

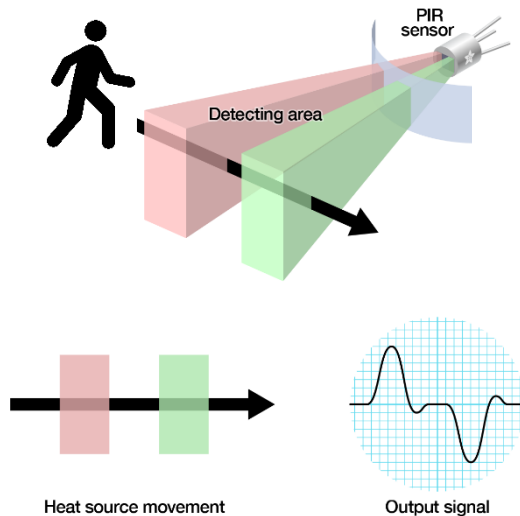
STEINEL®
PROFESSIONAL

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

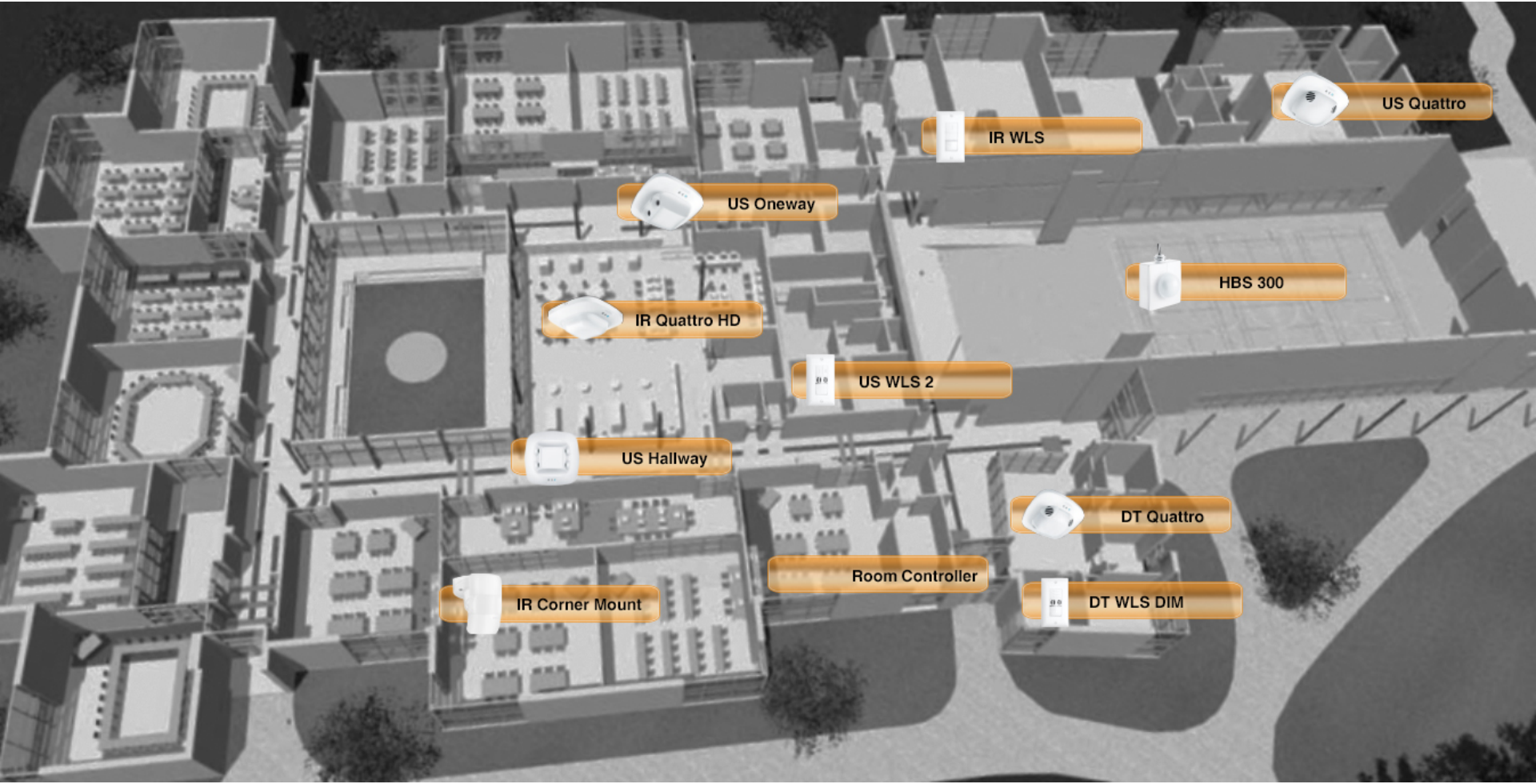
Characteristics

- 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

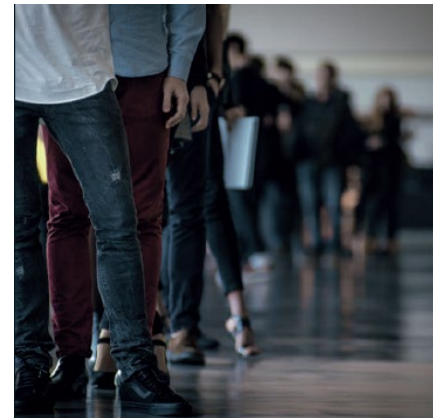
Schedule Elevators



Layout Optimization



Increase Productivity



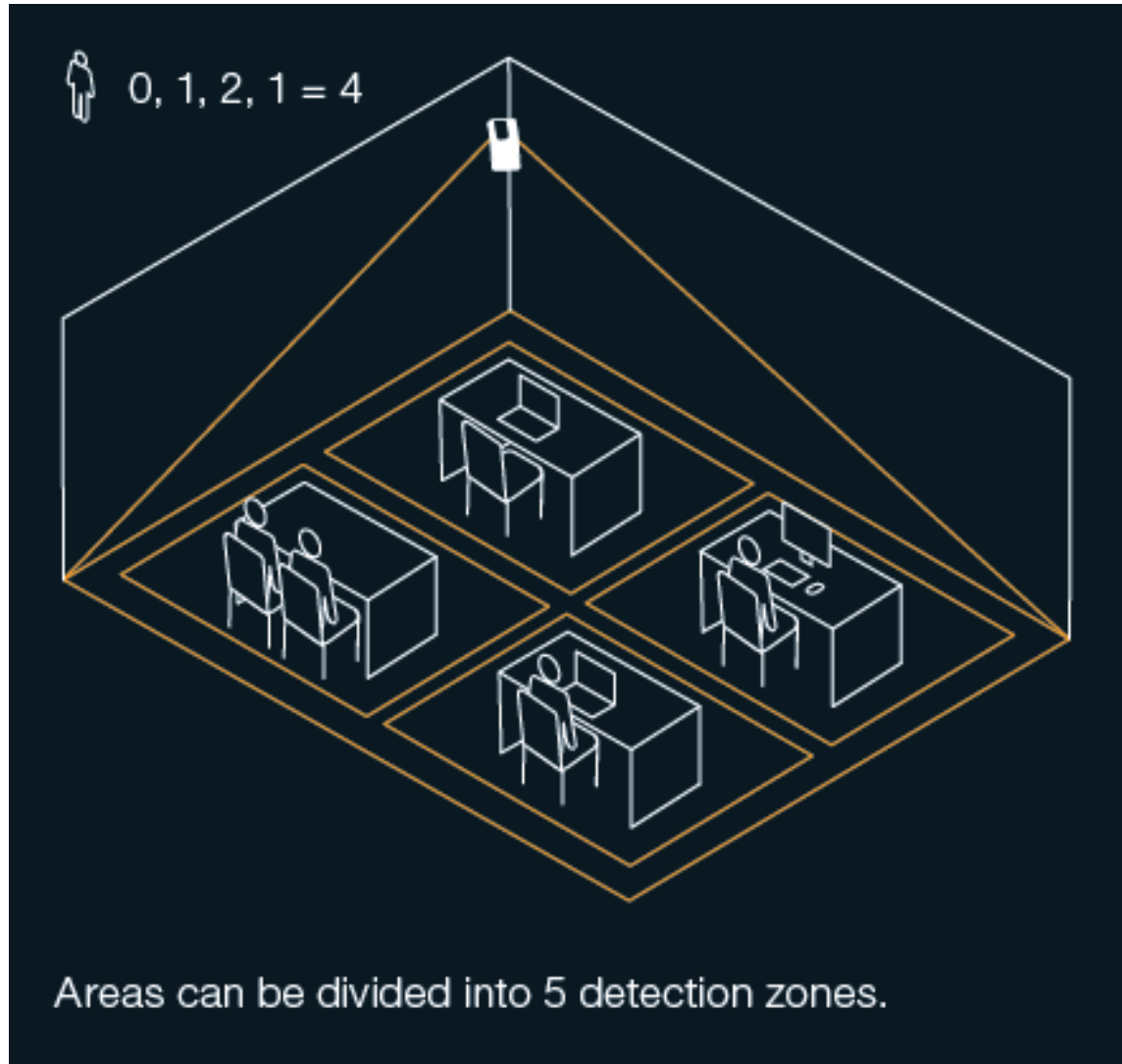
HPD2

Conference Rooms



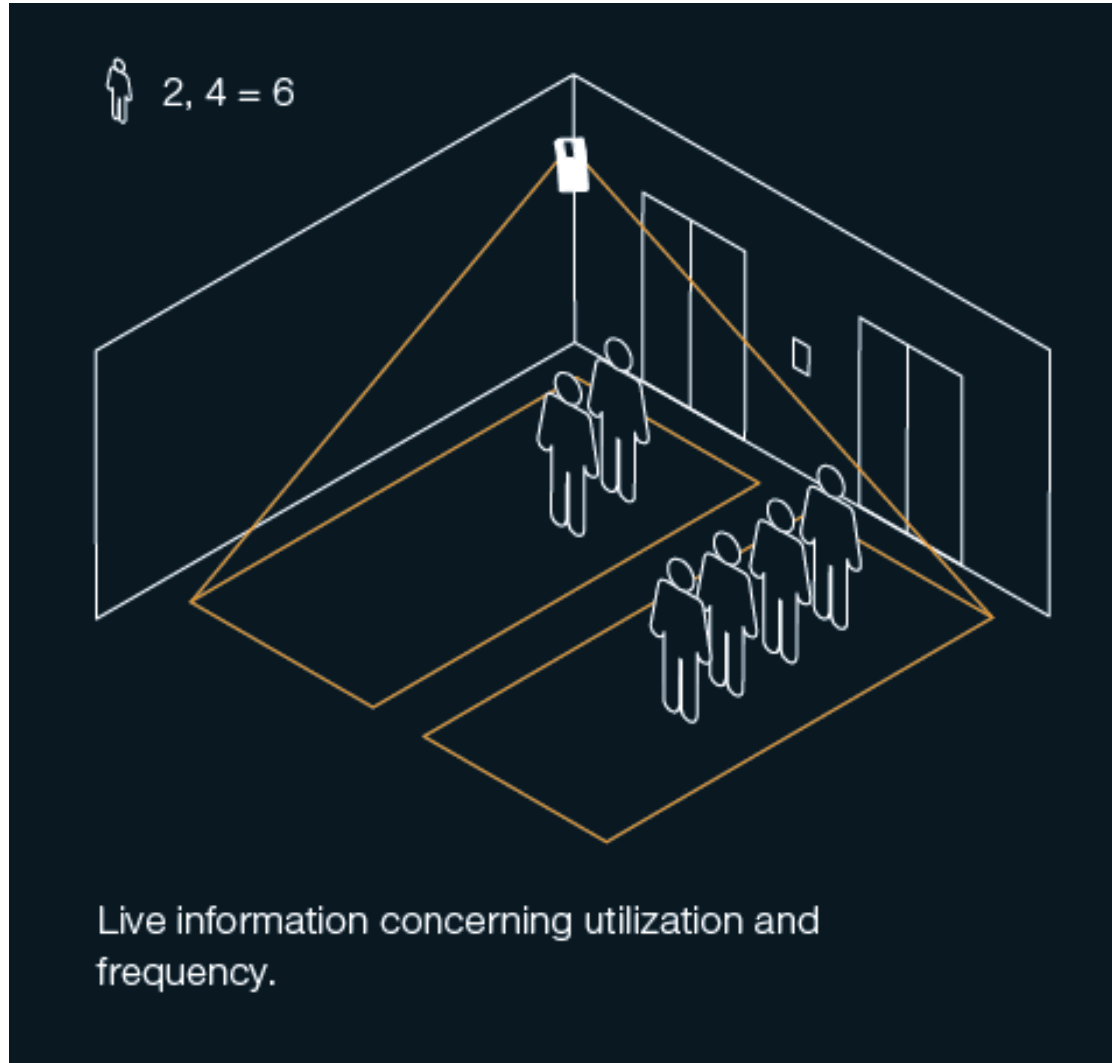
HPD2

Class Rooms



HPD2

Elevator Area



HPD2

Cashier Lines



Thank You

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