



ASSISTED ASSISTED LIVING

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<https://github.com/romkey/sensorTech>

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THE SITUATION

- 90 year old relative in assisted living
- With cat
- Mentally sharp, normal age-related slowing
- Physical challenges, difficulty gripping, walking

THE CAT



THE PROBLEM

- Monitor environmental conditions for comfort
- Relative thought someone was entering room late at night
- Difficulty opening and closing shades

WAS IT...

- Staff?
- A confused resident?
- A thief or other interloper?
- Aliens?
- The cat?
- Just imagination? A bad dream?

REQUIREMENTS

Privacy ◦ Autonomy ◦ Dignity

CONSENT

- Monitoring proposed as potential solution
- Talked with relative about what to monitor
- Relative understood and consented

THE SOLUTION

- Environmental (temperature, humidity, air quality) sensors
- Contact sensor on door
- Motion sensor/night lights in rooms
- Zigbee shade controller to help with shades
- Large Zigbee button to control shade controller

HOME ASSISTANT

- Well supported
- Easy to run
- Easy to access remotely (HA Cloud or Tailscale/Cloudflare Tunnel)
- Great sensor support
- Rich notifications (app, Signal, email, text, Telegram, Slack, ...)

ZIGBEE SENSORS

- Zigbee = radio protocol (like WiFi and Bluetooth - no Internet)
- Widely available and low-ish cost
- Better battery life than WiFi
- Co-exists well with WiFi
- Small and unobtrusive
- Works well with Home Assistant



Zigbee Radio Dongle



Zigbee Switch and Contact Sensor

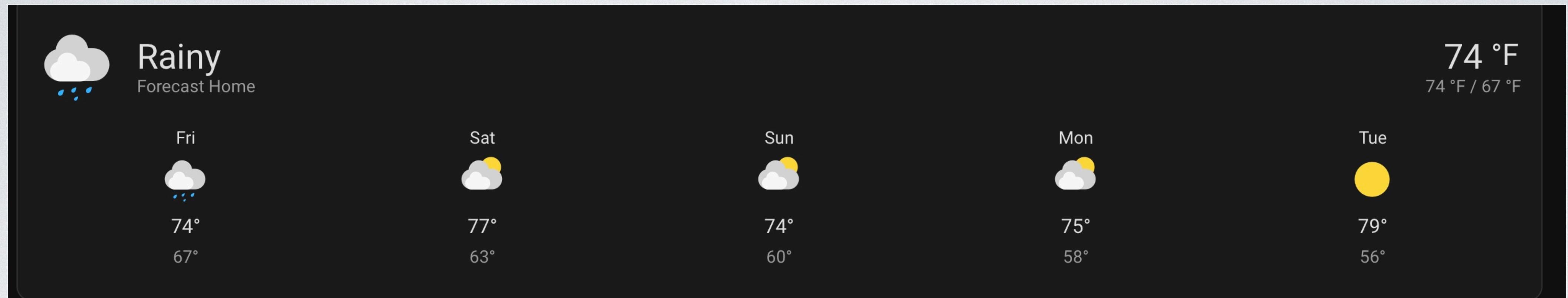
NO CAMERA

- Too much of an intrusion on privacy
- Agreed on potentially if problem worsened

NO VOICE CONTROL

- Relative had trouble remembering voice commands
- Easily frustrated with voice systems
- Mechanical solutions preferred

RESULTS



Door

August 15, 2025

Contact Sensor 1 Door was opened
4:46:27 PM - 2 hours ago

Contact Sensor 1 Door was closed
4:46:26 PM - 2 hours ago

Contact Sensor 1 Door was opened
4:45:29 PM - 2 hours ago

Contact Sensor 1 Door was closed
4:45:29 PM - 2 hours ago

Contact Sensor 1 Door was opened
2:29:43 PM - 5 hours ago

Contact Sensor 1 Door was closed
2:29:42 PM - 5 hours ago

Environment

SOMA Shades



Bathroom Temp...

78.21 °F

IKEA Air Quality ...

75 °F

No state history found.

Bedroom Tempe...

78.31 °F

Humidity

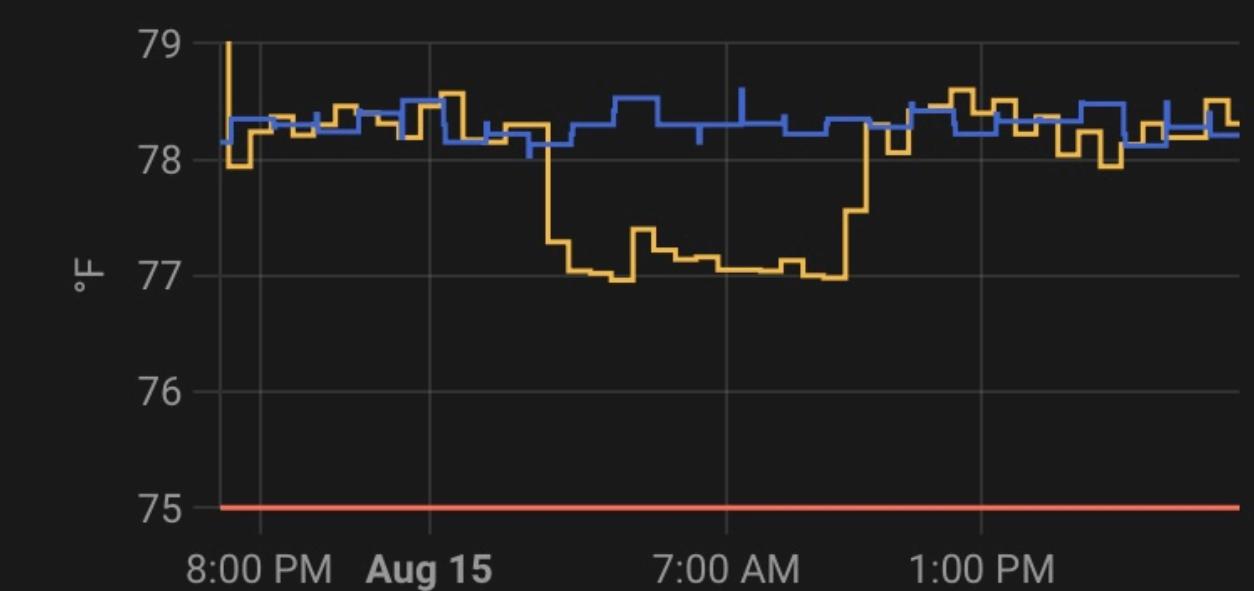
52.1 %

Environment History

Bathroom Temperature Sensor Temperature

Bedroom Temperature Sensor Temperature

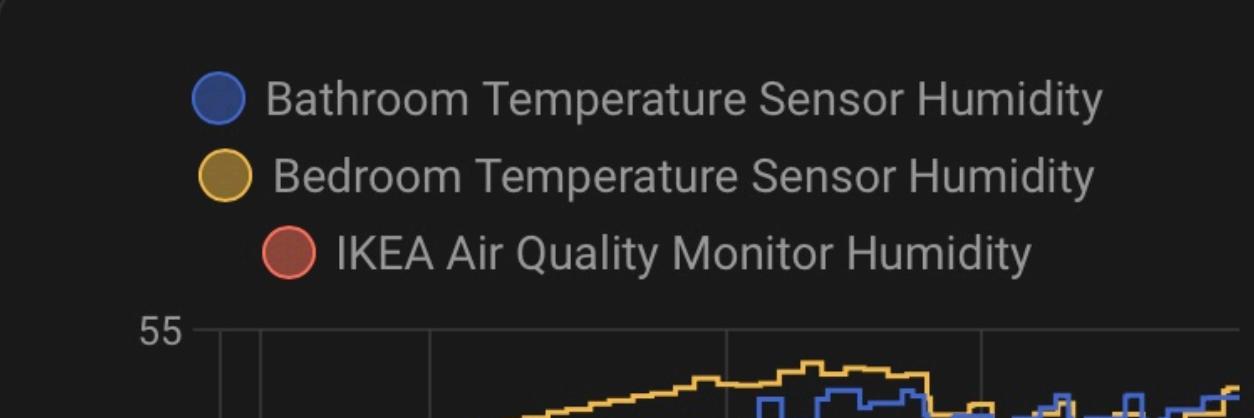
IKEA Air Quality Monitor Temperature



Bathroom Temperature Sensor Humidity

Bedroom Temperature Sensor Humidity

IKEA Air Quality Monitor Humidity



IKEA Air Quality ...

52

IKEA Air Quality ...

1 µg/m³

THE ANSWER (?)

- The door was being opened late at night!
- Relative stopped noticing it and stopped caring
- Door stopped opening
- We never found out why but there was never a problem
- Temperature was stable 78 degrees - good HVAC
- Air quality remained high - good ventilation

PRIVACY PRESERVING CAMERA

- Use a low resolution infrared thermopile camera to observe body motion across the space
- No out of the box solutions :(

RESOURCES

- Home Assistant - <https://www.home-assistant.io/>
- Raspberry Pi 4 or Pi 5 - <https://www.raspberrypi.com/>
- SONOFF Zigbee Dongle-P
- SONOFF and Third Reality Zigbee products
- Ikea VINDSTYRKA
- Soma Smart Shades 3 - <https://www.somasmarthome.com/>

COSTS

- Home Assistant Cloud (\$60/year)
- 2GB Raspberry Pi 4 (\$110) or Pi 5 (\$130) - Pi, power, case, SD card, fan, heat sinks
- SONOFF Zigbee Dongle (\$27)
- Button (\$20), Contact Sensor (\$20), Temperature (\$14)
- Ikea VINDSTYRKA (\$60)
- Soma Smart Shades 3 (\$170)