

# Building a Better Thermostat

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<https://github.com/mtreinish/building-a-better-thermostat>

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# Room Layout



## Poor Cooling



## Thermostat

- ▶ Closed Loop control device for heating and/or cooling system
- ▶ Senses current temperature and

## Home Assistant

- ▶ Open Source Home Automation Platform
- ▶ Written in Python 3
- ▶ Has support for over 600 different components
- ▶ Runs locally (with all data locally)

## Controlling the AC

- ▶ Can't take apart the AC (I don't own it)
- ▶ No identifying information for the AC
- ▶ Control via power (use a relay to turn on and off)

- ▶ Use Z-Wave outlet to control
  - ▶

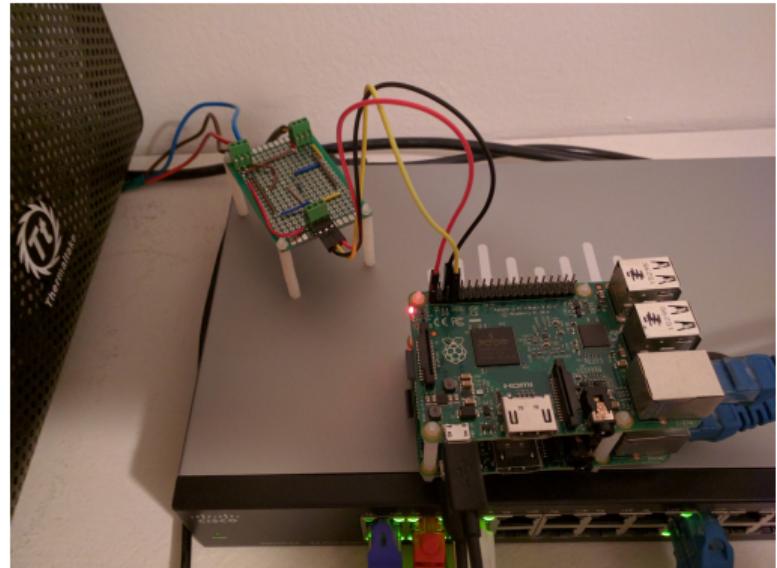


## Sensing the Living Room Temperature

- ▶ Wireless sensor
- ▶ Leverage Z-Wave network
- ▶ Got a

# Bedroom Temperature Sensing

- ▶ Track both bedroom and “data” closet temperatures
- ▶ Leverage spare raspberry pi sitting in “data” closet



## DallasMQTT

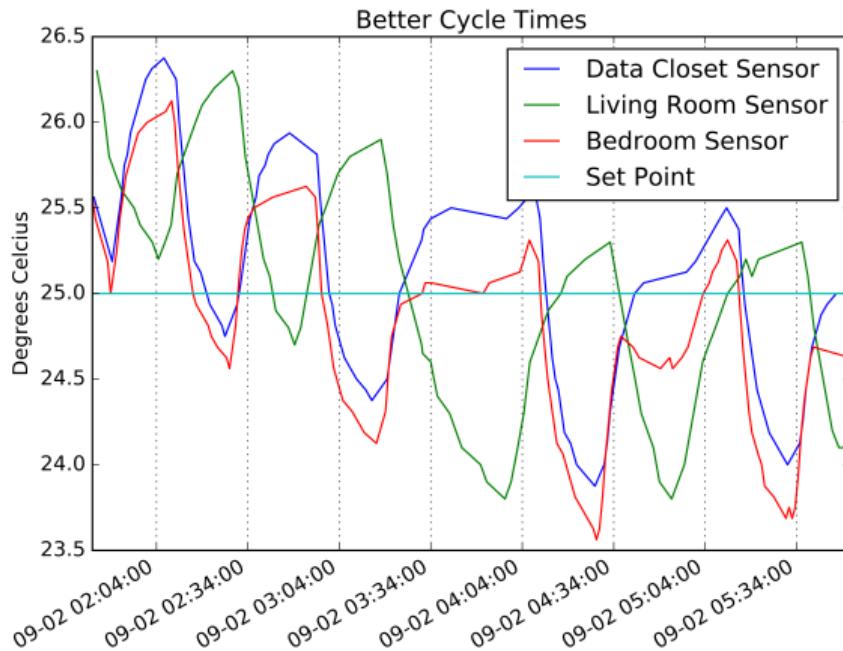
- ▶ Framework for polling sensors and pushing results on MQTT
- ▶ Handles an arbitrary number of sensors
- ▶ Currently only supports Dallas 1 wire from w1\_therm linux driver
- ▶ Written in python

# Short Cycle Time



- ▶ Bedroom on for 8 min. and off for 4 min.
- ▶ Living Room on for 4 min. off for 2 min.

## Corrected Cycle Time



- ▶ Bedroom on for 20 min. and off for 21 min.
- ▶ Living Room on for 17 min. off for 29 min.

## Starting to Automate

```
alias: Set Living Room AC to 30 C when asleep trigger: platform: time after:  
'12:30:00' condition: - condition: time before: '09:30:00' action: service:  
thermostat.set_temperature entity_id: thermostat.living_room data: temperature: 28
```

# Location Tracking

# Owntracks

## Future Work

- ▶ More Sensors
- ▶ More automation
- ▶ Fix power usage collection

## Where to get more information

- ▶ Blog Post <http://blog.kortar.org/?p=319>
- ▶ <https://home-assistant.io/>
- ▶ <https://github.com/mtreinisch/dallasMQTT>

Questions?