

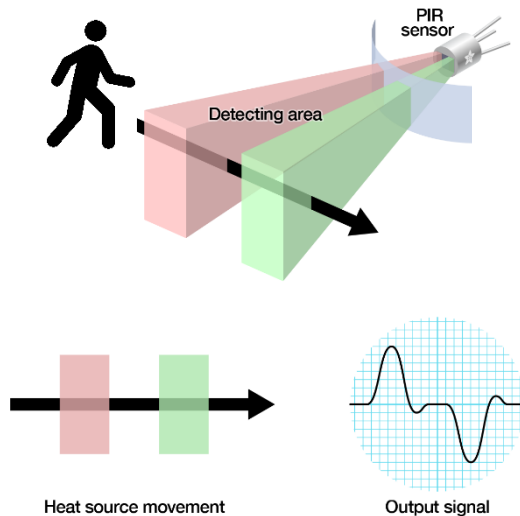
STEINEL®
PROFESSIONAL

Sensor Technology

PRESENTED BY POURIA NIKNAM

PIR (Passive Infrared) Technology

Heat Signature in Detection Zones



Technology Overview

- Two elements on a passive Pyroelectric sensor detect a heat signature focused through a lens, like a magnifying glass, and generates an output signal
- The heat signature is validated between the two elements as equally different from ambient temperature by comparing the output signals
- The same heat signature moving from one element to the other implies motion and therefore occupancy

Characteristics

- Direct line of sight detection only
- Potential to crop and limit coverage pattern and isolate detection zone
- Requires presence of heat signature in motion



Applications

- High Bay applications where motion detection should be isolated to specific areas
- K-12 classrooms with hanging decorations and artwork
- Small offices with limited or no obstructions
- Storage facilities with tin walls that bow and flex with changes in air temperature
- Data Centers where airflow causes air pressure changes
- Common spaces with higher ceilings

Ultrasonic Sensor Technology

Soundwaves All Around You



Technology Overview

- One transducer emits an ultrasonic signal at 15, 32 or 40 kHz, above the range of human hearing
- Changes to air pressure caused by motion of objects in the space change the signal frequency, the Doppler Effect
- A second transducer receives the signal and detects the changes from the emitted frequency



Characteristics

- Ultrasonic waves fill the entire volume of the room
- Does not require line of site to the object in motion
- Sensitive to motion of any objects including doors and door knobs, but also decorations and airflow
- Detects minor motion

Applications

- Bathrooms with stalls
- Offices with partitions, filing cabinets or other obstructions
- Enclosed corridors where the sound waves don't leak into adjacent rooms
- Gym locker rooms to detect motion around corners
- Stairwells trigger the lights on when the door opens, before a person enters the space

Dual Technology

The Best of Both Worlds



Technology Overview

- One single device contains both Infrared and Ultrasonic sensors
- Typically both sensors should be triggered to establish occupancy
- Detection by either sensor should be sufficient to maintain occupancy

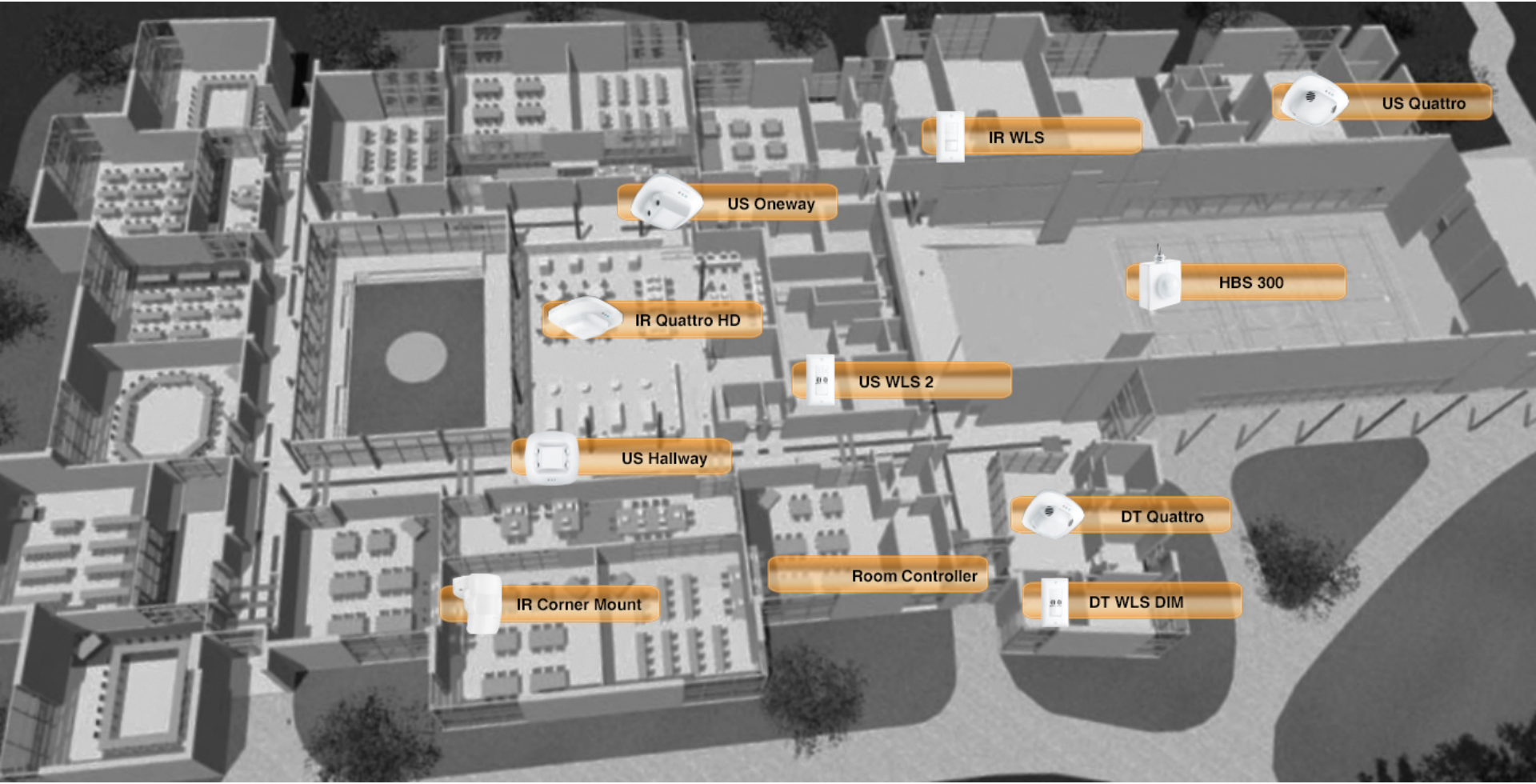
Characteristics

- Least likely to have false on due to PIR heat signature detection
- Least likely to have false off due to Ultrasonic motion sensitivity

Applications

- Private offices
- Conference rooms where people enter and remain generally still
- Higher education classrooms
- Teacher's lounges and common spaces with low ceilings and minimal movement

A Sensor For Every Application



A New Sensor For New Requirements

Counts the number of people in the space



- Optical sensor detects and counts people in up to 5 separate zones.
- Compares an image with 7 million stored images in real time.
- Additional features: Light level, temperature and humidity.

A New Sensor For New Requirements

Counts the number of people in the space



One device that tells you...

- What is there?
- How many?
- Where are they?
- When?

HPD2



HPD2

Counts the number of people in the space



One device that can



Control HVAC and Lighting

Schedule Elevators



Layout Optimization



Increase Productivity



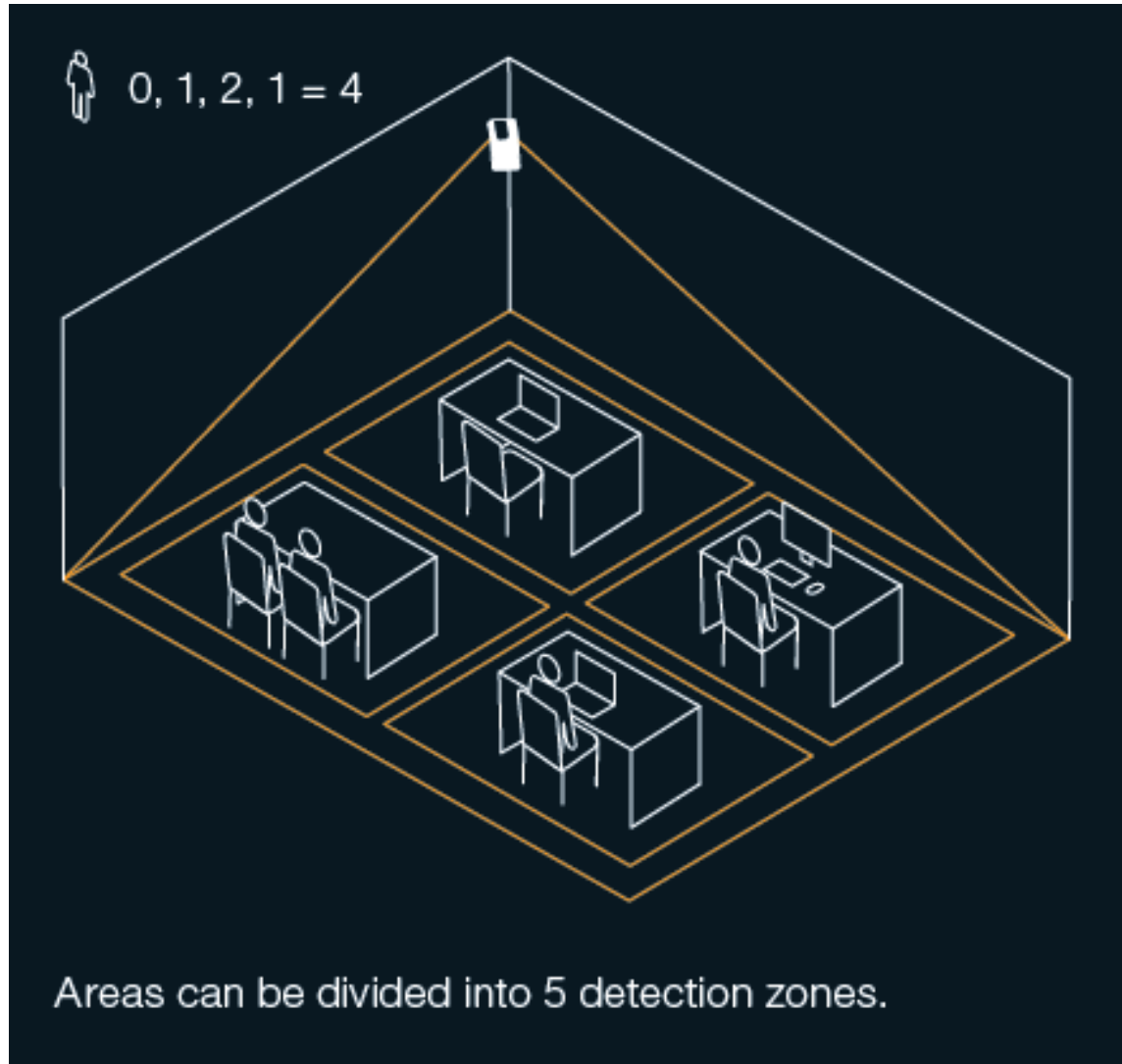
HPD2

Conference Rooms



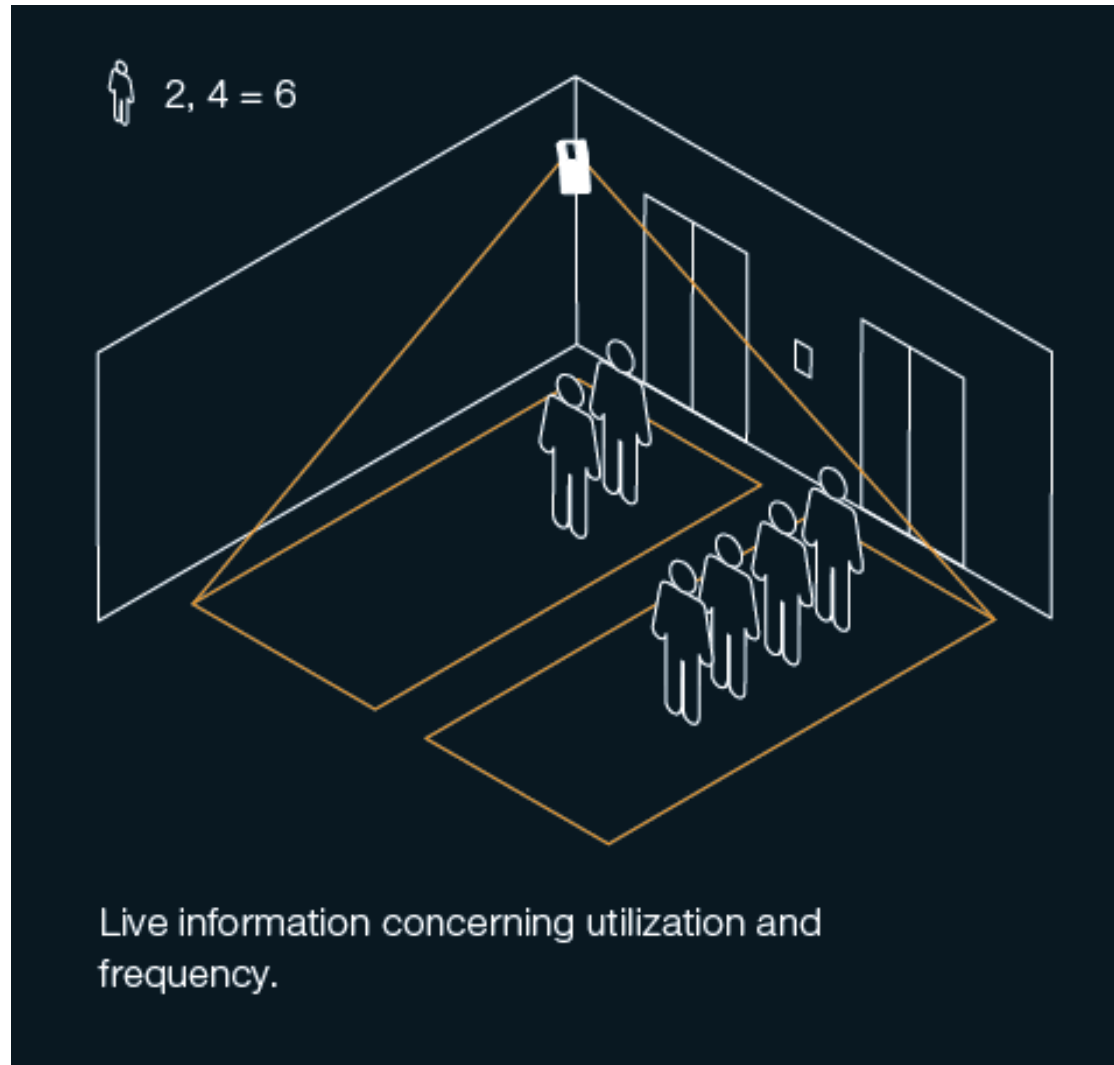
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Class Rooms



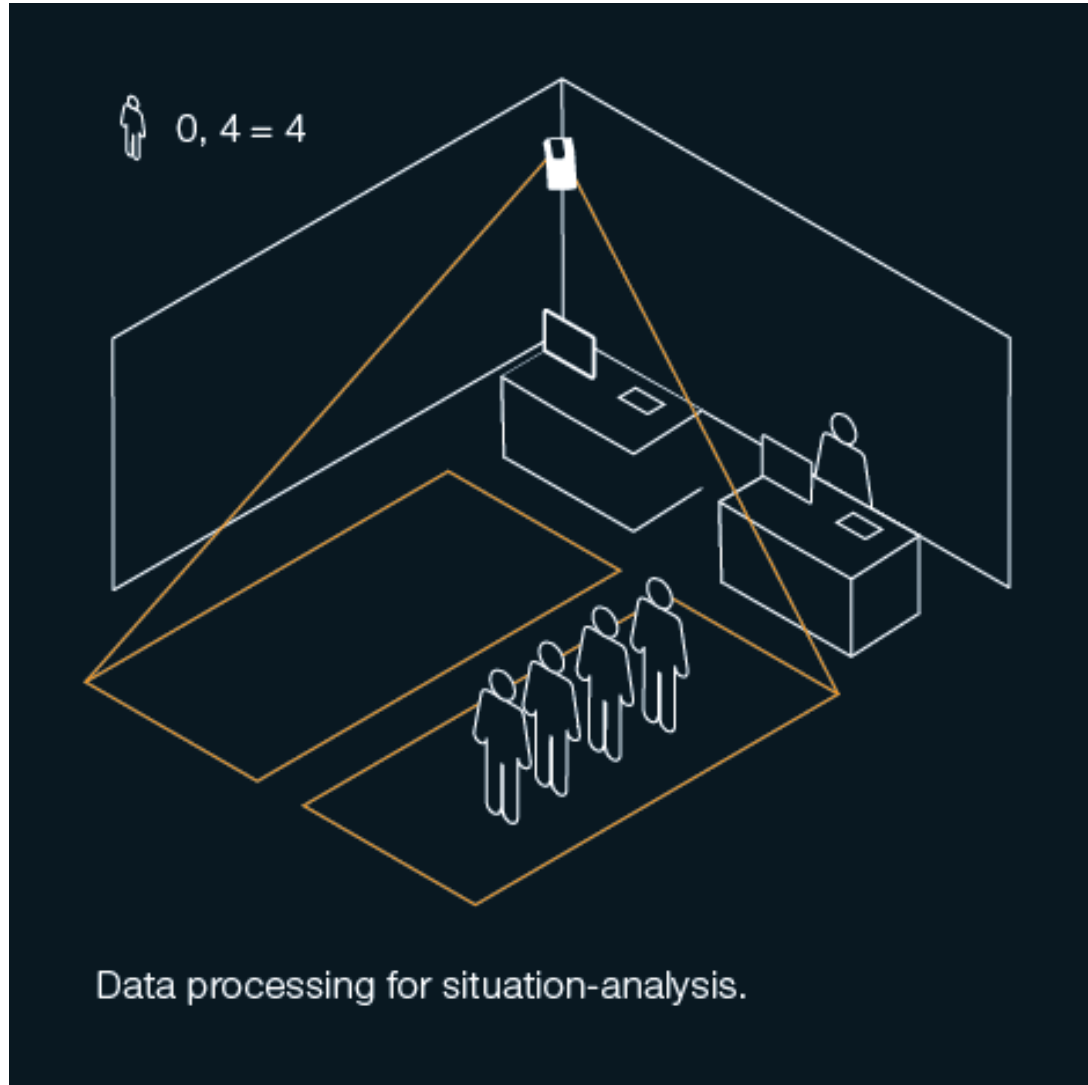
HPD2

Elevator Area



HPD2

Cashier Lines



Thank You

Pouria Niknam

Sales Operations Manager

952-820-5128

pouria.niknam@steinel.net

Tech support

888-298-8298

tech@steinel.net