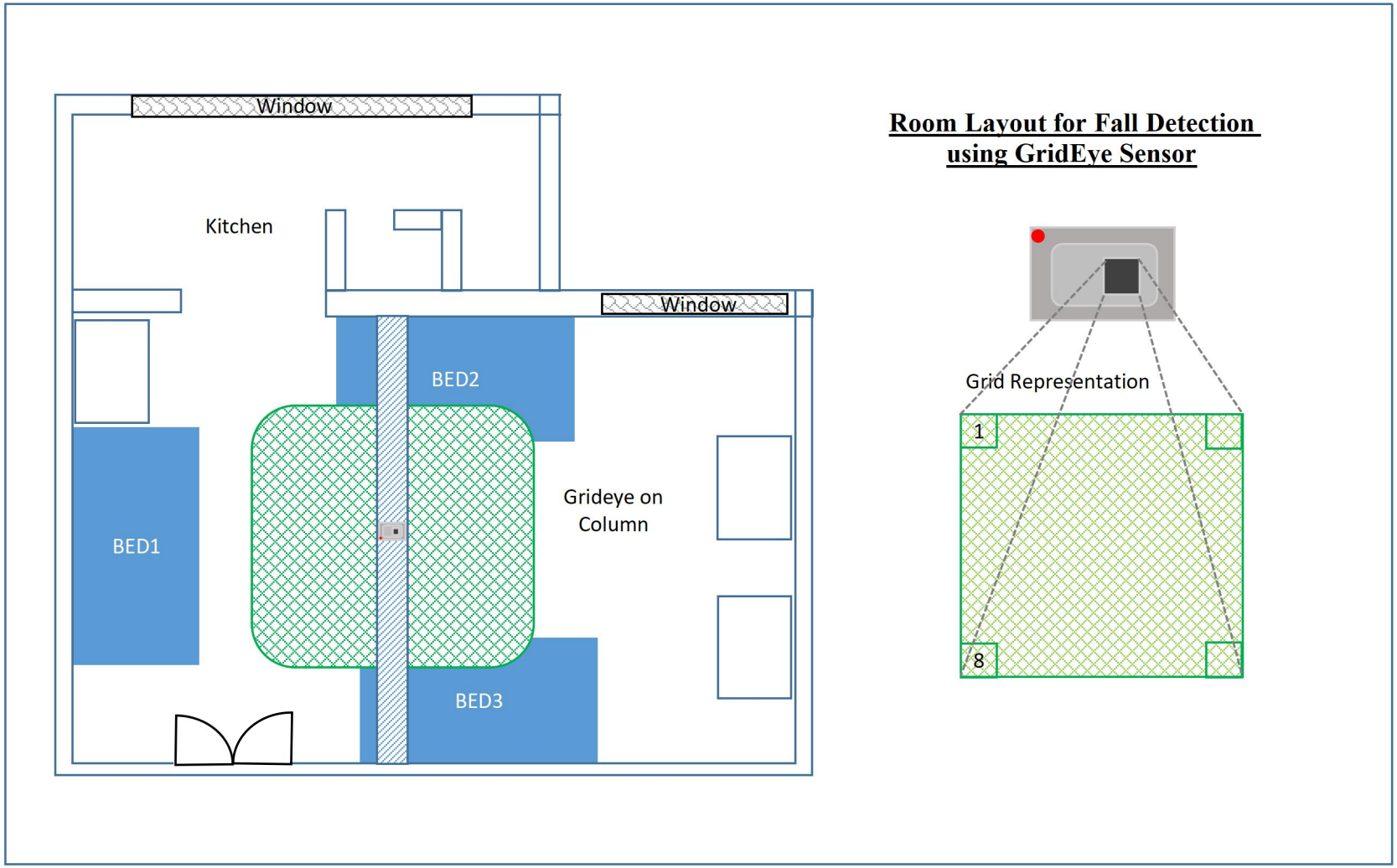
Window
Kitchen
Window
BED2
BED1
Grideye on
Column
BED3
Room Layout for Fall Detection
using GridEye Sensor
Grid Representation
1
8

Fall Detection Test #1 at AWWA on 17Jan2025

Objectives:
To perform site data collection:

a. Study & locate most appropriate position to mount sensor for data capturing
b. Use them for machine learning & then to decide adequate model to use for the fall detection

Test Method 1 - Grideye sensor mount overhead

1. mount the sensor under the column to cover the common area in front of the 3 beds, esp. Bed 1
2. confirm the sensor orientation against the pixel array layout (refer Fig 1 red dot on the sensor)
3. measure the height from the sensor to the floor, for calculation to obtain the area covered
4. if possible, determine the 4 corners covered by having person stands there (with lighter if needed)
5. have person/s walk around the zone & confirm their detection on the pixel array / heat-map
6. have person sit, squat, stand at various location; this is for studying the pixel array patterns
7. have person/s walk & fall around the zone; at various lying poses, i.e. horizontal & vertical to the sensor's view
8. record the type of falls (e.g. forward, backward, partial, fast, slow, etc.) for future analysis, as may be needed
9. input the data captured to the ML & test the models, to confirm the development is on the right track. This step is mainly for quick review to decide if more data need to be captured before leaving so that off-site development can continue later.

Note. Use file names that reflect the test closely; do have video recorded for each record, if possible.

Test Method 2 - Grideye sensor mount on (BED 1) wall at 2m height, at 60° facing downward

1. mount the sensor on the wall above Bed 1 to cover the common area in front of the 3 beds, esp. Bed 1
2. confirm the sensor orientation against the pixel array layout (refer Fig 1 red dot on the sensor)
3. measure the distance (TBA) from the sensor to the floor (near Bed 1 & further away), to confirm the area covered
4. if possible, determine the 4 corners covered by having person stands there (with lighter if needed)
5. have person/s walk around the zone & confirm their detection on the pixel array / heat-map
6. have person sit, squat, stand at various location; this is for studying the pixel array patterns

7. have person/s walk & fall around the zone; at various lying poses, i.e. horizontal & vertical to the sensor's view
8. record the type of falls (e.g. forward, backward, partial, fast, slow, etc.) for future analysis, as may be needed
9. Input the data captured to the ML & test the model, to confirm the development is on the right track. This step is more for quick review to decide if more data need to be captured before leaving so that off-site development can be done later.

Note. Use file names that reflect the test closely; do have video recorded for each record, if possible.

Items to bring:

1) ESP32 loaded with 'gridClnt_01.cpp' & powered by 5V battery pack, all placed within a box if possible; bring spare battery pack if available
2) Notebook to run Python (with app modified from 'baseStn_01.py') / ML & to store captured csv files.
3) Stool / ladder
4) Masking tape
5) Measuring tape
6) Extension power cord
7) USB extension (in case WIFI between ESP32 & PC not working), wires, etc.
8) Lighter or any heating element
9) Mobile hotspot / WIFI router
10) Video capturing app