

If you could TALK to...
your house,
what would you say?

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DevStaff Meetup @ Jan 2020

it all starts with
an itch



I'm upstairs...
I forgot to close all the
roller shutters downstairs



Hey House,

can you please close
all the roller shutters?

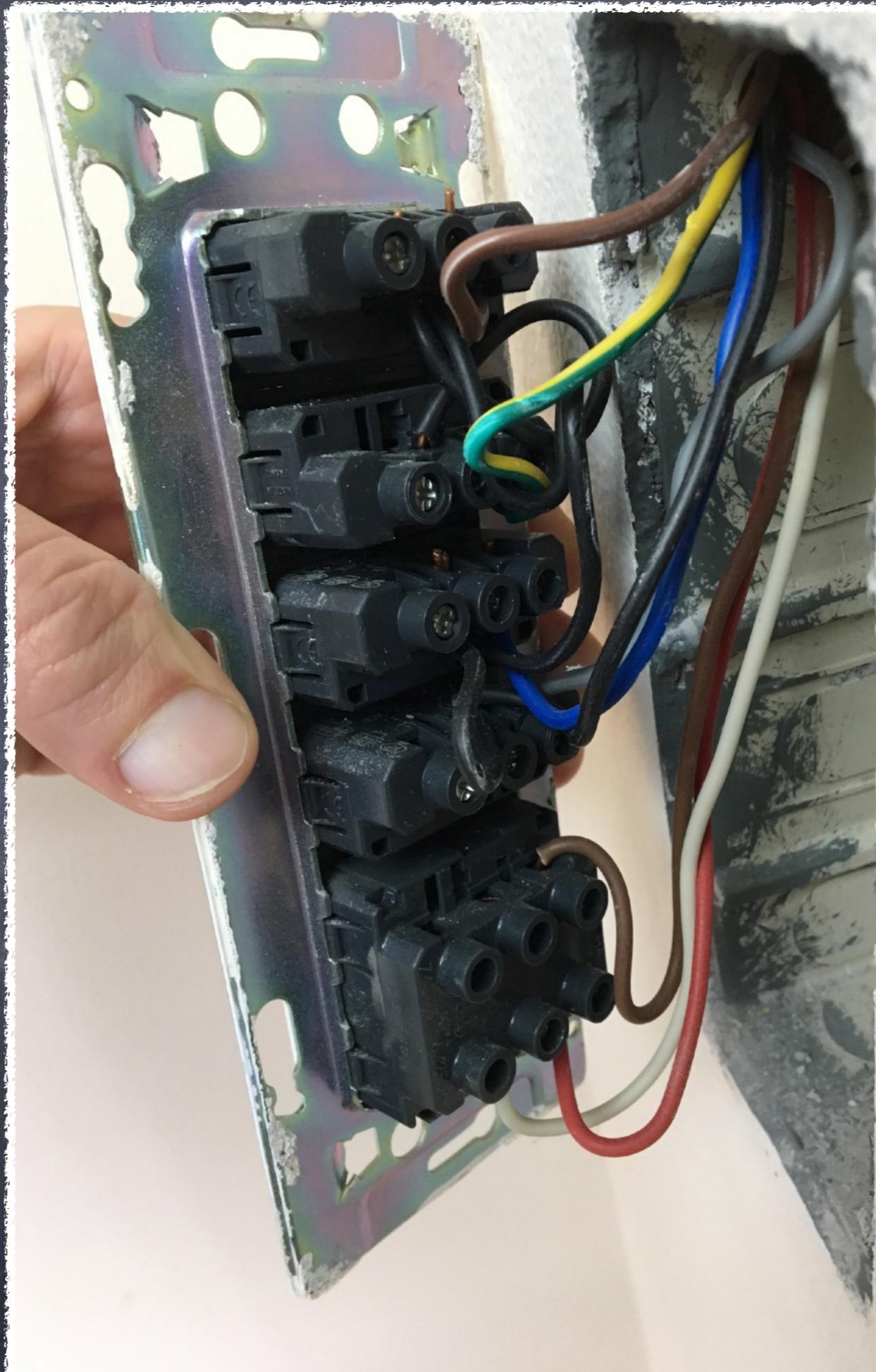
Let's take a
look...

How hard could it be?



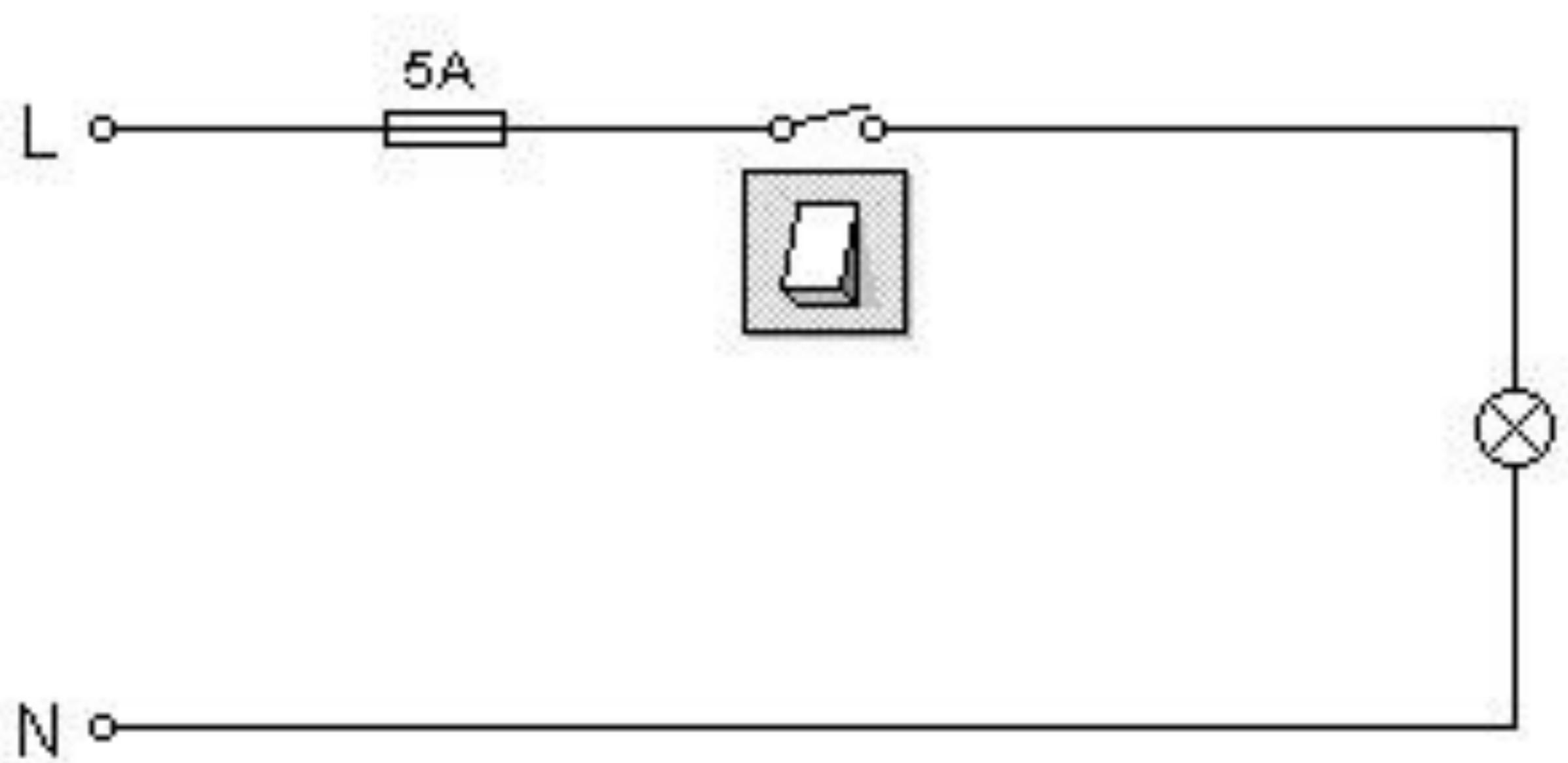
...harder
than I
expected

no docs *
unfamiliar with tech stack *
solo dev *

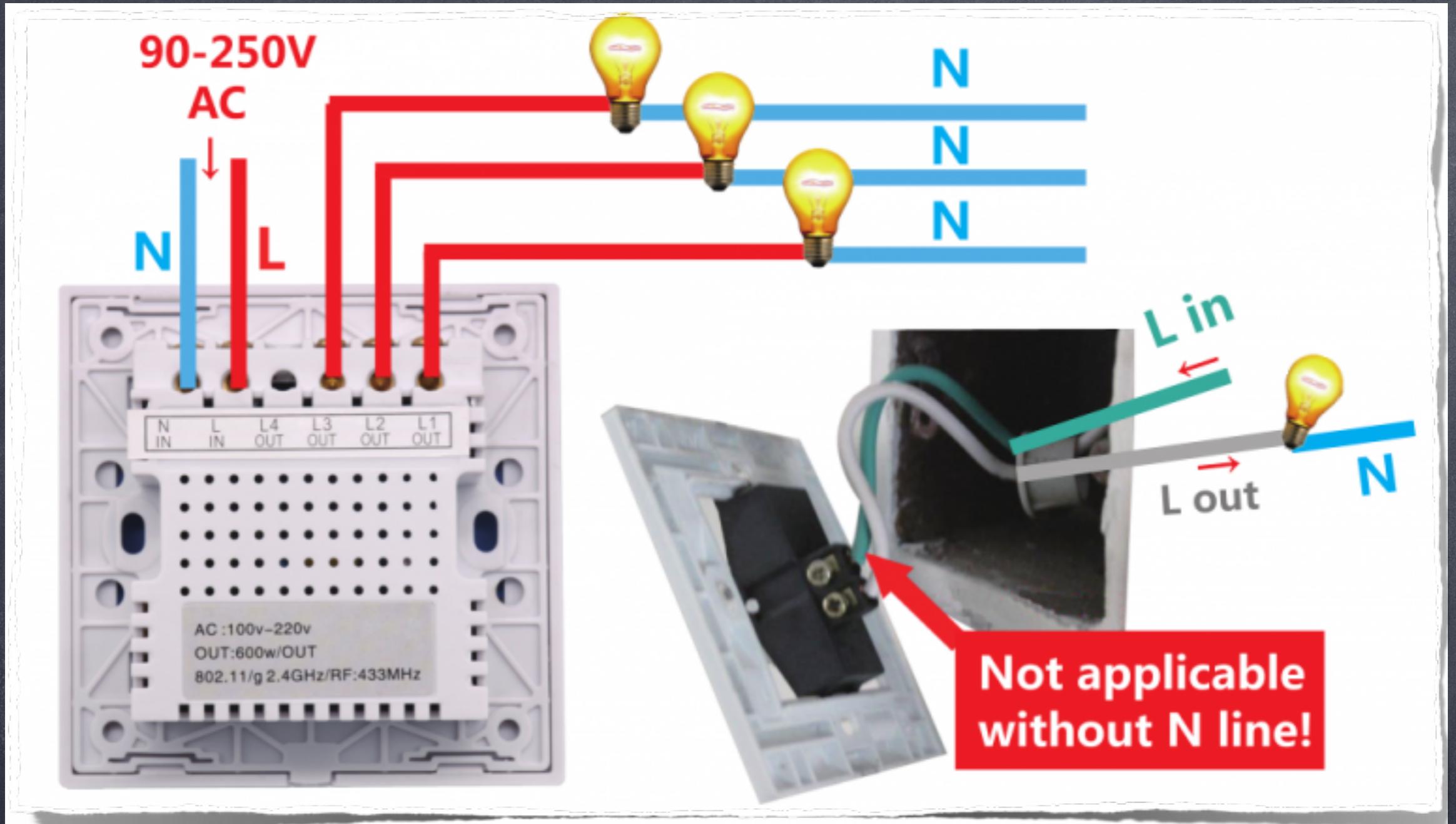


Phone a friend..

(@giannis sim on devstaff slack)



Problem #1:
No Neutral cable available



btw:

L: Line (φάση)

N: Neutral (Ουδέτερο)

Problem #2:

(but more important than #1)

No way do I trust
“the cloud”

I want this all to run locally

NOTHING

(pssst, if that previous slide hit a nerve,
...see you in #panopticon)

TO SEE

HERE

- ④ No access to my devices from the Internet
- ④ All control happens from within local network
- ④ No access to the internet for wall switches, etc.

- Need home automation server
 - Raspberry pi (v3)
 - MQTT server for events - mosquito
 - HomeAssistant - hass.io
(replaced homebridge)
- Flash wifi-enabled switches with OSS firmware*
- Block internet access for switches on home router

* <https://github.com/arendst/Tasmota>

Mosquitto

- wget <http://repo.mosquitto.org/debian/>
mosquitto-repo.gpg.key
- sudo apt-key add mosquitto-repo.gpg.key
- sudo wget -O /etc/apt/sources.list.d/mosquitto-stretch.list <http://repo.mosquitto.org/debian/>
mosquitto-stretch.list
- sudo apt-get install mosquitto
- sudo systemctl enable mosquitto
- sudo systemctl start mosquitto

HomeAssistant

```
@ docker run \
--init \
--detach \
--restart=always \
--name="home-assistant" \
-v /home/pi/homeassistant:/config \
-v /etc/localtime:/etc/localtime:ro \
--net=host \
homeassistant/raspberrypi3-homeassistant
```

HomeAssistant Conf

```
group: !include groups.yaml
automation: !include automations.yaml
script: !include scripts.yaml

homekit:
  auto_start: true

mqtt:
  broker: 192.168.xxx.xxx # redacted
  port: <redacted>

discovery:
  enable:
    - homekit

sensor:
  - platform: mqtt
    state_topic: "stat/ultimateCretanRainSensor"
    name: "Ultimate Cretan Rain Sensor"

light:
  - platform: mqtt
    name: "Kitchen Patio Lights"
    state_topic: "stat/sonoffKitchenTop/POWER2"
    command_topic: "cmnd/sonoffKitchenTop/POWER2"
```

Tasmota Conf

192.168.1.10/mq

Sonoff T1 3CH Module

Sonoff

MQTT parameters

Host ()
192.168.1.10

Port (1883)
1883

Client (DVES_B4AB0B)
DVES_%06X

User (DVES_USER)
DVES_USER

Password
.....

Topic = %topic% (sonoff)
sonoffKitchenTop

Full Topic (%prefix%/%topic%/)
%prefix%/%topic%/

Save

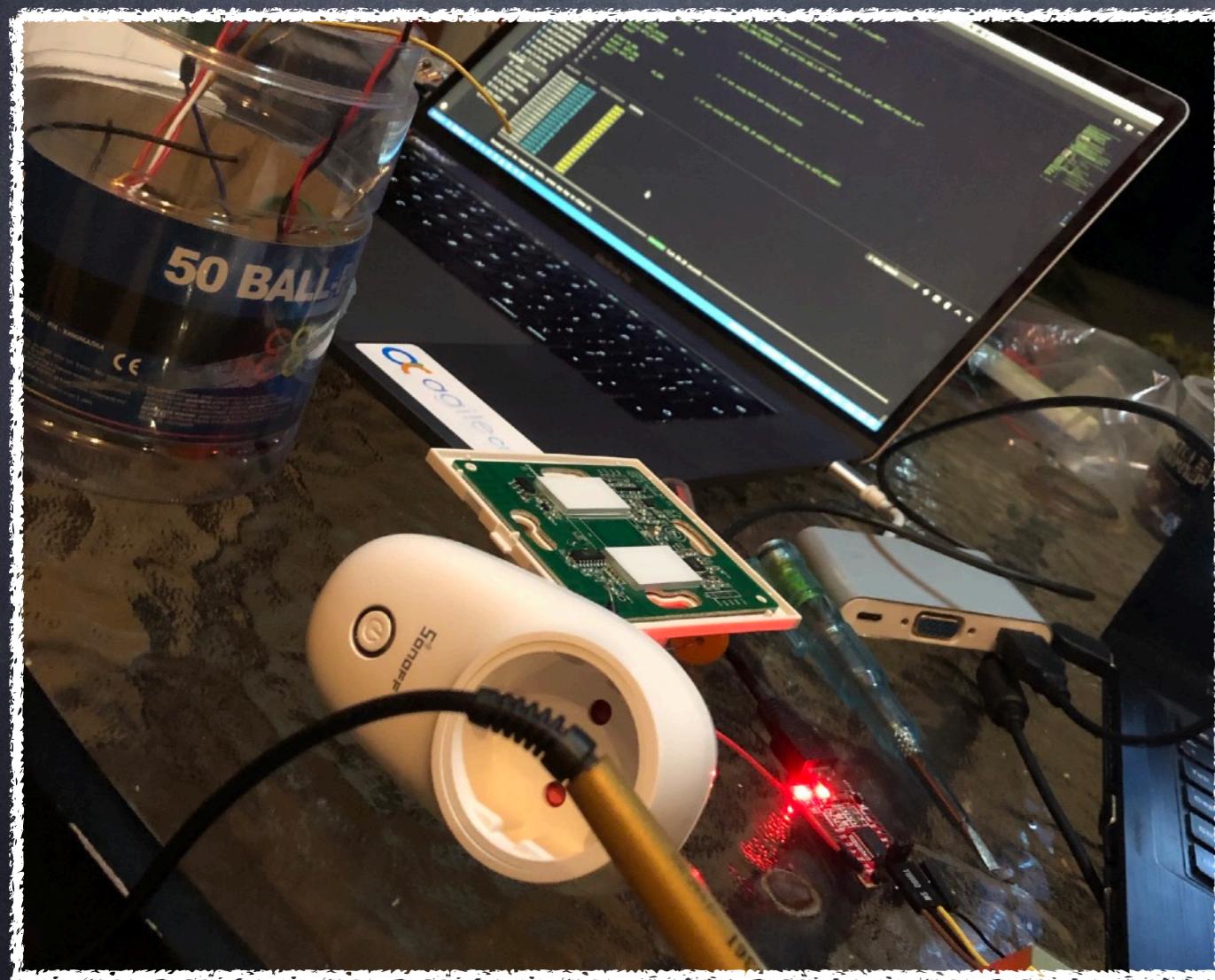
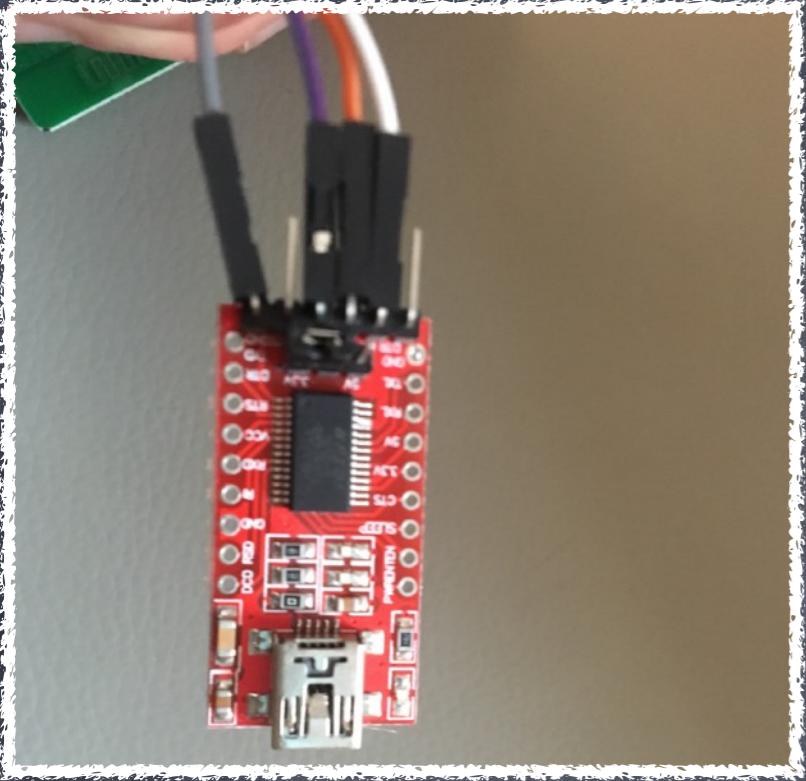
Configuration

Sonoff-Tasmota 6.4.1 bv Theo Arends

OK, Let's do it!



ordered a bunch of switches







Hey House,

Please make sure
there's some light outside

```
##### fwta kipou #####
#
- id: outside_lights_at_night
  alias: Turn on Outside Lights, half an hour after sunset
  trigger:
    - platform: sun
      event: sunset
      offset: 00:30:00
  action:
    - entity_id: group.outside_lights
      service: light.turn_on
- id: outside_lights_morning
  alias: Turn off Outside Lights, 45m before sunrise
  trigger:
    - platform: sun
      event: sunrise
      offset: -00:45:00
  action:
    - entity_id: group.outside_lights
      service: light.turn_off
```

Hey House,
Make sure there's some light outside

```
outside_lights:  
  name: Outside Lights  
  entities:  
    - light.skala_kipou  
      # disabled due to shortcircuit  
    - light.kitchen_patio_lights  
    - light.eisodos_1a  
      # don't need both  
    - light.mpalkoni_saloniu
```

Hey House,
this is what "light outside" means

Hey House,

the plants need some water

```
##### potisma #####
#
- id: water_north_plants
  alias: Turn on North Drip Line at 7:55, on Mon, Wed, Fri
  trigger:
    - at: 07:55:00
      platform: time
  action:
    - entity_id: switch.drip_line_north
      service: switch.turn_on
```

Hey House,
the plants need some water

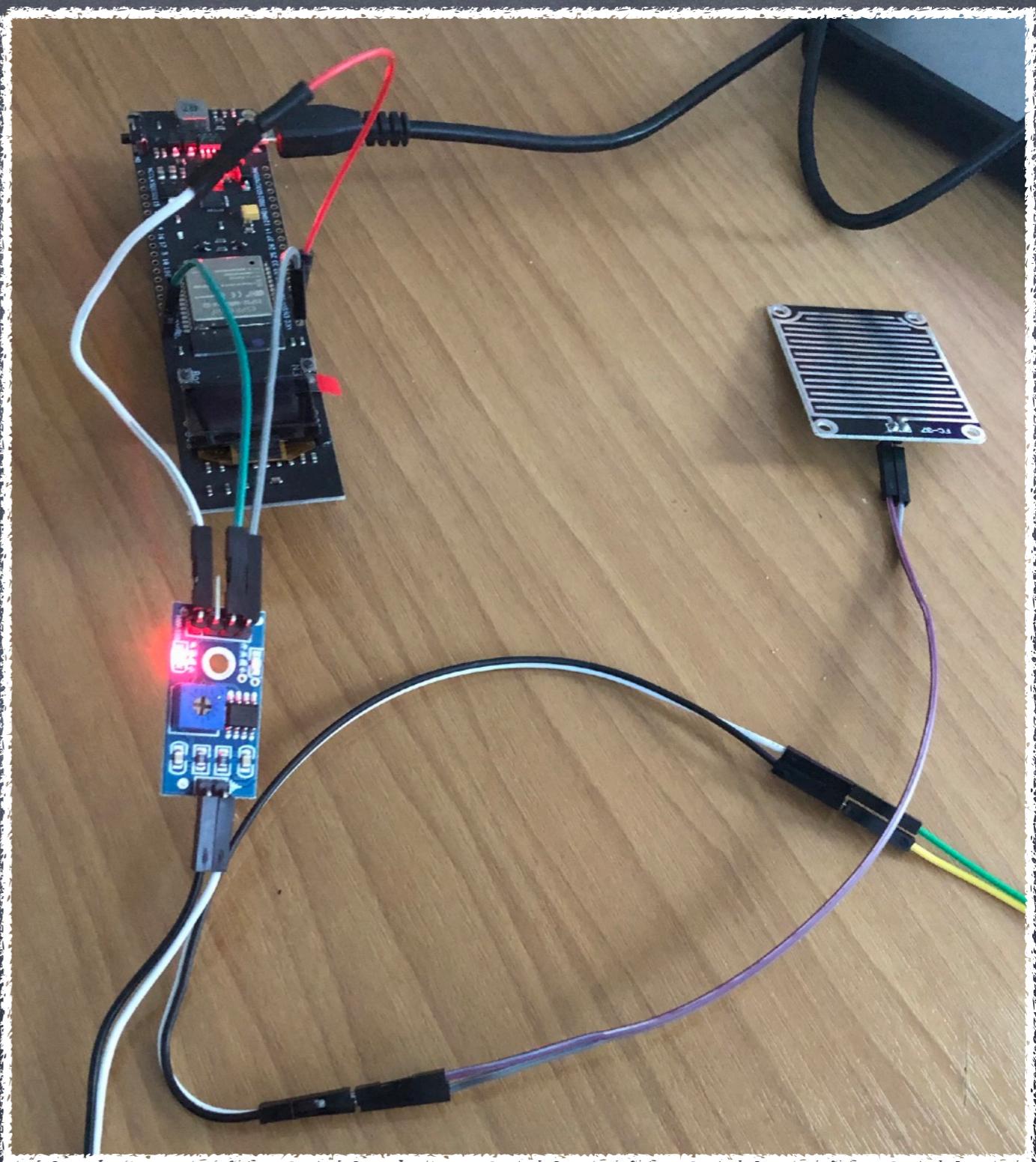


Rain Sensor

```
  id: water_north_plants
  alias: Turn on North Drip Line at 7:55, on Mon, Wed, Fri
  trigger:
    - at: 07:55:00
      platform: time
  condition:
    condition: and
    conditions:
      - condition: time
        weekday:
          - mon
          - wed
          - fri
      - condition: or
        conditions:
          - condition: state
            entity_id: sensor.ultimate_cretan_rain_sensor
            state: unknown
          - condition: numeric_state
            entity_id: sensor.ultimate_cretan_rain_sensor
            above: 1400
  action:
    - entity_id: switch.drip_line_north
      service: switch.turn_on
```

Hey House,
don't water the plants if it's rained

esp32 board +
capacitive
rain
sensor

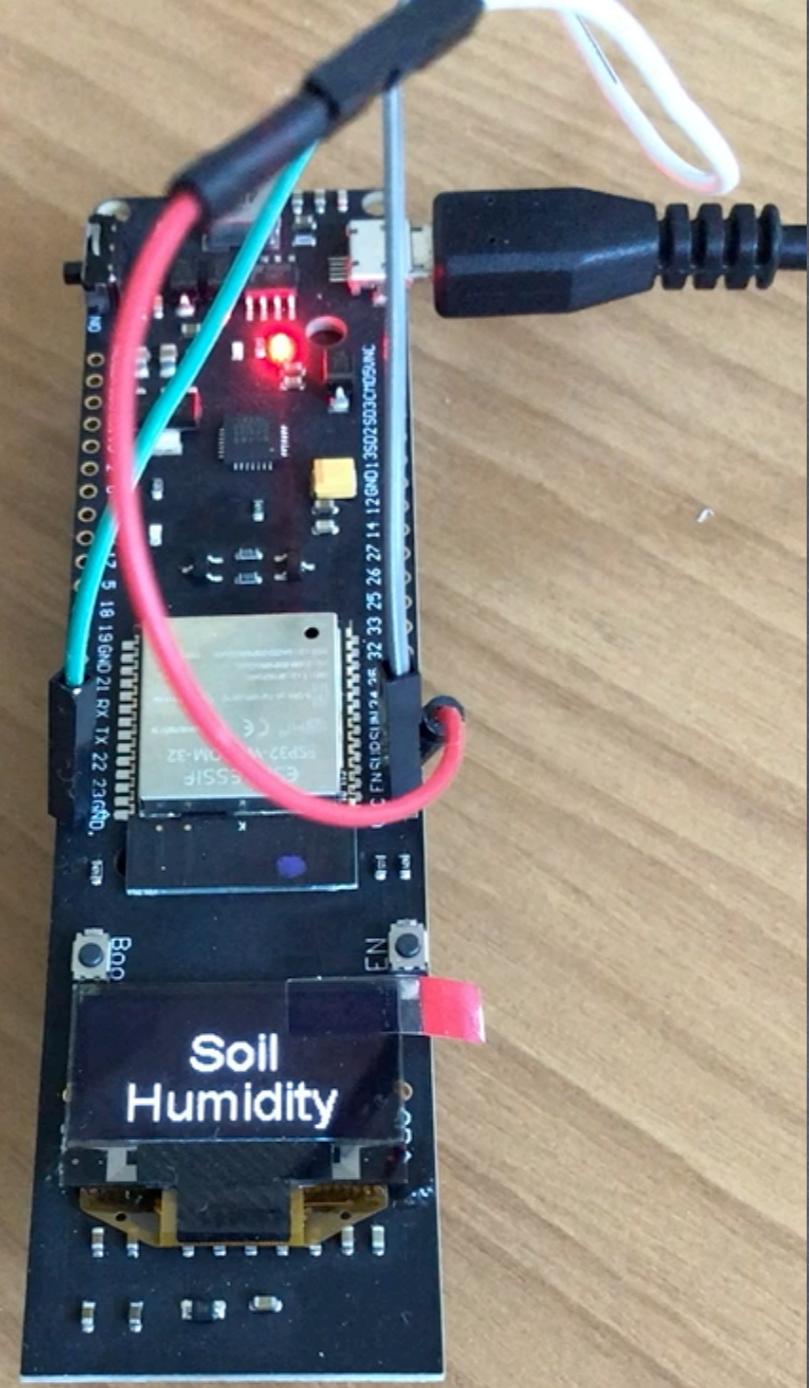


Arduino IDE - flash this to esp32

...some other code

```
void loop() {  
  
    if (!client.connected()) {  
        setup_wifi();  
        reconnectToMqtt();  
    }  
  
    long now = millis();  
    if (now - lastMsg > 10000) { // every 10 seconds  
        lastMsg = now;  
  
        // read the input on analog pin 0:  
        int sensorValue = analogRead(rainPin);  
        Serial.print(sensorValue);  
  
        sprintf (msg, 50, "%ld", sensorValue);  
        Serial.print("Publish message: ");  
        Serial.println(msg);  
        client.publish("stat/ultimateCretanRainSensor", msg);  
    }  
}
```

... some other code - ping me @gsaslis for questions until this makes it online somewhere



Music

[Unit]

Description=Shairport Sync - AirPlay Audio Receiver
After=sound.target
Requires=avahi-daemon.service
After=avahi-daemon.service
Wants=network-online.target
After=network.target network-online.target

[Service]

ExecStart=/usr/local/bin/shairport-sync
User=shairport-sync
Group=shairport-sync

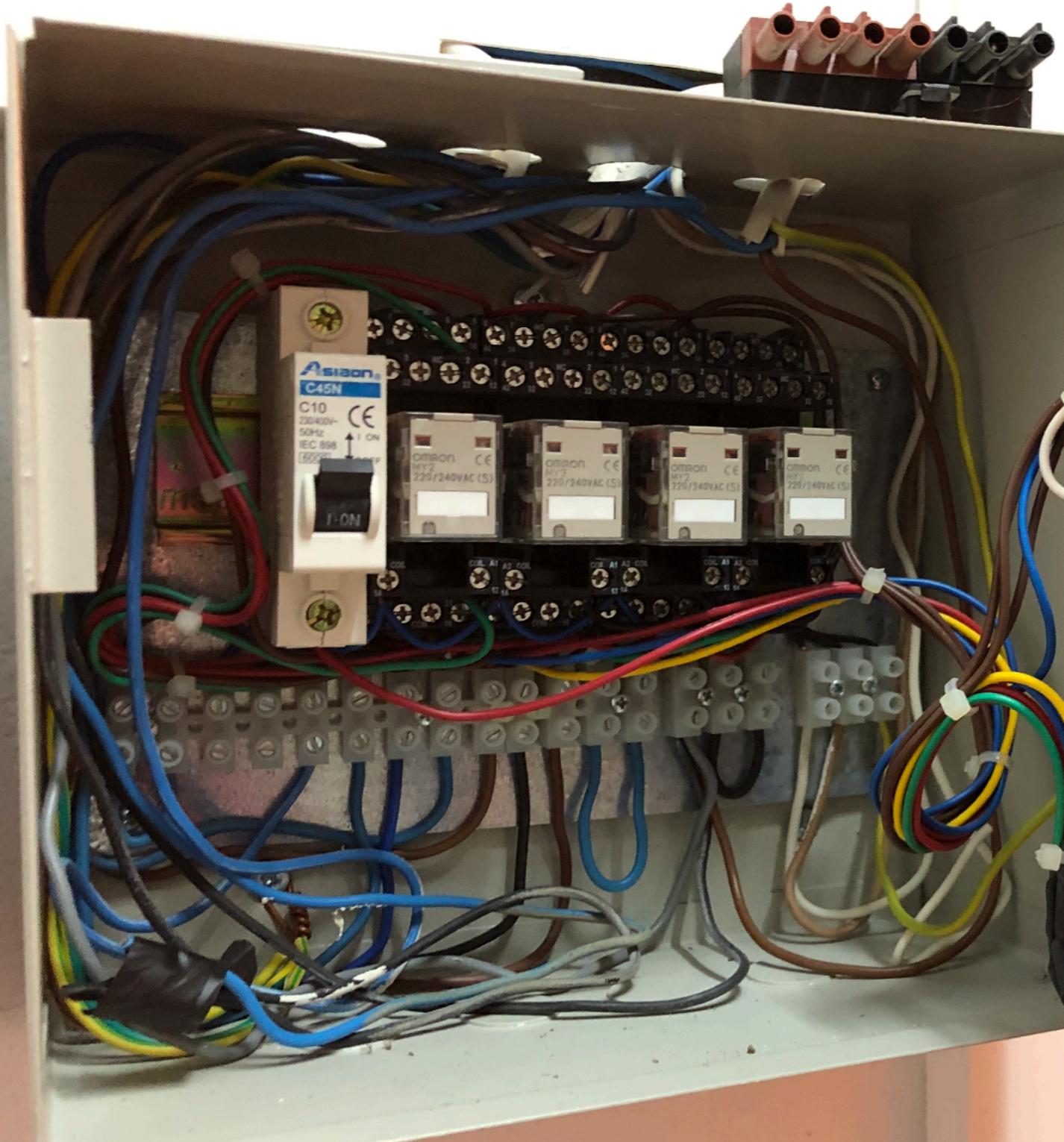
[Install]

WantedBy=multi-user.target

~

Heating

//TODO...



Questions?

(or later online @gsaslis)

