

PERIMETER INTRUSION DETECTION (PID)

CHALLENGE

A large oil and gas customer was looking for a replacement of its existing Perimeter Intrusion Detection (PID) system microwave link at its headquarters. The site covers a hilly terrain with continuous perimeter fence links that follow many uphill and downhill slopes. In addition, the site has an irregular geometry consisting of many corners, bends, and alternating concave and convex features. These complex site-specific characteristics pose great challenges for establishing a reliable and cost-effective intrusion detection solution that completely covers and secures the perimeter of the facility. The existing microwave-based system was unable to cover any type of bend on the fence nor operate near any metal pipeline, so IR sensors had been installed to cover such gaps. This resulted in short range coverage by microwave systems and increased the cost of the dual-system solution and its associated maintenance expenses.

In response, Quanergy deployed a LiDAR-based PID system that is independent of the environment and provides centimeter-level accuracy.

SOLUTION

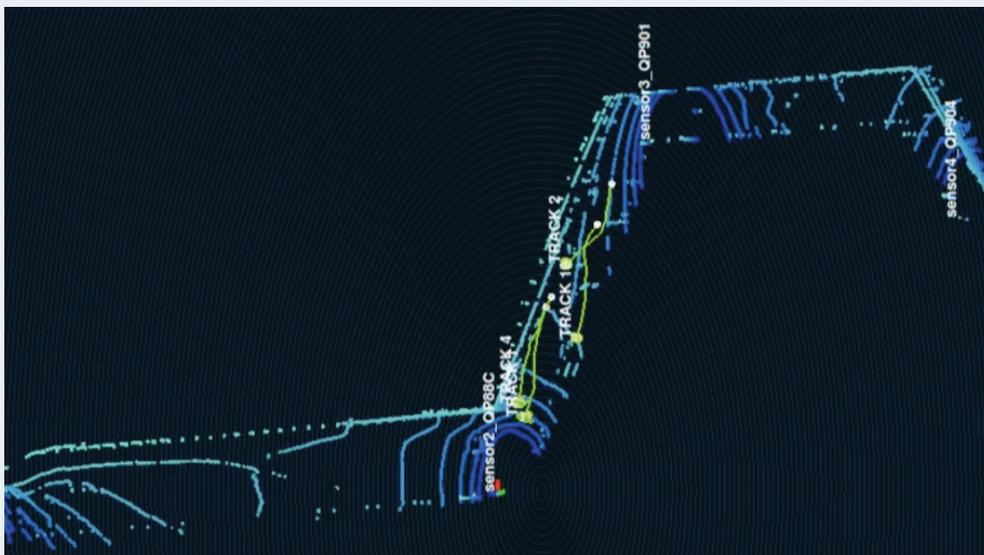
The customer is using Quanergy's QORTEX™ solution to protect the site from any kind of intrusion along the perimeter fence of the site. The location of the installation is covering a 3.2 kilometer fence. Alarms are integrated with the customer's PSIM (Physical Security Information Management) software by using the information from QORTEX.

ORGANIZATION:

Oil and Gas Plant

APPLICATION:

Perimeter Intrusion Detection



QORTEX point cloud and object tracking.



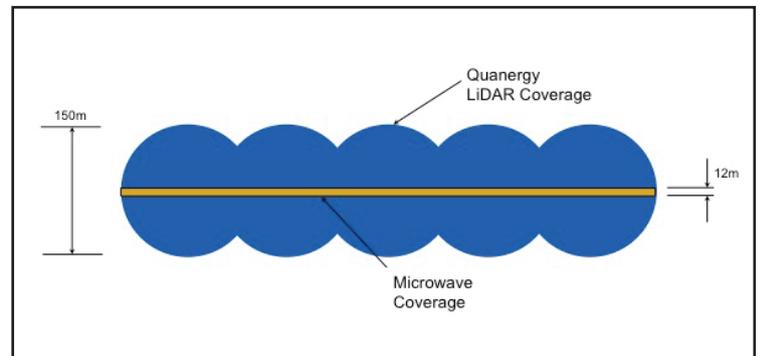
QORTEX, a LiDAR-based solution, provides real-time sensor data analysis and target geolocation for a rapid response, using the centimeter-accurate location (X, Y, Z) and velocity outputs of the LiDAR. The system reports the exact location of intrusion along the fence perimeter and tracks the intruder. This critical capability enables the automation of the system, wherein a PTZ (Pan Tilt Zoom) camera is controlled by the LiDAR and cued to point to the exact location of the intrusion the moment it occurs and to follow the intruder. In addition, the system is integrated with a mapping function in the PSIM to help security personnel quickly identify the location of the intrusion within the high-level map of the facility.

RESULTS

The microwave link system was replaced by the Quanergy QORTEX solution that delivered exact performance parameters and demonstrated several additional competitive advantages. The system performance was unaffected by lighting conditions (day/night) and by most weather conditions. The solution was also independent of environmental conditions and was amenable to being deployed in different geographies. In addition, object classification was offered in order to enable the system to lower the false alarm rate. Security monitoring was fully automated by controlling PTZ cameras, tracking objects, and enabling map visualization. Furthermore, operation and maintenance were eased by detection and exclusion zone customization, with remote control of the system via the customer's network. The system was able to track intruders beyond the customers required 10-meter-wide buffer along the fence.



M8 sensor with adjustable mount and weather shield (optional accessory).



Microwave vs LiDAR coverage diagram.

