Security Radar Integrators

Securing the Perimeter - How Can Technology Help?

A Look at Radar

AIRPORTS@WORK
April 22, 2016

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SRI Background

- 15 Years Developing Radar / Video Solutions
- 22 Deployments at Airports, Seaports, and Industrial Plants Using a Wide Range of Radars
- Founded SRI 4 Years Ago to Focus on Bringing Radar Technology Specifically to Airports
- Teamed With Harris Corporation for Airfield Ops Applications

Contents

- PIDS Sensors
- Thermal Analytics
- Radar & PTZ Cameras
- Gap Fillers
- Considerations When Selecting a Radar

PIDS Sensors

Technologies

- COAX Fence Sensors
- Fiber Fence Sensors
- Passive IR
- Active IR
- Buried Cable
- Microwave

Benefits

- Detects Disturbances at the Fence
- Can Add Cameras for Assessment
- Widely Used in Many Industries

Limitations

- Only Alerts at Fence
- False Positives
- Can be Expensive

Thermal Analytics

Overview

- Fixed Thermal Cameras for Detection and Some Assessment
- Software Detects Movement and Alerts
- Can Add PTZ Cameras for Better Assessment

Benefits

- Detects People or Vehicles at the Fence
- Images are recorded

Limitations

- Only Alerts at Fence
- A Pole for Every Camera
- Balancing Between Detection and False Positives

Radar & PTZ Cameras

Overview

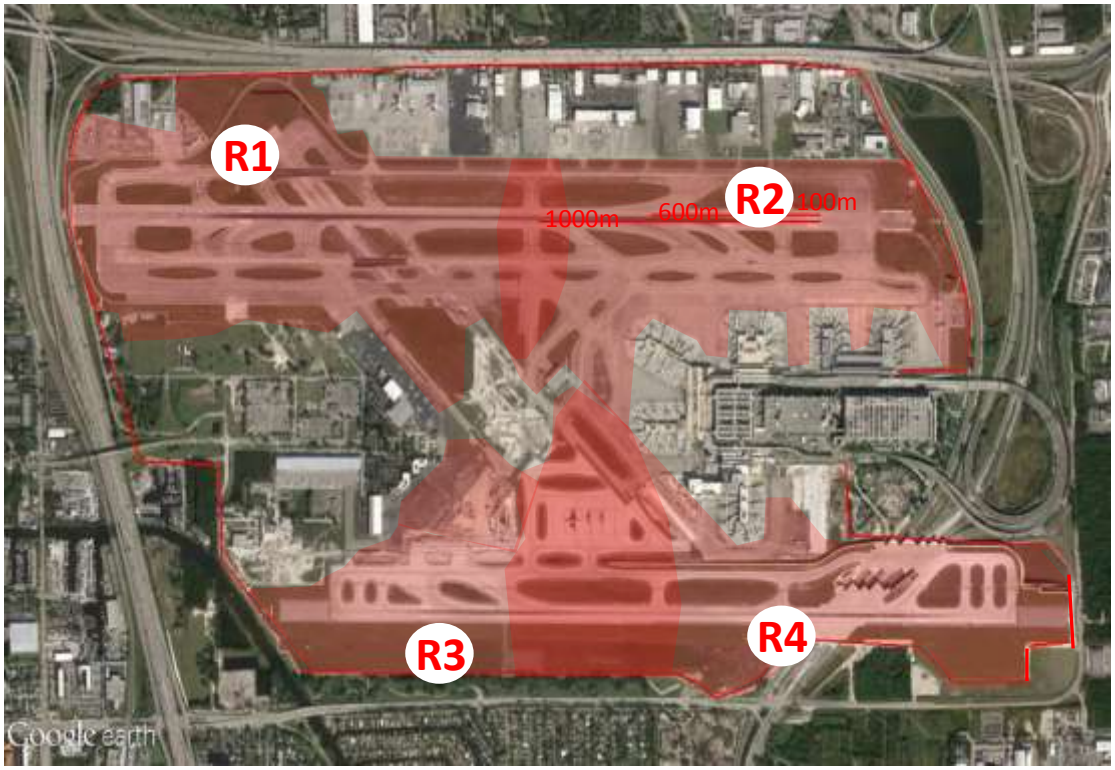
- Radar for Detection and Tracking
- Software for Assessment & Alarm
- PTZ Cameras Follow Threats

Benefits

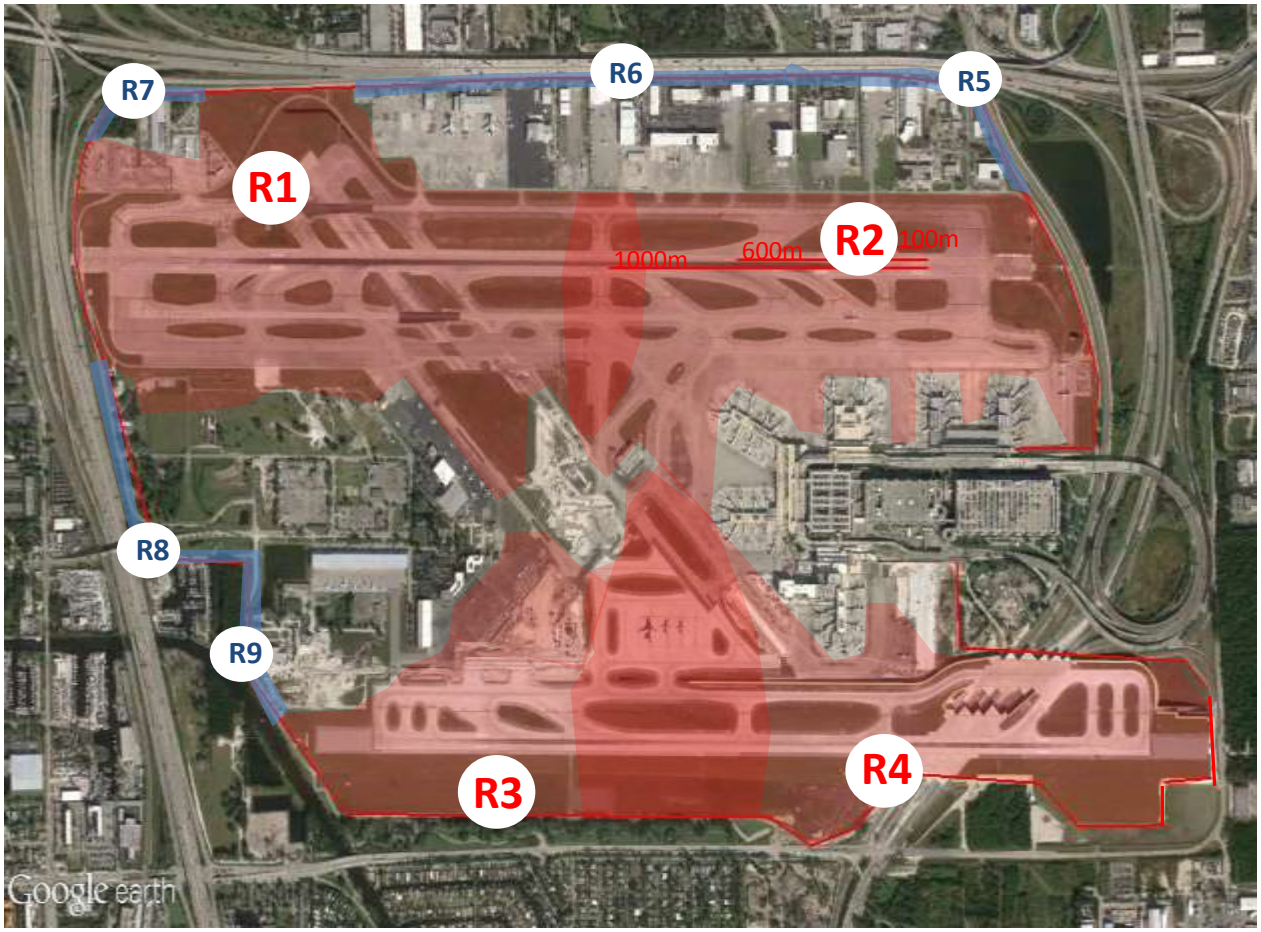
- Detects Intruders at the Fence and Follows Them Once Inside – All Recorded
- Classification and Rules Filter Out False Alarms
- Automates the Surveillance Function
- Integrates With PSIM, VMS, and ACS

Limitations

- Radar is Limited to Line of Sight



Gap Fillers



Options

- Short Range Radars
- Thermal Analytics
- PIDS Sensors

Benefits

- 100% Perimeter Coverage
- Ties Into Main Radar System

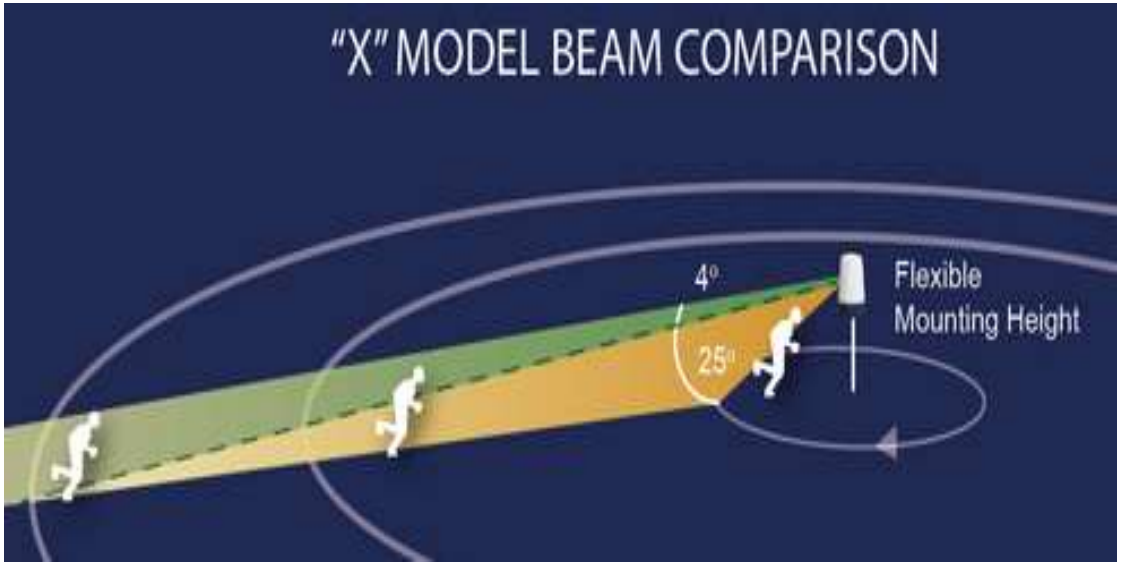
Limitations

- Limited Classification and Rules if Not Using Radar for Gap Filler

Considerations When Selecting a Radar

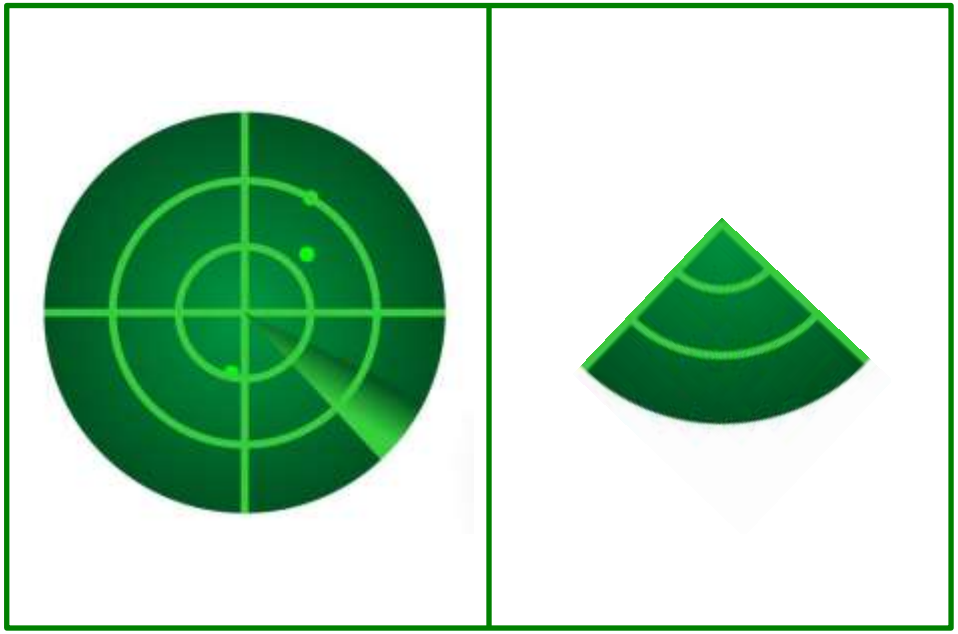
- Wide Beam vs. Narrow Beam
- Rotating vs. Fixed
- High Frequency vs. Low Frequency
- FMCW vs. Doppler
- The Software

Wide Beam vs. Narrow Beam



- Wide Beam is Like a Streetlight, Narrow Beam Like a Flashlight
- Wide Beam has a Smaller Blind Spot
- Wide Beam Looks Down Into Elevation Dips
- Wide Beam Can Mount on Buildings and Look Down to Ops Area or Perimeter

Rotating vs. Fixed



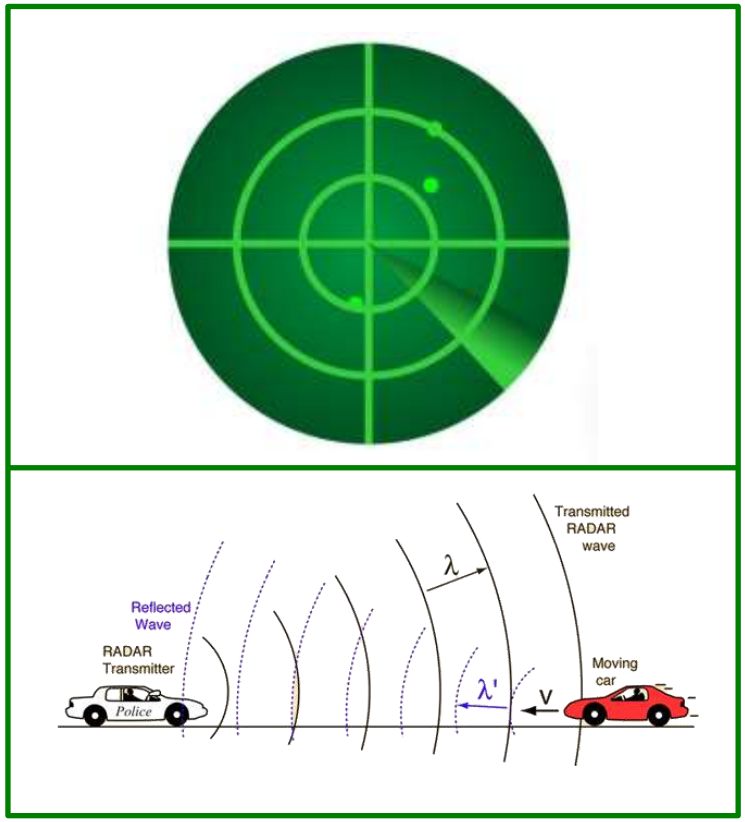
- Rotating Offers More Coverage Per Radar
- Rotating Requires Fewer Radars and Less Infrastructure
- Contactless Slip Rings Extend Service Interval to 5 Years

High Frequency vs Low Frequency

GHz	Band	Range Res.
77	W	25 cm
32	Ka	30 cm
16	Ku	5 m
9	X	4 m
3	S	10 m

- High Frequency has High Resolution and 1+ Mile Range
- Low Frequency has Much Longer Range but Low Resolution
- High Resolution is Needed for a Security System to Detect and Track People Near Stationary Objects

FMCW vs. Doppler



- FMCW Calculates the Position, Direction, and Velocity of Moving and Fixed Objects from the Radar Image – All Objects Are Tracked
- Doppler Gets the Velocity From the Radar Itself - Only Detects Objects Moving Toward or Away From the Radar

The Software

- It's the Glue Between Your People and Your Technology
- It Needs to Easy to Learn and Use
- It Needs to Make Their Job Easier
- It Needs to be Reliable
- It Needs to Integrate With Your Other Systems
- It Needs to Not Bother You With Nuisance Alarms
  - Flexible Tracking Parameters for Different Areas
  - Classification Between People/Wildlife and Vehicles/Aircraft
  - User Defined Rules to Distinguish Between Normal Operations and a Potential Threat

Thank You

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