office automation

Using home automation outside the home

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    @james (James Turner) on macadmins
  - I have been doing IT/Mac admin stuff 28 years.
  - (un)Interesting fact: I was in the staff audience for the iPhone launch.
  - Last spoke at LAA 6.5 years ago.

What is iwoca

What am I talking about?

- Components -
  - HW/SW
  - Network/security
  - Devices/integrations
- Use Cases
- UX of automation
- Thoughts and questions

Components

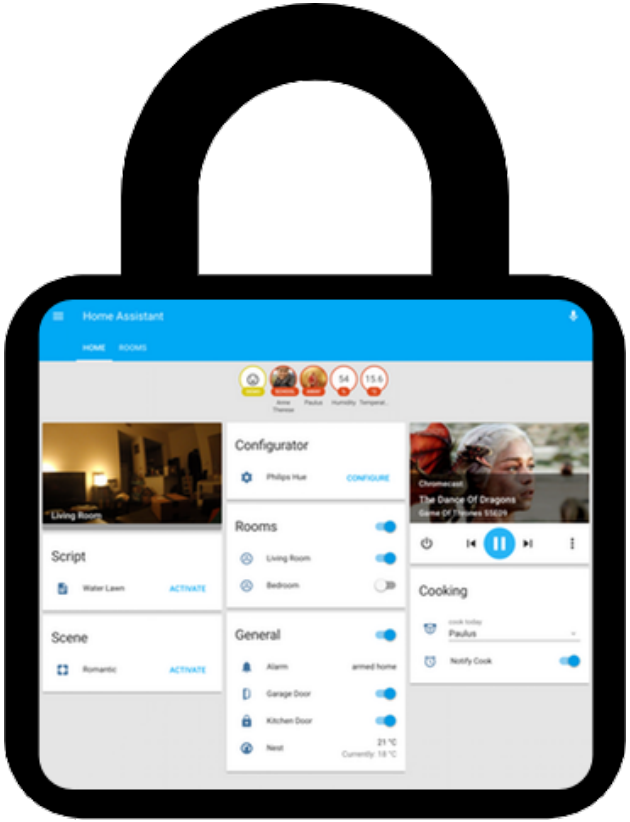
- **Home assistant OS**
  - https://www.home-assistant.io/
  - Open source
  - Private - Local data
- **Hardware**
  - Raspberry Pi*
  - X86
  - Docker
  - macOS (shh it's not a server)
  - Consider availability!
- **Devices/Sensors**
  - Vast ecosystem, vendor neutral
  - https://www.home-assistant.io/integrations/#all

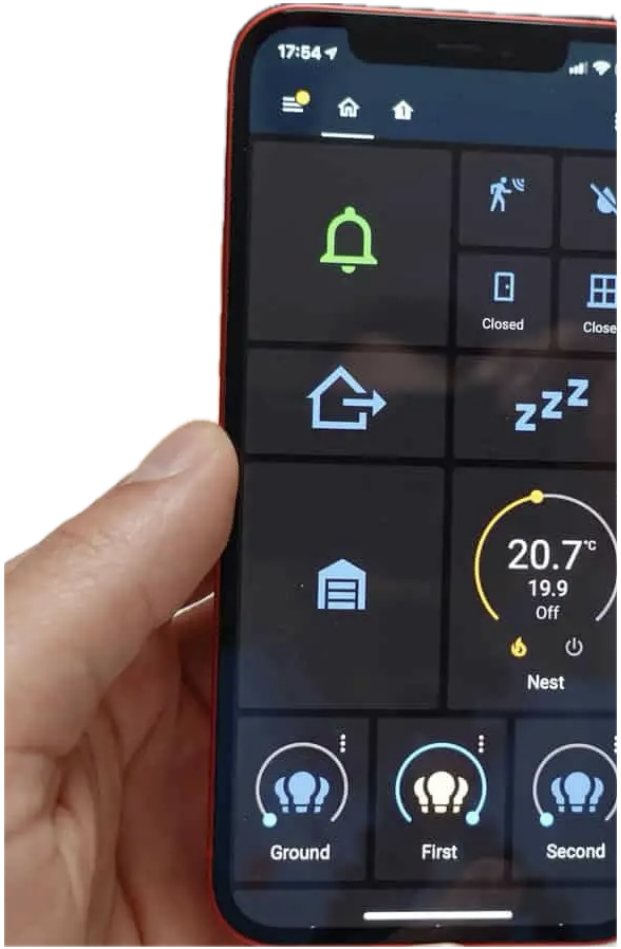
Network/Security

- **This is not a hardened commercial product.**
  - Think about what it will need access to, how it will be accessed and who will need access.

Remote access:

- VPN - Proxy options.
- Consider nabucasa.com
  - Paid proxy service from the foundation that controls the project.





Devices and sensors

When local is not local enough

Devices and sensors need to connect to your ~~home~~ office assistant. This is not always straightforward when your server is in the network cab.

Devices are commonly connected using:

Wifi - 2.4 mainly 😭

Bluetooth - PAN at its finest.

Zigbee - wtf?

Devices and sensors part deux

When local is not local enough

Solution for Bluetooth range/locality, any ESP32 microcontroller board can be programmed to proxy Bluetooth using less than 2 lines of code

This is part of the ESP home add-on and directly integrated

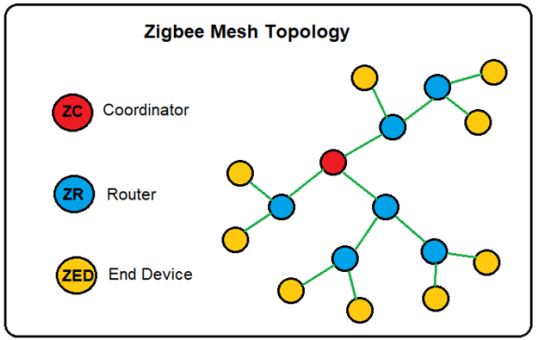

```yaml
esphome:
  name: bedroom-atom-lite

esp32:
  board: esp32dev
  framework:
    type: arduino

# Enable logging
logger:

# Enable Home Assistant API
api:

ota:
  platform: esphome
  password: "b82c0130f7826b10636b0581cebe1d5f"

wifi:
  ssid: !secret wifi_ssid
  password: !secret wifi_password

  # Enable fallback hotspot (captive portal) in case wifi connection fails
  ap:
    ssid: "Bedroom-Atom-Lite"
    password: "HxWEV81aQ7EP"

captive_portal:
esp32_ble_tracker:
sensor:
  - platform: atc_mithermometer
    mac_address: "A4:C1:38:B5:E6:EB"
    temperature:
      name: "Bedroom Temperature"
    humidity:
      name: "Bedroom Humidity"
    battery_level:
      name: "ATC Battery-Level"
    battery_voltage:
      name: "ATC Battery-Voltage"
    signal_strength:
      name: "ATC Signal"

bluetooth_proxy:
```

Devices and sensors part Deux

When local is not local enough

Zigbee is a wireless communication protocol designed for robust, low-power, short-range applications. It is commonly used for home automation, IoT devices, and industrial applications. Zigbee operates on the IEEE 802.15.4. Zigbee can create mesh networks for improved reliability and range.

A Zigbee network requires a coordinator. You can now get network connected coordinators, enabling coordinator placement to optimal mesh performance.



What can we do?

- **Power control**
  - Plug sockets
  - Relays
  - Power monitoring
- **Environmental**
  - Temperature/Humidity - rooms
  - Weather
  - Pollution / Air quality / CO2
  - Server rooms
- **Physical office**
  - Door/window sensors
  - Presence - MM wave
  - Printers
  - Media control

Dashboards and Apps

Home office assistant has a robust dash boarding system built in, allowing for almost unlimited customisation.

Dashboards can be assigned to specific user roles and permissions, keeping users and your work safe!

Apps are available on almost all platforms, macOS included, and allow telemetry from the device to be incorporated. This also enables location-based automations.

Push notifications are also supported.

Something to think about!

UX of automation

With great power... comes the ability to annoy many people.

- All automation needs to consider human interaction points, even if they are not direct, physical interaction.
- If an automation fails, is there an alternative way to do the task? Can the failure be detected?
- Inform users, gather feedback, the automation should help someone, not just you.
- Lights can be particularly difficult.

Question time

Chance of a great stat being here 0%

Thanks!

See you soon.