A212 PRESENCE TRACKING

Open area occupancy

A single wall-mounted A212 radar sensor detects, counts and tracks the people in a defined part of an open space – a group standing and talking, and a passer-by walking through.

PRESENCE DETECTION

Detection rate

99.9%
of the time people were present

False detection rate

0.00%
of the time the area was empty

Detection latency

1.1 s
mean, entering to detected

PEOPLE COUNTING

Counting accuracy (±1)

99.8%
within one (±1)

Counting accuracy

85%
exact

Mean error

+0.12 people
+ is over-, − is undercounting

BY-PASSING

Passers-by counted

100%
while in the area

Group stays counted

100%
while a passer-by is in the area

Counting latency

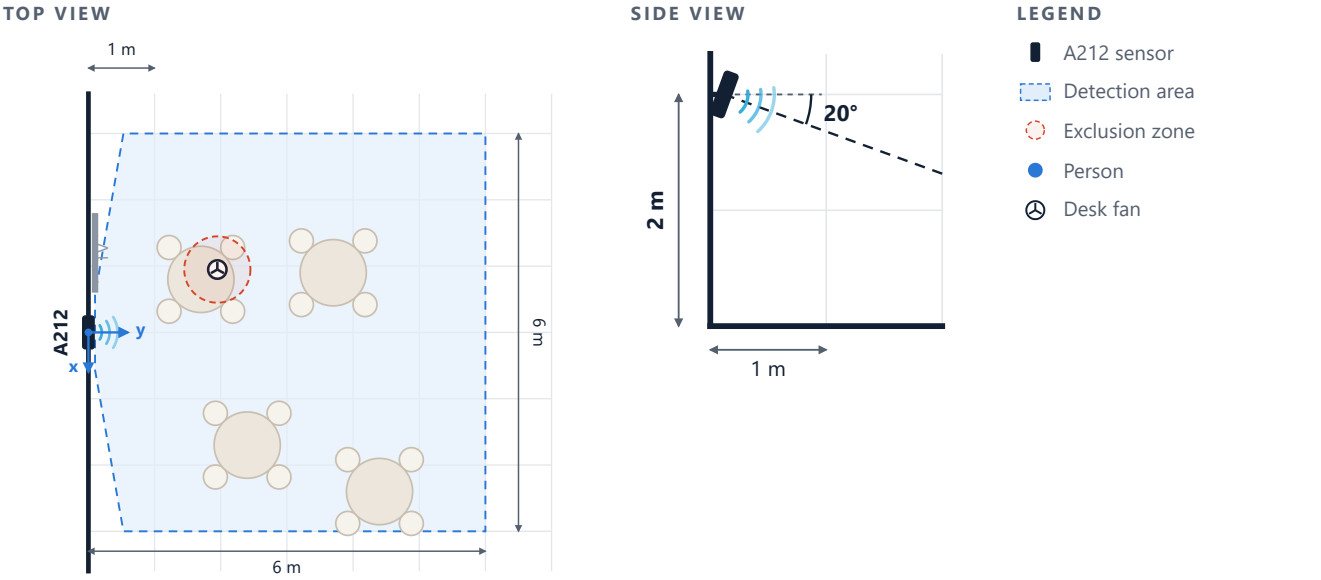
1.4 s
mean, passer-by entering to counted

Metrics and definitions

METRIC	DEFINITION	BASIS	RESULT
PRESENCE DETECTION	The presence of one or more people in the area is detected.		
Detection rate	Share of the time with people present in which presence was detected (recall). The first 1.1 s after someone enters the empty area (the mean detection latency) is not scored.	7 min	**99.9%**
False detection rate	Share of the time with the area empty in which presence was detected, scored on recordings of the empty room.	10 h	**0.00%**
Detection latency	Time from a person entering the empty area until presence is detected. Mean over entries.	5 entries	**1.1 s**
PEOPLE COUNTING	The number of people in the area is counted.		
Counting accuracy	Share of the time with people in the area in which the count matches the ground truth. The first 1.1 s after each entry (the mean detection latency) and 10.0 s after each exit are not scored.	6 min	**85%**
Counting accuracy (±1)	Like counting accuracy, but a count within one person of the ground truth is also right; counting 0 while people are present never is.	6 min	**99.8%**
Mean error	Mean of the counted minus the true number of people over the same time as counting accuracy: positive is overcounting, negative undercounting.	6 min	**+0.12 people**
BY-PASSING	A person walking through the area is counted while there, and the people standing in it stay counted.		
Passers-by counted	Share of the passers-by (people walking through the area while others stand in it) for whom the count went up while they were in the area.	7 passers-by	**100%**
Group stays counted	Share of the time a passer-by is in the area with the count at least the size of the standing group, which the passer-by may hide from the sensor.	2 min	**100%**
Counting latency	Time from a passer-by entering the area until the count goes up. Mean over passers-by.	7 passers-by	**1.4 s**

These are the results of this test, not a performance guarantee. In another room, or with another sensor mount, configuration or scenario, results may differ.

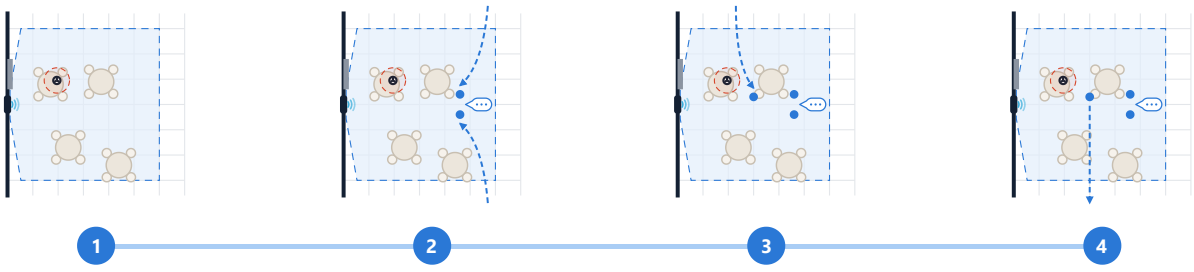
How we tested



Setup

Room	Open lunch area with round tables and bench seating, opening onto the office and the kitchen: people come and go beyond the detection area. A desk fan runs on a table at (−0.95, 1.95) m.
Hardware	XE212 (A2 evaluation kit)
Ground truth	People in the detection area, annotated per radar frame from a synchronised camera video.
Software	*Presence Tracking Wall Mount* reference application in Exploration Tool v8.0.0. Default configuration (Exploration Tool preset) with the below modifications:
Sensor installation	2 m above the floor, tilted 20° down.
Detection area	−3 to 3 m in x, 0.1 to 6 m in y; −80° to 80° azimuth, −30° to 30° elevation. We recommend a margin of about 10 cm between the detection area and the walls for best performance.
Exclusion zones	x = −0.95 m, y = 1.95 m, radius 0.5 m (desk fan position, detections inside this circle are ignored). Place an exclusion zone wherever a stationary object that moves is detected as a person, with a radius large enough to cover all of its detections.

Test procedure



1 Empty area
About 15 s, nobody in the area, desk fan running (it runs the whole test).

2 Meet and talk
2 or 3 people walk in one at a time, about 10 s apart, from different sides, and stand talking.

3 Walk-by
After 20 to 30 s, a passer-by walks in and lingers about 10 s or more, ≥ 1 m from the group.

4 Group stays
About 20 s more after the passer-by has left (in some runs, they pass by twice).

Run the same test XE212 (A2 evaluation kit) · *Presence Tracking Wall Mount* reference application in Exploration Tool

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