

Indoor Assisted Care Sensor



Why Choose Assisted Care Sensor? --- Market Insight



Falls: The "Number One Killer" of Elderly Health

28%-35% of seniors fall annually; it's the leading cause of accidental death with high fatality



Vulnerable Empty-Nester & Lone Elderly

In 2024, the global population aged 60+ is estimated to be around 1.1 billion, with 20%-25% of them living alone



"Golden Hour" Rescue is Critical

No treatment within 1 hour drastically raises disability & mortality rates

Why Choose Assisted Care Sensor? --- Pain Point



Conflict Between Privacy Protection & Safety Monitoring

Traditional monitoring modes have inherent contradictions. Video surveillance and manual patrols easily invade personal privacy, while closing monitoring will leave the elderly in safety risks



Delayed Risk Detection & Missed Golden Rescue Time

In home care or nursing home scenarios, emergencies involving the elderly are often detected too late, resulting in missed optimal rescue windows.



High Labor Costs & Low Care Efficiency

Insufficient staff cannot sustain 24-hour manual monitoring, coupled with high labor expenses worldwide.



Wearable Devices are Easily Forgotten

Wearable devices are easily forgotten by the elderly, and some seniors dislike wearing such products.

Why Choose Assisted Care Sensor? --- Key Value



Non-Contact & Non-Invasive

Operates through clothing and bedding, providing continuous monitoring without disturbing the user



High Precision & Accuracy

Capable of detecting sub-millimeter movements and measuring vital signs with clinical-grade accuracy



Privacy Protection

Does not capture visual images, only motion and vital sign data, addressing significant privacy concerns.



All-Weather & All-Condition Operation

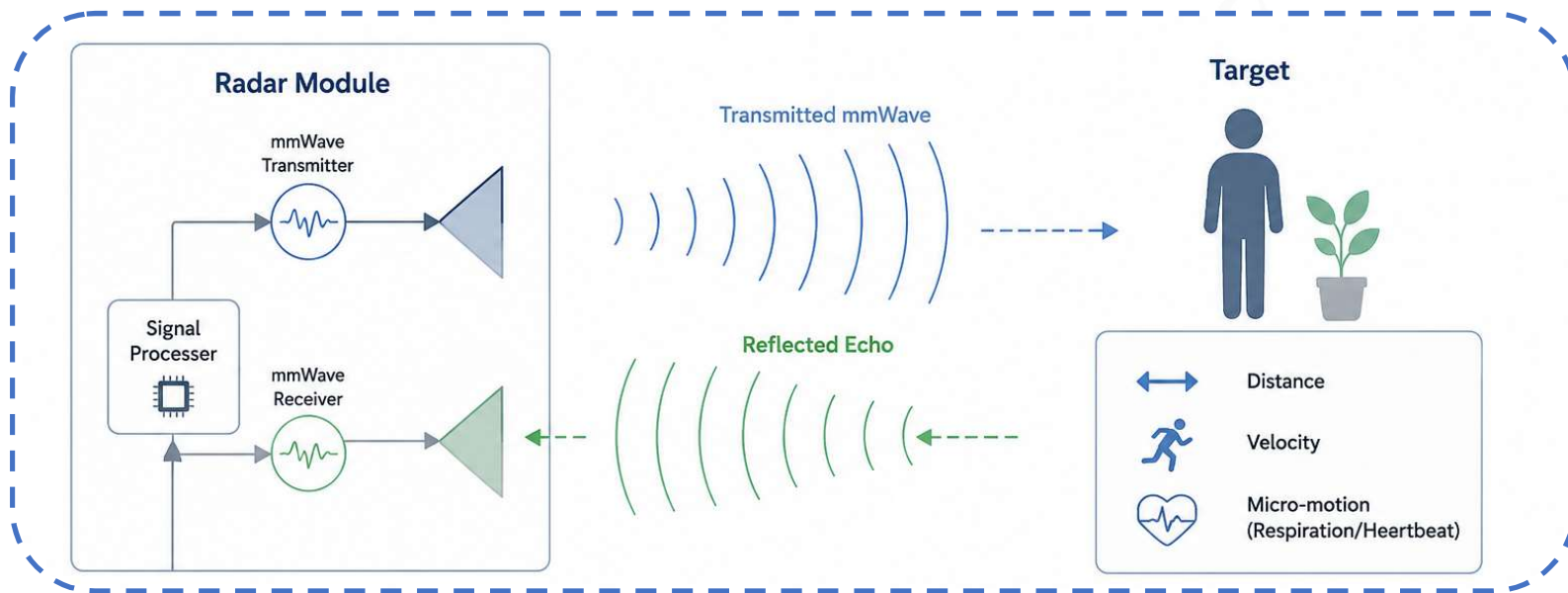
Unaffected by lighting conditions (darkness, glare) or weather.



Low Power Consumption

Enables battery-powered and wireless deployments for flexible installation.

What is Assisted Care Sensor? --- Indoor Radar Technology



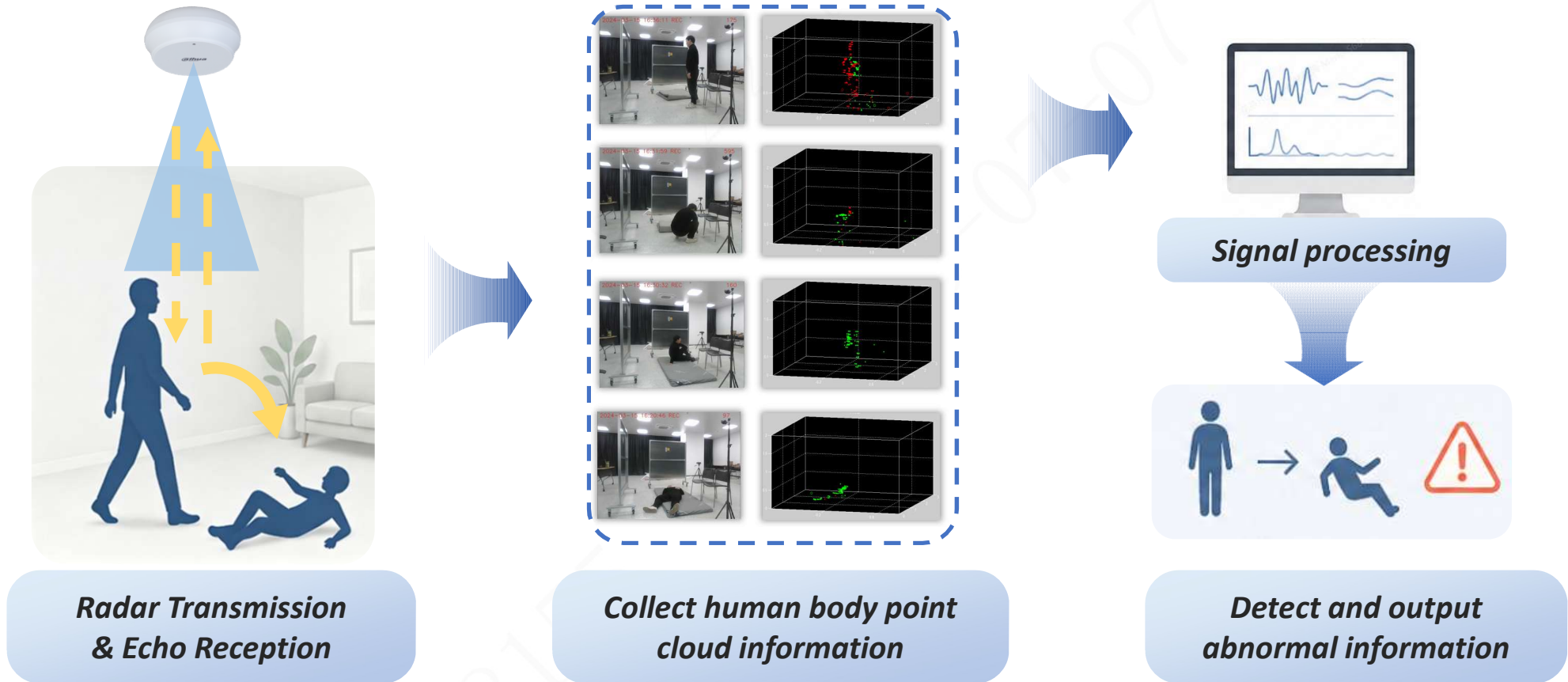
Core Technology

Indoor radar technology, primarily based on FMCW-modulated mmWave, uses radio frequency waves to enable contactless detection, tracking, and analysis of objects and human activities in enclosed spaces

Basic Principle

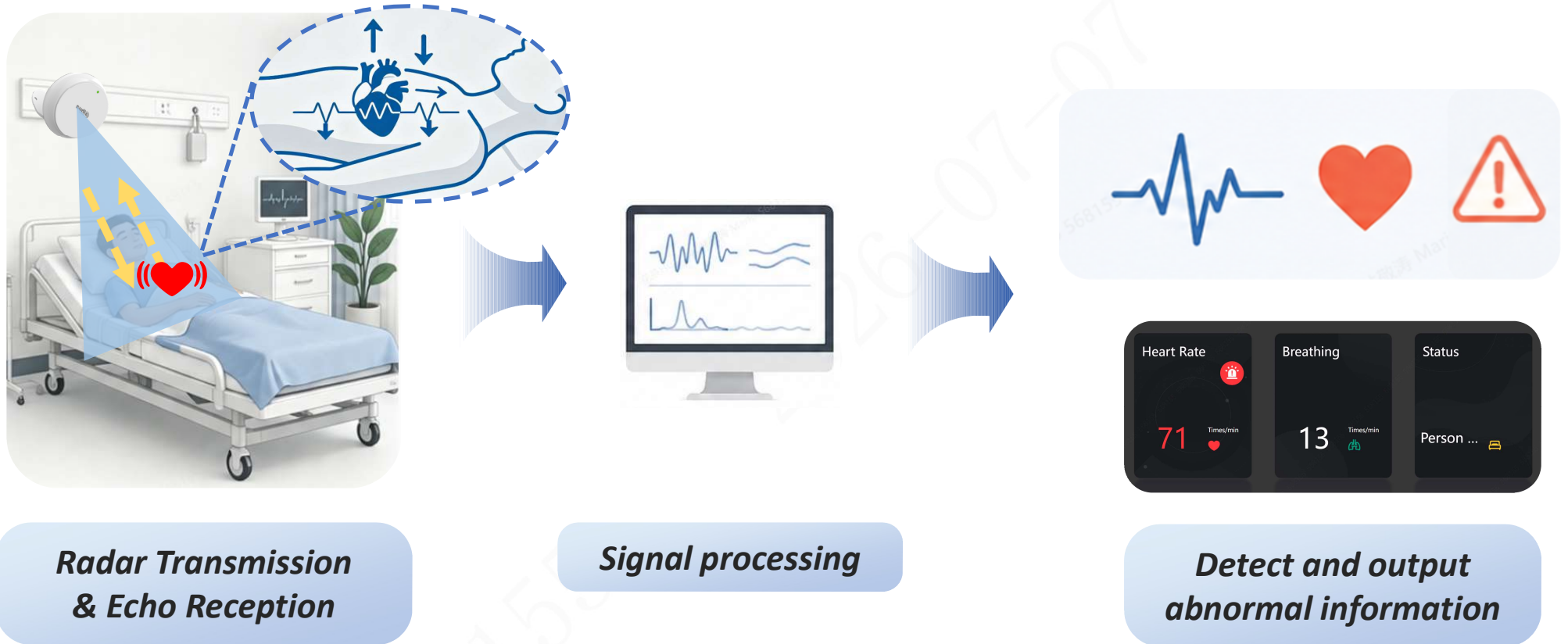
- **Signal Transmission:** The signal processor generates control signals to drive the mmWave transmitter, which emits high-frequency millimeter waves
- **Echo Reception:** The millimeter waves reflect off targets (e.g., humans, objects) and are captured by the mmWave receiver as reflected echoes
- **Signal Comparison:** Both transmitted and reflected signals are sent to the signal processor, where algorithms compare their differences to reconstruct target information

What is Assisted Care Sensor? --- Fall Detection Radar



The fall detection radar perceives human postures and movements via millimeter-wave radar, collects **4D human point cloud data**, filters external interference through adaptive zone recognition and filtering algorithms. It accurately identifies falls and triggers real-time alerts by detecting the height difference generated when a person collapses.

What is Assisted Care Sensor? --- Vital Signs Radar



The Vital signs radar contactlessly captures **subtle chest movements of breathing and heartbeat**, filters environmental interference with smart algorithms to accurately monitor core vital signs in real time, and supports round-the-clock unattended monitoring for easy and safe use

Dahua Assisted Care Sensor--- Fall Detection Radar



Contactless Detection

No wearable devices or physical contact, it can be used normally through clothing and quilts



Privacy Masking

Only sense human movement data, no recording, zero privacy leakage risk



4D Point Cloud Sensing

Collect 4D point cloud data to accurately capture changes in body posture and position



PFR3Q-F10-FC
Fall Detection
(Ceiling Mount)



PFR3Q-F10-FW
Fall Detection
(Wall Mount)



Multiple Interface

Built-in RJ45、RS485、alarm out port and support 2.4G wireless frequency band



Real-time Fall Alarm

Algorithm filters interference, accurately detect falls and provide real-time alerts



24/7 Stable Operation

Unaffected by darkness, enables continuous, adaptable unattended detection

Dahua Assisted Care Sensor--- Fall Detection Sensor Function



Presence Detection



Fall Detection



Overstay Detection

FALL DETECTION

Instant Fall Detection

- Real-time posture and fall monitoring
- Immediate alert on fall detection
- Overstay detection for bathrooms and high-risk zones



Fall Detection Sensor

- ✓ Non-contact
- ✓ EM Safety
- ✓ Fall Detection
- ✓ Loitering Detection

Dahua Assisted Care Sensor--- Fall Detection Radar



Technical Specification

Performance

Working Frequency band	60 GHz–64 GHz
Modulation Method	FMCW modulation method
Working Frequency	Millimeter wave band
Detection Distance	0.5 m–5 m (1.64 ft–16.4 ft)
Detection Angle	Horizontal: 120°, pitch: 60°

Function

People in Room Detection	Yes
Fall Detection	Yes
Default	One-click reset default settings
Indicator Light	Indicator Light

Network & Port

Network Port	External RJ-45 network port; It supports transmitting data at 10/100 Mbps
Wi-Fi	Yes
Wi-Fi Frequency Range	2.4 GHz

Technical Specification

Wi-Fi Transmission Rate	100 Mbps
SDK and API	Yes
RS-485	1 (baud rate range: 1,200 bps–115,200 bps)
Alarm Output	1 channel (the wet node can support up to 12 VDC and 0.3 A)

Power

Power Supply	12 VDC $\pm$ 30%
ePoE	No
Power Consumption	$\leq$ 3.2 W

Protection & Structure

Protection	IP67
Casing Material	PC
Installation	Wall mount, corner mount
Operating Temperature	–40 °C to +70 °C (–40 °F to +158 °F)
Operating Humidity	$\leq$ 95% (RH)

Dahua Assisted Care Sensor--- Vital Signs Radar



Contactless Detection

No wearable devices or physical contact, it can be used normally through clothing and quilts



Privacy Masking

Only sense human movement data, no recording, zero privacy leakage risk



Accurate Vital Signs Detection

Utilize various extraction techniques and algorithms to precisely perceive human vital signs data



PFR3Q-F5-HC
Vital Signs Detection
(Ceiling Mount)



PFR3Q-F5-HW
Vital Signs Detection
(Wall Mount)



Multiple Interface

Built-in RJ45、RS485、alarm out port and support 2.4G wireless frequency band



Abnormal Vital Signs Alarm

Algorithm filters interference, accurately detect vital signs and provide real-time alerts



24/7 Stable Operation

Unaffected by darkness, enables continuous, adaptable unattended detection

Dahua Assisted Care Sensor--- Vital Signs Sensor Function



Presence Detection



Heart Rate Detection



Heart Rate Detection

VITAL SIGNS DETECTION

Continuous 24/7 Vital Signs Monitoring

- Presence & Activity State Detection
- Irregular Heart Rate Alert
- Abnormal Respiratory Rate



Vital Signs Monitoring Sensor



- ✓ Non-contact
- ✓ EM Safety
- ✓ Vital Signs Monitoring
- ✓ Presence Detection

Dahua Assisted Care Sensor -- Vital Signs Radar



Technical Specification

Performance

Working Frequency band	60 GHz–64 GHz
Modulation Method	FMCW modulation method
Working Frequency	Millimeter wave band
Detection Distance	0.1 m–3 m (0.33 ft–9.84 ft)
Detection Angle	Horizontal: 120°, pitch: 60°

Function

Heart Rate Monitoring	Yes
Breathing Monitoring	Yes
In Bed Detection/Out of Bed Detection	Yes
Default	One-click reset default settings
Indicator Light	Indicator Light

Network & Port

Network Port	External RJ-45 network port; It supports transmitting data at 10/100 Mbps
Wi-Fi	Yes
Wi-Fi Frequency Range	2.4 GHz

Technical Specification

Wi-Fi Transmission Rate	100 Mbps
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Alarm Output	1 channel (the wet node can support up to 12 VDC and 0.3 A)

Power

Power Supply	12 VDC $\pm$ 30%
ePoE	No
Power Consumption	$\leq$ 3 W

Protection & Structure

Protection	IP67
Casing Material	PC
Installation	Wall mount, corner mount
Operating Temperature	–40 °C to +70 °C (–40 °F to +158 °F)
Operating Humidity	$\leq$ 95% (RH)

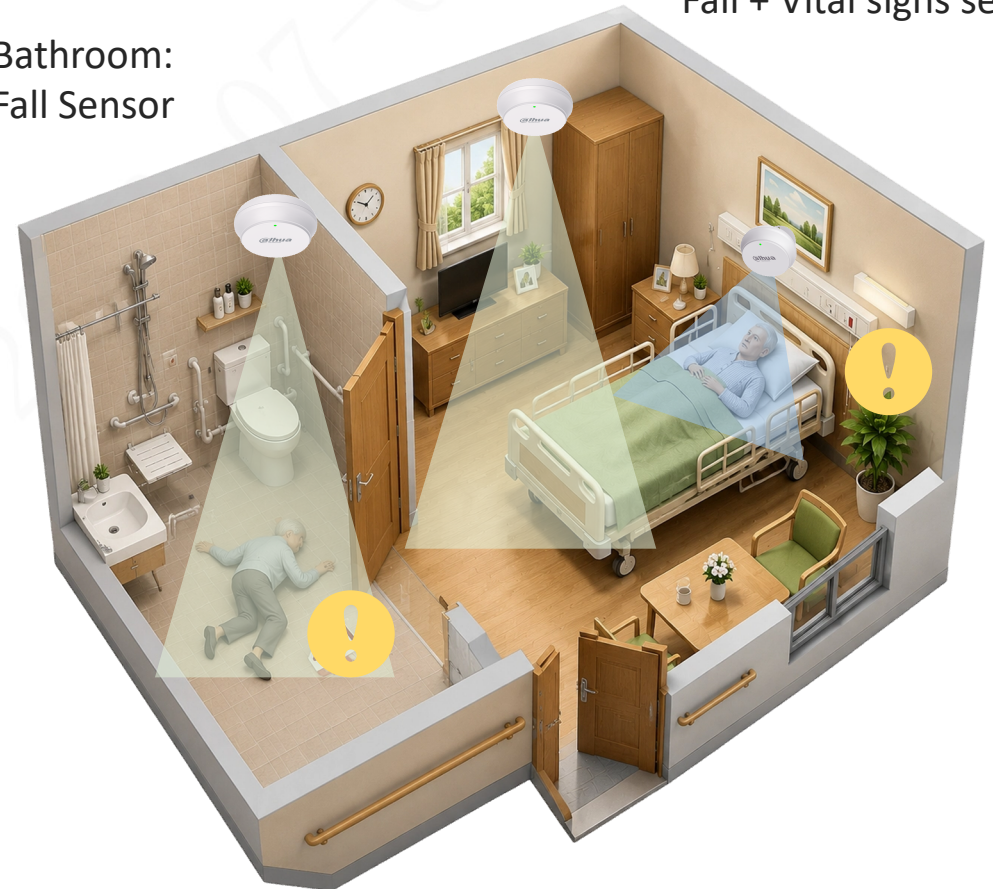
Application Scenarios -- Home Care



- Peace of mind for solo-living seniors — real time fall alerts sent directly to family or caregivers
- The sensor features IP67 waterproof rating and can operate reliably in bathroom environments

Bathroom:
Fall Sensor

Bedroom:
Fall + Vital signs sensor

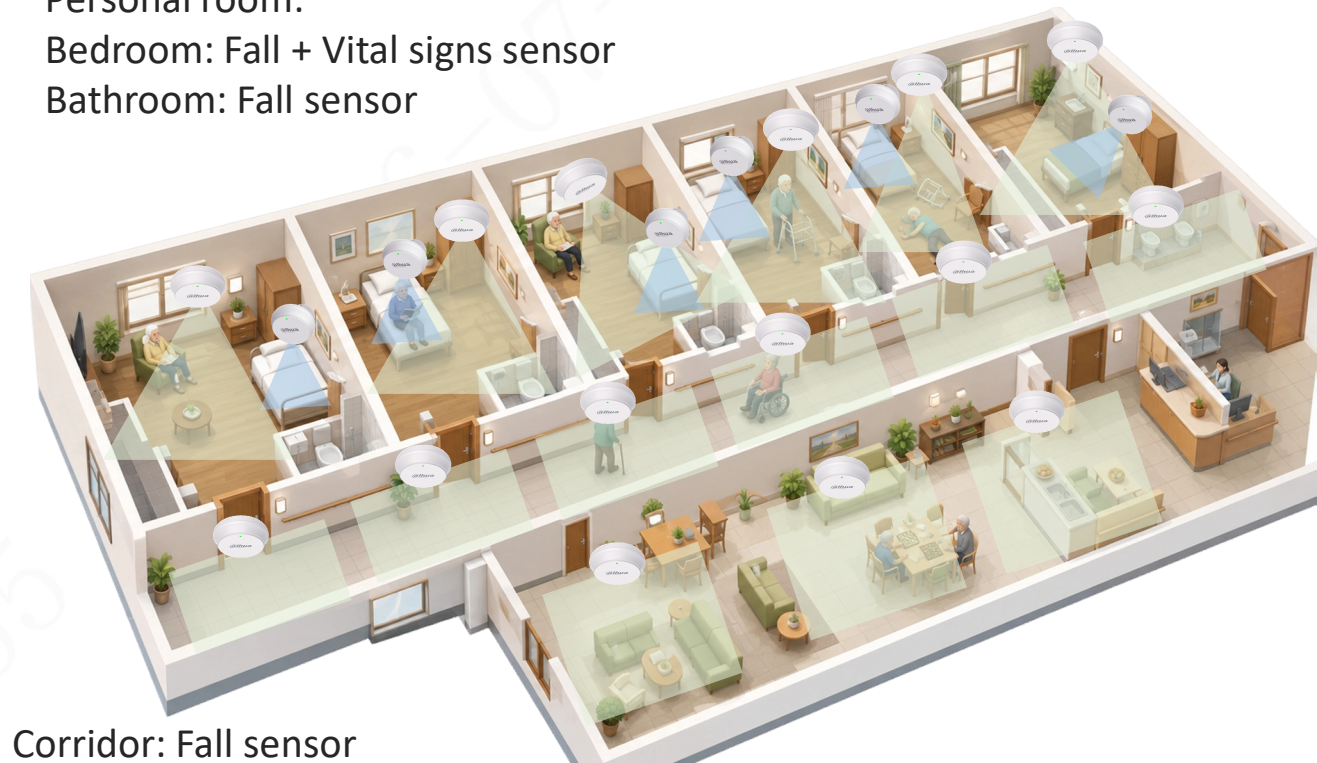


Application Scenarios -- Nursing & Rehabilitation Facilities



- Vital sign & fall sensors fully cover activity zones for the elderly
- Centralized monitoring across multiple rooms reduces night-shift workload
- Instant abnormal alerts enable faster staff response during sleep hours

Personal room:
Bedroom: Fall + Vital signs sensor
Bathroom: Fall sensor



Corridor: Fall sensor

Public Area: Fall sensor

Installation Tools -- Vital Signs Sensor Installation Tool



Vital Signs Sensor Installation Tool_V1.2.html

Wall Mount

Ceiling Mount

Wall Mount

Enter headboard width D, auto-calculate height H

Headboard Width D

0 – 25 cm

12

Beam Center Behind Headboard (Not Behind Radar)

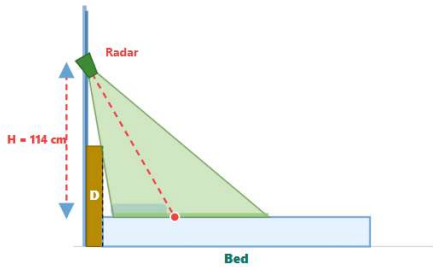
20 – 100 cm

54

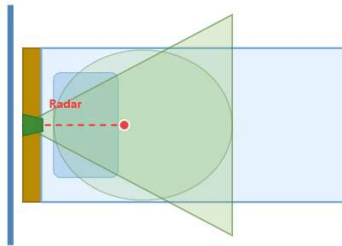
Recommended Height H Above Bed

114 cm

Side View



Top View



Vital signs sensor installation tool assists users in preliminary positioning based on site conditions