

Use Case Paper

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PERSISTANT AIRPORT PERIMETER PROTECTION



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Executive Summary

Airports face extraordinary security challenges including the threats of terrorist attacks on strategic aviation targets. Recent news reports indicate that at the Detroit Metro Airport between 2013-2015, 4 separate perimeter breaches occurred. The monitoring of such vulnerable locations and the perimeter of an airport is of the utmost import. National security issues aside, airports also face theft, vandalism and unauthorized intrusion which could lead to sabotage of systems. Certainly, in a post 9-11 world, one might think that airport security has been heightened and improved yet intrusions continue to be pervasive in the news in some of America's largest airports. Small and mid-sized regional airports however are more attractive targets where security budgets are smaller and security personnel are fewer. Most regional airports have a security strategies the often involve security officer patrols and surveillance systems using visual spectrum cameras. For many years, thermal detection was reserved for high budget airports that had significantly more funding for such high security systems.

Scenario

Intentional acts to cause harm or disruption within the aviation sector has brought criticism to security administrators at regional airports as well as large metro airports. A regional airport in the Rocky Mountain area was looking for a more suitable solution for intrusion detection within and without the aviation fence line. While this regional airport had no significant incidents of high security threats, security mangers had experienced multiple intrusions from intoxicated persons and vandals over 18 months. These security managers were looking for intrusion detection with more capabilities, low false alarm rates as they had limited staff to investigate and the ability to confirm an actual threat. Most vulnerable locations have fenced off perimeters but in many cases these locations had a small physical security footprint and the regional airport was looking for more meaningful security countermeasures to effectively detect targets prior to incursion. Security managers were tasked to validate and implement plans to protect against physical attacks that may compromise the operability or recovery of the airport as well as design the appropriate response of security personnel. Because of the limited personnel resources of the airport, there was a keen interest to have specific targeting of intruders or potential intruders so that security forces could be directed specifically to the incursion location and have confidence in what they were expecting to encounter when they arrive.



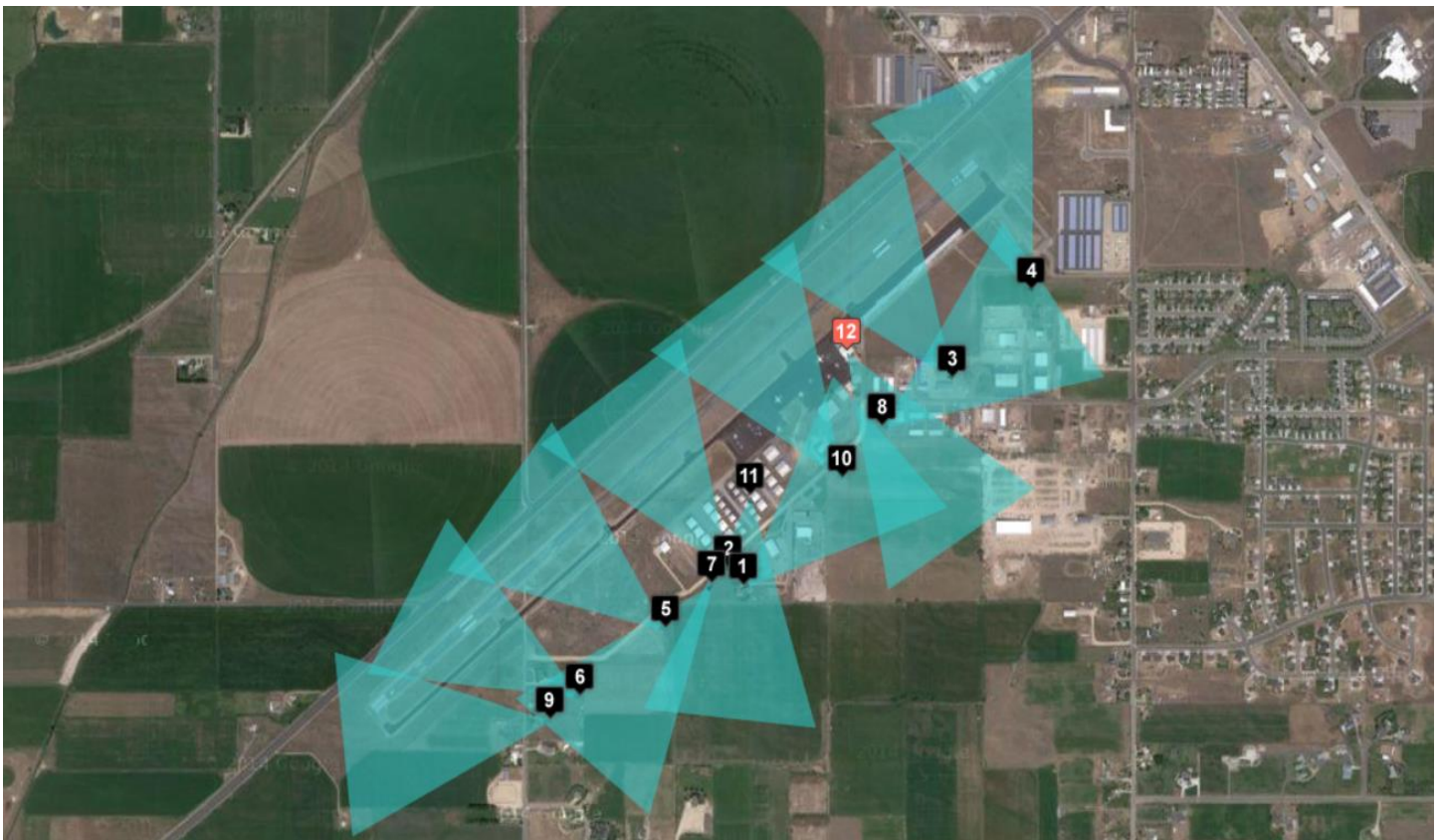
Use Case Evaluated 2 Different Intrusion Detection Methods

Requirements for intrusion detection

- Detection Solution must:
 - Be a cost-effective solution.
 - Can detect an intrusion during the day and night.
 - Provide specific geospatial position of the intrusion so that axillary security measures can be deployed.
 - Alert multiple parties in real time in control center and via email and text.
 - Provide persistent surveillance and situational awareness.
 - Have analytics so as to ascertain the nature of the intrusion whether man or vehicle.
 - Must interface with existing camera systems and VMS platforms for a slew to cue operation.
 - Must have recording capability to review history.

Fixed Thermal and Visual Cameras

Fixed thermal and visual cameras were considered to solve the issue of intrusion detection and surveillance. Fixed thermal cameras could provide the detection distance and nighttime visibility needed. A 19mm fixed thermal camera from an industry leading camera supplier was evaluated. It was determined that 12 fixed thermal cameras would be needed to provide continuous coverage of the various angles and distances at the property for human detection. Visual PTZ cameras with IR illuminators were also considered to record and gather forensic data after detection occurs. Retail cost of the 12 thermal/visual cameras was \$84,000.00 USD without VMS Licensing or installation. Accounting for all costs, the equipment and installation combined price was **\$178,850.00 (See Figure 1 below)**



Thermal Radar Hydra



(Figure 2: 2 Thermal Radar Hydra Units)

Thermal Imaging Radar's geo-spatial, 360° thermal intrusion detection solution was offered up as a solution to the security challenge. Thermal Radar provides persistent thermal detection, situational awareness and actionable intelligence with edge-based thermal analytics for immediate reporting and alarm notification of intrusions over an area of 210 acres. Hydra by Thermal Radar also provides a 360° laser illuminated PTZ visual camera with 500-meter nighttime vision surveillance. The geospatial calculations that Thermal Radar produces for accurate location reporting were the most valuable feature for the regional airport. The geospatial alert from Thermal Radar enables all existing PTZ cameras on the airport property to be coordinated and utilized to put eyes on target from various angles turning all existing PTZ cameras into smart cameras. The installation of 2 Thermal Radar Hydra units was proposed by placing the units on an existing structure where power and network were easily accessible. The cost of installation was minimal, simple. The Hydra's thermal alerts produced alarms within the existing PSIM at the SOC and the Hydra's 360° thermal coverage area and the targeted PTZ camera feeds were recorded directly in the existing VMS. No additional software was required to be purchased by the airport and the success of the project from both a cost savings and operational perspective seemed accomplished the mission of what the security managers were looking for from an intrusion detection solution. Accounting for all costs, the equipment and installation combined price was **\$73,660.56** (See Figure 2 above)

Results

Thermal Imaging Radar was the best choice for this installation. Security administrators were satisfied that the Thermal Radar Hydra met or exceeded all requested requirements and that no requirement had to be sacrificed for budgetary concerns. Thermal Radar's Hydra would meet or exceed requirements while doing so at a cost savings of 59% of the quoted amount for a multi-camera detection install. Strong consideration was also given by security administrators about the installation and maintenance time requirement for (12) cameras verses (2) Thermal Radar Hydra.

TIR 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. Intrusion detection is the most critical step in securing a border of any kind and a perimeter detection solution must be both highly effective and cost efficient. With a rotating, FLIR Sensor, Thermal Radar provides a stitched panoramic detection viewing area with thermal imagery. 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 Imaging Product of 2014
- ASIS International 2013 Accolades Award
- Utah Innovations Award for Best Computer Hardware Device 2014
- ISC West – Best Surveillance and Advanced Imagery Technology 2017
- ISC West – Judge’s Choice Award for Best Product of the Year 2017

Contact Thermal Imaging Radar about the hottest intrusion detection solution on the market today. Thermal Radar Hydra is an affordable and effective solution which is easy to install and provides targeted surveillance and detection to more area than any commercial detection product in the industry. www.thermalradar.com

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