



CASE STUDY: DoD AIR DEFENSE FACILITY

Background

This site is typical of sites that arose in the post-911 world to provide air defense for strategic locations in the Continental US. The dual fence perimeter around this facility secures high-value/high-consequence ground-to-air weaponry and is located in a remote, wooded environment. In order to maintain a low profile in the neighboring area, perimeter lighting intentionally is kept at a low level. Immediate, real-time detection and response to a perimeter breach is crucial in maintaining operational readiness.

Typical perimeter solutions employed in the past have included taut wire, FPS, microwave, BLS, and event-driven CCTV. These systems are expensive to deploy and maintain, are one-dimensional only, and do not provide a constant surveillance vigil of the perimeter and secure areas. To date, the use of video analytics in these situations has not been effective due to the unacceptably high false alarm and nuisance alarm rates (FAR/NAR) associated with the dynamic scene changes of the outdoor environment. Traditional video analytics solutions have also been found to be cost prohibitive, due to its limited coverage (range levels) per video channel.

Challenges

Budget constraints magnified the challenges of designing the perimeter surveillance system. A dual perimeter fence enclosed the site, but electronic fence systems were not available within the client's budget, making long range video surveillance the most cost effective option. The dual perimeter fence, however, had an irregular shape (8 sides) with numerous occlusions caused by existing buildings. Even with the long range capabilities of the SightLogix solution, the initial survey showed eight SightLogix sensors would be required. Budget constraints, however, reduced this count to five.

Lighting was metal-halide but was spaced too far apart (300') to give uniform perimeter illumination sufficient for standard visible cameras. Thermal cameras, however, were too costly to be considered for perimeter use. The requirement to detect pedestrian activities through a wooded environment presented an additional challenge.

SightLogix Impact

SightLogix, in collaboration with the client's integrator, performed a detailed site survey based on physical site walks combined with the use of the SightLogix' online SightSurvey tool. Together they developed an innovative camera layout that provided full coverage of both the perimeter and the pedestrian area, keeping within the five camera constraint. Because of the edge architecture of the SightLogix sensors, the SightLogix visible cameras were able to accommodate the poor and non-uniform lighting. Four SightLogix visible sensors were installed to cover the 8-sided perimeter, with the remaining sensor installed to cover the vehicle sally port. Power and signal were trenched and hard-wired. Camera height was between 12-16' with FOVs ranging from 29-42° and covering distances of 320-530'. Video display and management were provided by the VideoNEXT NVR.

A single, non-intelligent FLIR Systems thermal imager was centrally located to provide a 360° interrogation platform. The thermal imager was programmed to automatically track targets detected by the SightLogix cameras using geospatial data provided from the SightLogix system.

The installation phase was completed in approximately three weeks. Testing and training covered two full days.



"System performs very well day and night and covers a wide area inside and outside the perimeter fences."

---SSGT, US Army

What: Classified DoD Air Defense perimeter

Where: Remote wooded area

When: 2008

Previous: New construction

Issues: High-value/ high-consequence, low budget, irregular perimeter, low light, wooded area

Lighting: Metal Halide, 300' interval

Spectrum: Visible

Total Perimeter: 2100'

Total No. Cameras: 5

SightLogix ROI:

- Innovative site design
- Large area coverage
- Low FAR/NAR
- Highly economical solution

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