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The Solutions Network

Physical Security

PERIMETER SECURITY TECHNOLOGIES

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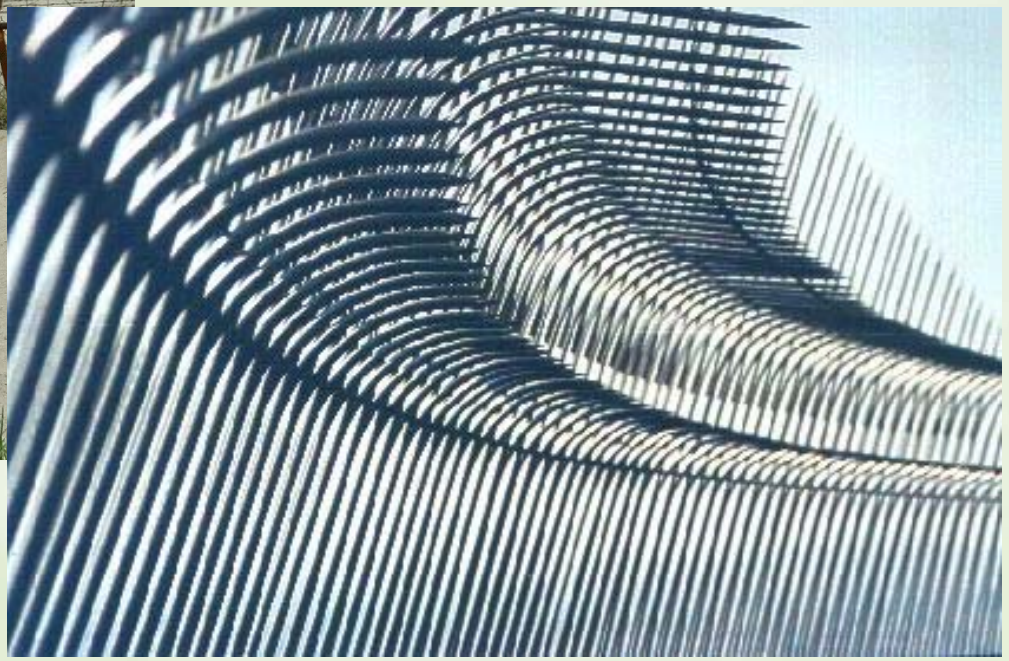
Why Secure the Perimeter?

Your Perimeter is Your FIRST line of Defense

- Detect intruders before they gain access
- The perimeter usually has easy access for response
- Using a combination of physical barrier and electronic sensors provide 3 primary functions –
  - DETER
  - DELAY
  - DETECT

Perimeter protection

Perimeters vary from the dysfunctional to extreme



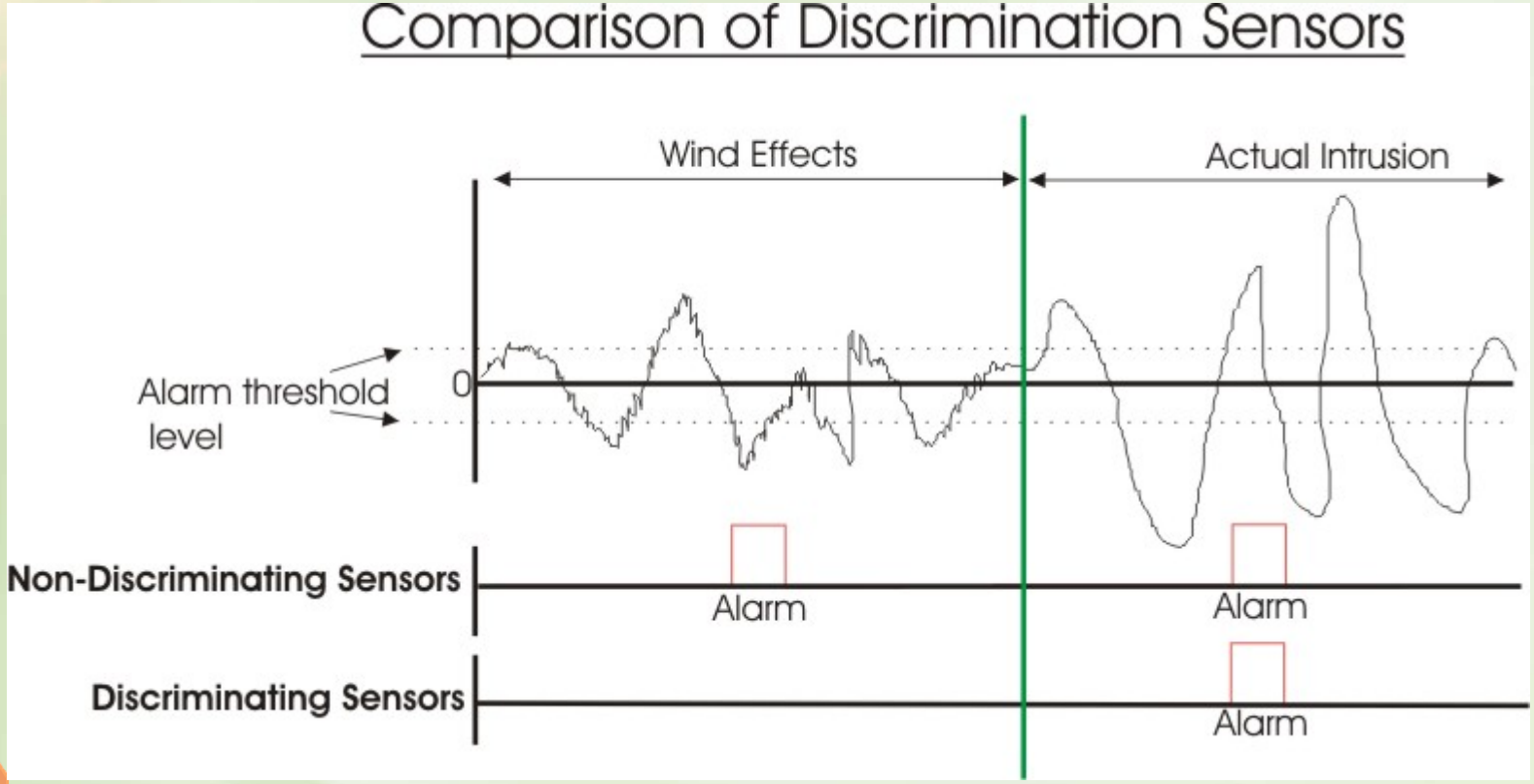
Outdoor Sensor Challenges

Outdoor sensors face challenges not associated with indoor sensors

- Wind and Rain
- Temperature fluctuations
- Vegetation
- Blowing debris
- Animals
- Traffic
- Terrain

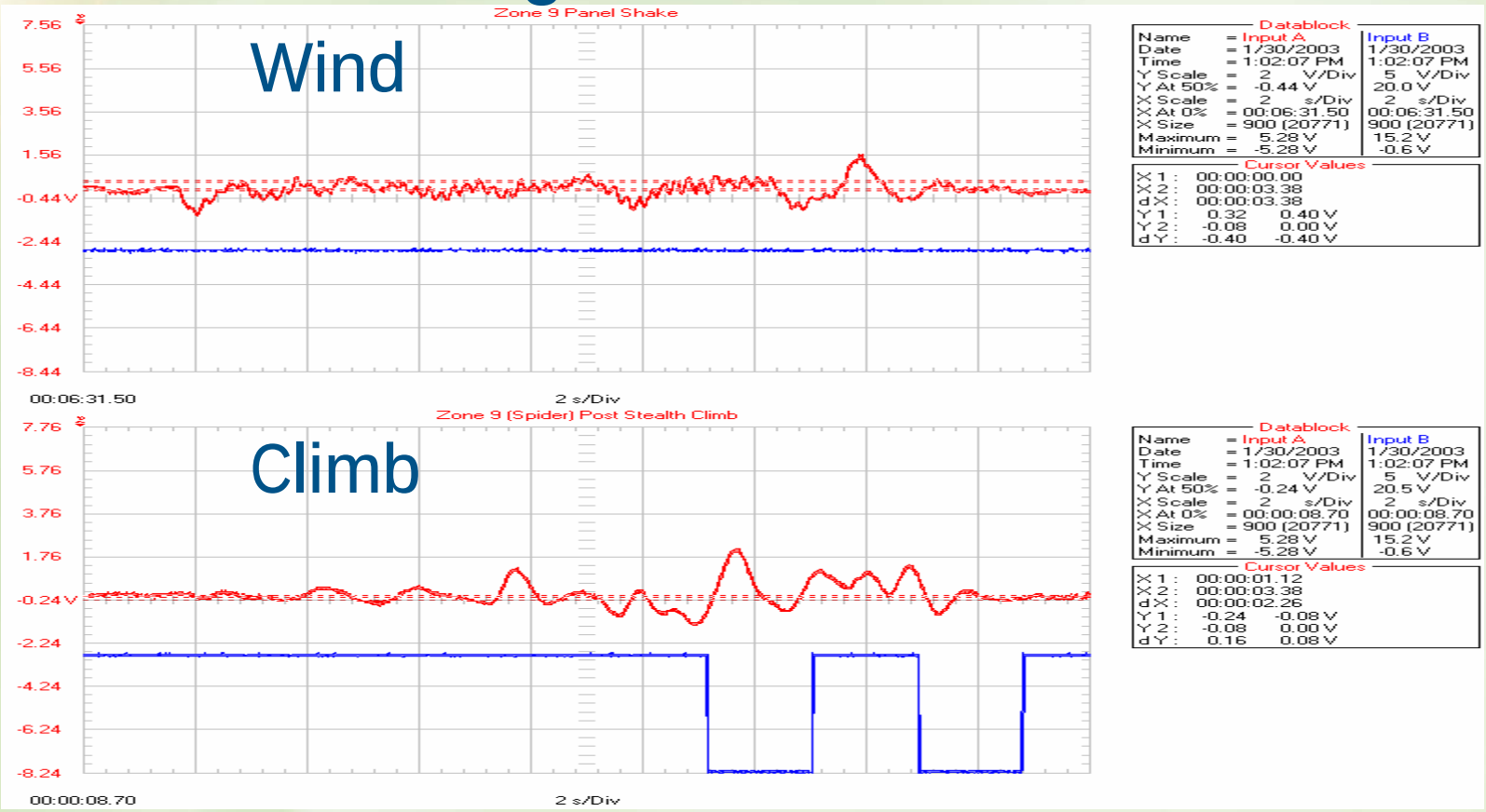
Understanding Detection

Weather ***will*** induce signals into a sensor...there must be some way of discrimination



Understanding Detection

Real Discriminating Sensors



Choosing a technology

" You get what you pay for "

- Assess the security threat
- Understand the technology
- There will be an "operational" cost
- Combine technologies, physical barriers and video verification.

Types of Perimeter Sensors

- Fence Mounted Sensors
  - Vibration
  - Acoustic (micro-phonic)
  - Fiber optic
  - Capacitive (strain gauge)
- Volumetric Sensors
- Video Motion Sensors
- Barrier Sensors

Fence Mounted Sensors

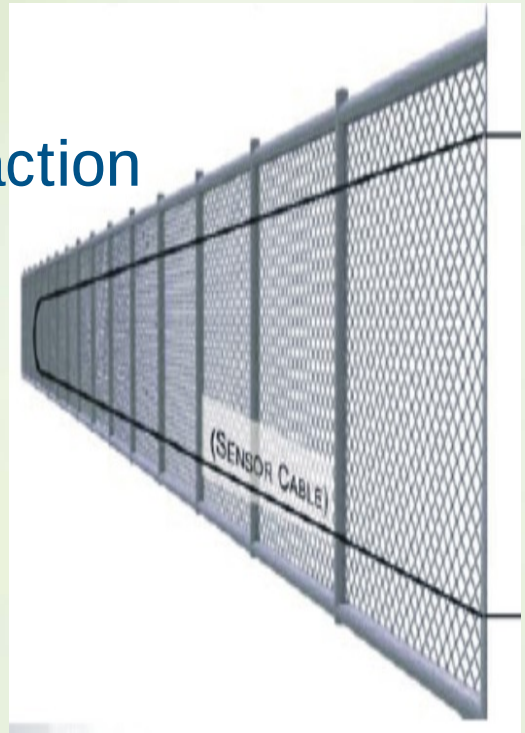
Vibration Sensors

- Oldest technique (spring & Washer)
- Washer makes contact on vibration
- No discrimination
- False alarms

Fence Mounted sensors

Acoustic Sensors (micro-phonic)

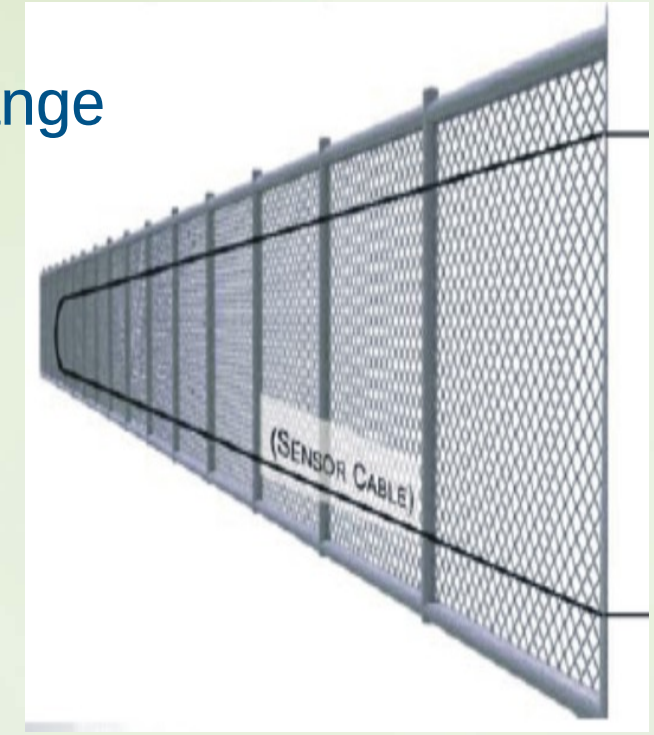
- Coaxial cable used as microphone
- “listens” to fence noises
- Problems with expansion and contraction
- No discrimination
- False alarms
- Weather station not viable solution



Fence Mounted sensors

Fiber-Optic Sensors

- Good medium security sensors
- Light patterns analyzed for change
- Easier to discriminate
- Limited zone lengths
- Specialized cable repair
- Limited durability



Fence Mounted Sensors

Capacitive (Strain Gauge) Sensors

Fence mounted Sensors

Capacitive (Strain Gauge) Sensors

- Excellent high security sensor
- Allows full discrimination
- Fence becomes effective strain gauge
- Only reacts to physical fence distortion
- Frequency parameter minimizes weather effects
- Higher initial cost – lower operational cost
- Low maintenance and easy repair

Volumetric Sensors

Invisible Field Sensors – detecting the "presence" of a body in the field

- Microwave
- Radar
- Seismic
- P.I.R.
- Active Field Sensors
- M.A.D Technology

Volumetric Sensors

- **Microwave**
  - Active field with transmitter and receiver.
  - Some problems in fog and rain
  - Good for vehicle entrances

Volumetric Sensors

Radar

- Good long range detection
- Good for rapid deployment
- Problems with terrain variations
- Costly

Volumetric Sensors

Seismic Sensors

- Ground vibration sensors
- No discrimination
- False alarms
- Suitable for rapid deployment

Volumetric Sensors

P.I.R (Passive Infra-Red)

- Heat sensing detector
- Looks for differences in heat sources
- Problems in hot-weather and fog
- Better suite for indoor applications

Volumetric Sensors

Active Field Sensors

- Creates an RF field either from underground cable or fence wires
- Looks for interference from body
- No animal discrimination
- Problems with ground water and soil conductivity

Volumetric Sensors

M.A.D. Technology

(Magnetic Anomaly Detection)

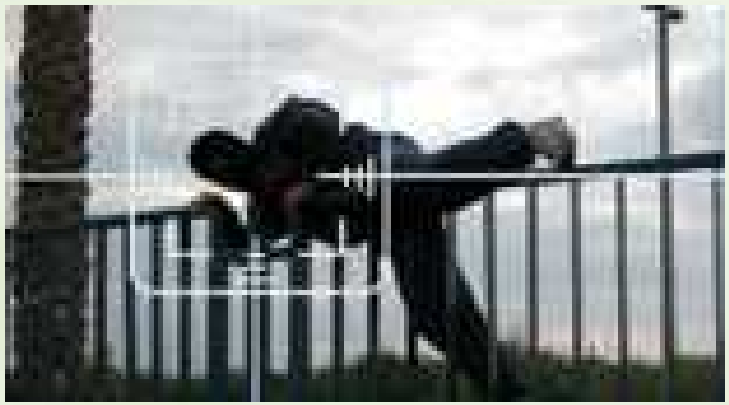
Volumetric Sensors

M.A.D. Technology

- Does not create any active field, Uses the Earths magnetic field as medium.
- Moving metal passing through field induces signals.
- No animals detected.
- Ideal for remote areas with no fences

Video Motion Sensors

- Detect pixel changes on camera pictures
- Most cameras have basic VMD built-in
- Problems with lighting variations and weather effects
- Newer technologies like “Totaltrack” re-inventing the wheel. More effective



Barrier Sensors

Fence is both the sensor and the barrier

Taut-wire Fence

- Highest security
- Each wire is monitored for strain change
- Very costly
- Extremely effective
- Can be combined with high-voltage

Barrier Sensors

Taut-wire Fence

Adding Value to the System

Video verification is valuable.

- Evaluate alarms before responding.
- Less disruption from false alarms
- Valuable legal evidence

Perimeter lighting for most vulnerable time.

- Lighting is a deterrent too
- Aids in video surveillance

Closing the Perimeter

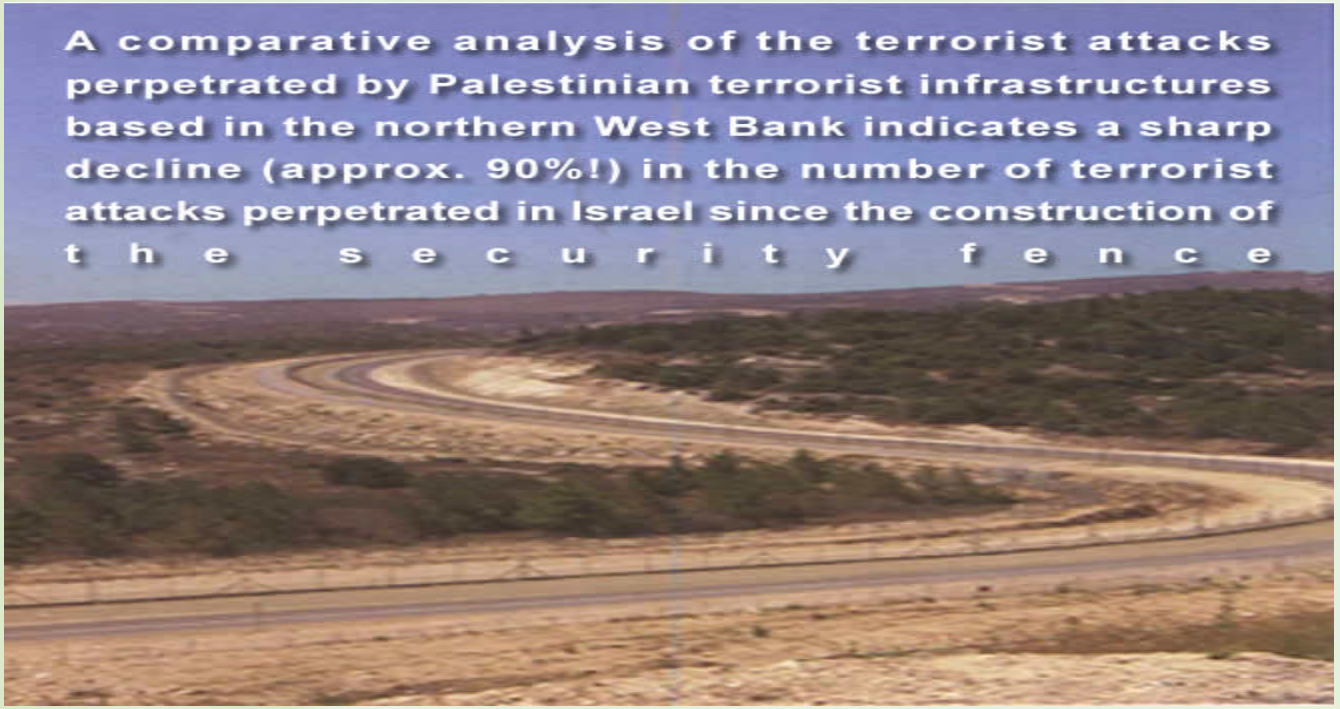
Perimeter must be complete.

- Use access control, vehicle gates and bollards for enclosure.

Adding Value to the System

Add deterrents and delays.

- Add barbed wire & outriggers.
- A difficult barrier will DETER intrusion attempts

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