PER Article 30

Energy-Efficient Intrusion Detection with a Barrier of Probabilistic Sensors: Global and Local

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Sensors, attributes and properties

General definition

→ Battery unit

→ Communication unit

→ Detection unit

Sensors, attributes and properties

Variety of sensors

→ Mobility : mobile / static

→ Direction : (uni / multi)directional

→ Detection : thermic, seismic, acoustics

Sensors, attributes and properties

Barrier Definition

→ Barrier = Deployment of sensors in narrow belt region

→ Guarantee detection of intruders

→ A set of sensors can give multiple barriers

Classification

Deterministic method

→ Intrusion in any parts of detection area = intrusion detected

→ Convenient for utilisation / implementation

→ Unrealistic

Classification

Probalistic method

→ Probability of detection proportional to proximity of sensors

→ Realistic

→ Bring more issues

Main article

Presentation

→ Detection probability of intrusion =
probabilistic sensing model
→ ε-barrier

→ Maximum speed of intruders

→ Sensors energy-efficiency

Main article

Benefits / drawbacks

+ Better energy-efficiency

+ Usage of probalistic algorithm

- Static maximum speed of intruders

- Absence of other notions such as barrier quality