.



While there is no “Silver Bullet” intrusion detection solution or product that can address the many intricacies that relate to climate, topography, geographic location, and even associated politics. Real world solutions require a layered approach and an assortment of innovative products that must work in harmony to provide effective border protection.

Requirements for Border Security Intrusion Detection Products

- Low power intrusion detection – solar/battery capable
- Day and night intrusion detection capabilities
- Intruder classification with geo-spatial coordinate reference
- Mobile stand-alone platforms
- Robust product for harsh weather environments
- Ease of use for border security agents
- Versatile product for multi-use functionality
- Truck and Vehicle based platforms

EXISTING BORDER SECURITY MEASURES



FIXED LONG RANGE DETECTION

Long range thermal cameras and radar products have been used for decades; however, in any long range, line-of-sight scenario, there is a fixed vertical and horizontal field of view that will only provide detection and surveillance if the ground is level and even. Unfortunately, most borders have uneven terrain where hills and valleys will inevitably be hills and mountains that block line-of-sight for long range detection products and there will always be valleys and basins.

FENCE LINE BORDER PROTECTION



Fence lines create and define borders as well as serving as a deterrent to intruders. Every country protects its borders and restricts access to the interior of their country using fence lines. Fence lines however can be breached with relative ease and the southern border of the United States is evidence that fence lines do not completely secure borders. Millions of illegal entries into the United States happen on an annual basis through the southern border despite fence line deterrents.

BURIED GROUND SENSORS



Buried Ground Sensors

Ground sensors have provided detection in vulnerable areas where longer range detection products have not been able to reach. Ground sensors are used as a gap filler for areas where detection can be inhibited by terrain, however, ground sensors have limited range and do not provide forensics or analytics on the type of incursion that has been detected.

THERMAL RADAR – PERSISTENT 360° THERMAL INTRUSION DETECTION

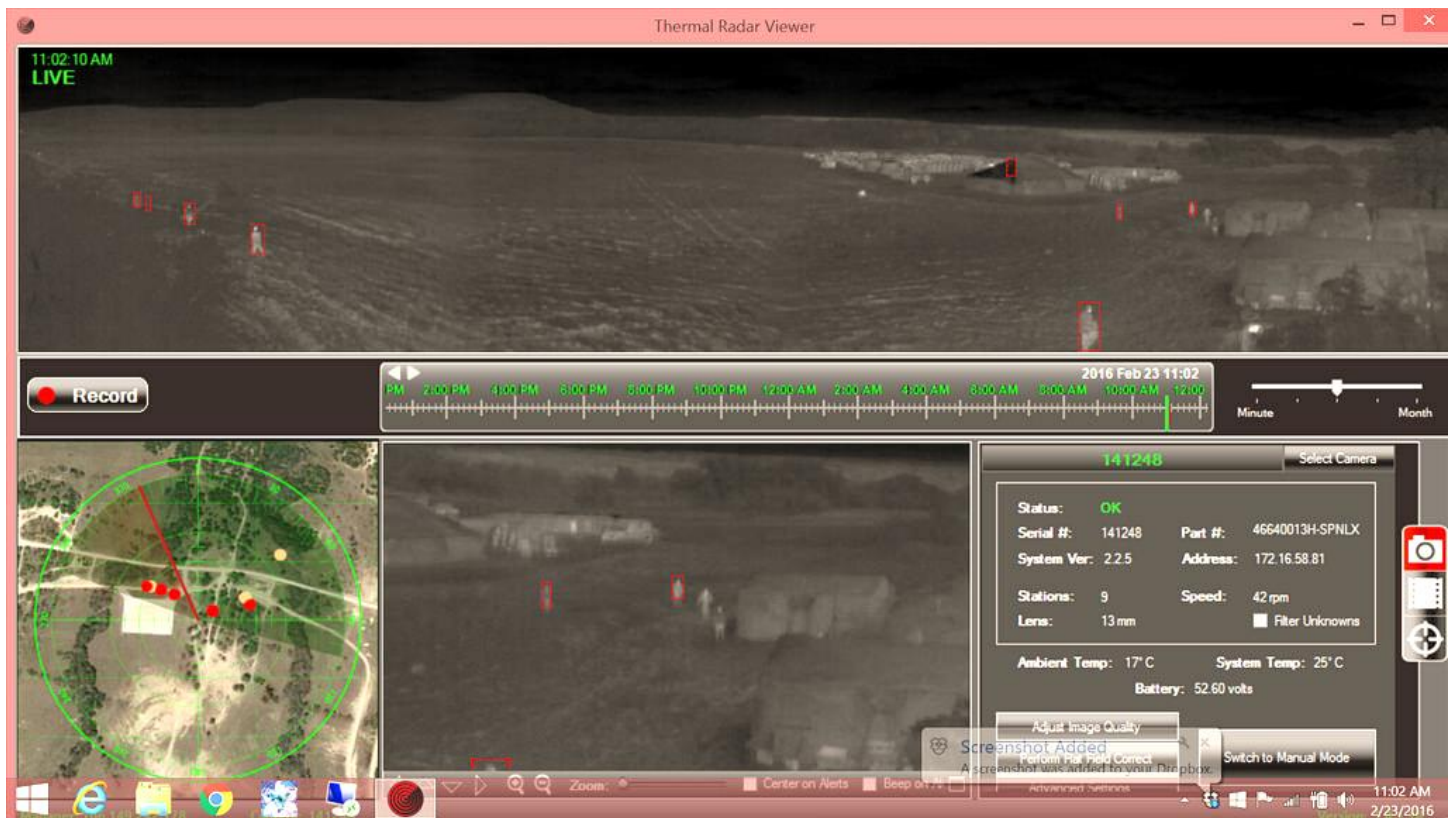
Thermal Imaging Radar was asked to evaluate a specific area of the southern U.S. border for Customs and Border Protection (CBP). While CBP had long range radar and thermal detection and surveillance capabilities, much of the southern border has significant topography challenges and these line-of-sight, longer-range systems are not cost effective for smaller areas of concern like hills and valleys. Border regions like the Laredo Sector with significant terrain changes are not conducive to the use of a long-range sensor or radar system. Thermal Radar was asked to be a gap filler for areas where terrain changes limited the type of technology that could be used. Thermal Radar provided persistent 360° intrusion detection with 1km detection areas and geo-spatial referencing and alarms for rapid response teams to interdict the incursion. CBP found that Thermal Radar only utilized 6 watts of power thus providing a self-sustained solar powered detection solution with detection distances that met or exceeded their needs.



INCURSION INTERRUPTION

In the Laredo Sector of the U.S. southern border near the Rio Grande River, A Thermal Radar was placed atop a mobile solar powered trailer with a telescoping 7-meter tower. Thermal Radar commissioned a 25mm Thermal Radar unit, which has a maximum human detection distance area of 1km in diameter to monitor the specified area. On multiple occasions during the 45-day deployment, unsuspecting intruders were detected at night as they crossed the Rio Grande River and made their way into the United States illegally. Thermal Radar was successful in detecting the unlawful border crossings and interrupted the illegal incursions, simultaneously alerting CBP Agents of the precise GPS location of the intruders for immediate apprehension. Border Patrol Agents told Thermal Radar representatives that these illegal border crossings, likely, would have never been detected had Thermal Radar not been used. The Agents also stated that they would have had to utilize 12-16 fixed Thermal Cameras to get the same result as a single Thermal Radar.





Thermal Radar efficiencies can be maximized and deployed. Other Thermal Radar use cases will include a standard vehicle mounted unit for border security agent vehicles to provide intrusion detection capabilities and increases agent safety through 360° situational awareness for every Border Patrol vehicle that goes out on patrol. Thermal Radar will also be used at border check points and border crossings.

THERMAL RADAR PRODUCT SUMMARY

The Thermal Radar Hydra is a mission critical and operationally relevant solution for wide area intrusion detection and targeted surveillance. Thermal Radar provides real-time 360° situational awareness of any physical incursion that may threaten a perimeter. With a rotating, FLIR Sensor, Thermal Radar provides a stitched panoramic 360° detection area with thermal imagery combined with powerful, edge-based analytics. Thermal Radar can be a low power, standalone detection outpost or the centerpiece of your integrated physical security strategy. The Hydra also uses a long-range laser illuminated 30x zoom visual PTZ as a targeted surveillance unit to provide the forensic data required for monitoring any intrusion detected by Thermal Radar.

Thermal Imaging Radar has been awarded the highest honors for security, technology and innovation including the following:

- Popular Science Magazine – Best Security Invention of 2014
- ISC West – Best Surveillance and Advanced Imagery Technology 2014
- ASIS International Accolades Award 2013 – Best in Show
- Utah Innovations Award – Best Computer Hardware Device 2014
- ISC West – Best Surveillance and Advanced Imagery for HYDRA 2017
- ISC West – Judges Choice Award – HYDRA Best in Show 2017