IoT Smart Home Project Review

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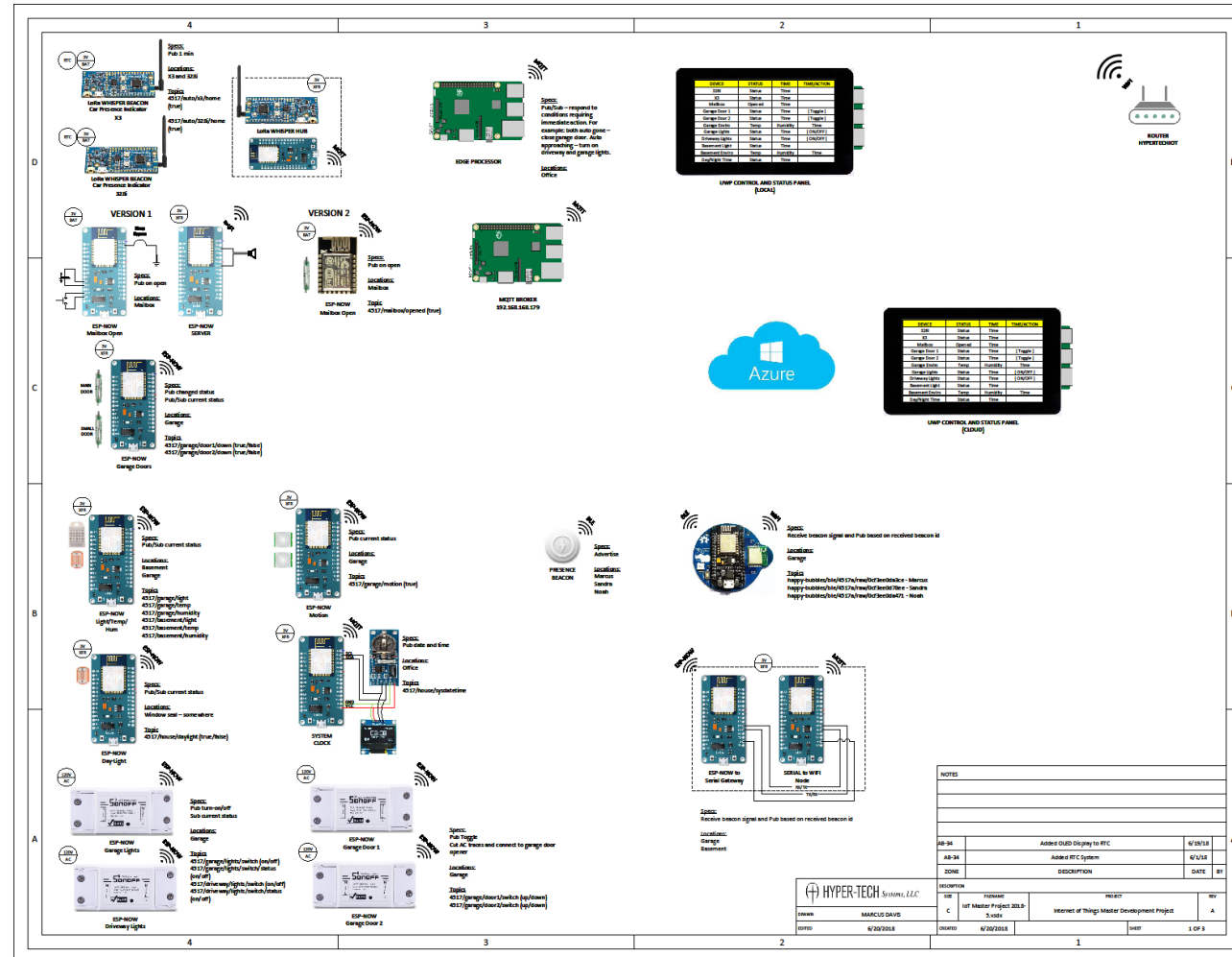
It has been over a year since I introduced the group to my Internet of Things (IoT) project design. I have finally released many of the sensors into the wild. So this week we will discuss pros, cons and lessons learn from the IoT implementation.
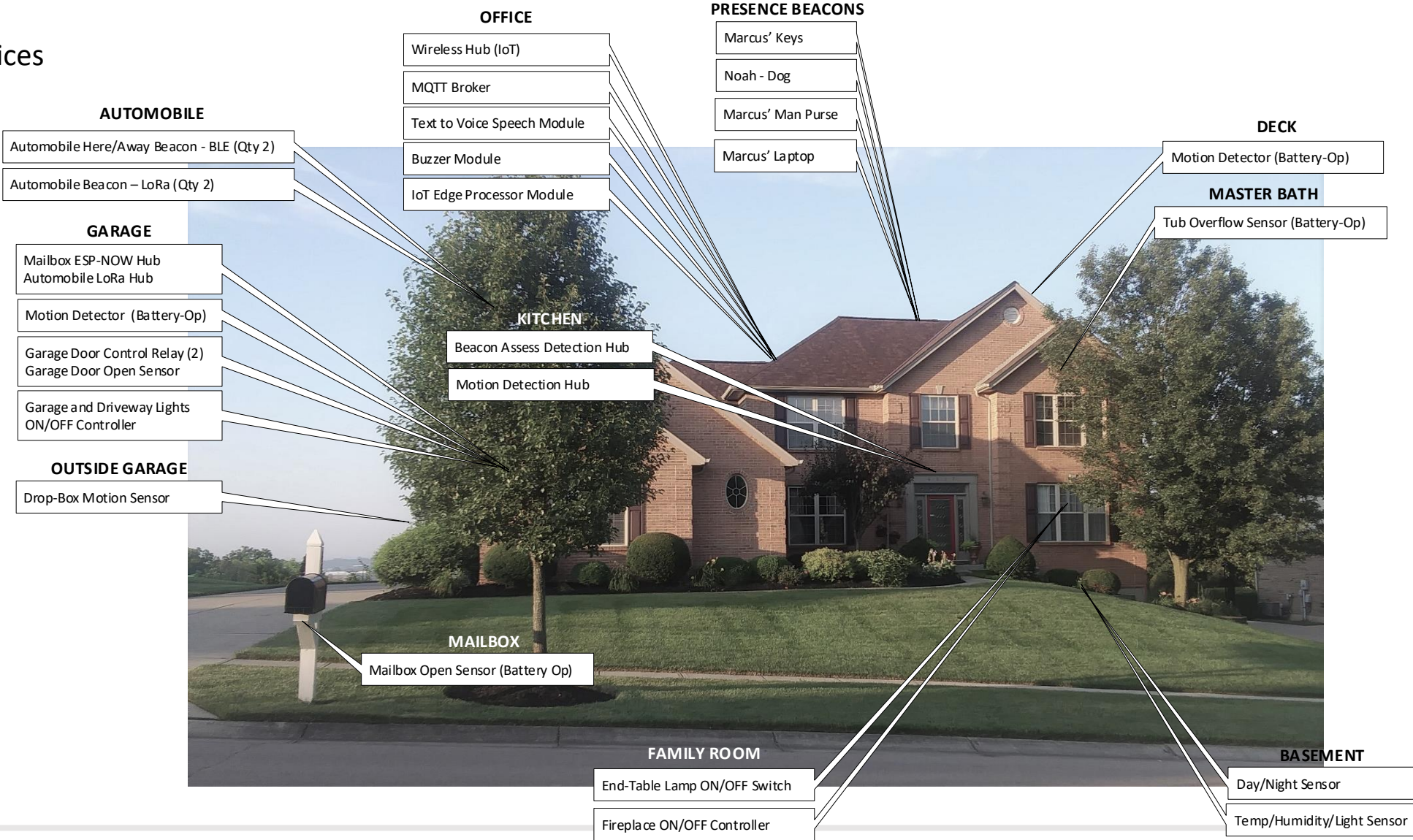
- IoT Project System Design
- IoT Devices
- Devices Deployed
- Text to Speech Module – Functional Testing
- IoT Automations
- Project Component Standardization
- Random Thoughts
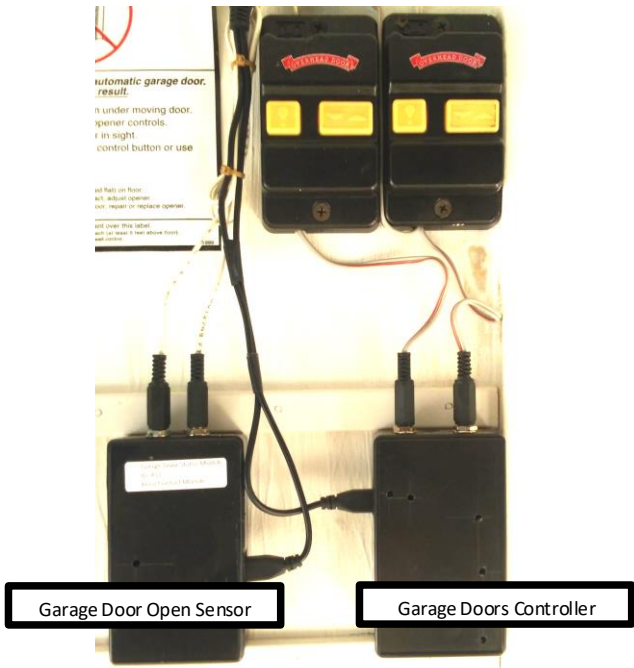- What's Next?

IoT Project System Design

IoT Smart Home Project Review

IoT Devices

OFFICE
- Wireless Hub (IoT)
- MQTT Broker
- Text to Voice Speech Module
- Buzzer Module
- IoT Edge Processor Module

PRESENCE BEACONS
- Marcus' Keys
- Noah - Dog
- Marcus' Man Purse
- Marcus' Laptop

AUTOMOBILE
- Automobile Here/Away Beacon - BLE (Qty 2)
- Automobile Beacon – LoRa (Qty 2)

DECK
- Motion Detector (Battery-Op)

MASTER BATH
- Tub Overflow Sensor (Battery-Op)

GARAGE
- Mailbox ESP-NOW Hub
  Automobile LoRa Hub
- Motion Detector (Battery-Op)
- Garage Door Control Relay (2)
  Garage Door Open Sensor
- Garage and Driveway Lights
  ON/OFF Controller

KITCHEN
- Beacon Assess Detection Hub
- Motion Detection Hub

OUTSIDE GARAGE
- Drop-Box Motion Sensor

MAILBOX
- Mailbox Open Sensor (Battery Op)

FAMILY ROOM
- End-Table Lamp ON/OFF Switch
- Fireplace ON/OFF Controller

BASEMENT
- Day/Night Sensor
- Temp/Humidity/Light Sensor

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Devices in Garage

Automobile LoRa Hub

Mailbox ESP-NOW Hub

GARAGE

Motion Detector (Battery-Op)

Garage Door Open Sensor

Garage Doors Controller

Garage and Driveway
Lights ON/OFF Controller

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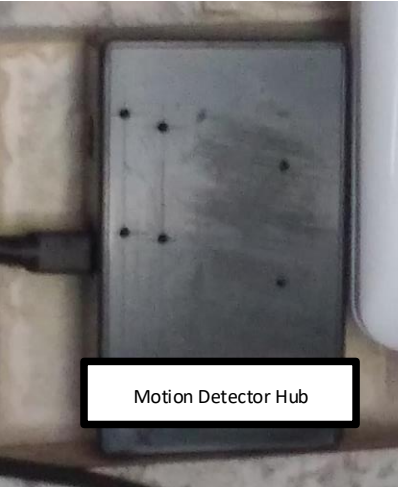Devices Outdoors

Motion Detector (Battery-Op)

Mailbox Opened Sensor

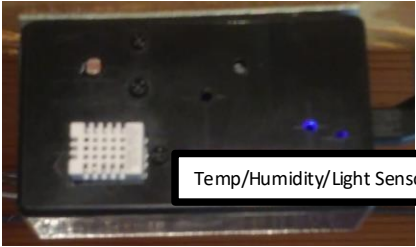Motion Detector (Battery-Op)

Devices Indoors

Presence Beacon Hub

Motion Detector Hub
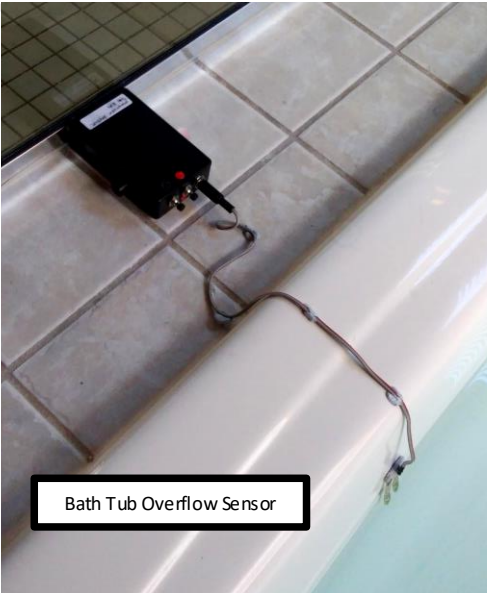
Bath Tub Overflow Sensor

Sonoff Lamp ON/OFF Controller

Temp/Humidity/Light Sensor

Daylight/Darkness Sensor
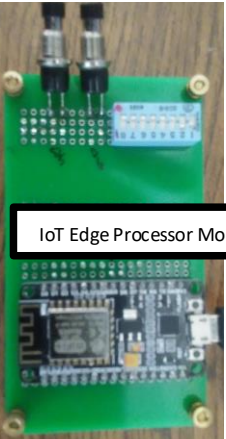
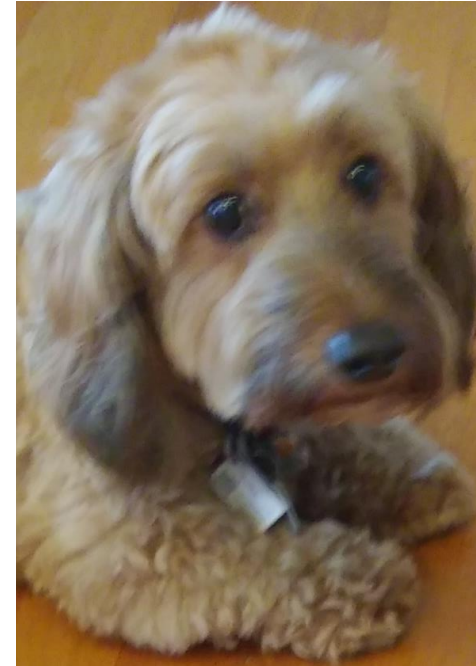IoT Edge Processor Module

Text-to-Speech Module

Fireplace ON/OFF Controller

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Devices for Automobile Presence

Automobile Here/Away Beacon - BLE

Automobile Beacon - LoRa

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Presence Beacons

Text to Speech Module – Functional Testing

Status

Alert

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IoT Automations

|	
Action	Turn Family Room Lamps ON
Condition	Dark outside
Conditon	Motion detected on the Deck
Control Topic	4517/house/workflow/101/0 (enable) 4517/house/workflow/101/1 (disable) Payload: none

IoT Automations

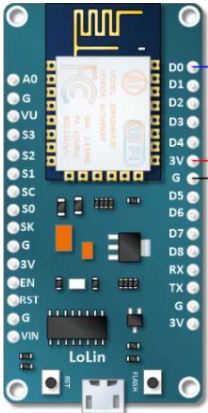|	
Action	Turn Garage and Driveway Lights ON
Condition	Dark outside
Conditon	Auto status change Away => Here
Control Topic	4517/house/workflow/102/0 (enable) 4517/house/workflow/102/1 (disable) Payload: none
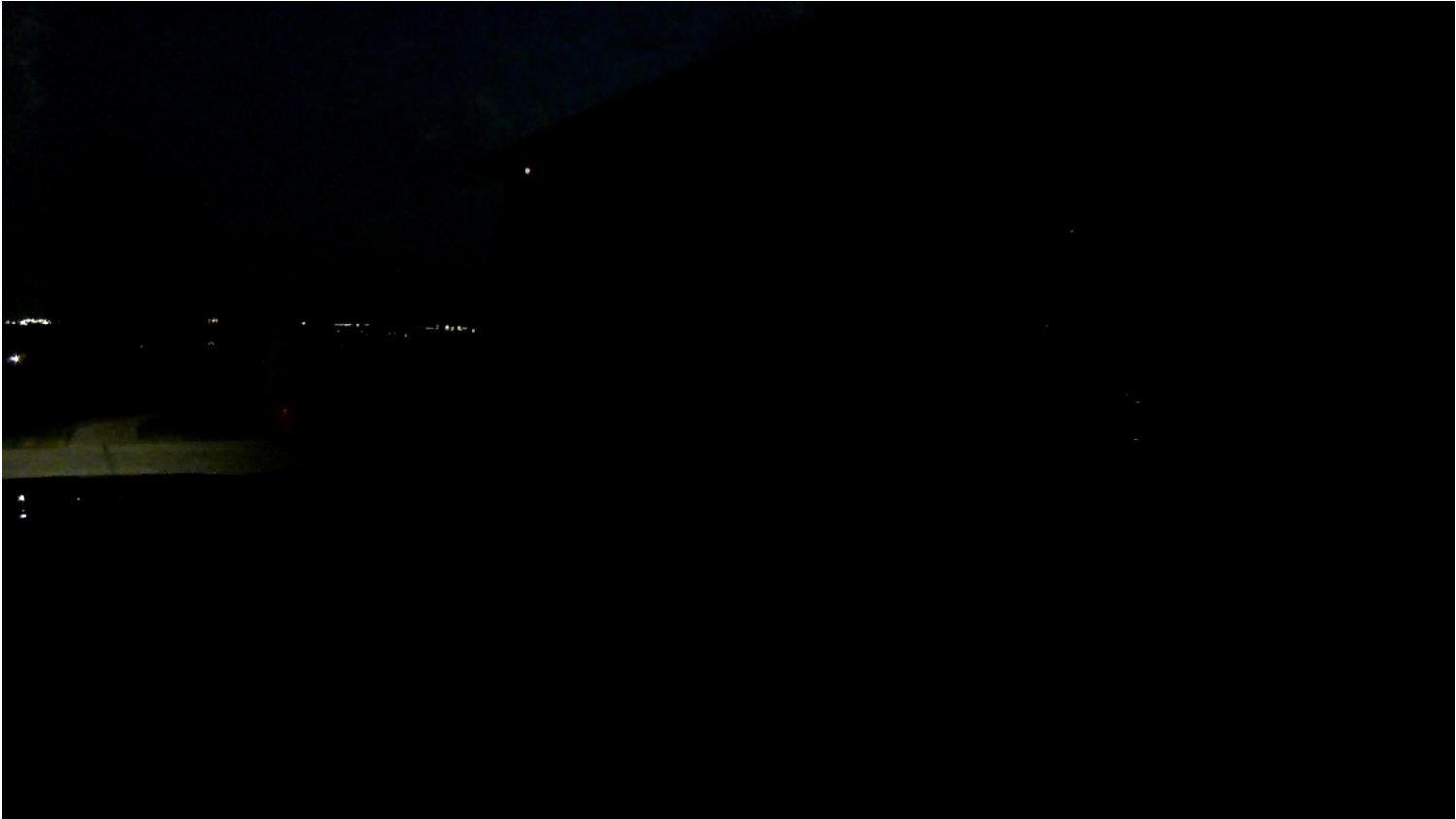
Project Component Standardization
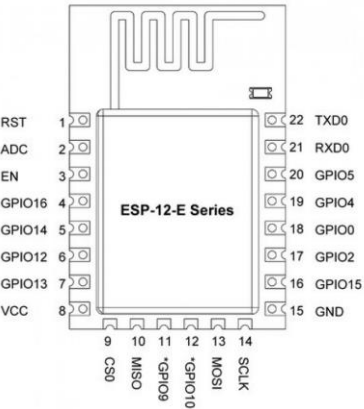
ESP8266
ESP-12E

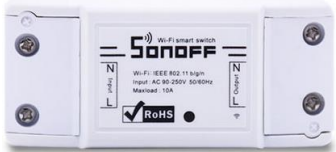ESP8266 MCU ESP-12E

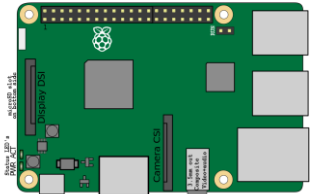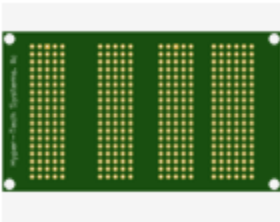LORA MCU

SONOFF AC SWITCH

Visual Studio + Visual Micro

RASPBERRY PI 3B +

RADIUS RAD
BEACONS

100 x 60 x 25 mm
Enclosure

PCB Prototype

Order Number: Y2-2446449A

30 pcs $18.00

Product Details

Build Time: 2 days

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Random Thoughts

- Audio feedback system validation
- USB Outlets
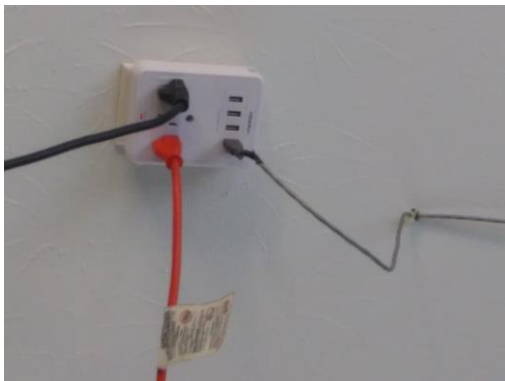
What's Next?

- Connect to Microsoft Azure
- Alexa Integration
- Over-the-Air Updates
- Water Flow Alert
- Stove ON Alert Sensor

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