

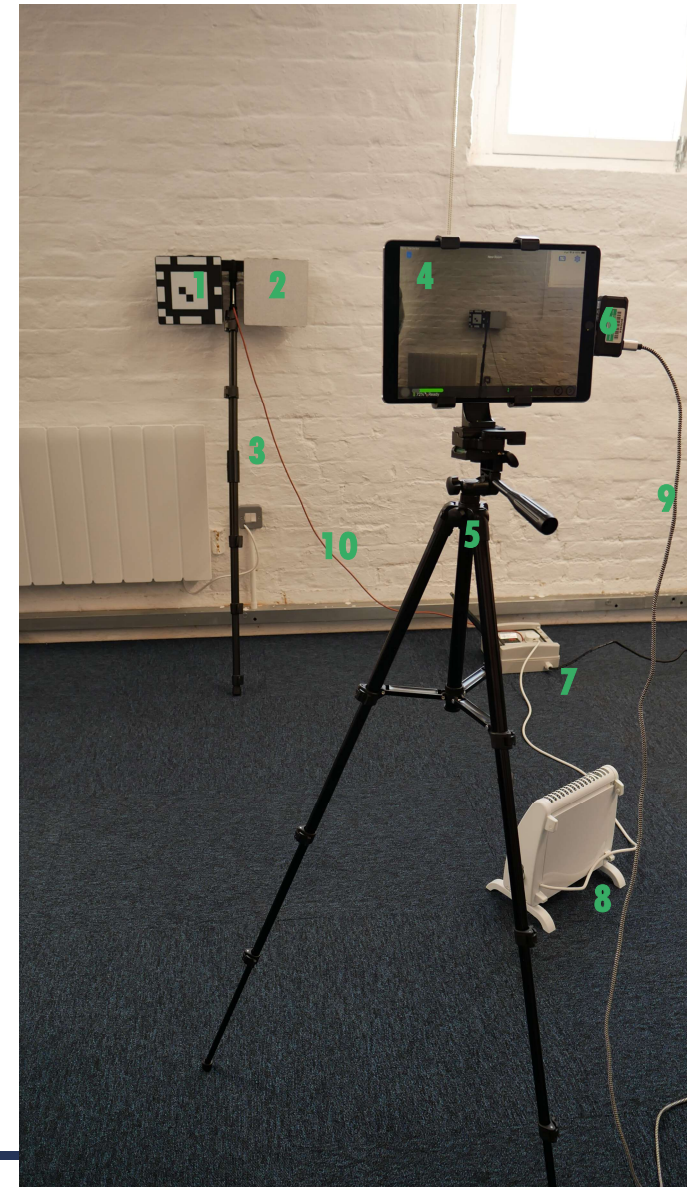


Quick Start Guide



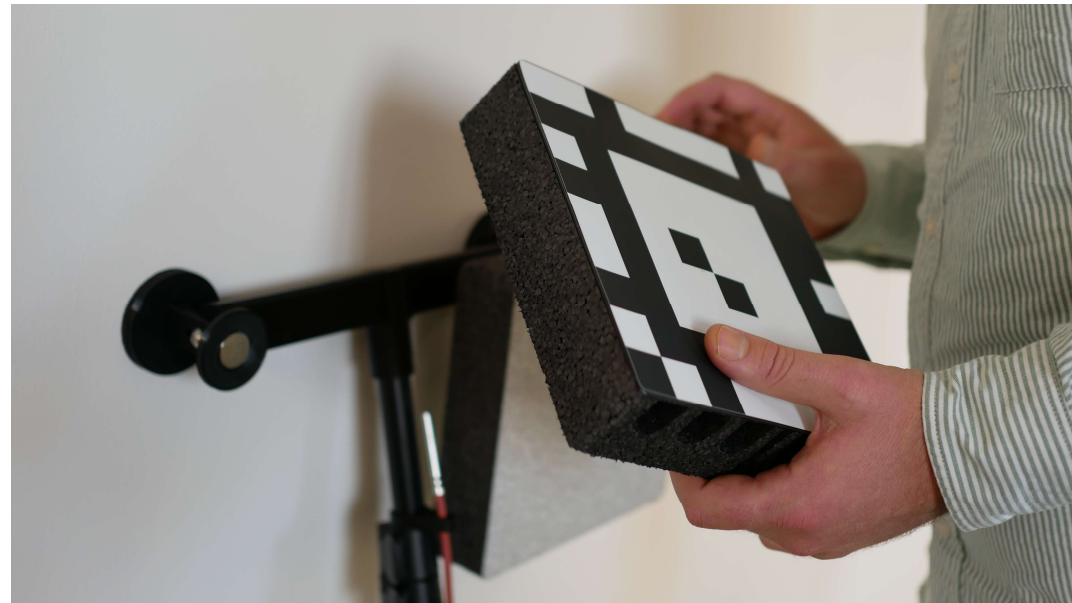
Hardware

1. Air Target
2. Reflective Target
3. Target mount
4. Device (iPad or iPhone)
5. Device tripod
6. FLIR One infrared camera
7. Temperature controller
8. Heater
9. Charging cable
10. Temperature controller sensor



Step 1: Set up the targets

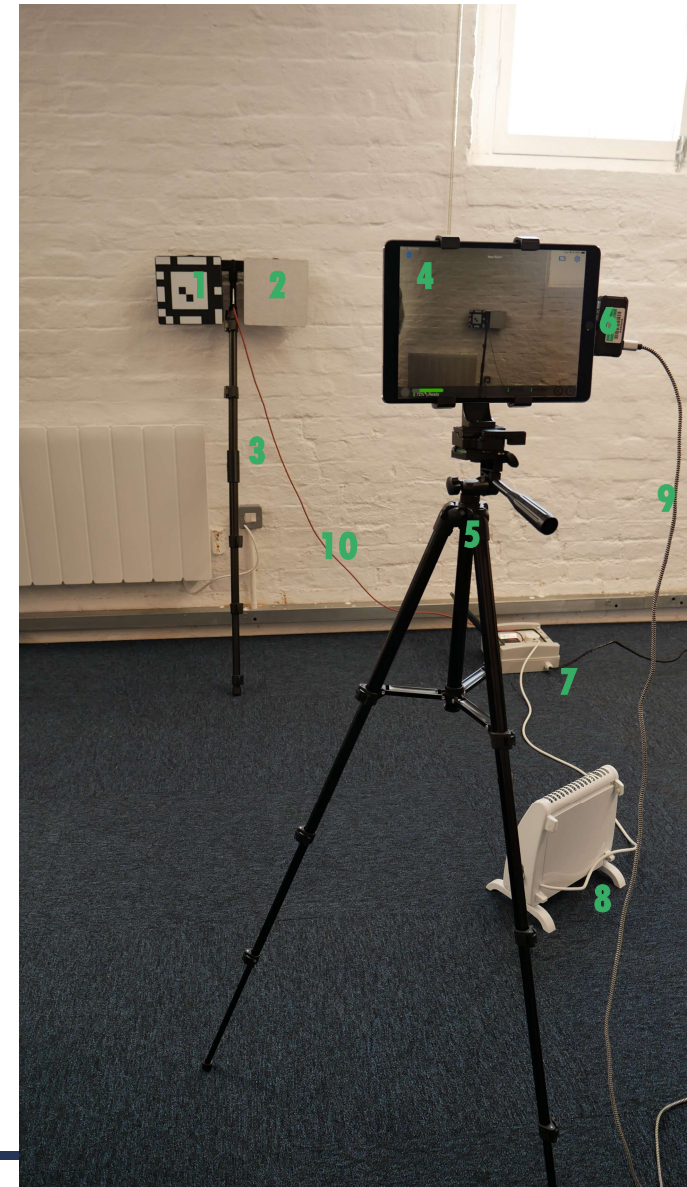
- Screw the telescopic poles into the joining bracket
- Place the temperature sensor holder on the end of the monopod
- Place the T-shaped target holder onto the monopod
- Mount the targets onto the target holder using the internal magnets – the groove in one side shows the top



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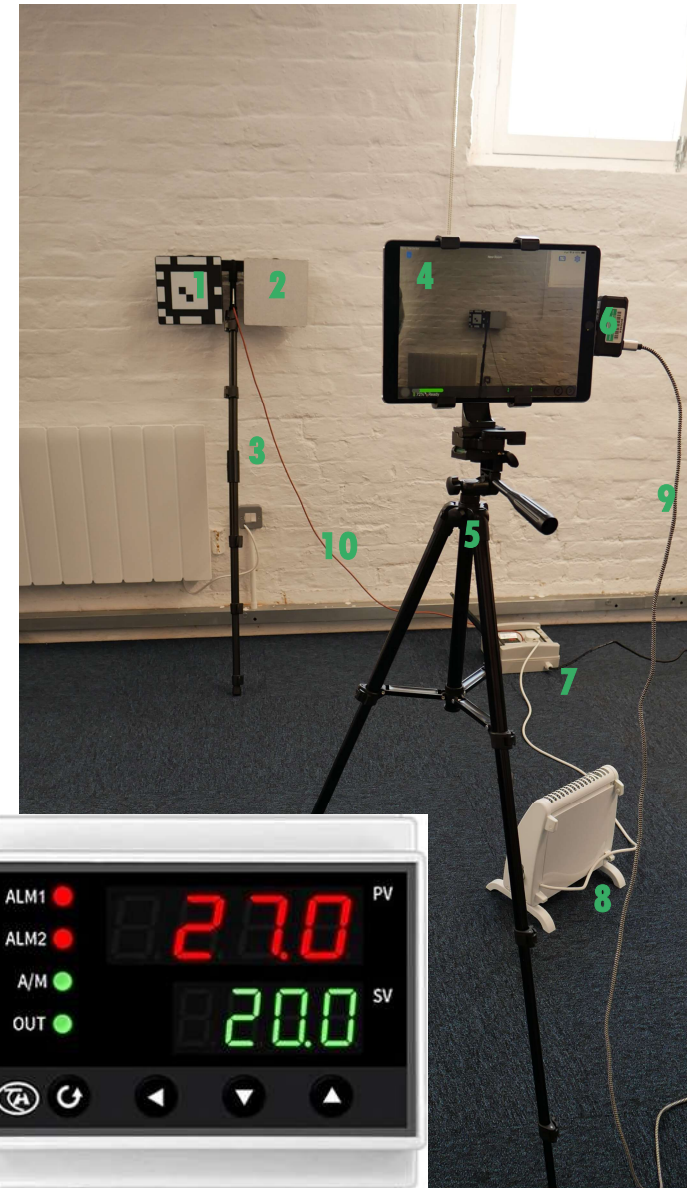
Step 1: Set up the targets

- Place the targets [1&2] on the surface (wall/floor/ceiling) that you'd like to measure using the target holder [3]
- There must be a clear view of both targets and the wall surface from the IR camera
- The external surface should have no exposure to direct sunlight



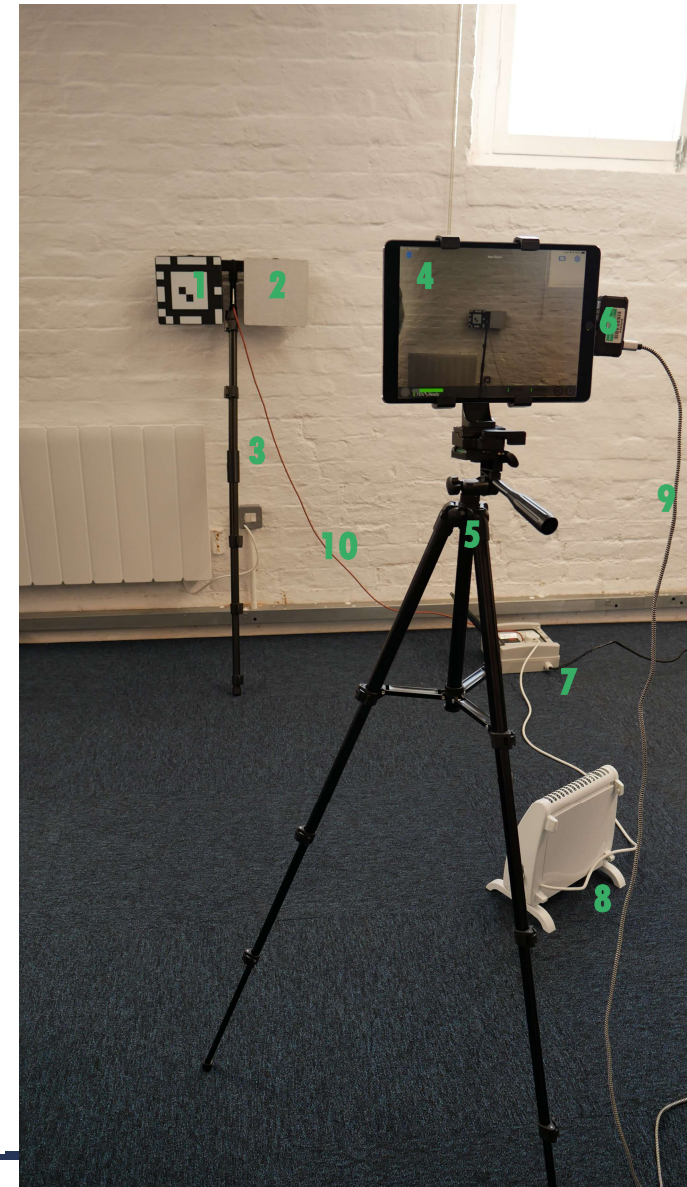
Step 2: Set the temperature controller & heater

- Place the temperature sensor [10] from the controller [7] in its holder close to the targets
- Plug the temperature controller [7] into a socket and the heater [8] into the temperature controller
- Leave for 10 minutes to acclimatise
- By a long press on the spiral button, set the temperature controller set point to be the same as the ambient temperature in the room (so that the 2 numbers on the screen match)



Step 3: Set the iPhone/iPad & FLIR Camera

- Plug the FLIR One IR Camera [6] into the iPhone/iPad [4]
- Plug in the long charging cable [9]:
 - iPhone: plug the USB splitter into the wireless charging iPhone mount, from the splitter plug the long cable into one end and the short cable between the other end and the FLIR One
 - iPad: plug the cable directly into the FLIR One, fully charge the iPad before surveying
- Position the tripod [5] to get a clear view of the targets and wall and place the mount onto the tripod
- Hardware setup is now complete



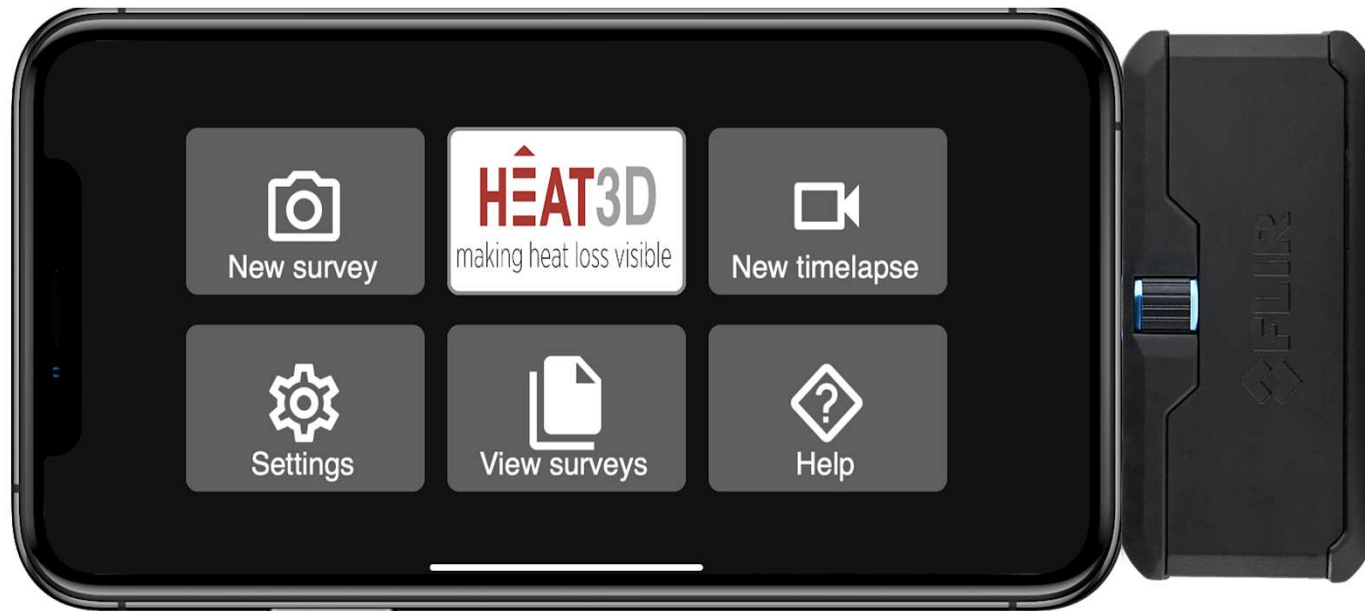
Using the HEAT3D app



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New survey: instantaneous measurement of heat transfer across a surface. **No U-value measurement.**

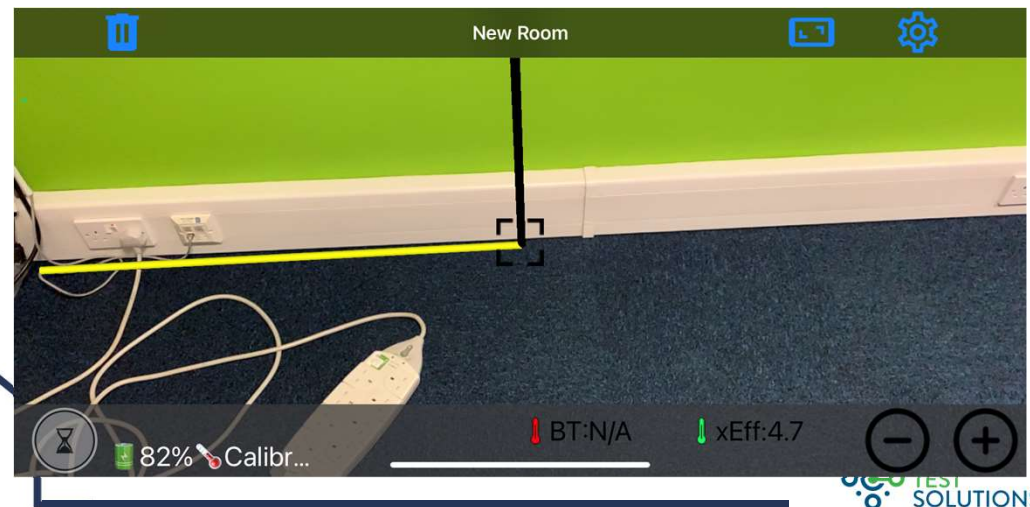
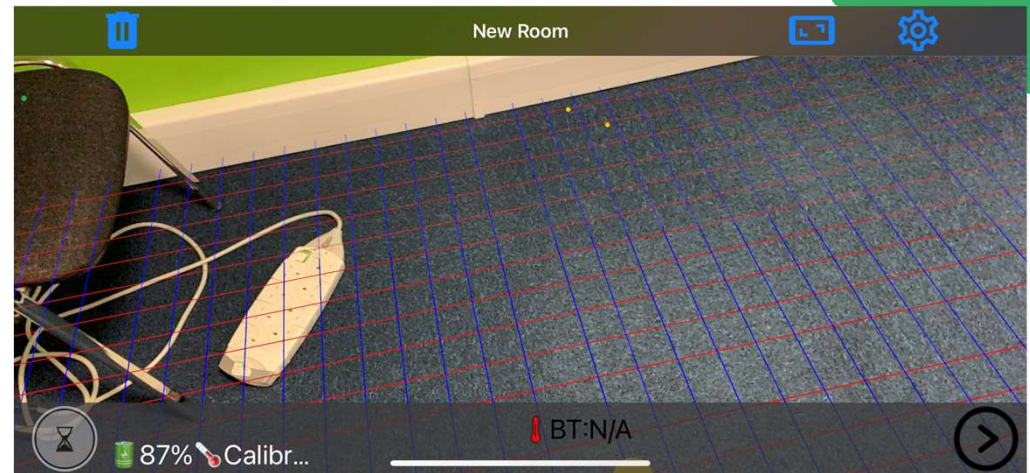
New timelapse: min 45 min survey used for **U-value measurements.**



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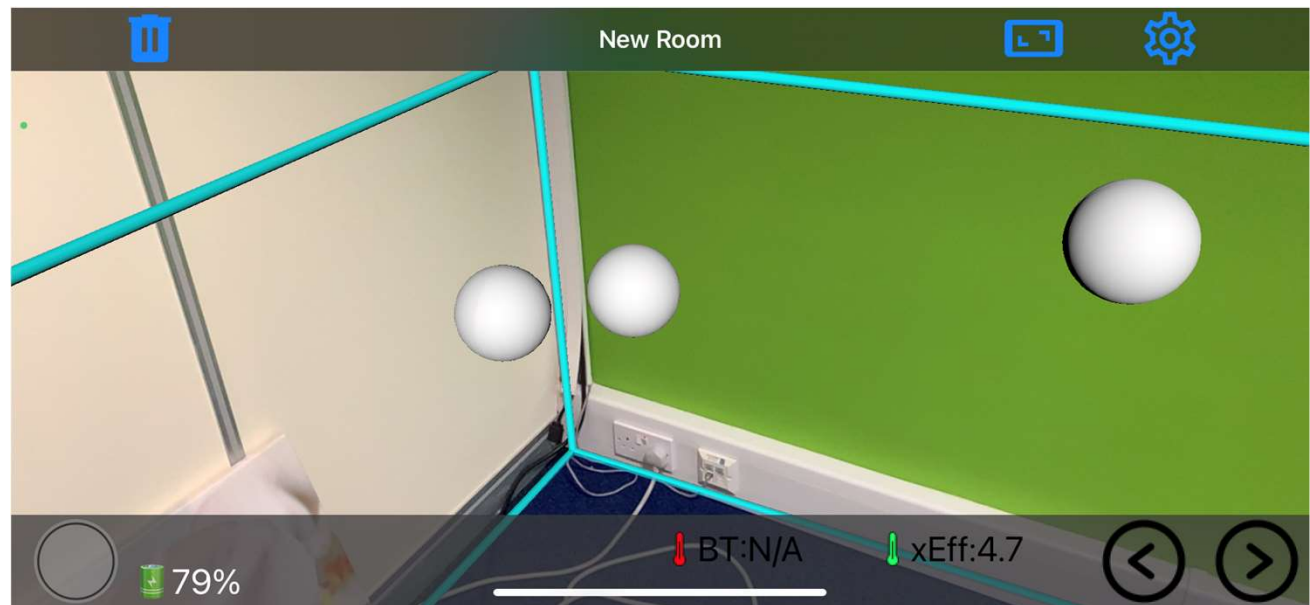
Step 4: Scan the room

- Point the device at the floor to detect the floor plane and press the bottom right button to advance
- Roughly scan the floor plan by pointing the device at the corners of the room, then pressing the + button in the bottom right to select them
- The floorplan with automatically join up at the last corner



Step 4: Scan the room

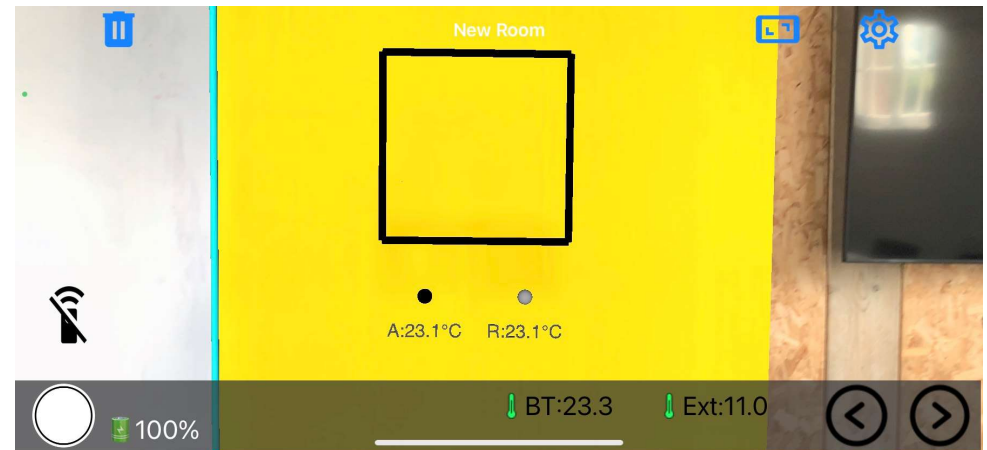
- After the initial rough sketch the white balls can be used to fine tune the positioning of the corners and the ceiling height



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Step 5: Take IR Pictures

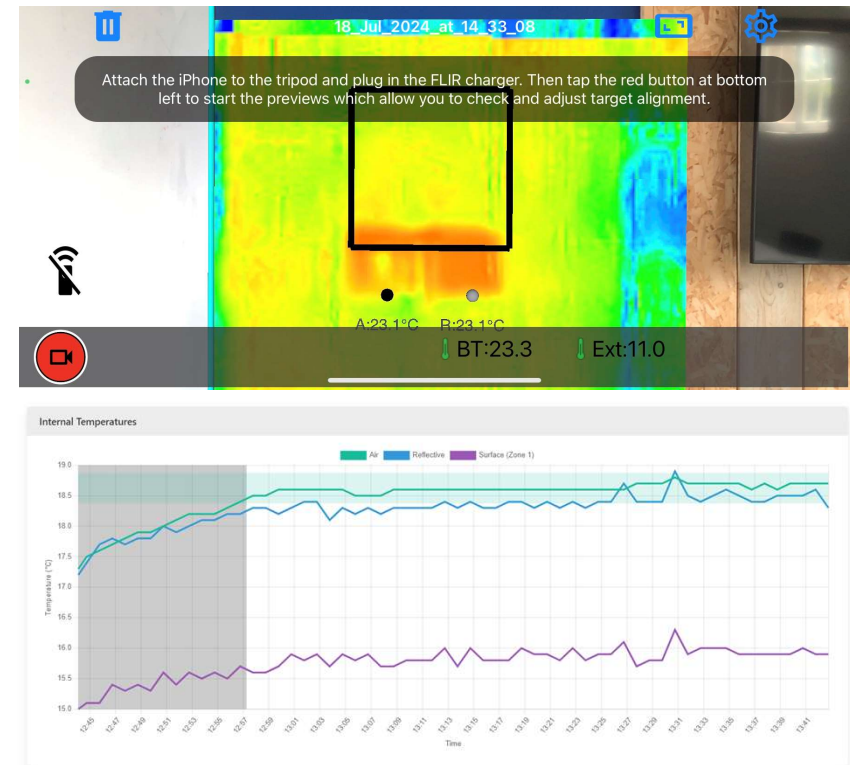
- Using the shutter button on the bottom left, take IR images of the area you wish to survey
- Multiple images can be taken to capture the whole area
- The location of the targets will be automatically detected by the app
- Different surfaces must be surveyed one at a time



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Step 6: Carry out the timelapse survey

- Place the iPhone/iPad onto the tripod
- Start the timelapse using the red button on the bottom left
- The survey can be monitored at SmartHTC.com or by local connection to the survey device
- Results will be shown on the app or a certificate can be generated at SmartHTC.com



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Step 7: Packing up



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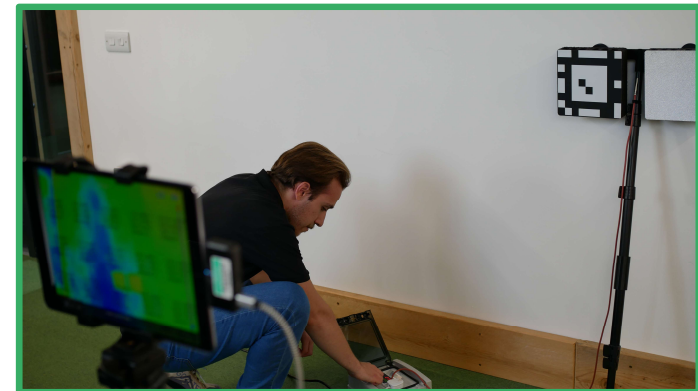
HEAT3D

Background Info



Options for measuring U-values

Test	Test Length	Advantages	Disadvantages
Heat flux plates	3+ days	Accurate Well established Walls, floors and ceilings	Takes minimum 3 days Point measurement only
Heat3D	1-2 hours	Quantitative measurement U-value for entire wall	Walls only Stable conditions only



Assessment Options Example

1930s solid wall maisonette

- RdSAP says: Age band C (1930-49), ~~1.7W/m²K~~
- Calculation says: ~~2.09W/m²K~~

- **Measurement shows:**

- Front wall downstairs - $1.4 \pm 0.2 \text{W/m}^2\text{K}$
- Rear wall downstairs - $1.3 \pm 0.2 \text{W/m}^2\text{K}$
- Side wall upstairs - $2.0 \pm 0.3 \text{W/m}^2\text{K}$

