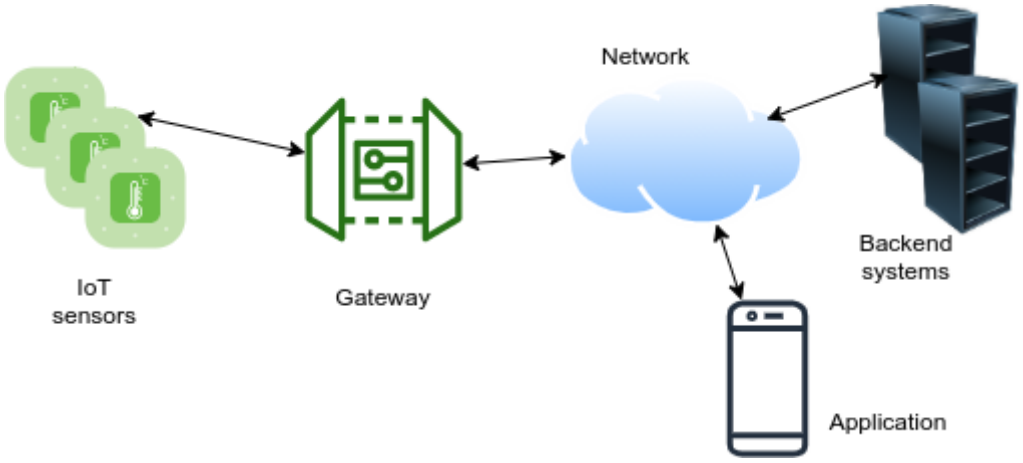
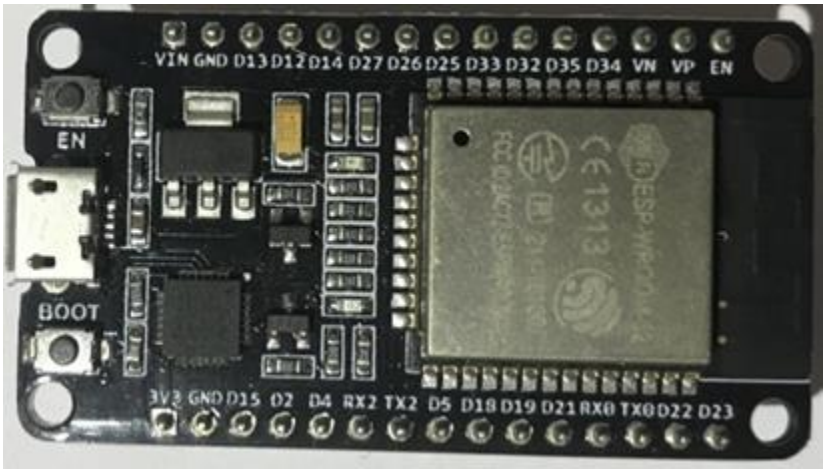
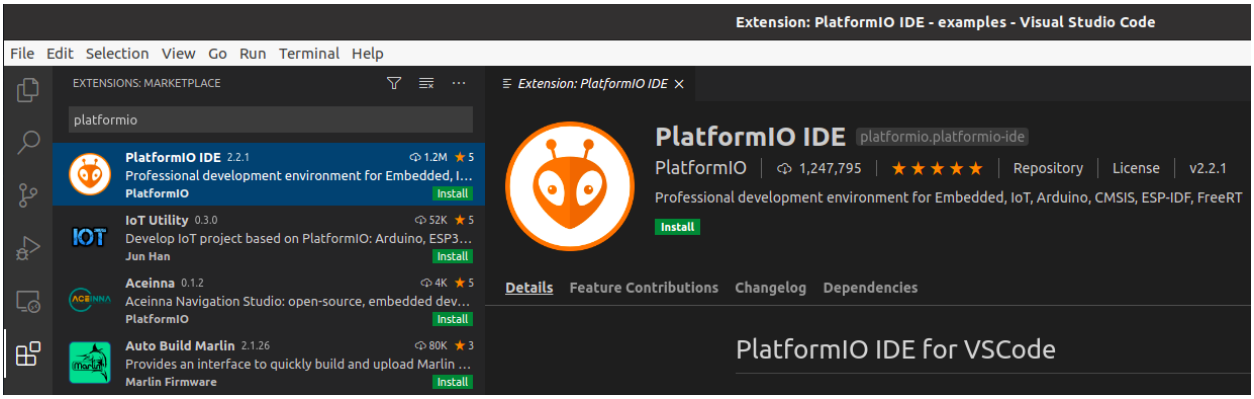
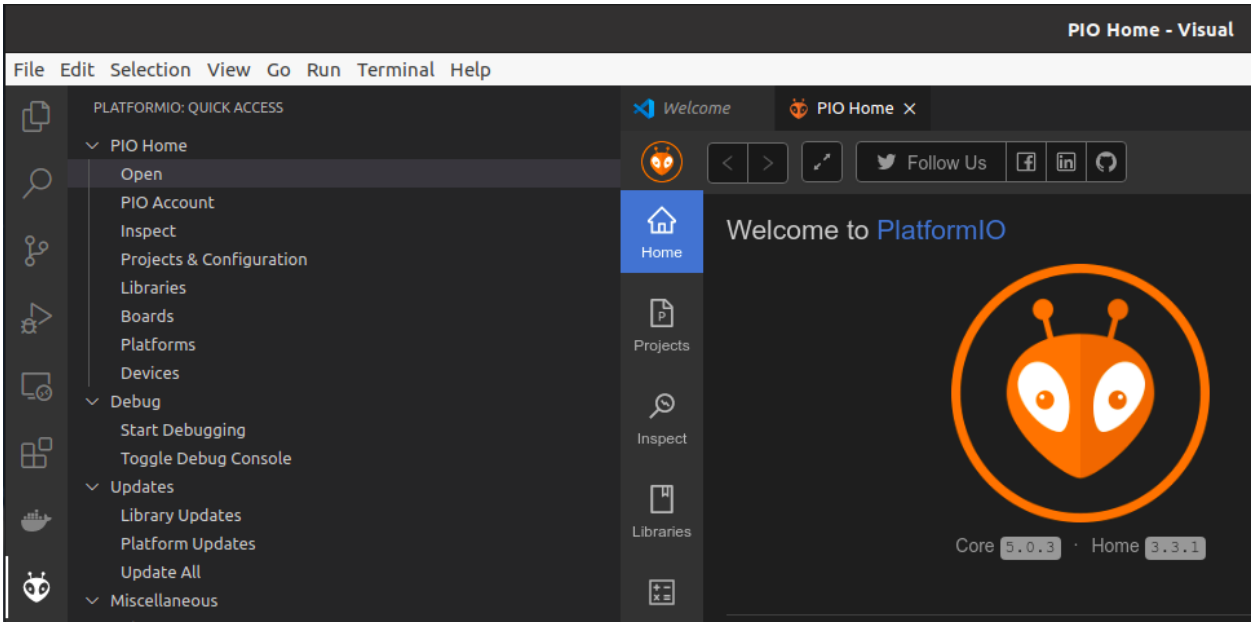
Chapter 1: Getting Started with ESP32

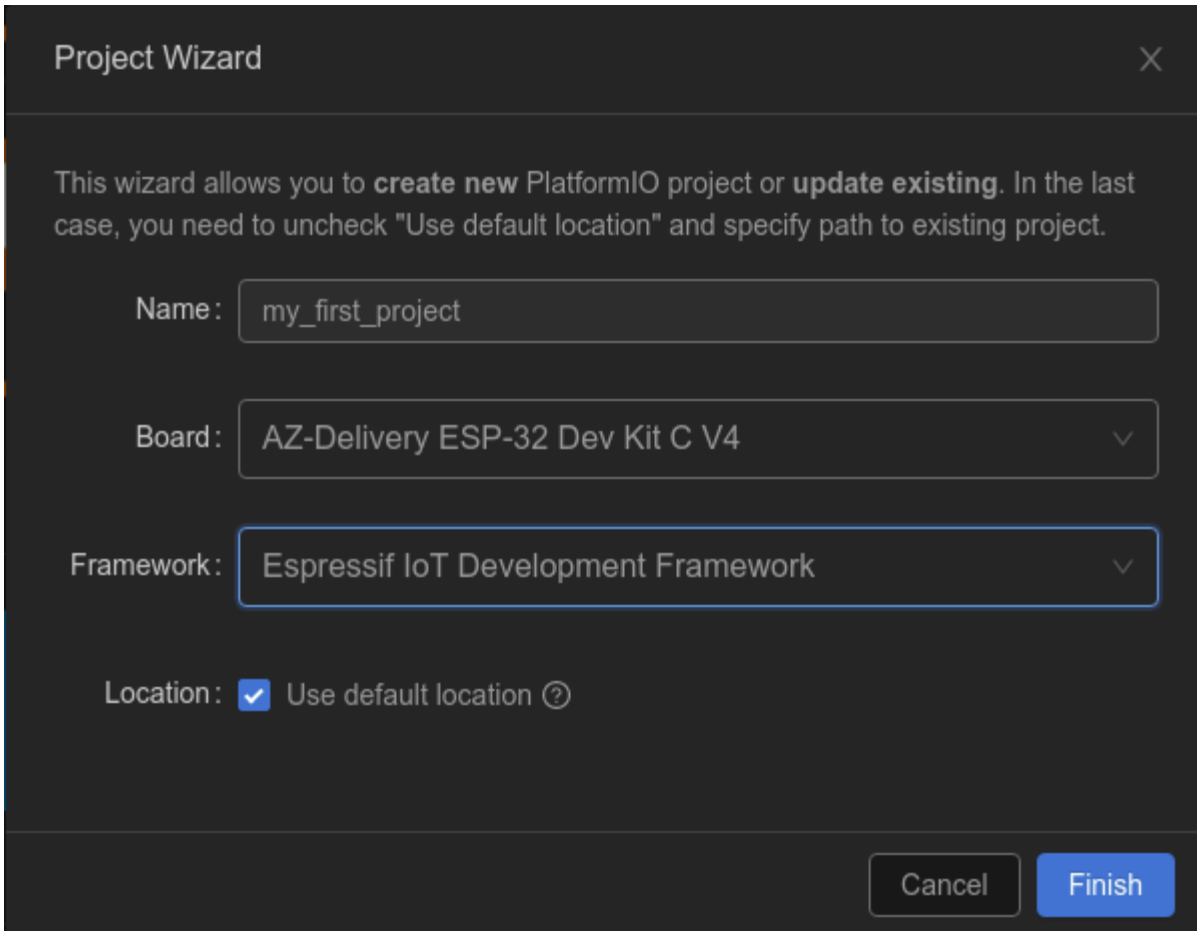


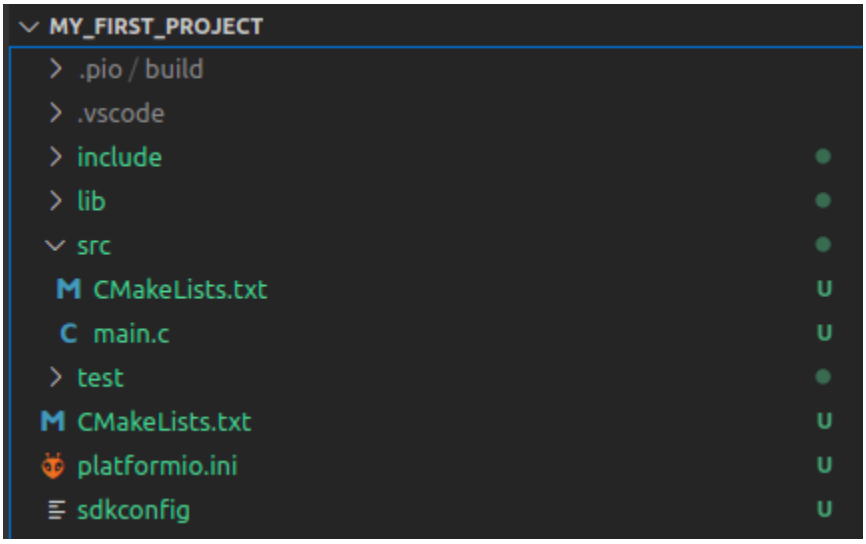


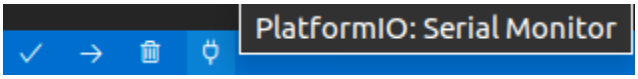
Chapter 2: Talking to the Earth – Sensors and Actuators

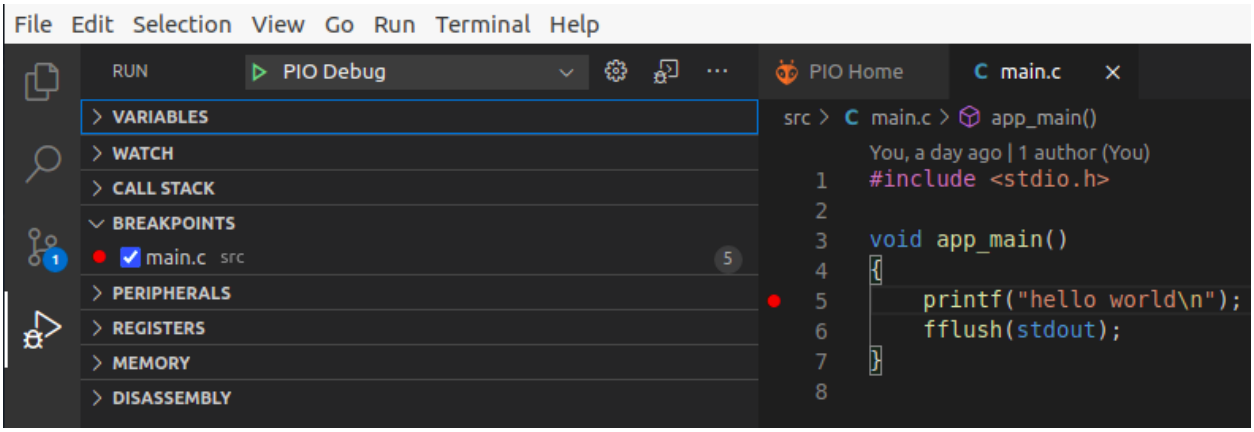


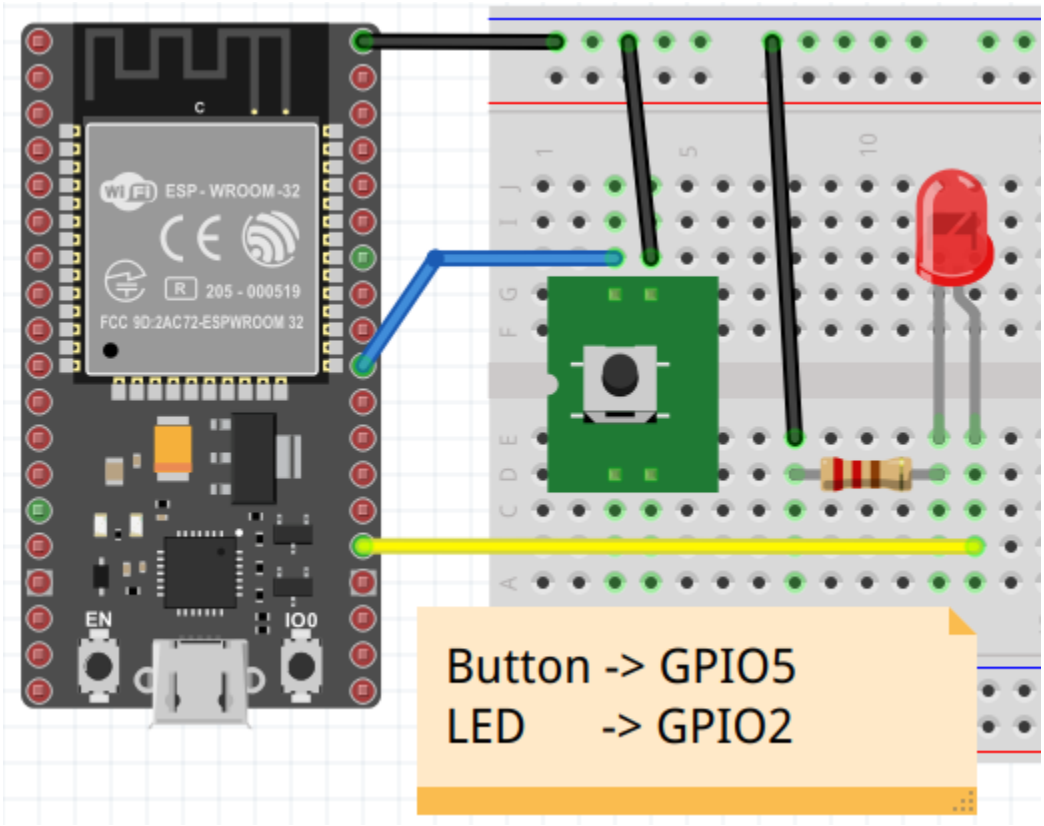


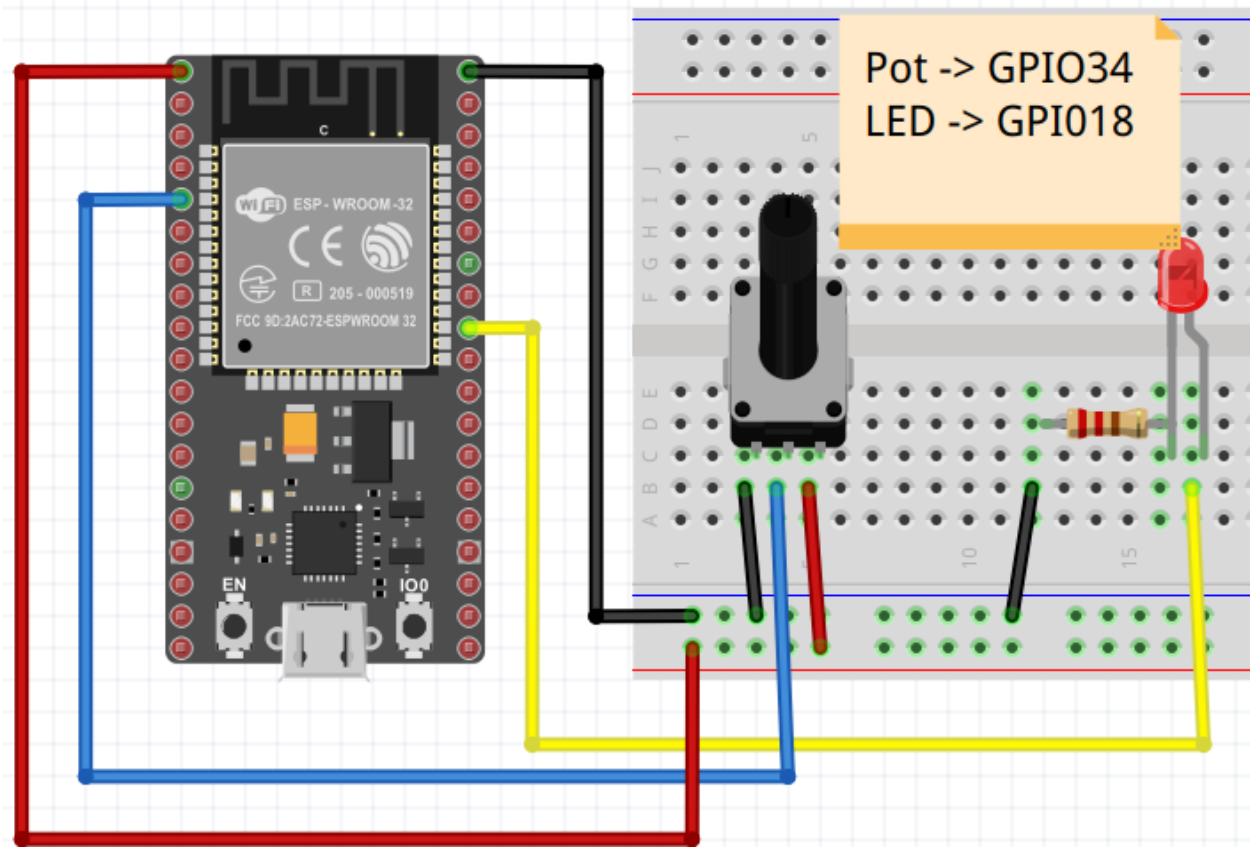

Project Wizard
This wizard allows you to create new PlatformIO project or update existing. In the last case, you need to uncheck "Use default location" and specify path to existing project.
Name: my_first_project
Board: AZ-Delivery ESP-32 Dev Kit C V4
Framework: Espressif IoT Development Framework
Location: Use default location
Cancel
Finish

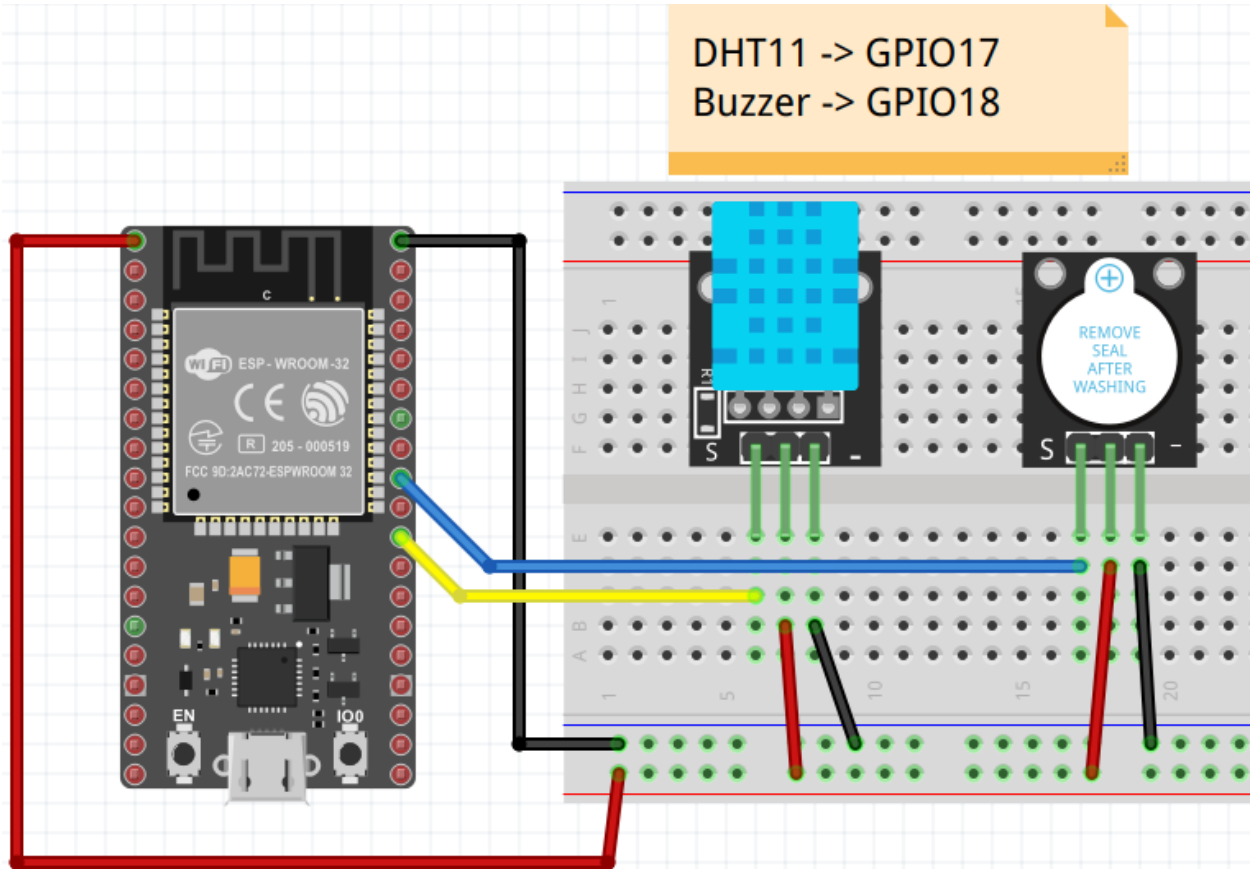

MY_FIRST_PROJECT
.pio / build
.vscode
include
lib
src
CMakeLists.txt
main.c
test
CMakeLists.txt
platformio.ini
sdkconfig

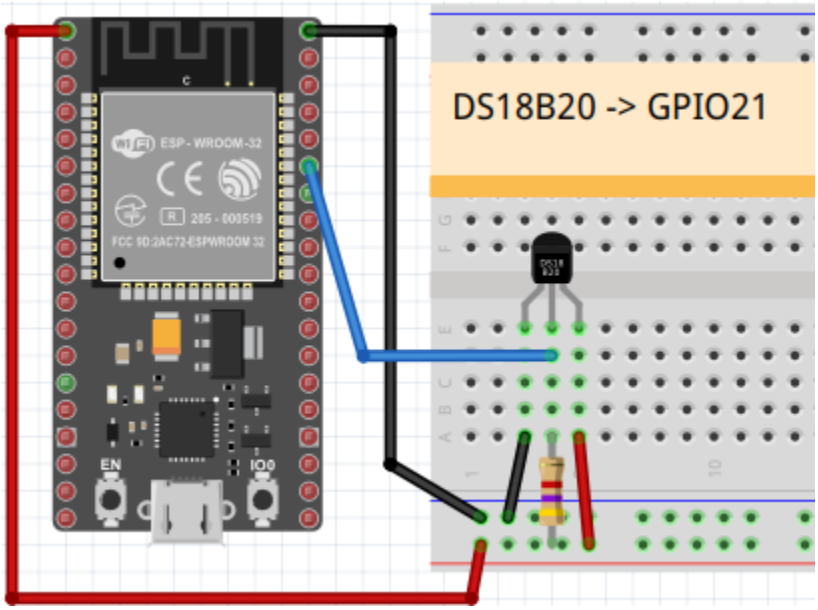

PlatformIO: Serial Monitor


File Edit Selection View Go Run Terminal Help
RUN
PIO Debug
PIO Home
main.c
VARIABLES
WATCH
CALL STACK
BREAKPOINTS
main.c src
PERIPHERALS
REGISTERS
MEMORY
DISASSEMBLY
src > main.c > app_main()
You, a day ago | 1 author (You)
#include <stdio.h>
void app_main()
{
printf("hello world\n");
fflush(stdout);
}

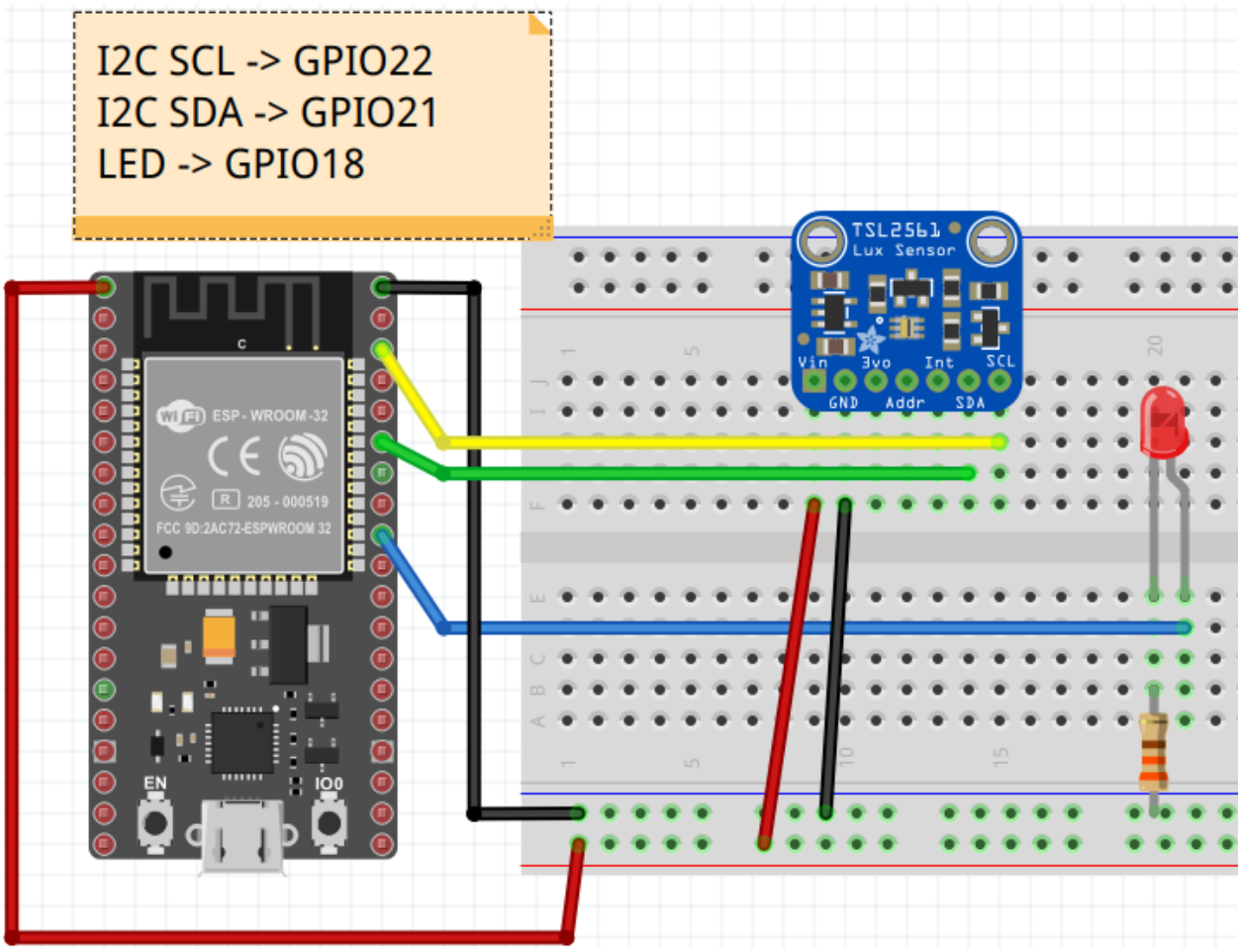

ESP-WROOM-32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
Button -> GPIO5
LED -> GPIO2

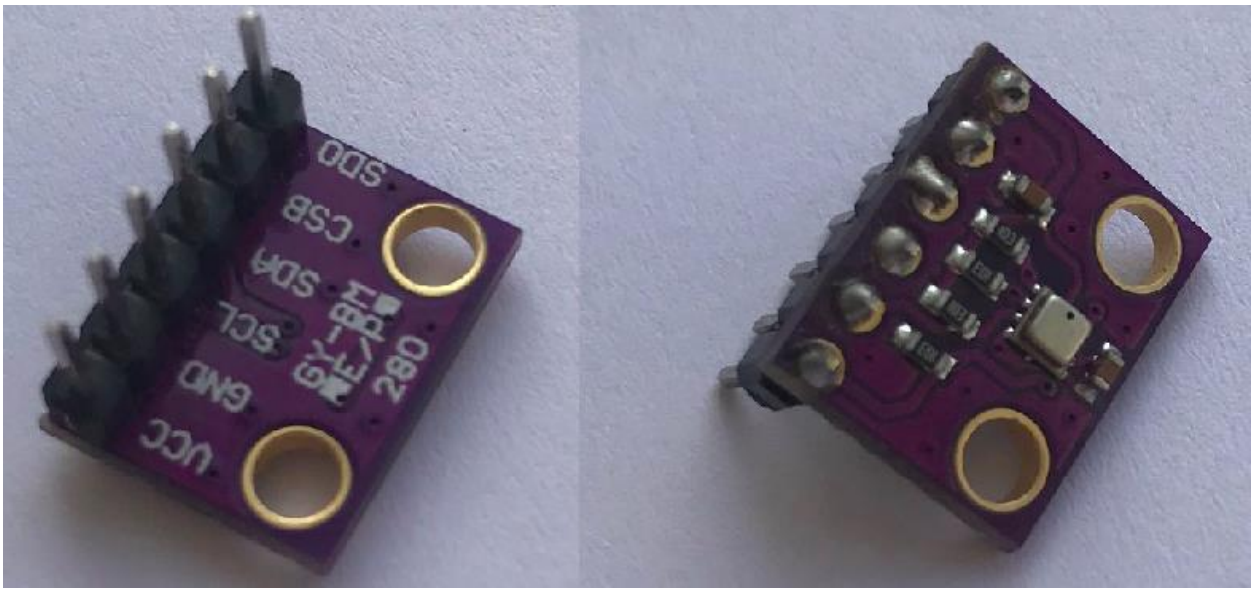

Pot -> GPIO34
LED -> GPI018
ESP - WROOM - 32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0

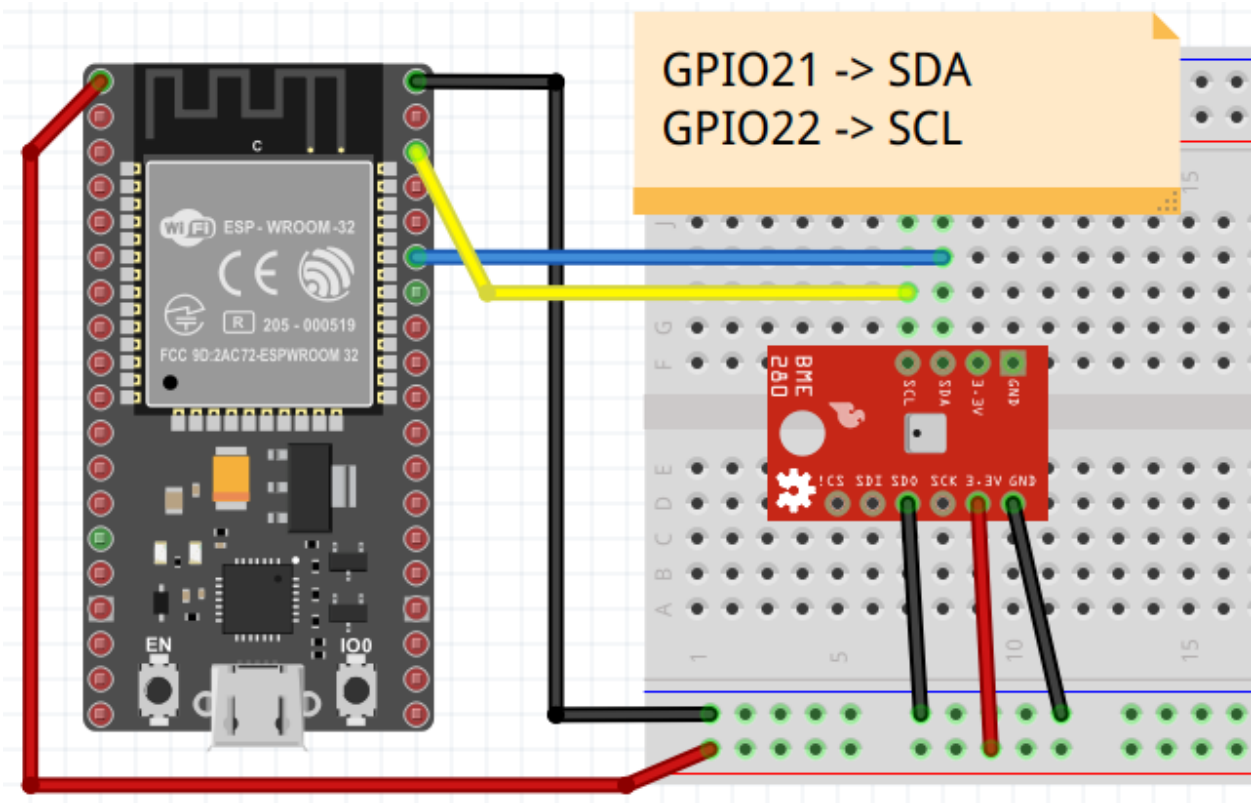

DHT11 -> GPIO17
Buzzer -> GPIO18
ESP - WROOM -32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
REMOVE
SEAL
AFTER
WASHING


DS18B20 -> GPIO21
ESP - WROOM -32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0

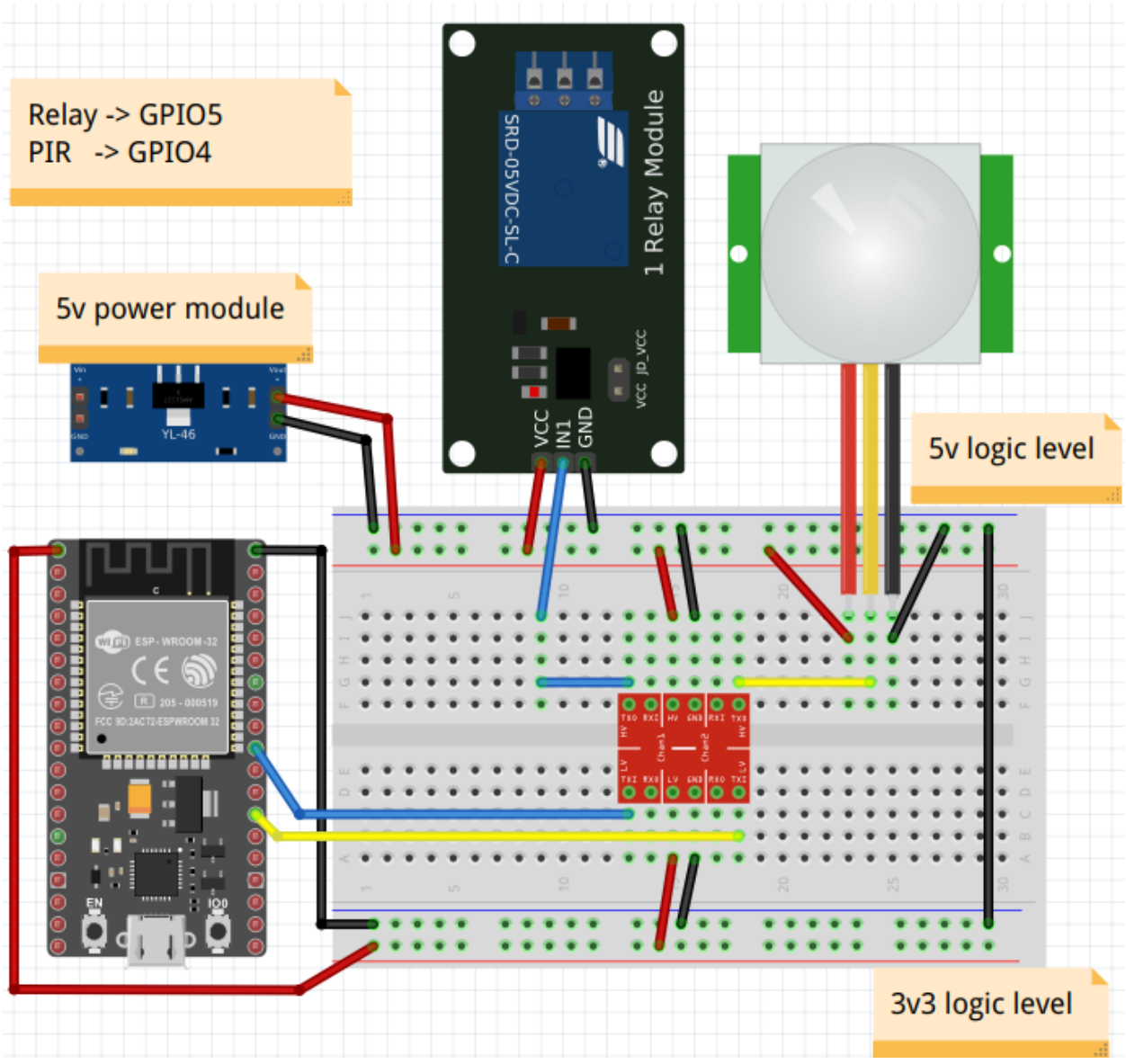

TSL2561
Lux Sensor
Vin
3vo
Int
SCL
GND
Addr
SDA


I2C SCL -> GPIO22
I2C SDA -> GPIO21
LED -> GPIO18
TSL2561
Lux Sensor
Vin
3vo
Int
SCL
GND
Addr
SDA
ESP-WROOM-32
205 - 000519
FCC ID:2AC72-ESPWROOM 32
EN
IO0

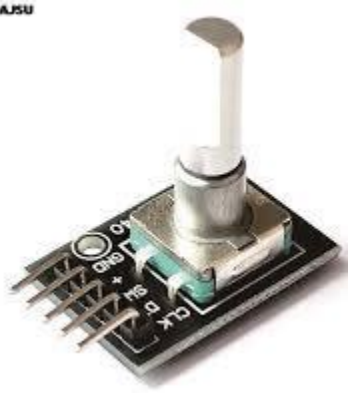

SDO
CSB
SDA
SCL
GND
VCC
280

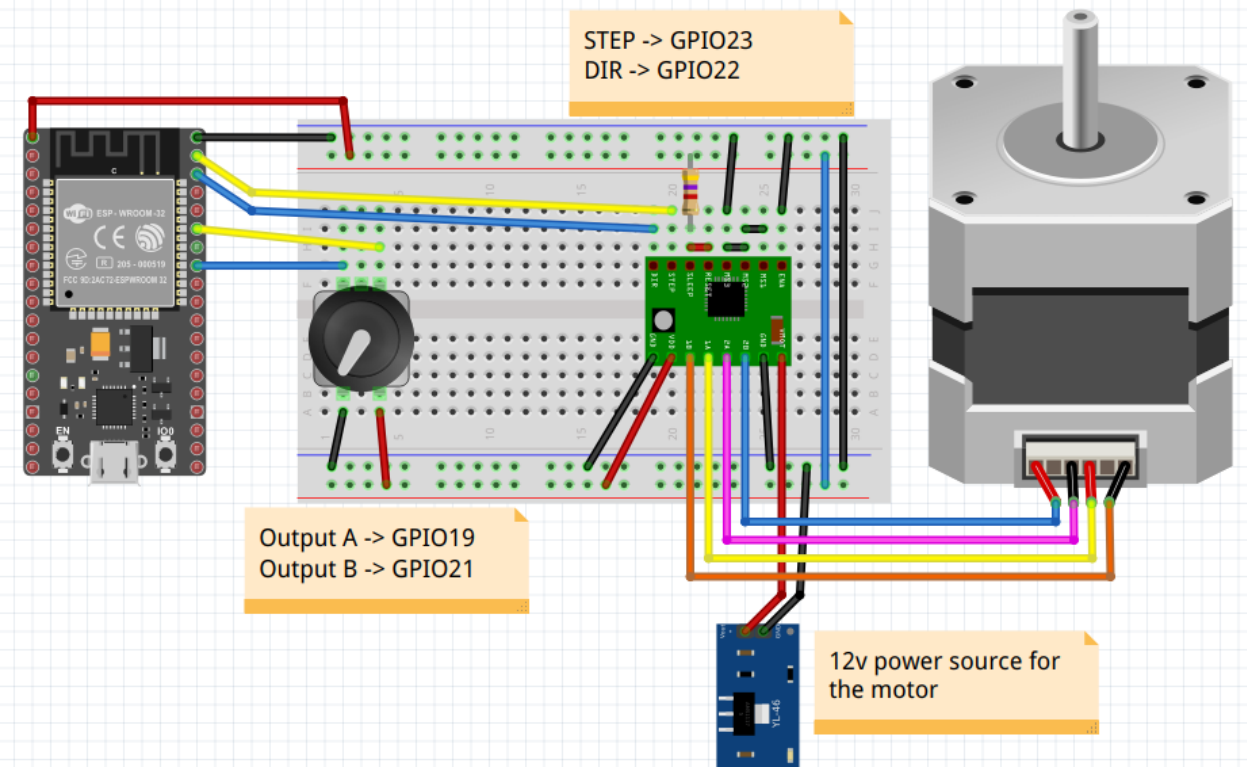

GPIO21 -> SDA
GPIO22 -> SCL
ESP-WROOM-32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
BME 280
SCL
SDA
3.3V
GND
!CS SDI SDO SCK 3.3V GND


HW-482
FL-3FF-S-Z
5VDC
10A 250VAC / 30VDC
12A 125VAC / 28VDC
ON Led

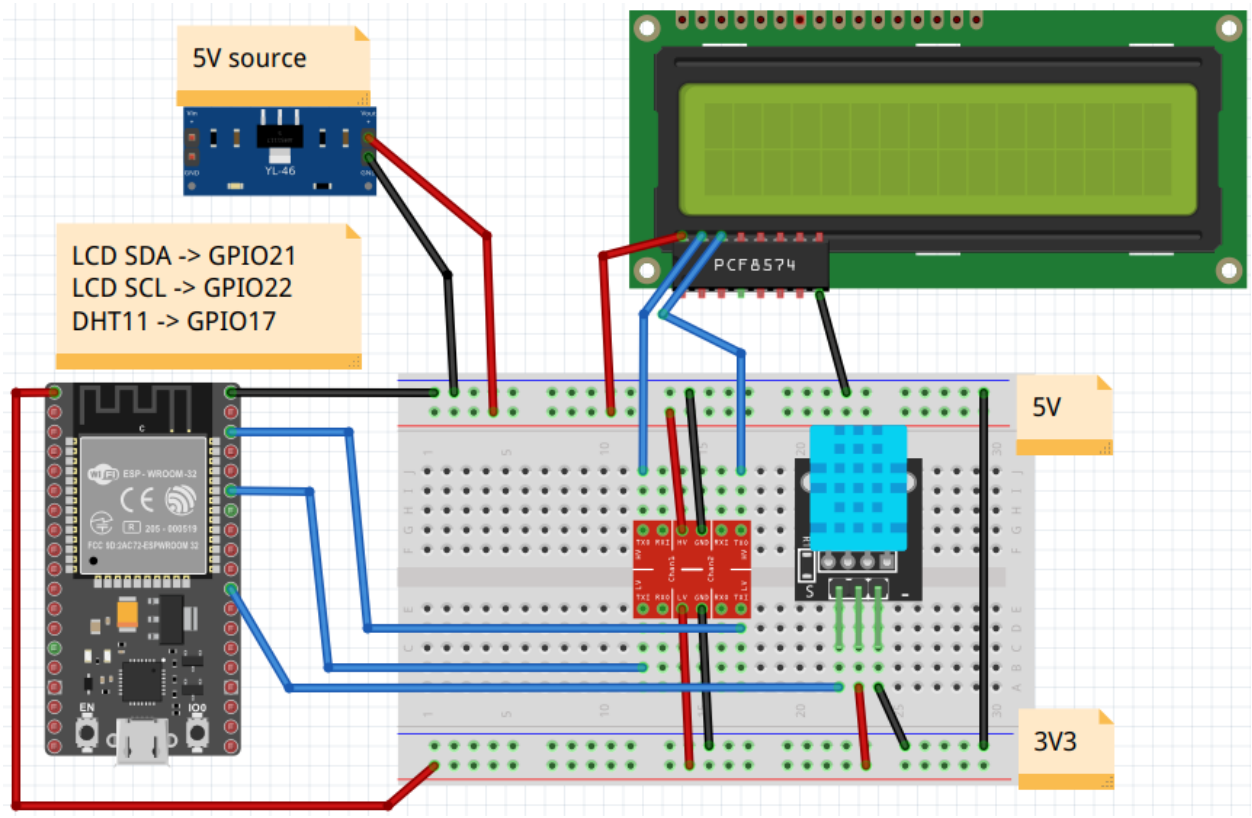

Relay -> GPIO5
PIR -> GPIO4
5v power module
YL-46
SRD-05VDC-SL-C
1 Relay Module
VCC
IN1
GND
vcc JD_vcc
5v logic level
ESP-WROOM-32
EN
IO0
3v3 logic level

AGUHAJSU

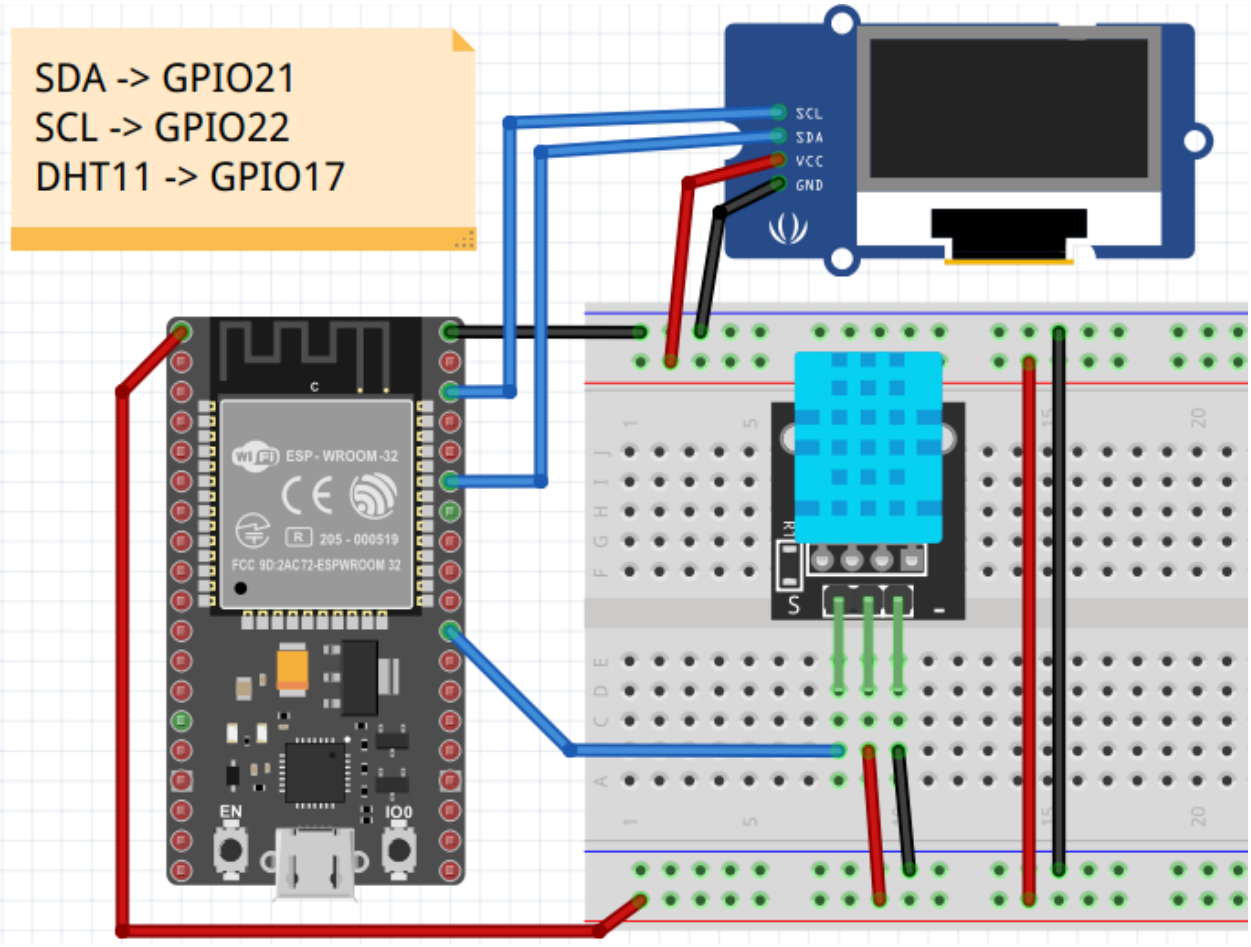


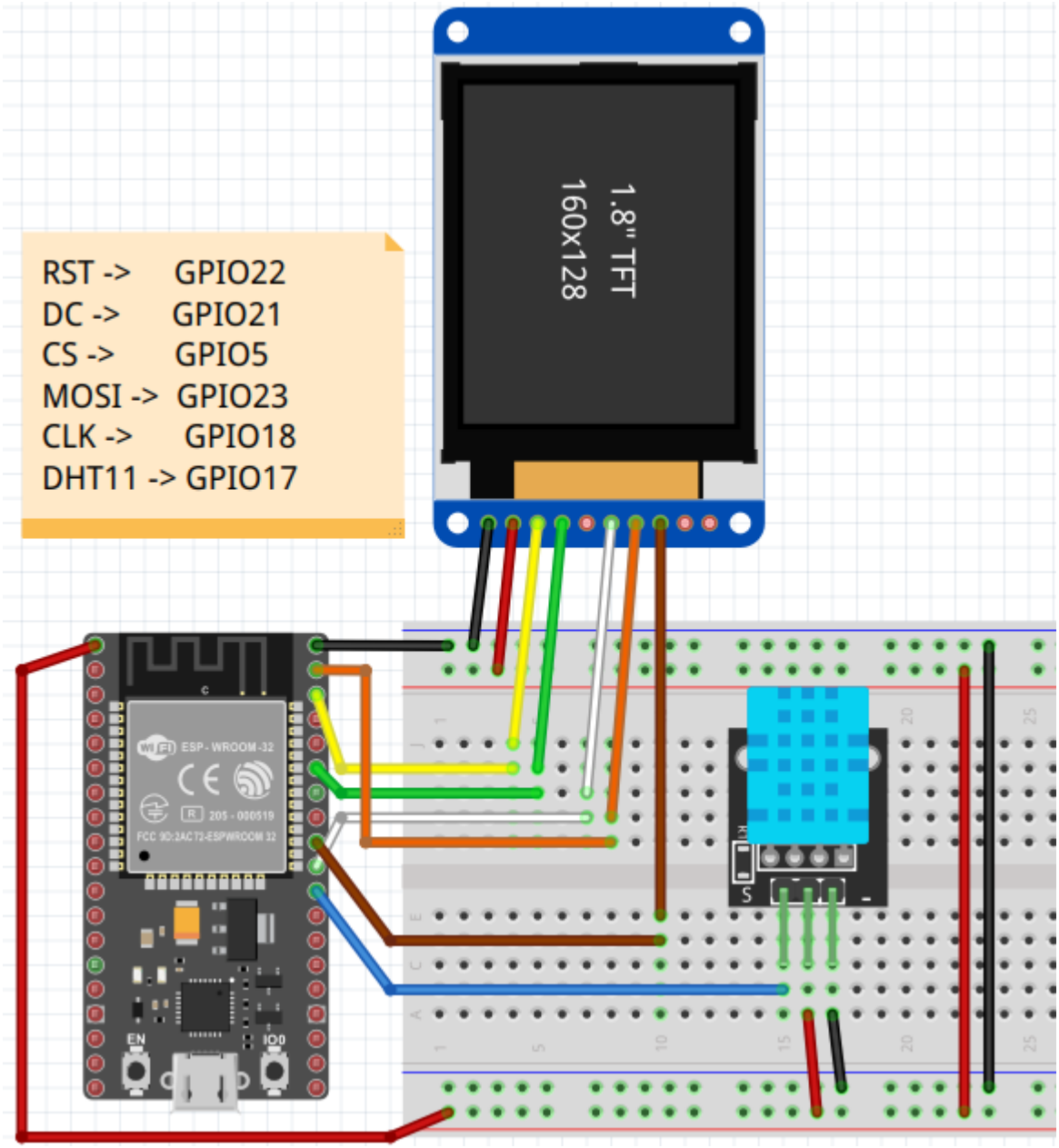

STEP -> GPIO23
DIR -> GPIO22
Output A -> GPIO19
Output B -> GPIO21
12v power source for the motor

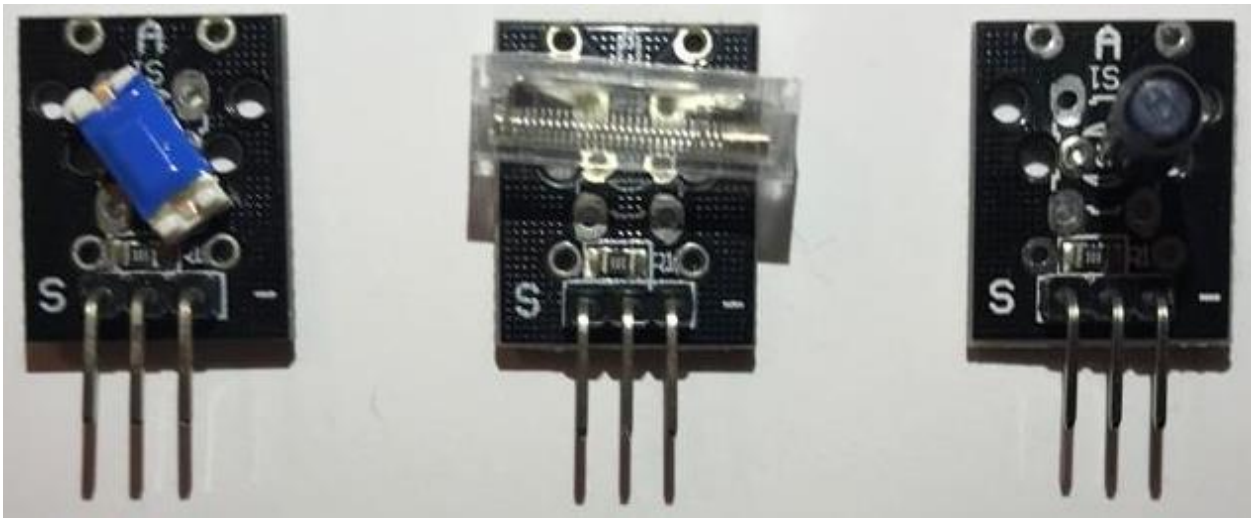
Chapter 3: Impressive Outputs with Displays

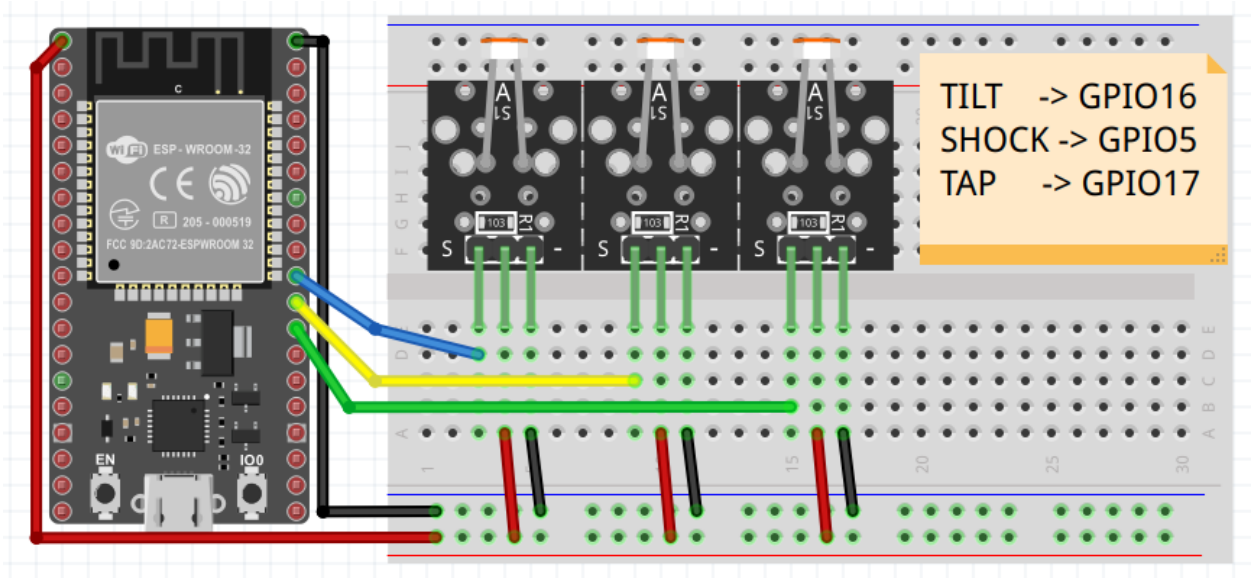



VCC GND SCL SDA

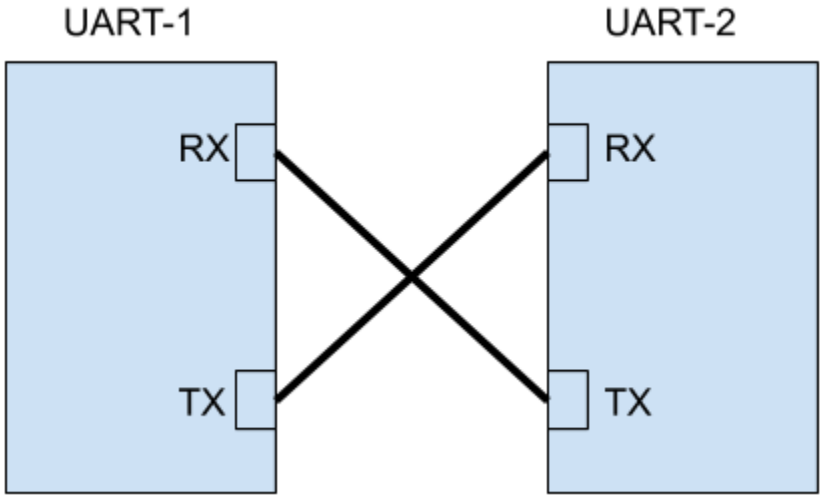

SDA -> GPIO21
SCL -> GPIO22
DHT11 -> GPIO17
SCL
SDA
VCC
GND
ESP-WROOM-32
205-000519
FCC 9D2AC72-ESPWROOM32
EN
IO0

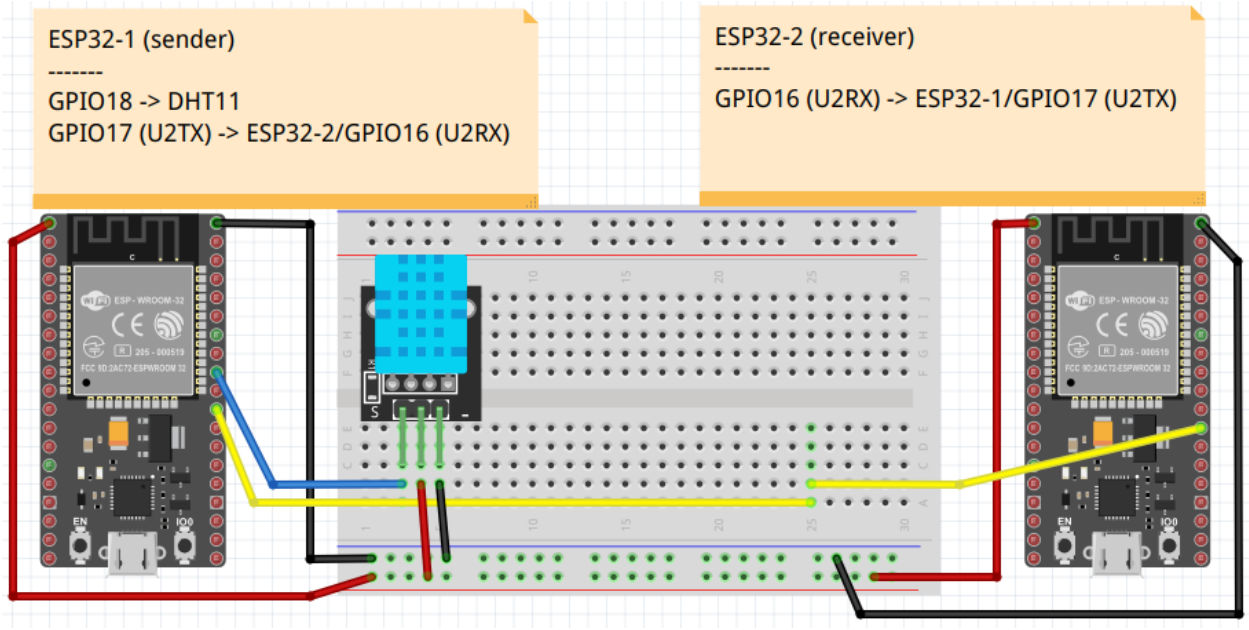

RST -> GPIO22
DC -> GPIO21
CS -> GPIO5
MOSI -> GPIO23
CLK -> GPIO18
DHT11 -> GPIO17
1.8" TFT
160x128
ESP - WROOM - 32
EN
IO0

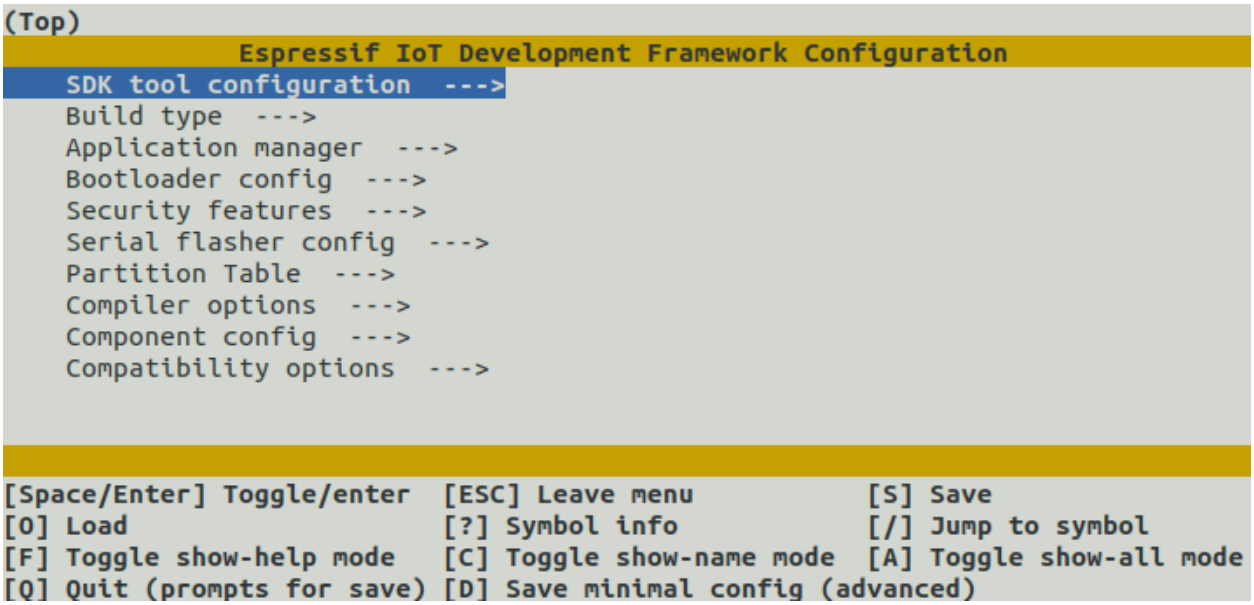

S
-

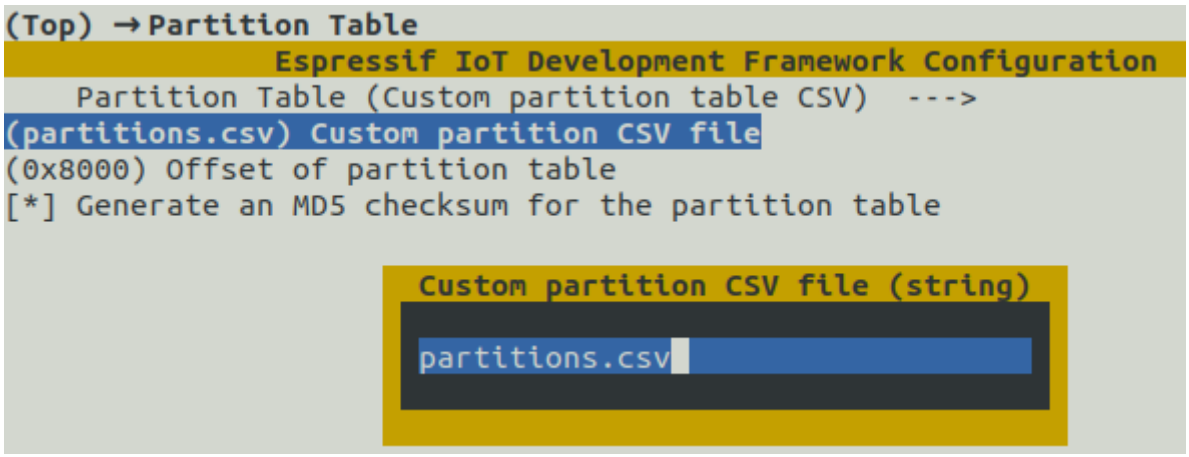

ESP - WROOM -32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
TILT -> GPIO16
SHOCK -> GPIO5
TAP -> GPIO17

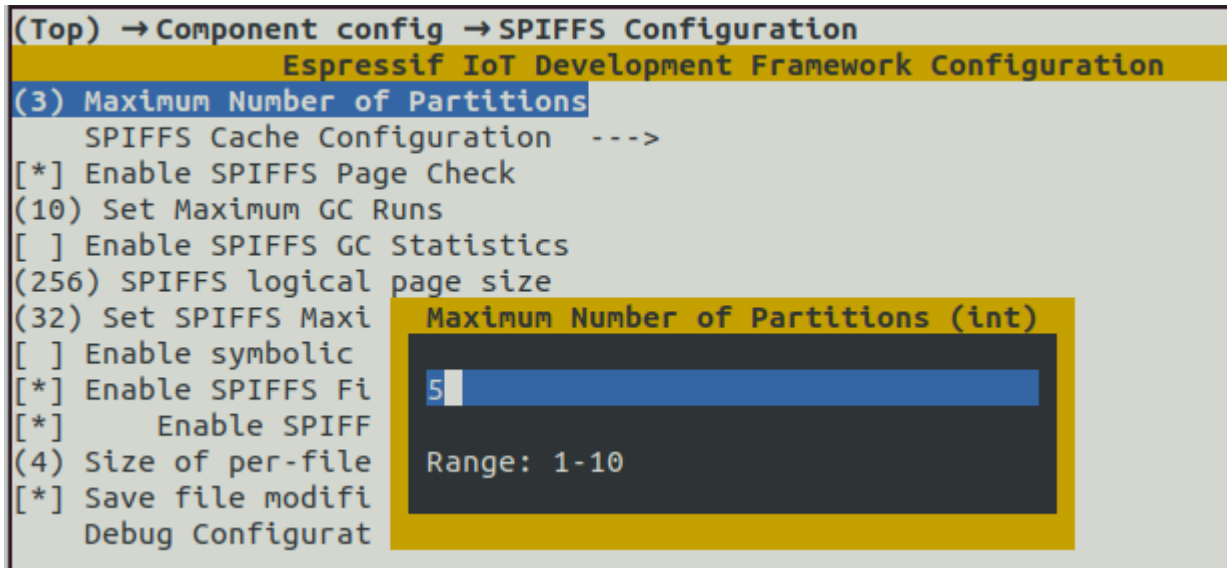
Chapter 4: A Deep Dive into the Advanced Features

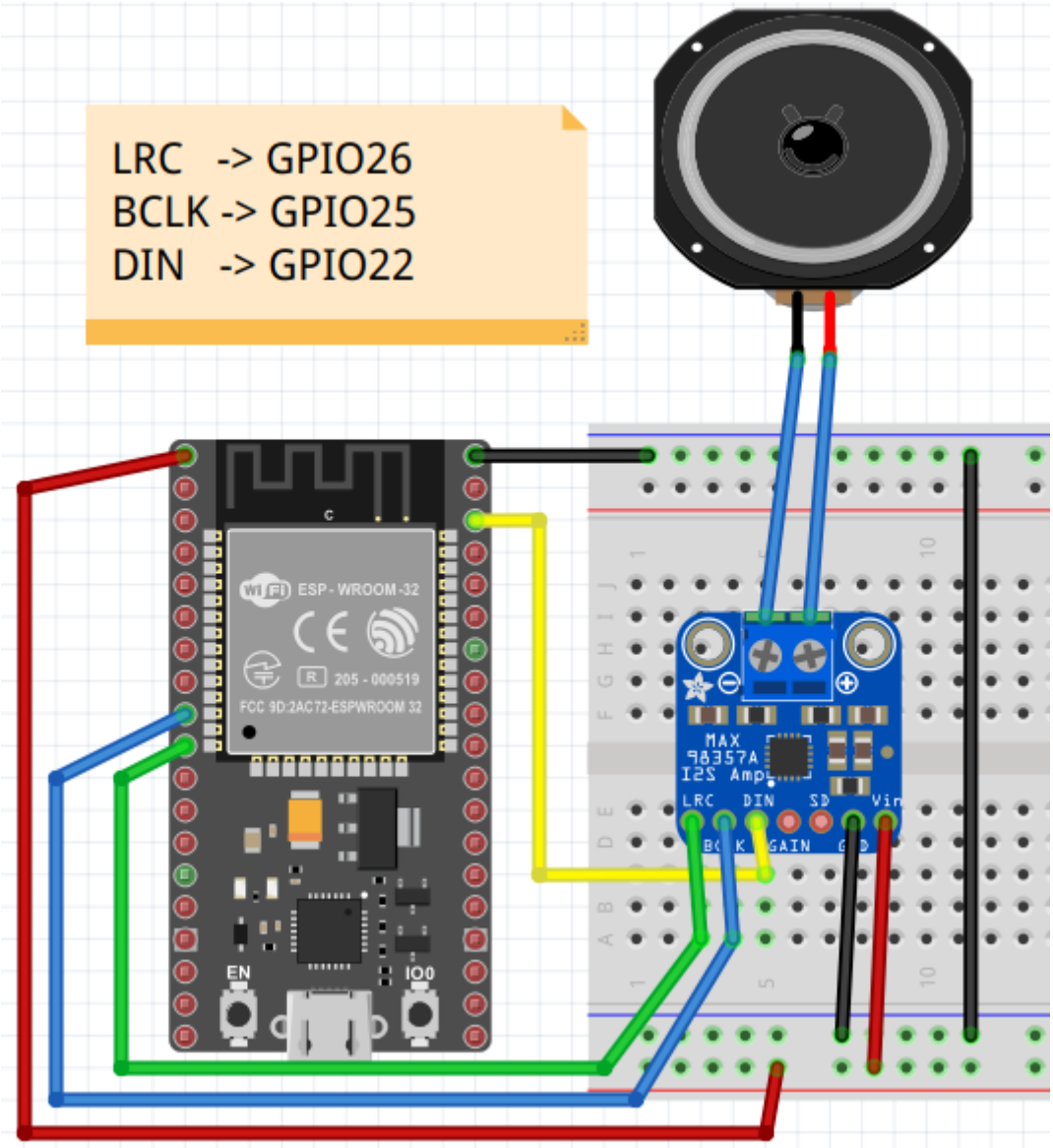





(Top)
Espressif IoT Development Framework Configuration
SDK tool configuration --->
Build type --->
Application manager --->
Bootloader config --->
Security features --->
Serial flasher config --->
Partition Table --->
Compiler options --->
Component config --->
Compatibility options --->
[Space/Enter] Toggle/enter
[ESC] Leave menu
[S] Save
[O] Load
[?] Symbol info
[/] Jump to symbol
[F] Toggle show-help mode
[C] Toggle show-name mode
[A] Toggle show-all mode
[Q] Quit (prompts for save)
[D] Save minimal config (advanced)


(Top) → Partition Table
Espressif IoT Development Framework Configuration
Partition Table (Custom partition table CSV) --->
(partitions.csv) Custom partition CSV file
(0x8000) Offset of partition table
[*] Generate an MD5 checksum for the partition table
Custom partition CSV file (string)
partitions.csv

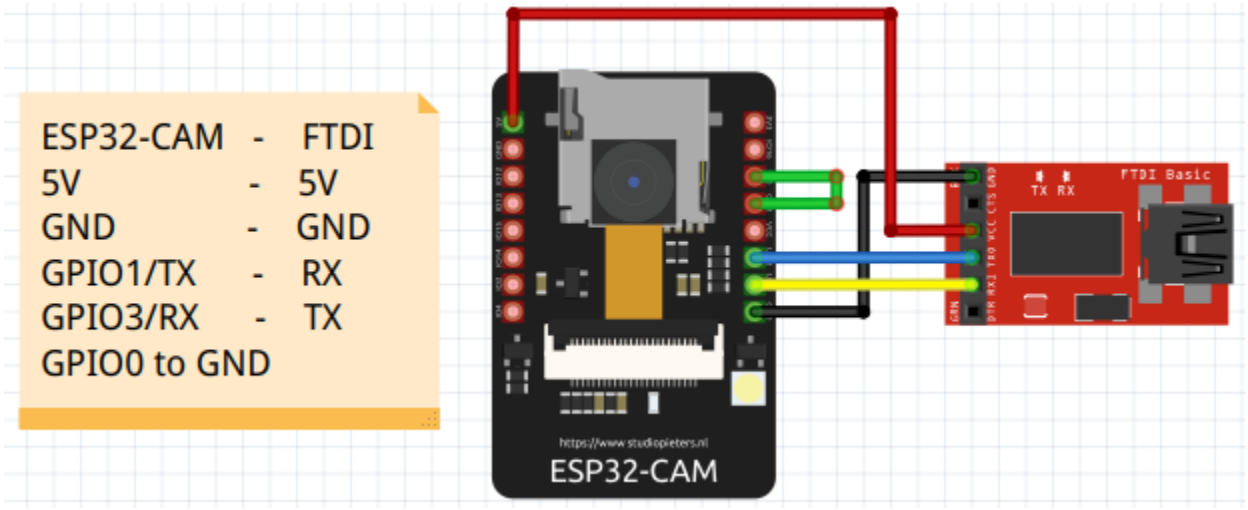

(Top) → Component config → SPIFFS Configuration
Espressif IoT Development Framework Configuration
(3) Maximum Number of Partitions
SPIFFS Cache Configuration --->
[*] Enable SPIFFS Page Check
(10) Set Maximum GC Runs
[ ] Enable SPIFFS GC Statistics
(256) SPIFFS logical page size
(32) Set SPIFFS Maxi
[ ] Enable symbolic
[*] Enable SPIFFS Fi
[*] Enable SPIFF
(4) Size of per-file
[*] Save file modifi
Debug Configurat
Maximum Number of Partitions (int)
5
Range: 1-10

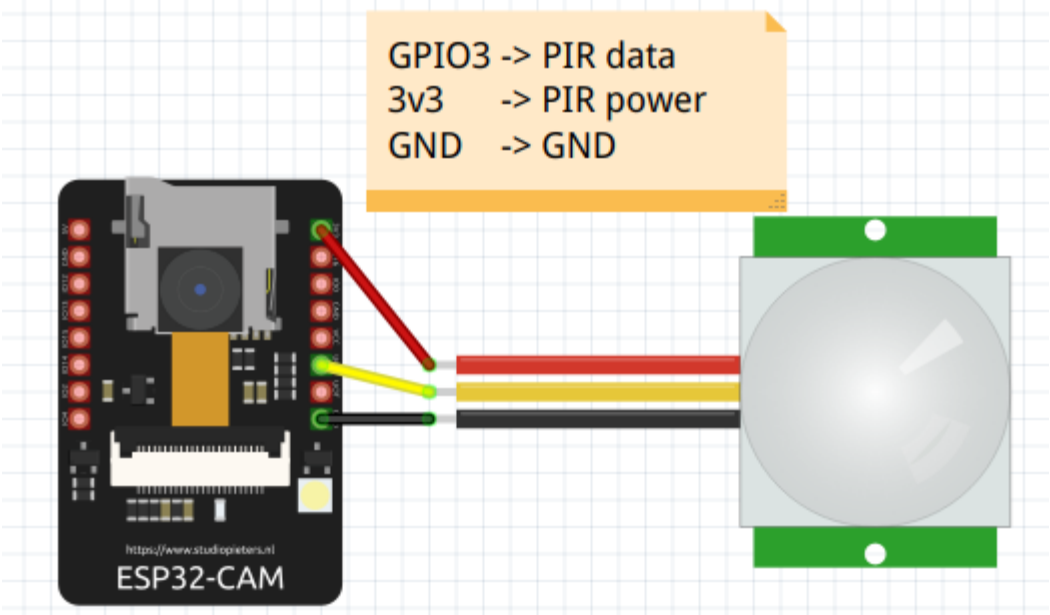

LRC -> GPIO26
BCLK -> GPIO25
DIN -> GPIO22
ESP-WROOM-32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
MAX
98357A
I2S Amp
LRC
DIN
SD
GAIN

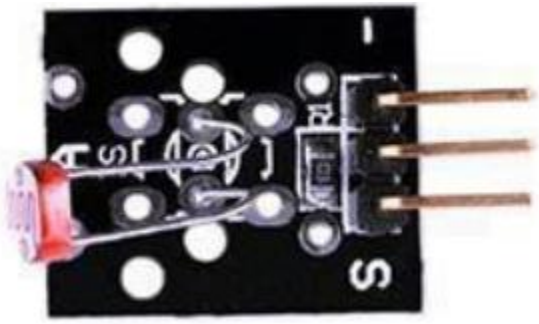

ESP32-CAM

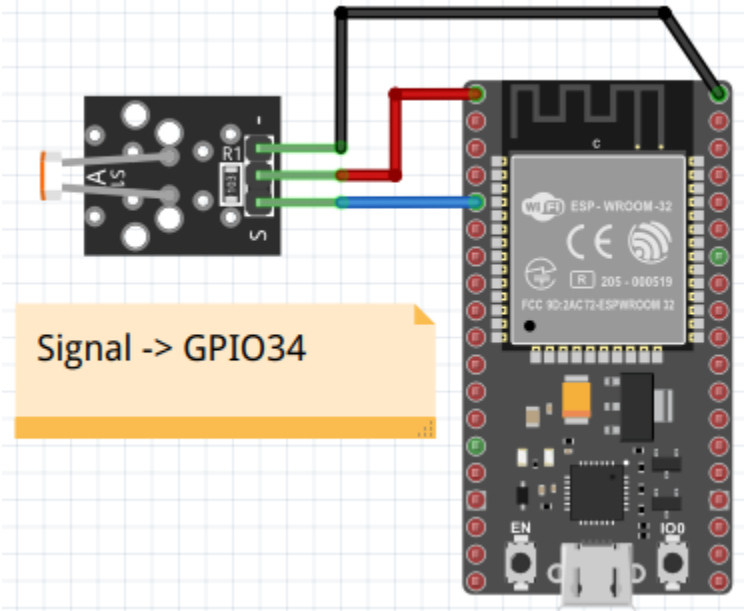
```
(Top) → Component config → ESP32-sp

(X) Auto-detect
( ) ESP-PSRAM16 or APS1604
( ) ESP-PSRAM32 or IS25WP032
( ) ESP-PSRAM64 or LY68L6400
```

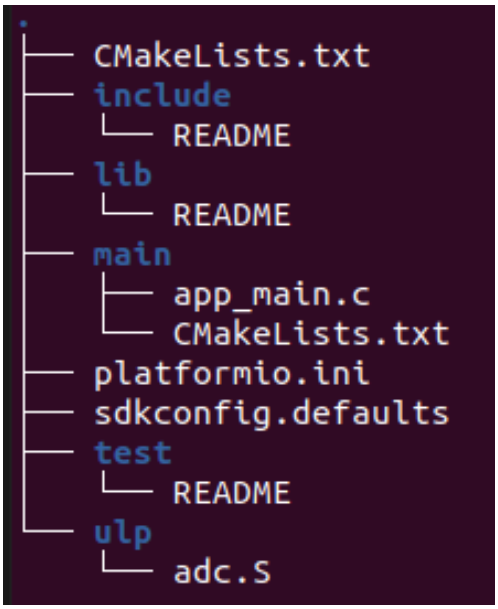
```
(Top) → Component config → FAT Filesystem support → Long filename support
                                                    Espressif IoT De
( ) No long filenames
(X) Long filename buffer in heap
( ) Long filename buffer on stack
```



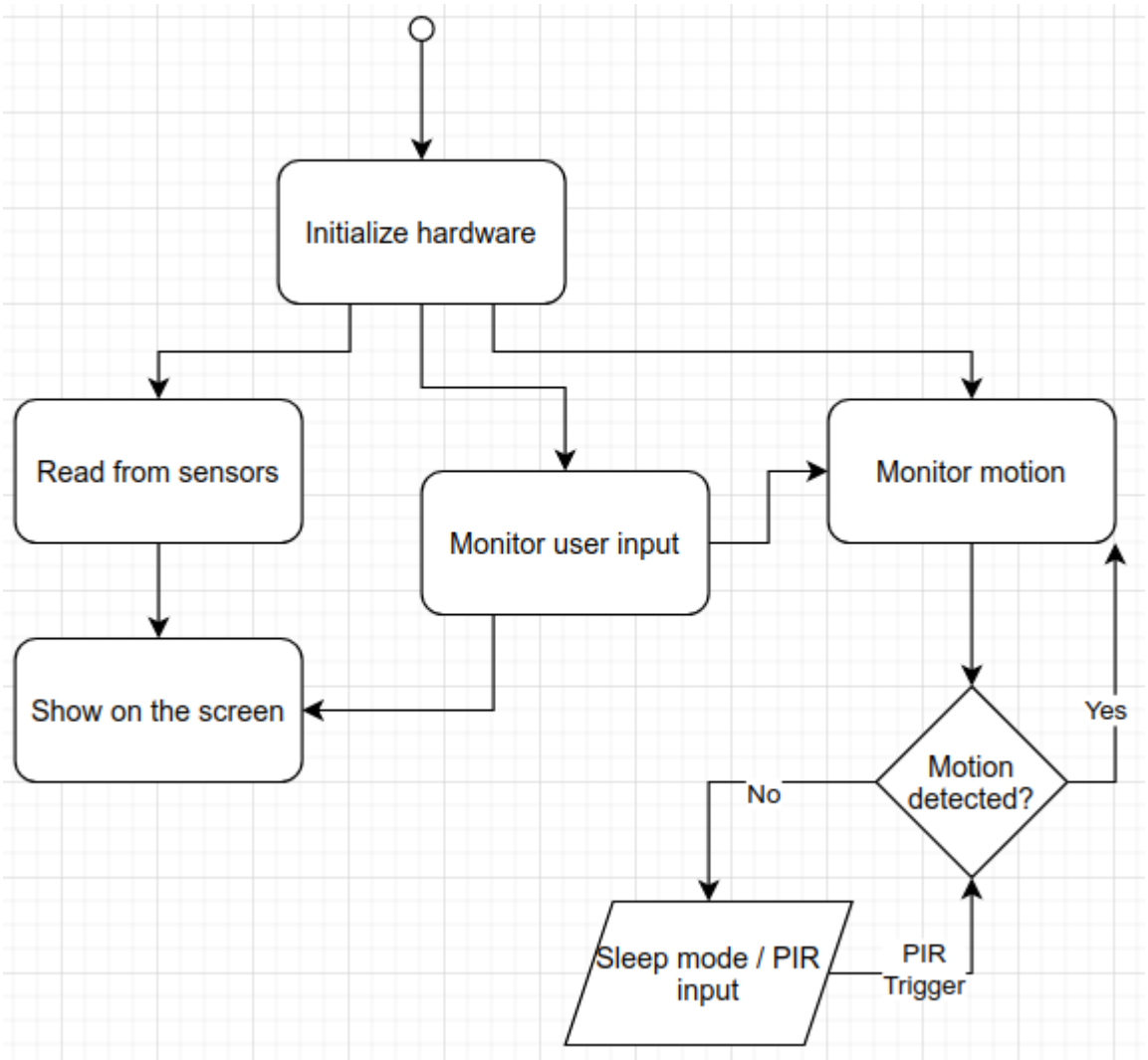

GPIO3 -> PIR data
3v3 -> PIR power
GND -> GND
https://www.studiopieters.nl
ESP32-CAM

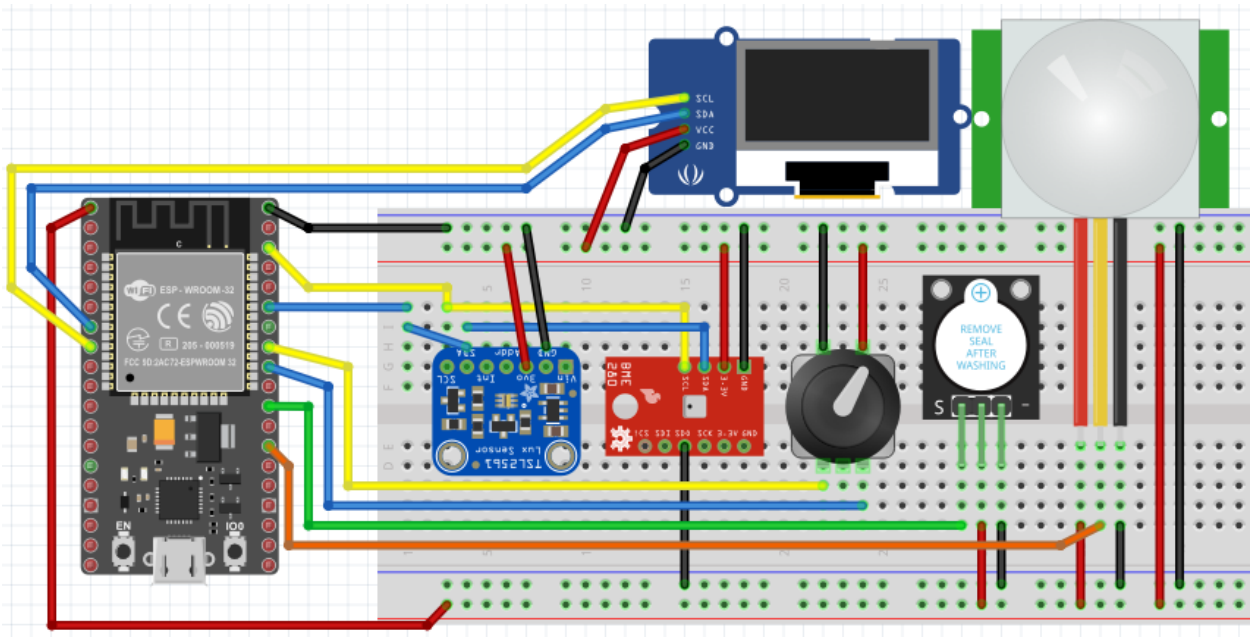

S


R1
ESP-WROOM-32
EN
IO0
Signal -> GPIO34


.
├── CMakeLists.txt
├── include
│   └── README
├── lib
│   └── README
├── main
│   ├── app_main.c
│   └── CMakeLists.txt
├── platformio.ini
├── sdkconfig.defaults
├── test
│   └── README
└── ulp
    └── adc.S

Chapter 5: Practice – Multisensor for Your Room



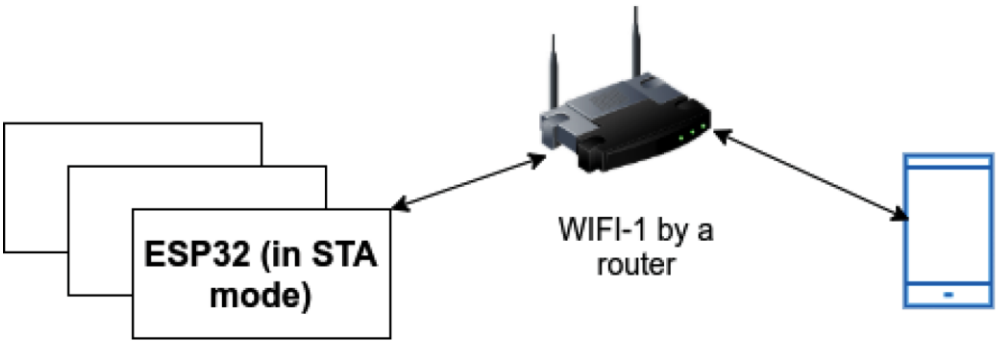


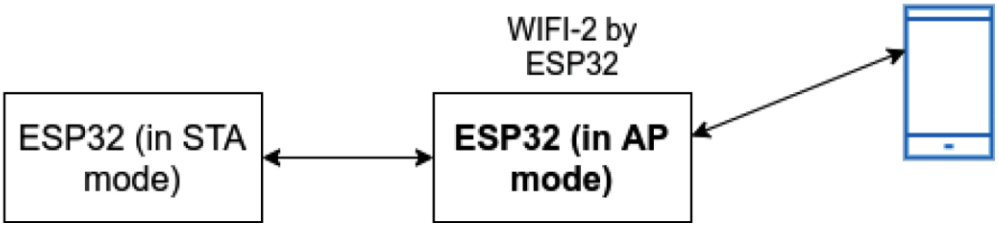
TSL2561 SCL -> GPIO22
TSL2561 SDA -> GPIO21
BME280 SCL -> GPIO22
BME280 SDA -> GPIO21
OLED SCL -> GPIO33
OLED SDA -> GPIO32

ROTENC OutputA -> GPIO19
ROTENC OutputB -> GPIO18
Buzzer -> GPIO17
PIR -> GPIO4

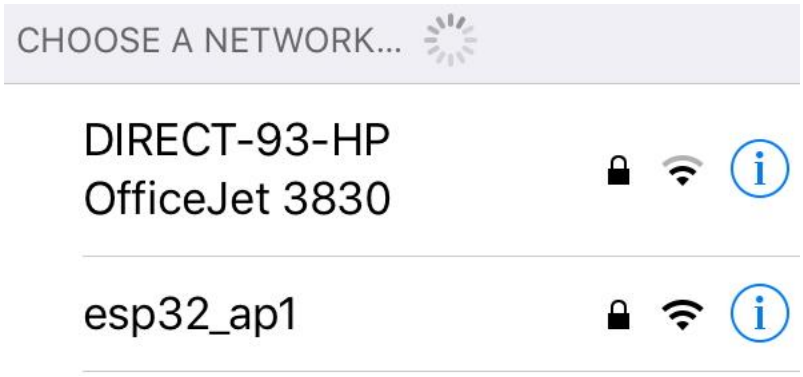
```
(Top) → Misc

(100000) I2C timeout
(400000) I2C bus frequency
```

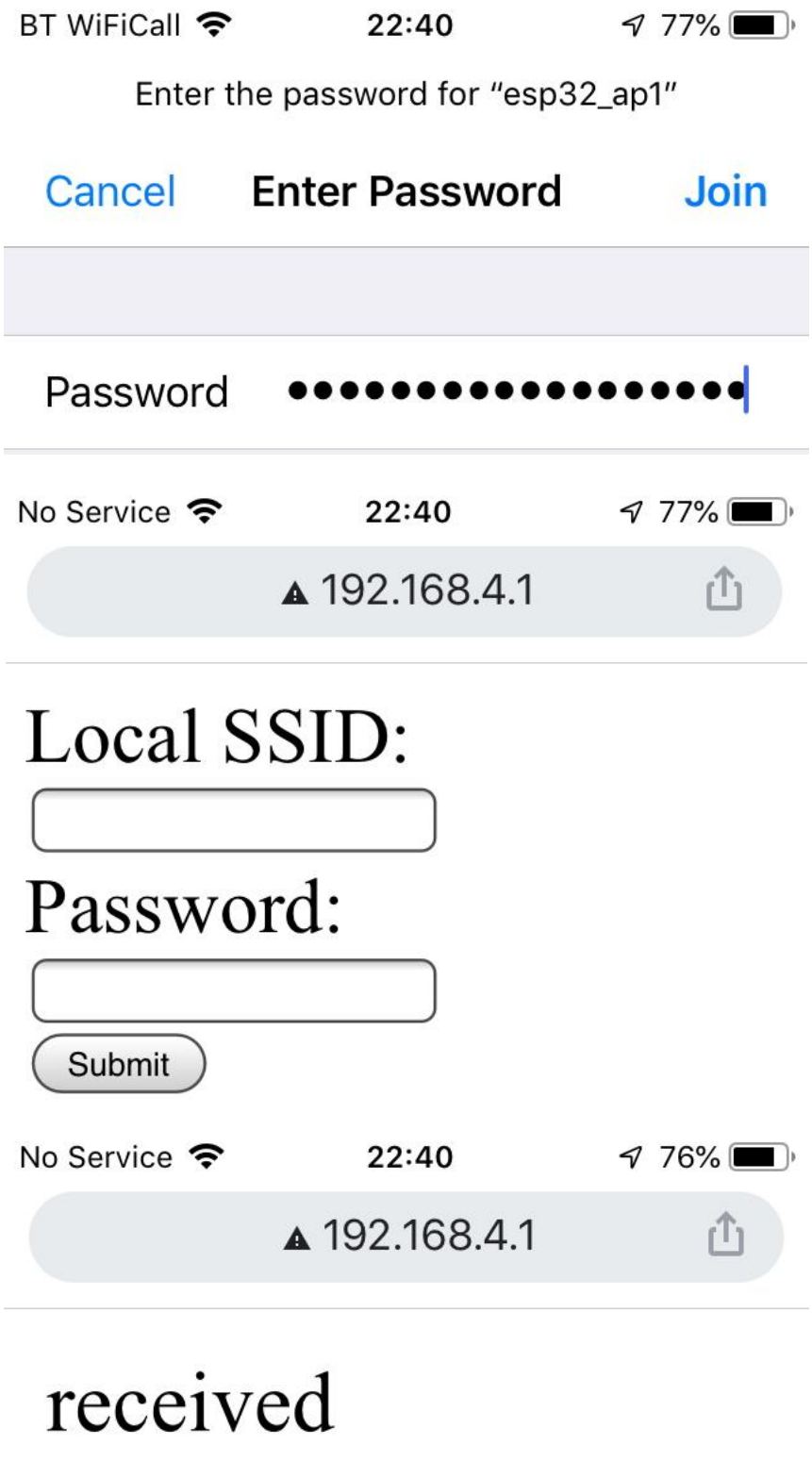
Chapter 6: A Good Old Friend – Wi-Fi



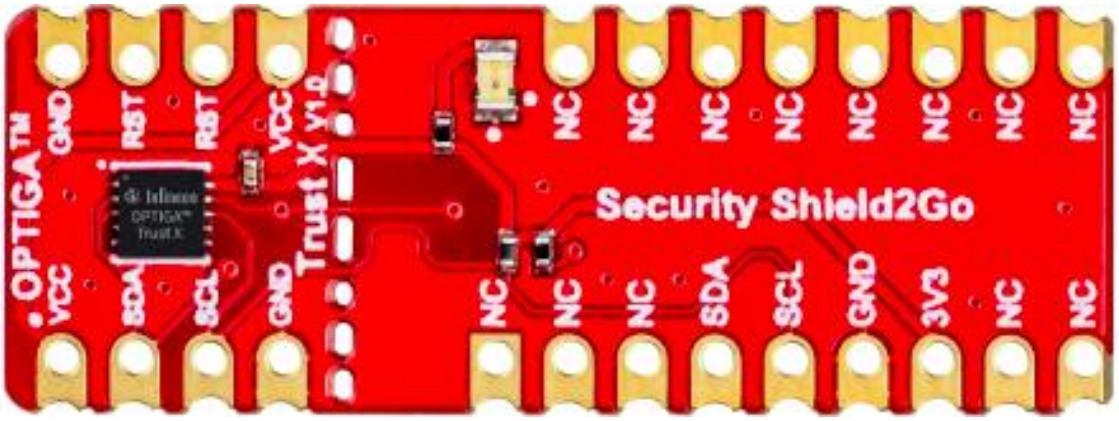



```
(Top) → Component config → HTTP Server

(2048) Max HTTP Request Header Length
```

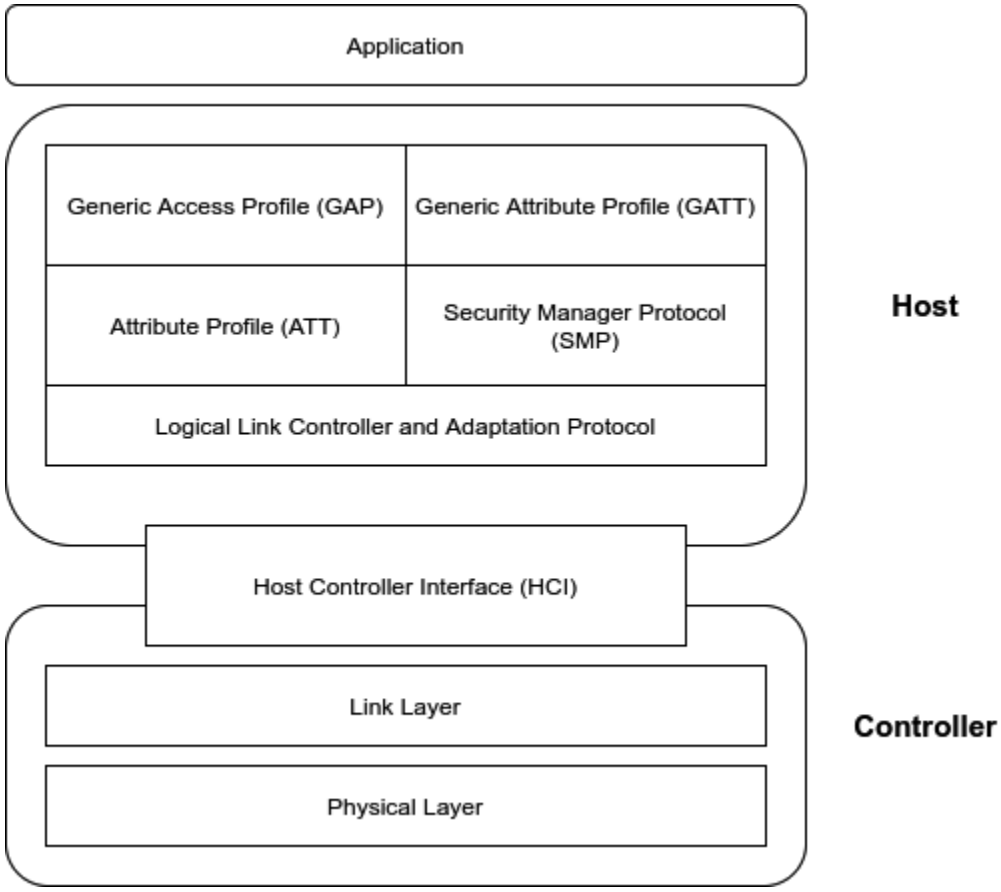



BT WiFiCall
22:40
77%
Enter the password for “esp32_ap1”
Cancel
Enter Password
Join
Password
No Service
22:40
77%
192.168.4.1
Local SSID:
Password:
Submit
No Service
22:40
76%
192.168.4.1
received

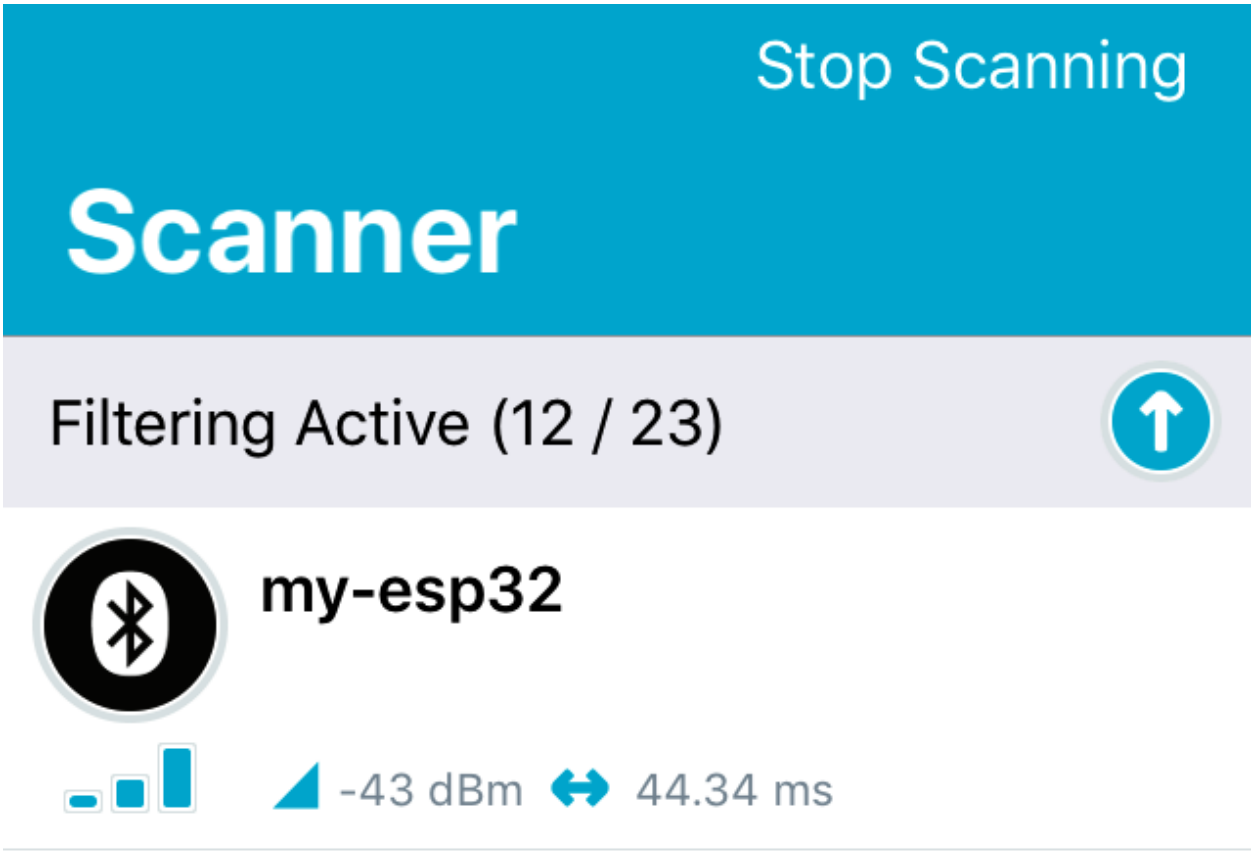
Chapter 7: Security First!



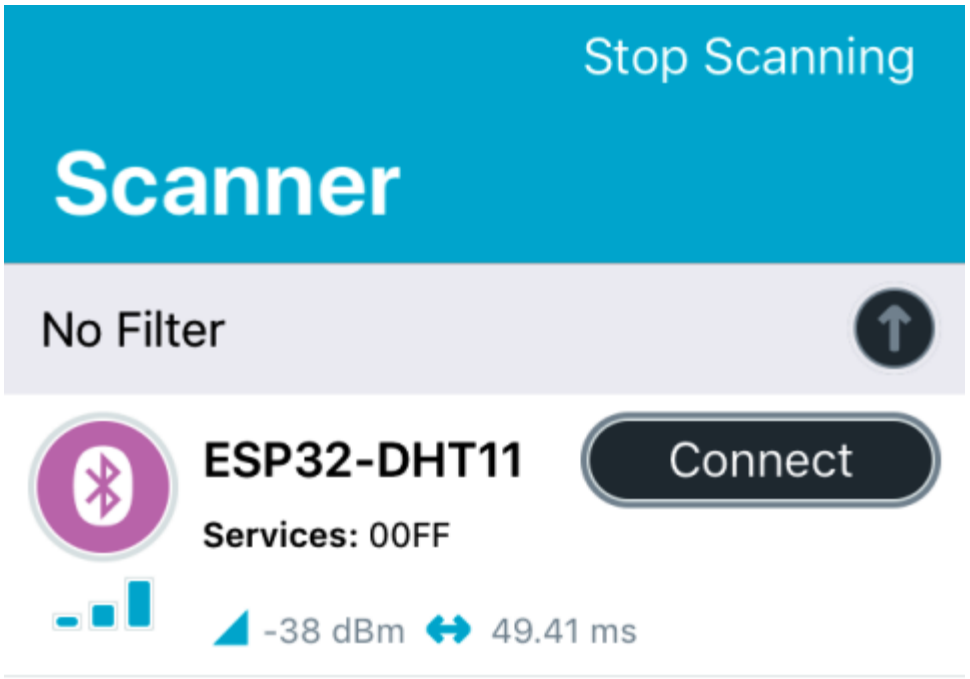
Chapter 8: I Can Speak BLE




```
(Top) → Component config → Bluetooth → Bluetooth Host

(X) Bluedroid - Dual-mode
( ) NimBLE - BLE only
( ) Controller Only
```




```
(Top) → Component config → Bluetooth → Bluetooth Host

(X) Bluedroid - Dual-mode
( ) NimBLE - BLE only
( ) Controller Only
```


Stop Scanning
Scanner
No Filter
ESP32-DHT11
Connect
Services: 00FF
-38 dBm
49.41 ms

Close | Ad... | Ser... | Log | DFU | Disconnect

Advertised Services

Unknown Service
UUID: 00FF

Attribute Table

Generic Access
UUID: 1800
PRIMARY SERVICE

Generic Attribute
UUID: 1801
PRIMARY SERVICE

Unknown Service
UUID: 00FF
PRIMARY SERVICE

Unknown Characteristic
UUID: FF01
Properties: Read, Notify
Value: N/A
Value Sent: N/A

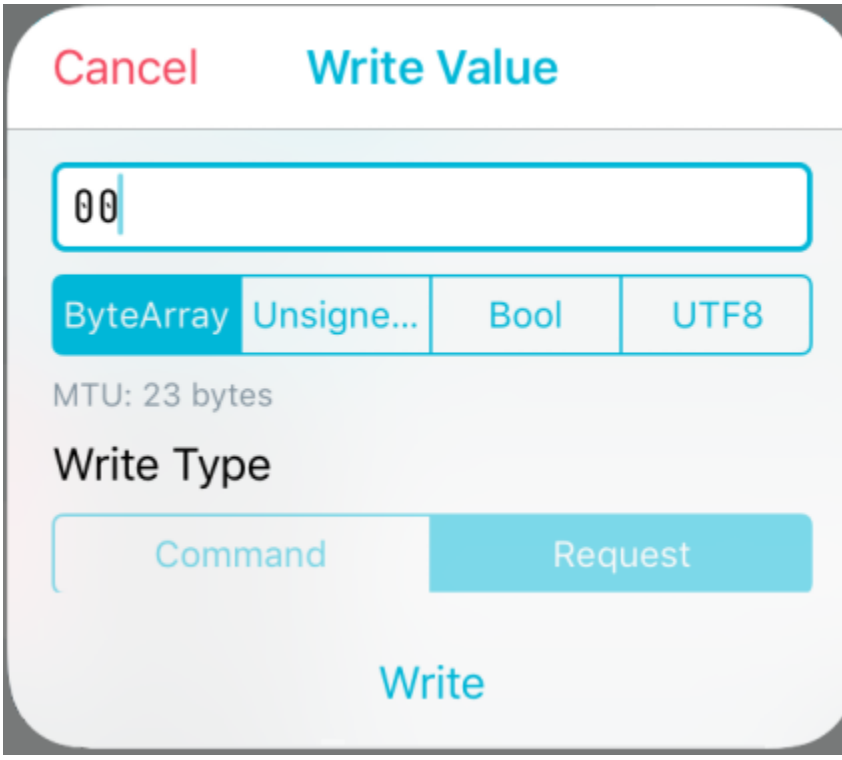


Client Characteristic Configuration
UUID: 2902
Value: N/A
Value Sent: N/A

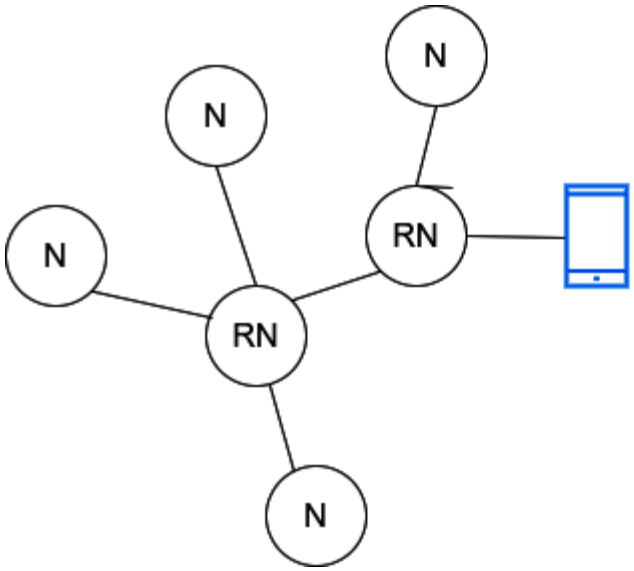

ESP32-DHT11

Connected

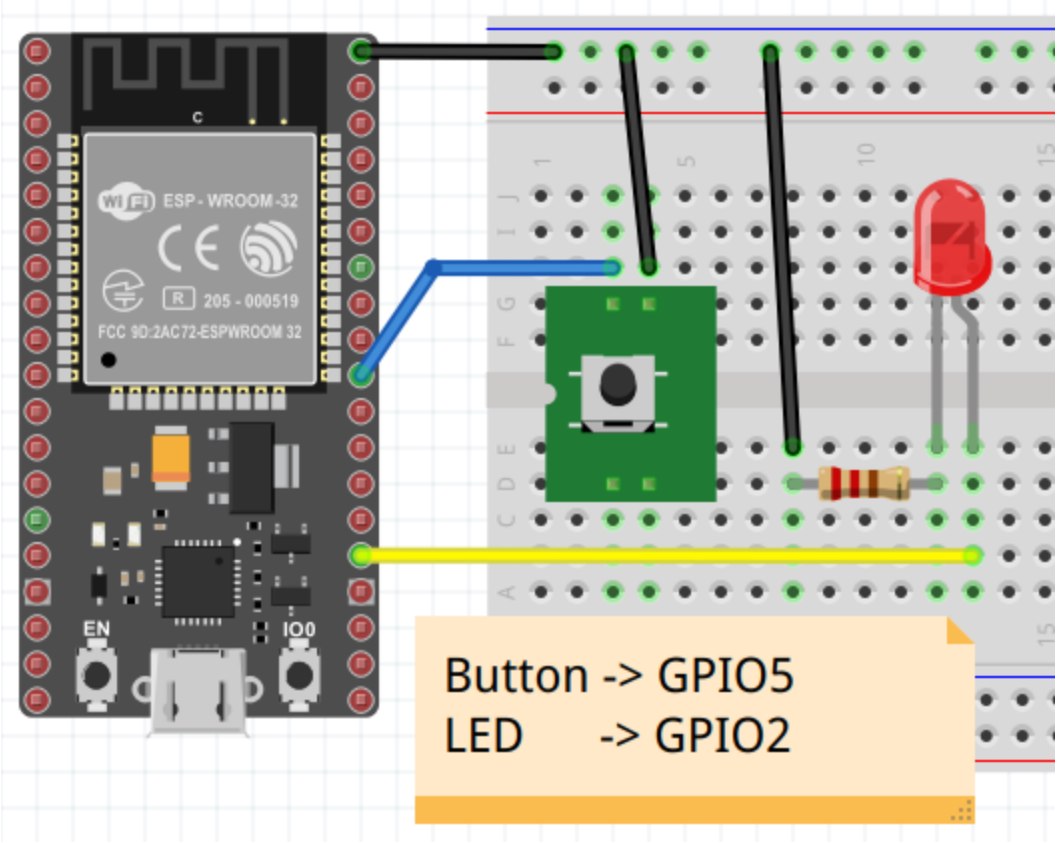
Unknown Characteristic
UUID: FF01
Properties: Read, Notify
Value: 0x17-00
Value Sent: N/A

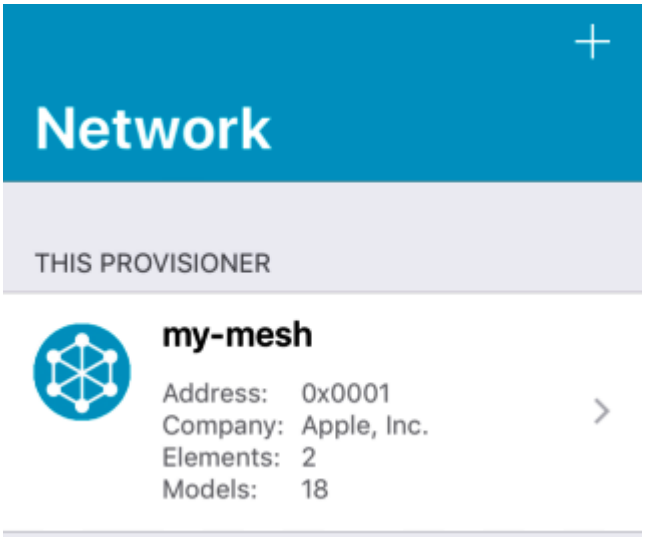


Client Characteristic Configuration
UUID: 2902
Value: N/A
Value Sent: Notifications and Indications are Disabled

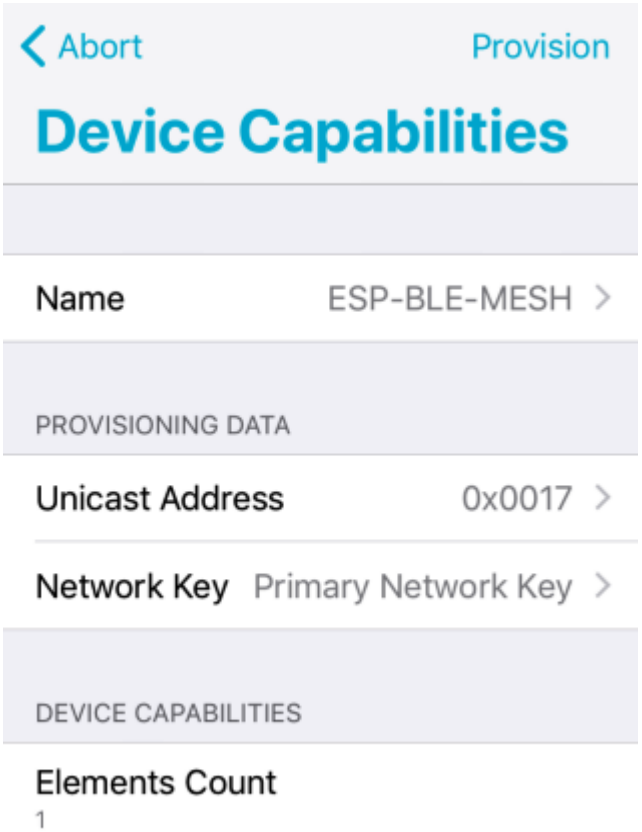


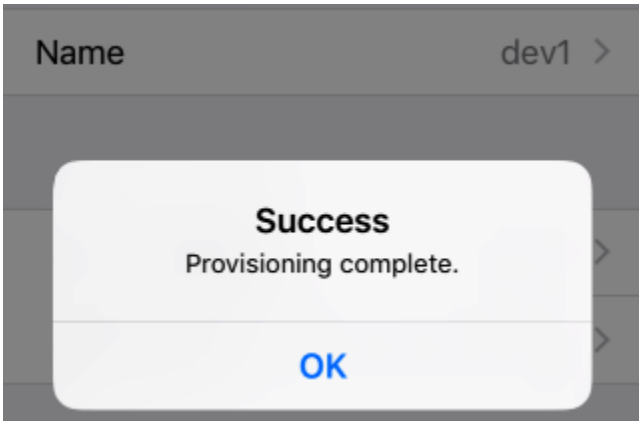
MODELS
FOUNDATION MODELS
ACCESS LAYER
TRANSPORT LAYER
NETWORK LAYER
BEARER LAYER
BLE PROTOCOL

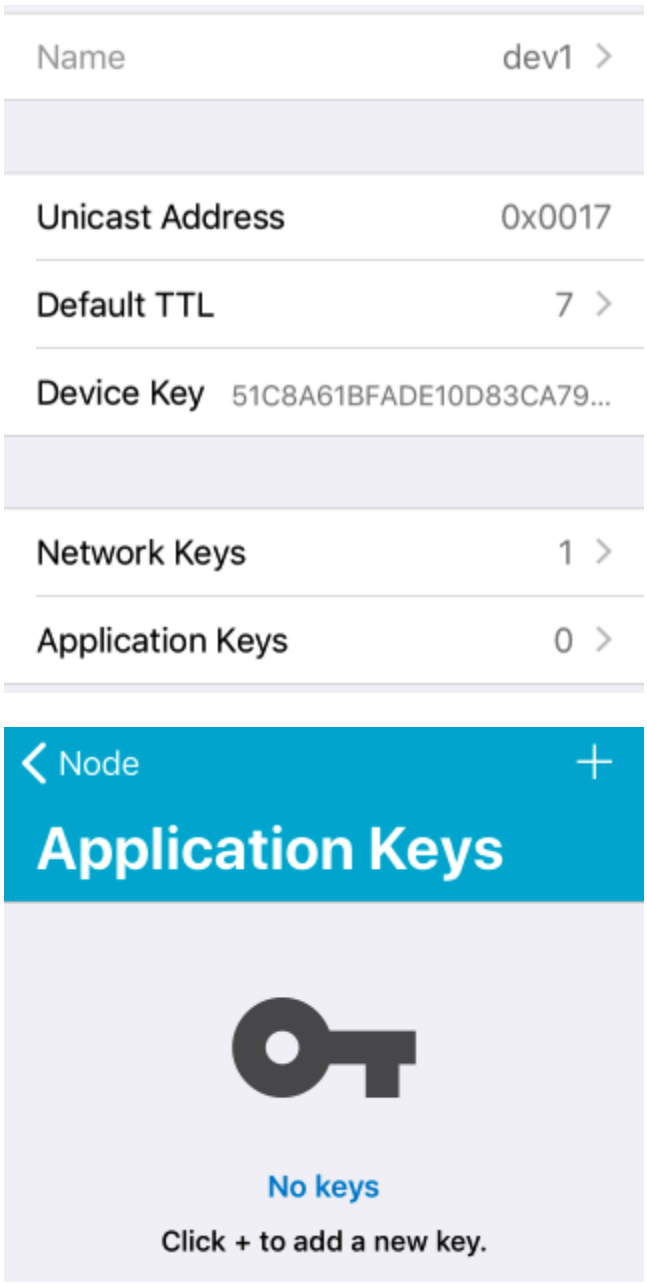

ESP-WROOM-32
205 - 000519
FCC ID:2AC72-ESPWROOM32
EN
IO0
Button -> GPIO5
LED -> GPIO2

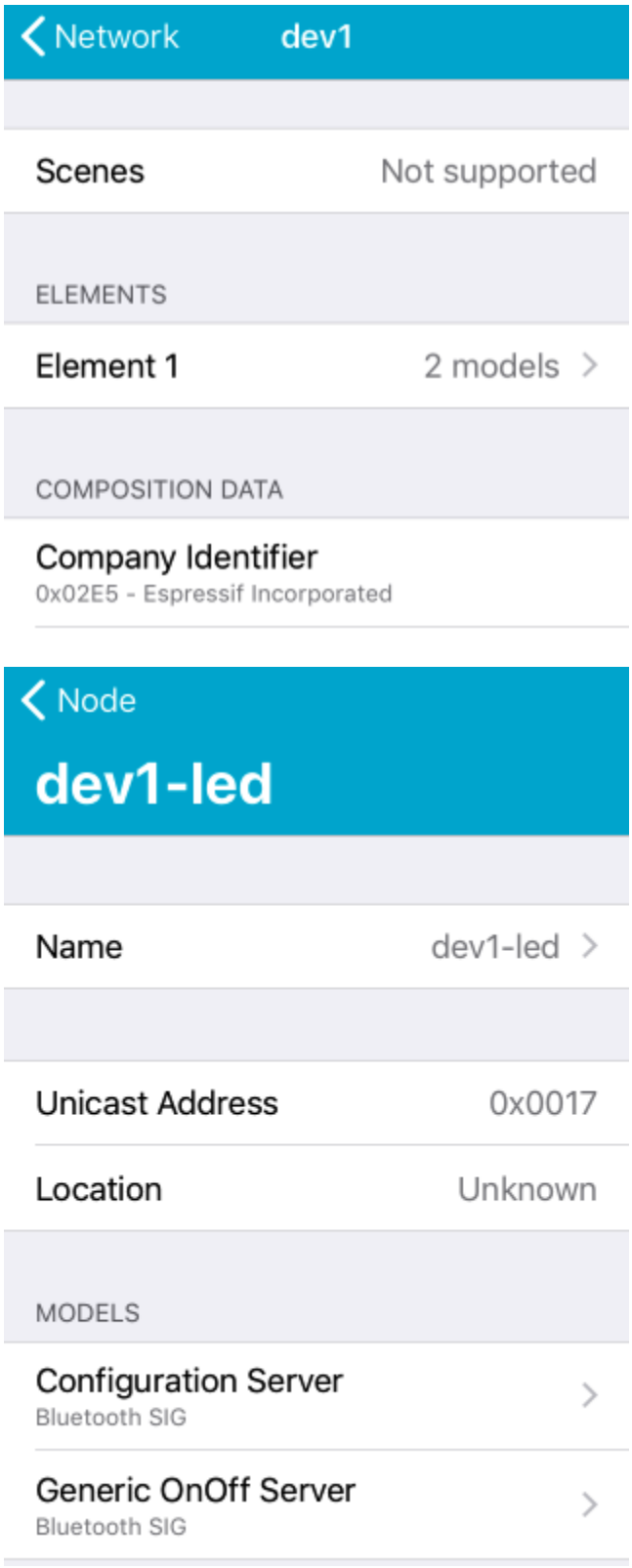

Network
THIS PROVISIONER
my-mesh
Address: 0x0001
Company: Apple, Inc.
Elements: 2
Models: 18

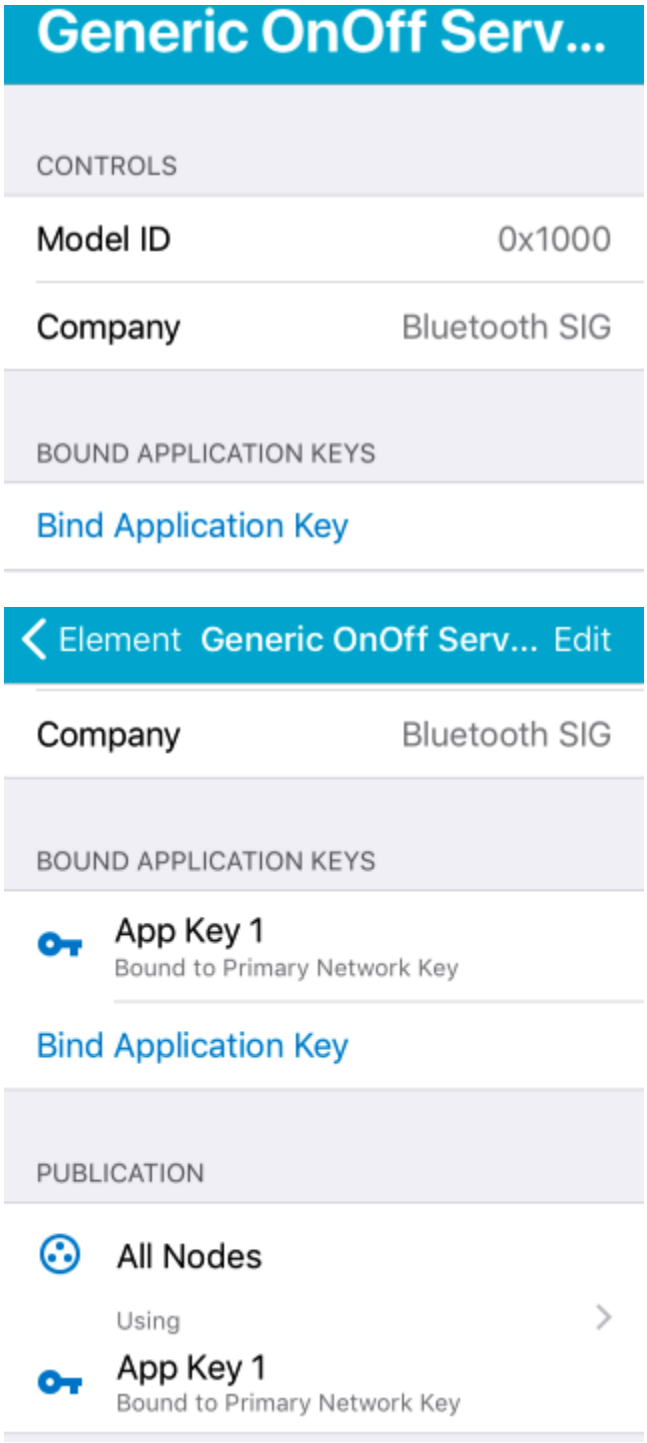

Cancel
Provision Device
ESP-BLE-MESH
DDDD246F-287C-81B2-0000-0000...

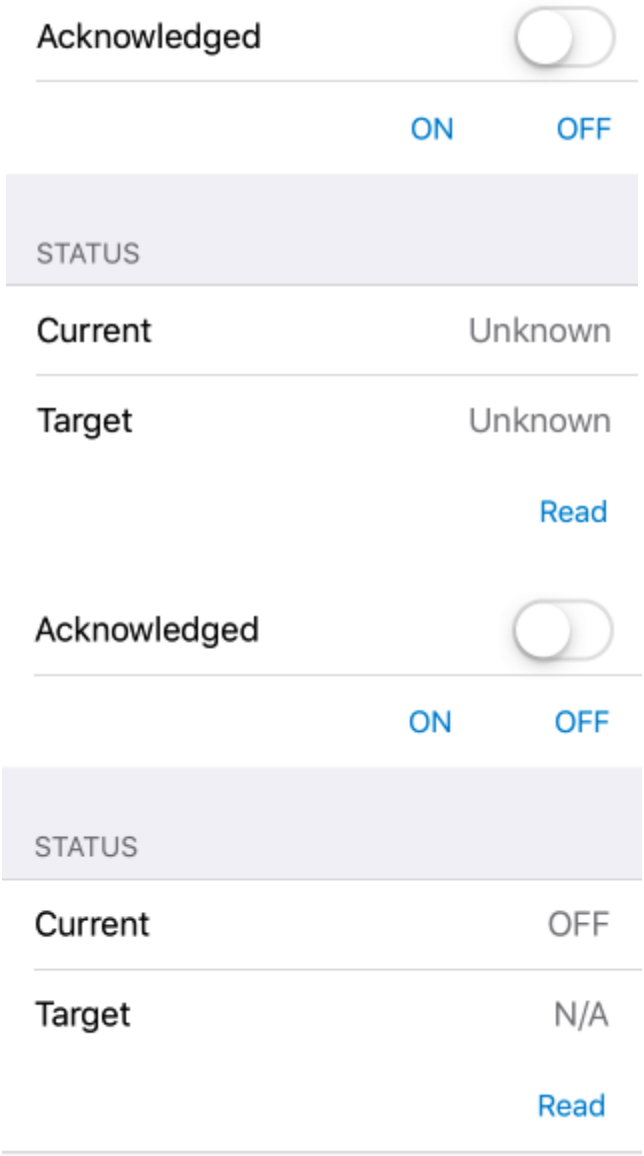

Abort
Provision
Device Capabilities
Name
ESP-BLE-MESH
PROVISIONING DATA
Unicast Address
0x0017
Network Key
Primary Network Key
DEVICE CAPABILITIES
Elements Count
1


Name
dev1
Success
Provisioning complete.
OK

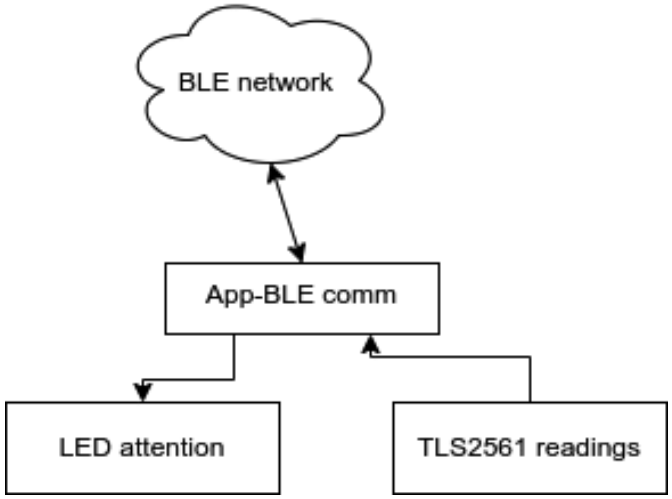

Name
dev1
Unicast Address
0x0017
Default TTL
7
Device Key
51C8A61BFADE10D83CA79...
Network Keys
1
Application Keys
0
Node
Application Keys
No keys
Click + to add a new key.

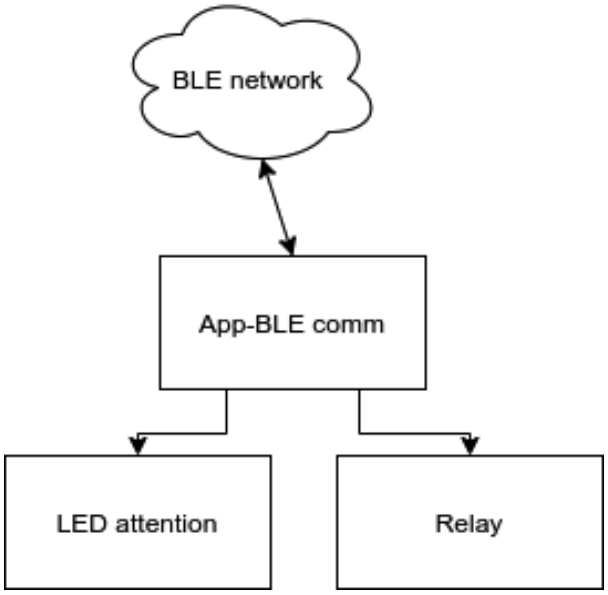

Network
dev1
Scenes
Not supported
ELEMENTS
Element 1
2 models
COMPOSITION DATA
Company Identifier
0x02E5 - Espressif Incorporated
Node
dev1-led
Name
dev1-led
Unicast Address
0x0017
Location
Unknown
MODELS
Configuration Server
Bluetooth SIG
Generic OnOff Server
Bluetooth SIG

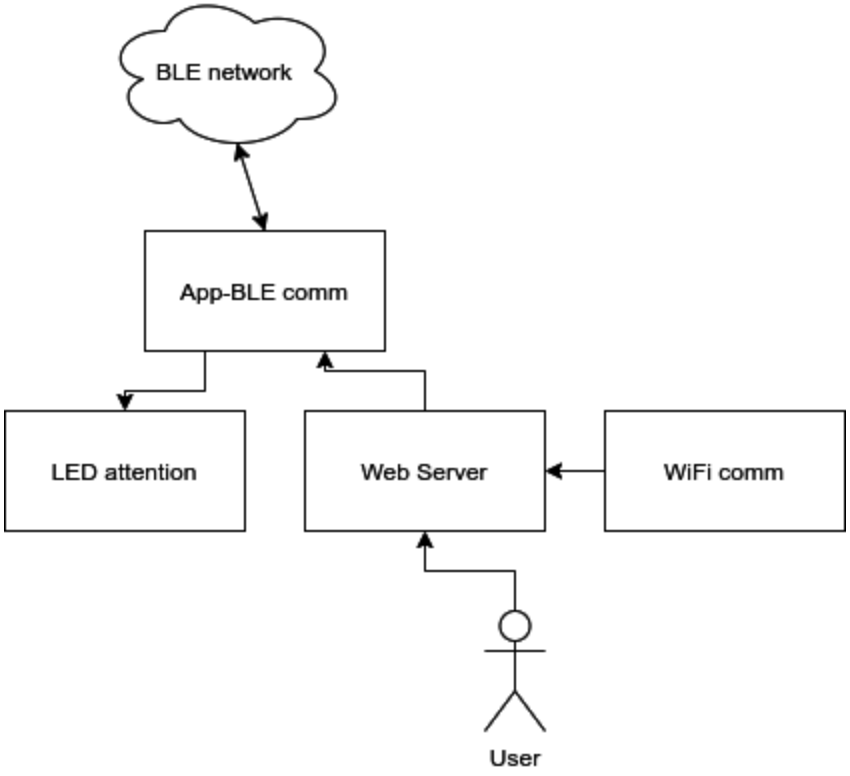

Generic OnOff Serv...
CONTROLS
Model ID
0x1000
Company
Bluetooth SIG
BOUND APPLICATION KEYS
Bind Application Key
Element
Generic OnOff Serv...
Edit
Company
Bluetooth SIG
BOUND APPLICATION KEYS
App Key 1
Bound to Primary Network Key
Bind Application Key
PUBLICATION
All Nodes
Using
App Key 1
Bound to Primary Network Key

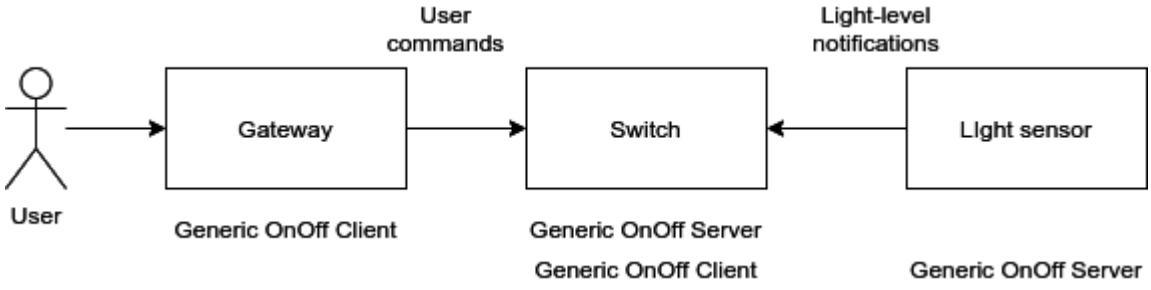

Acknowledged
ON
OFF
STATUS
Current
Unknown
Target
Unknown
Read
Acknowledged
ON
OFF
STATUS
Current
OFF
Target
N/A
Read

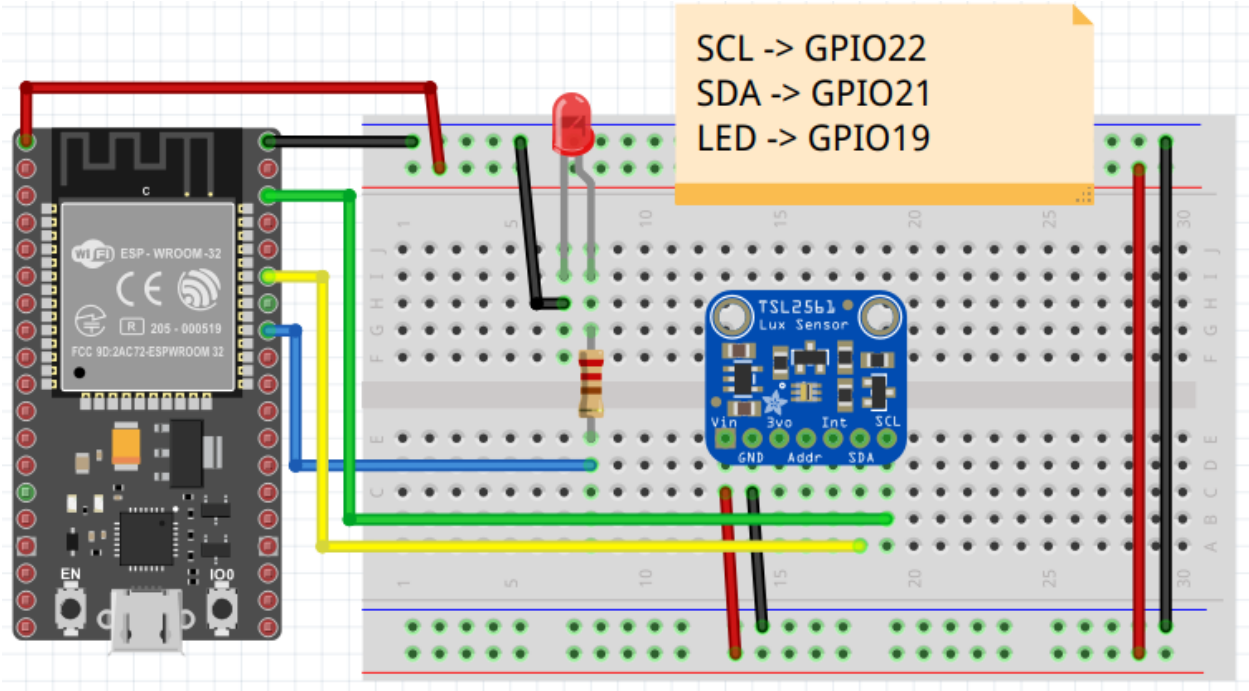
Chapter 9: Practice – Making Your Home Smart

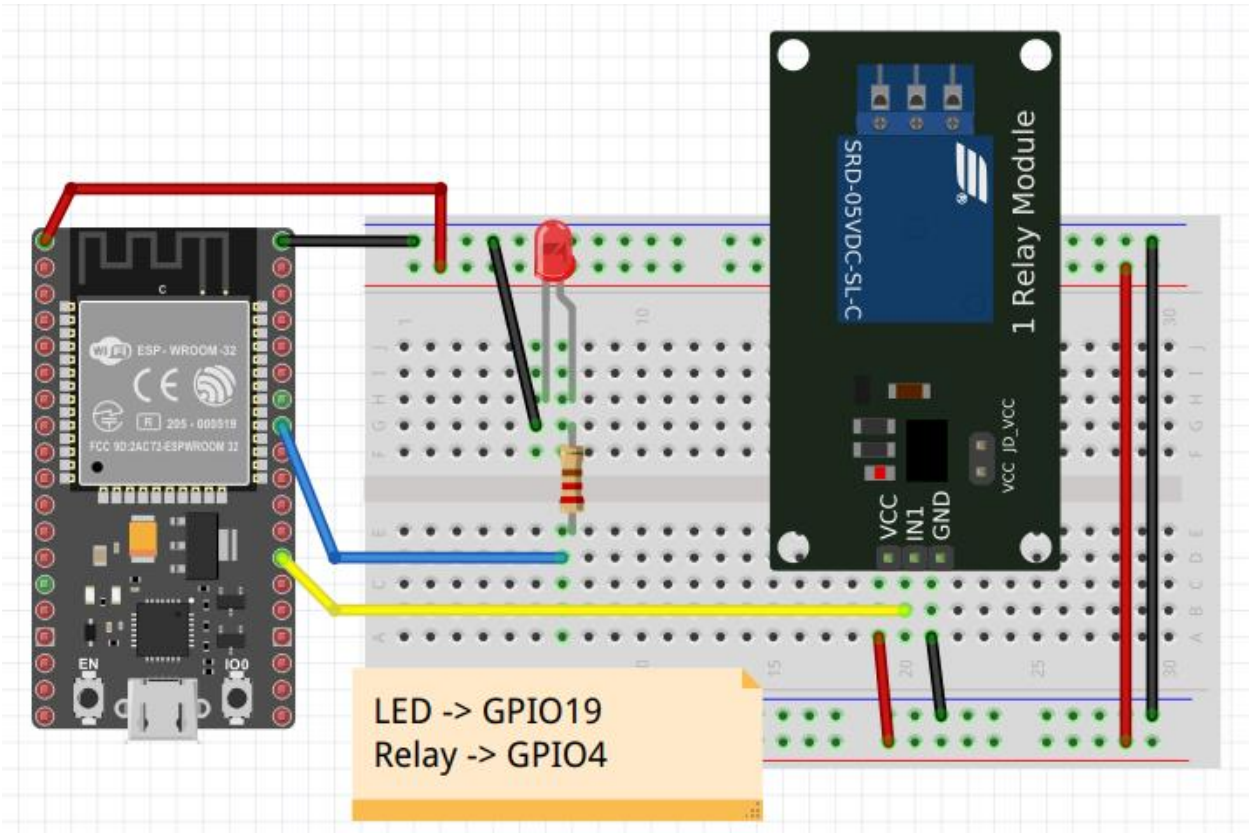


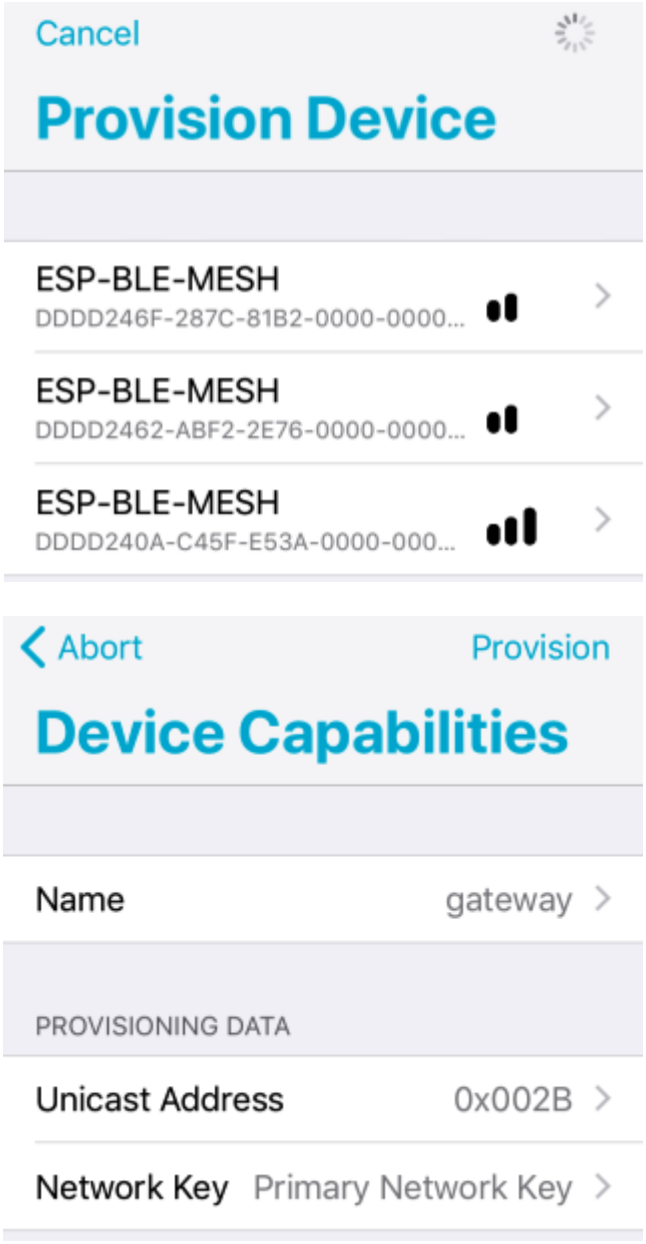


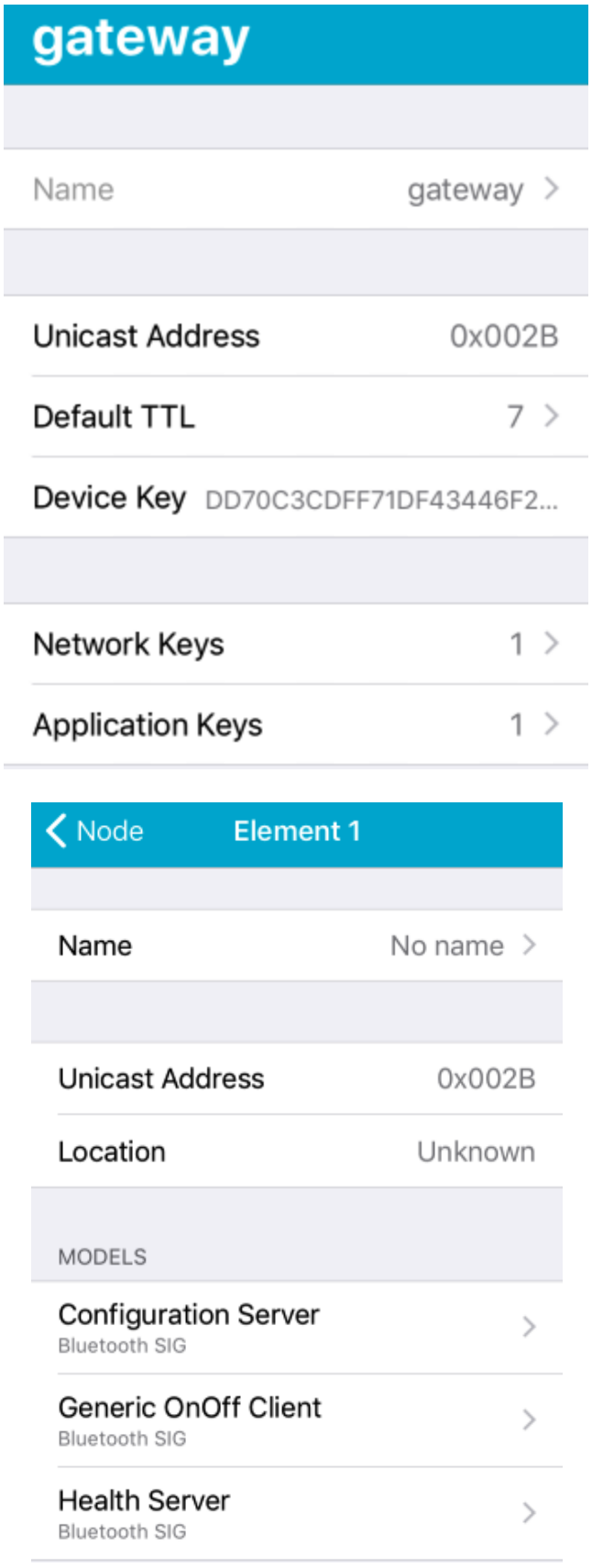

BLE network
App-BLE comm
LED attention
Web Server
WiFi comm
User

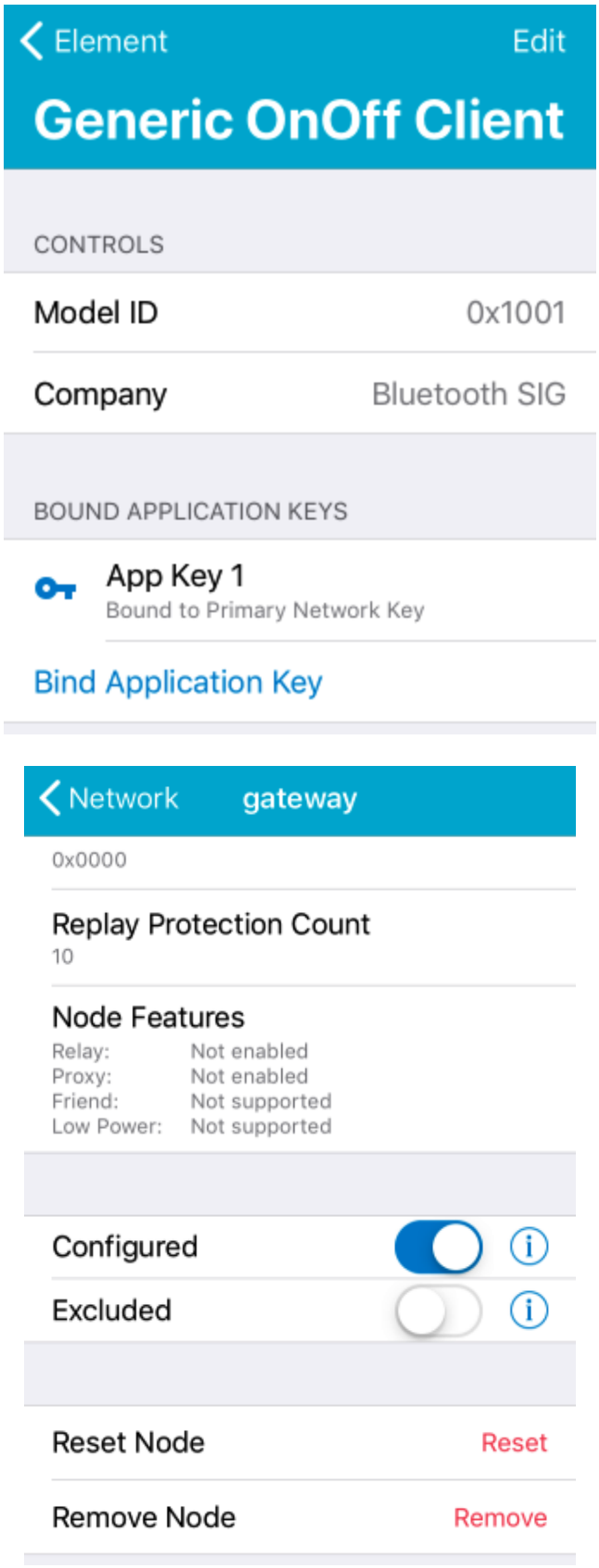

User commands
Light-level notifications
Gateway
Switch
LIght sensor
User
Generic OnOff Client
Generic OnOff Server
Generic OnOff Client
Generic OnOff Server

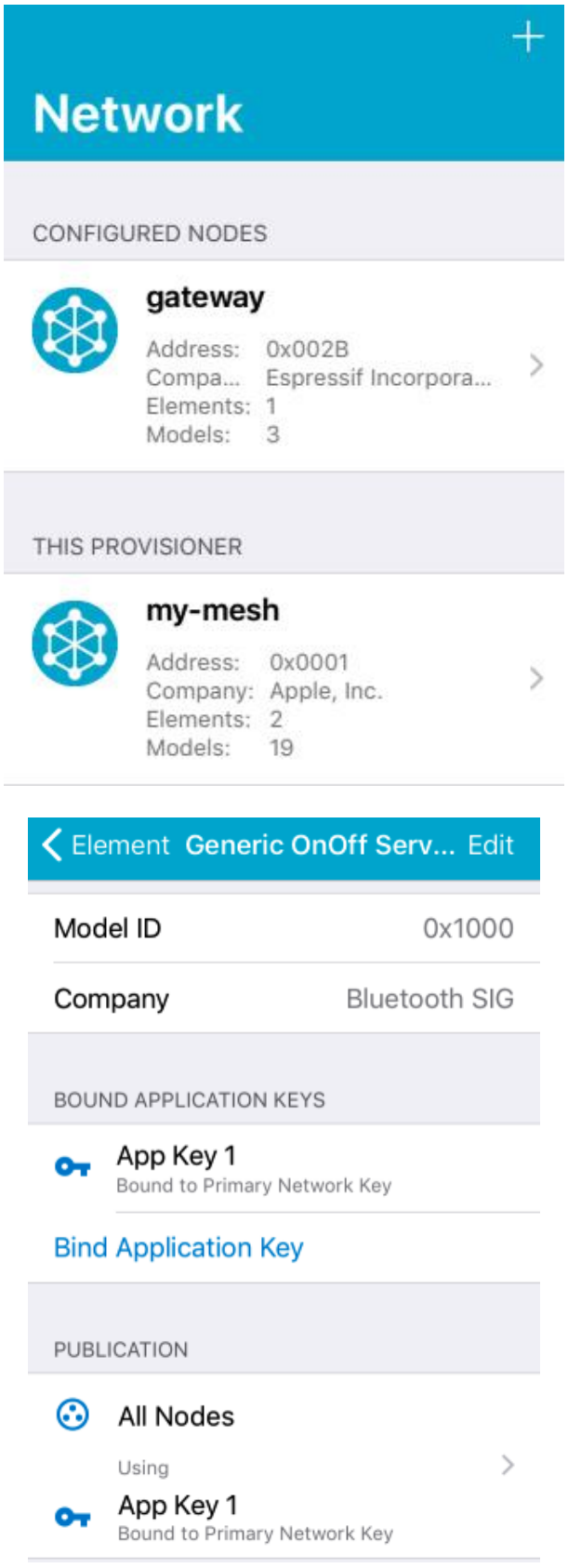

SCL -> GPIO22
SDA -> GPIO21
LED -> GPIO19
ESP - WROOM -32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
TSL2561
Lux Sensor
Vin
3vo
Int
SCL
GND
Addr
SDA

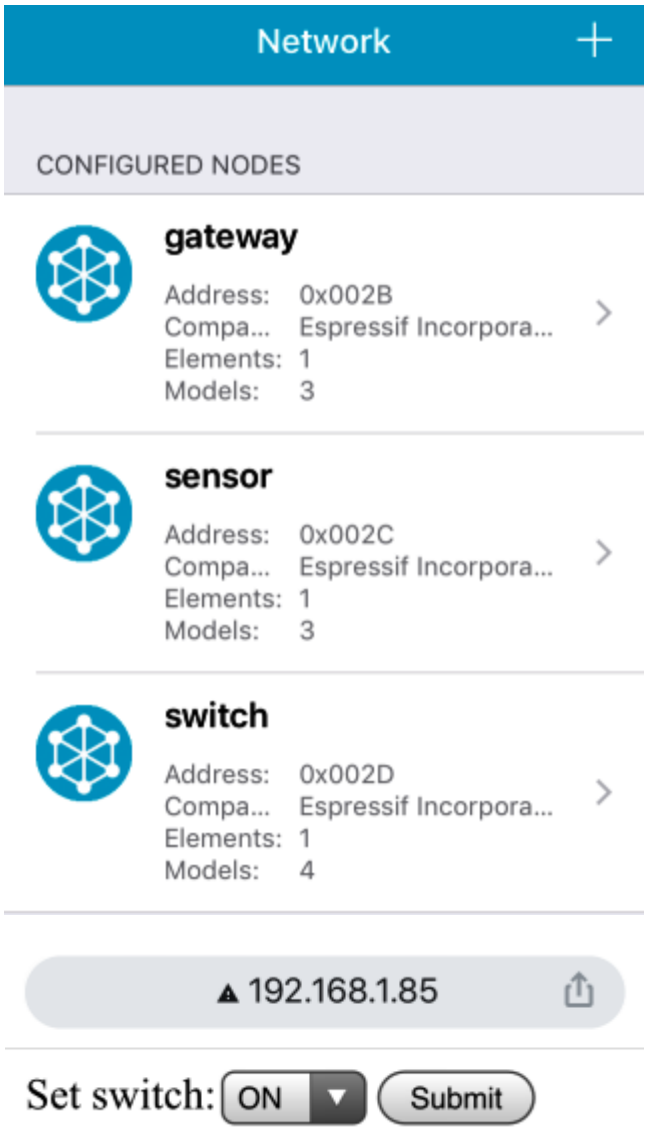

ESP - WROOM -32
205 - 000519
FCC 9D:2AC72-ESPWROOM 32
EN
IO0
SRD-05VDC-SL-C
1 Relay Module
VCC
IN1
GND
VCC JD_VCC
LED -> GPIO19
Relay -> GPIO4


Cancel
Provision Device
ESP-BLE-MESH
DDDD246F-287C-81B2-0000-0000...
ESP-BLE-MESH
DDDD2462-ABF2-2E76-0000-0000...
ESP-BLE-MESH
DDDD240A-C45F-E53A-0000-000...
Abort
Provision
Device Capabilities
Name
gateway
PROVISIONING DATA
Unicast Address
0x002B
Network Key
Primary Network Key

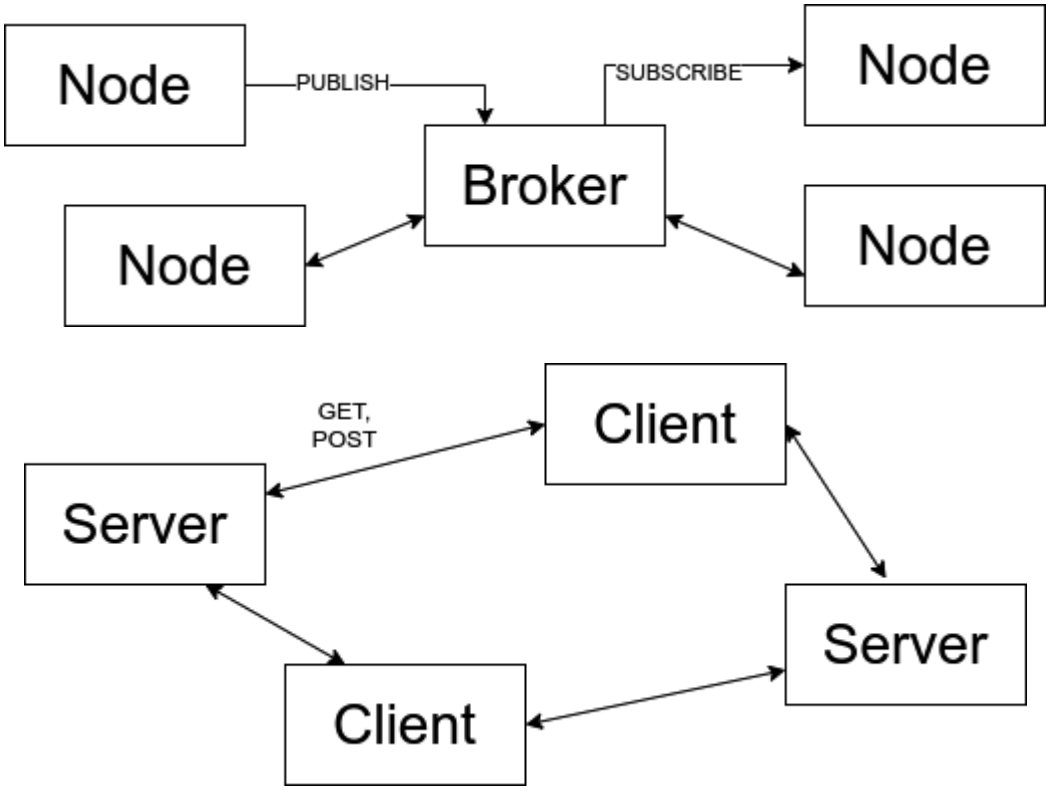

gateway
Name
gateway
Unicast Address
0x002B
Default TTL
7
Device Key
DD70C3CDFF71DF43446F2...
Network Keys
1
Application Keys
1
Node
Element 1
Name
No name
Unicast Address
0x002B
Location
Unknown
MODELS
Configuration Server
Bluetooth SIG
Generic OnOff Client
Bluetooth SIG
Health Server
Bluetooth SIG


Element
Edit
Generic OnOff Client
CONTROLS
Model ID
0x1001
Company
Bluetooth SIG
BOUND APPLICATION KEYS
App Key 1
Bound to Primary Network Key
Bind Application Key
Network
gateway
0x0000
Replay Protection Count
10
Node Features
Relay: Not enabled
Proxy: Not enabled
Friend: Not supported
Low Power: Not supported
Configured
Excluded
Reset Node
Reset
Remove Node
Remove


Network
CONFIGURED NODES
gateway
Address: 0x002B
Compa... Espressif Incorpora...
Elements: 1
Models: 3
THIS PROVISIONER
my-mesh
Address: 0x0001
Company: Apple, Inc.
Elements: 2
Models: 19
Element Generic OnOff Serv... Edit
Model ID 0x1000
Company Bluetooth SIG
BOUND APPLICATION KEYS
App Key 1
Bound to Primary Network Key
Bind Application Key
PUBLICATION
All Nodes
Using
App Key 1
Bound to Primary Network Key

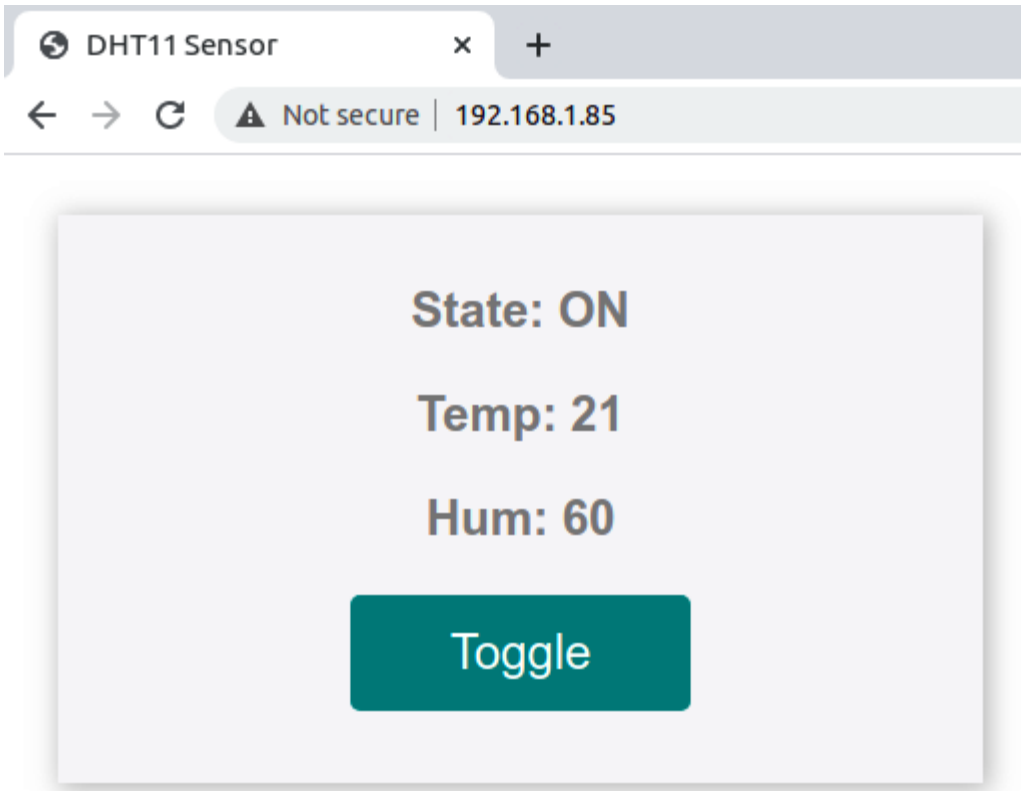

Network
CONFIGURED NODES
gateway
Address: 0x002B
Compa... Espressif Incorpora...
Elements: 1
Models: 3
sensor
Address: 0x002C
Compa... Espressif Incorpora...
Elements: 1
Models: 3
switch
Address: 0x002D
Compa... Espressif Incorpora...
Elements: 1
Models: 4
192.168.1.85
Set switch:
ON
Submit

Chapter 10: No Cloud, No IoT – Cloud Platforms and Services

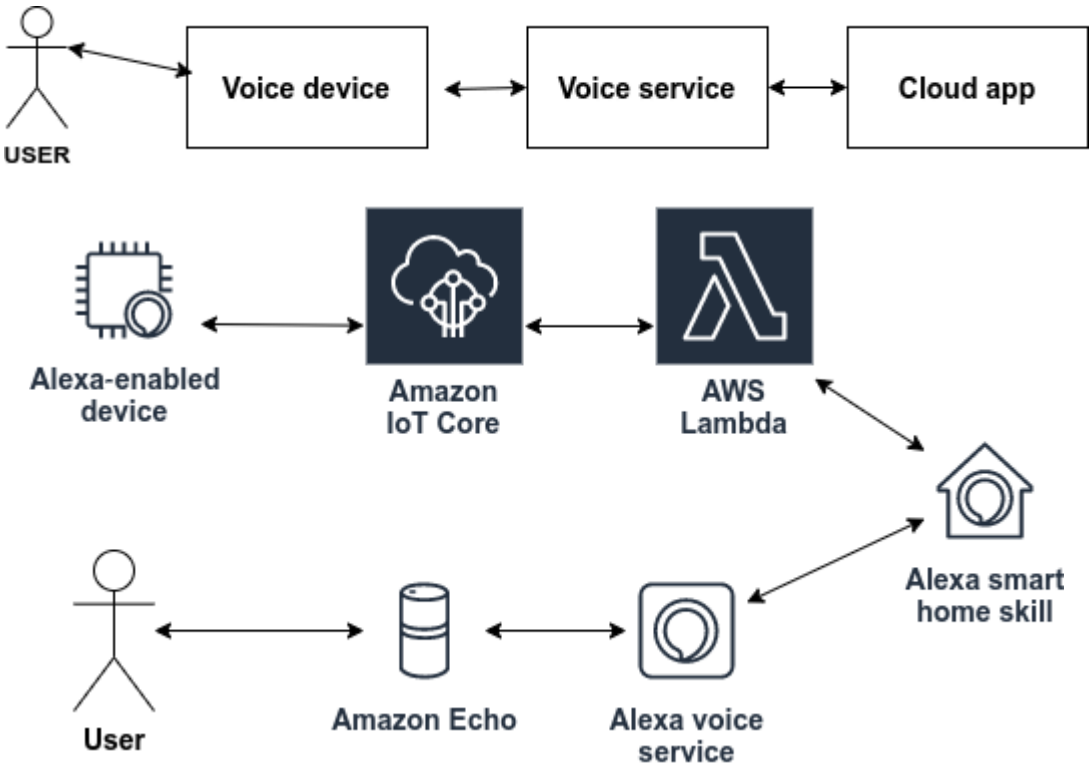



```
(Top) → Partition Table

    Partition Table (Custom partition table CSV)  --->
(partitions.csv) Custom partition CSV file
(0x8000) Offset of partition table
[*] Generate an MD5 checksum for the partition table
```

```
(Top) → Component config → HTTP Server

(512) Max HTTP Request Header Length
(512) Max HTTP URI Length
[*] Use TCP_NODELAY socket option when sending HTTP error responses
(32) Length of temporary buffer for purging data
[ ] Log purged content data at Debug level
[*] WebSocket server support
```


DHT11 Sensor
Not secure
192.168.1.85
State: ON
Temp: 21
Hum: 60
Toggle

Chapter 11: Connectivity Is Never Enough – Third-Party Integrations



Create a new skill

Cancel | Create skill

Model: Smart Home
Host: Provision your own

Skill name

myhome_temperature

18/50 characters

Brand names are only allowed if you provide proof of rights in the testing instructions or if you use the brand name in a referential manner that doesn't imply ownership (examples of terms that can be added to a brand name for referential usage: unofficial, unauthorized, fan, fandom, for, about).

Default language

This is the language and locale that you will build your skill in. You will be able to add other languages and locales later.

English (US)

More languages can be added to your skill after creation

1. Choose a model to add to your skill

There are many ways to start building a skill. You can design your own custom model or start with a pre-built model. Pre-built models are interaction models that contain a package of intents and utterances that you can add to your skill.

Custom

Design a unique experience for your users. A custom model enables you to create all of your skill's interactions.

Flash Briefing

Give users control of their news feed. This pre-built model lets users control what updates they listen to.

"Alexa, what's in the news?"

2. Smart Home service endpoint

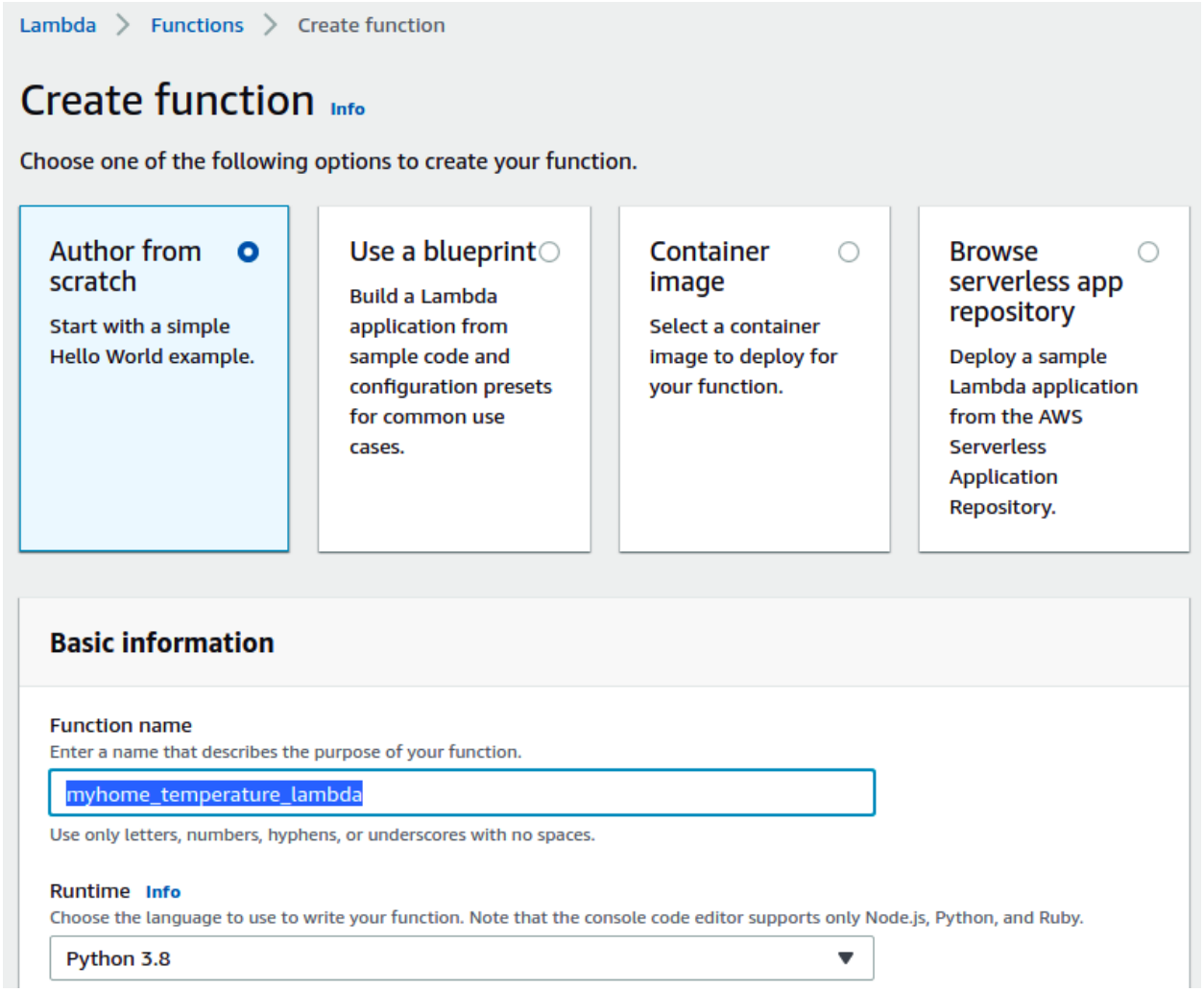
AWS Lambda ARN

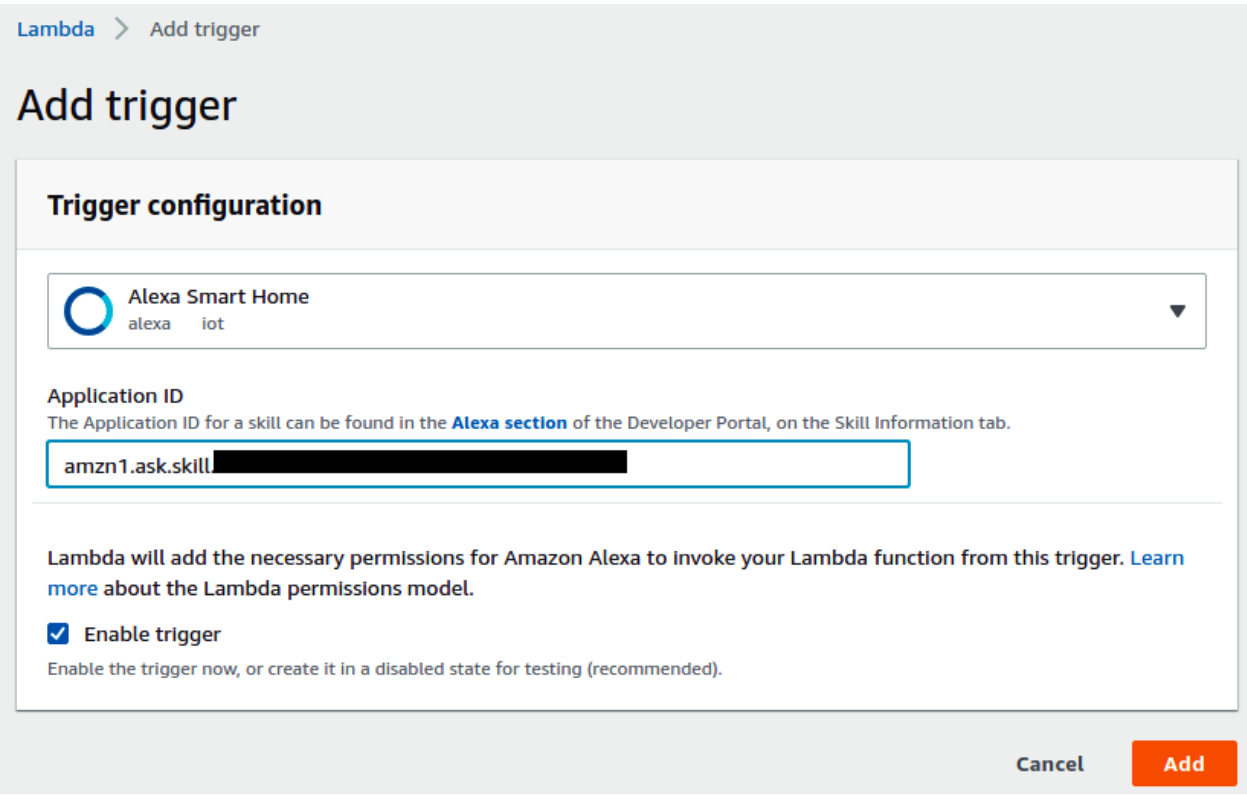
Your Skill ID

amzn1.ask.skill.[redacted] Copy to clipboard

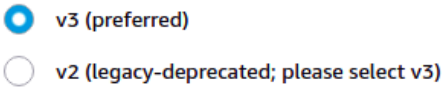
Default endpoint*

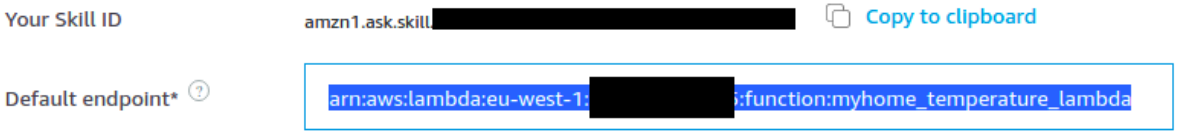
arn:aws:lambda:location<aws_account_id>:function:<lam

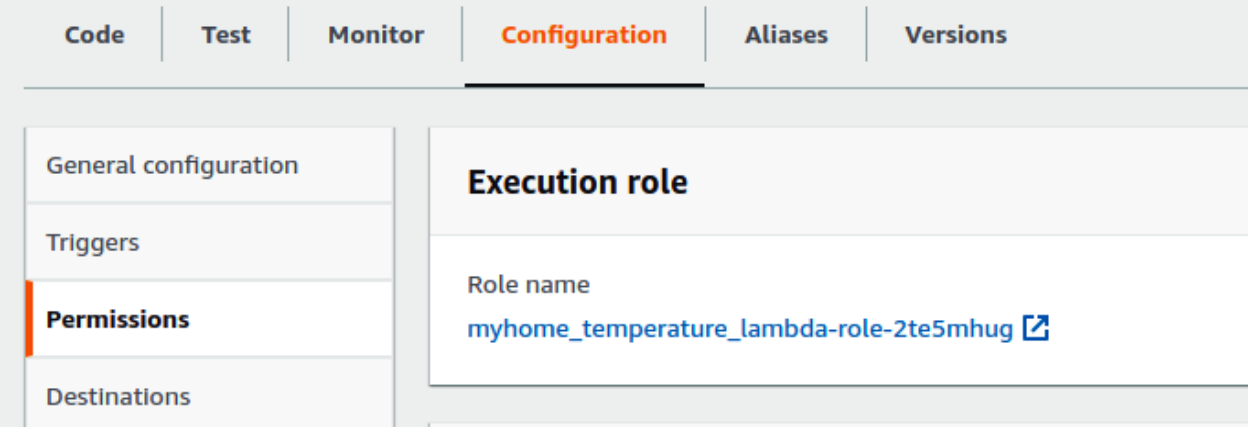

Lambda
Functions
Create function
Create function
Info
Choose one of the following options to create your function.
Author from scratch
Start with a simple Hello World example.
Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.
Container image
Select a container image to deploy for your function.
Browse serverless app repository
Deploy a sample Lambda application from the AWS Serverless Application Repository.
Basic information
Function name
Enter a name that describes the purpose of your function.
myhome_temperature_lambda
Use only letters, numbers, hyphens, or underscores with no spaces.
Runtime
Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Python 3.8

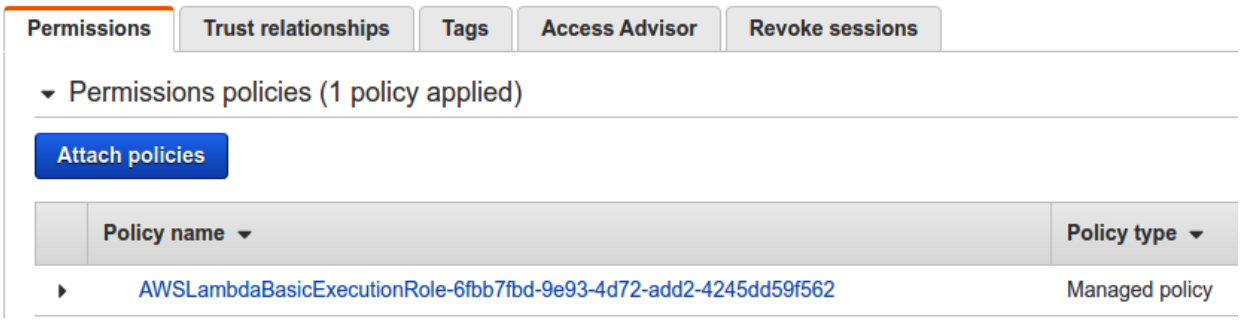

Lambda
Add trigger
Add trigger
Trigger configuration
Alexa Smart Home
alexa iot
Application ID
The Application ID for a skill can be found in the Alexa section of the Developer Portal, on the Skill Information tab.
amzn1.ask.skill[redacted]
Lambda will add the necessary permissions for Amazon Alexa to invoke your Lambda function from this trigger. Learn more about the Lambda permissions model.
Enable trigger
Enable the trigger now, or create it in a disabled state for testing (recommended).
Cancel
Add

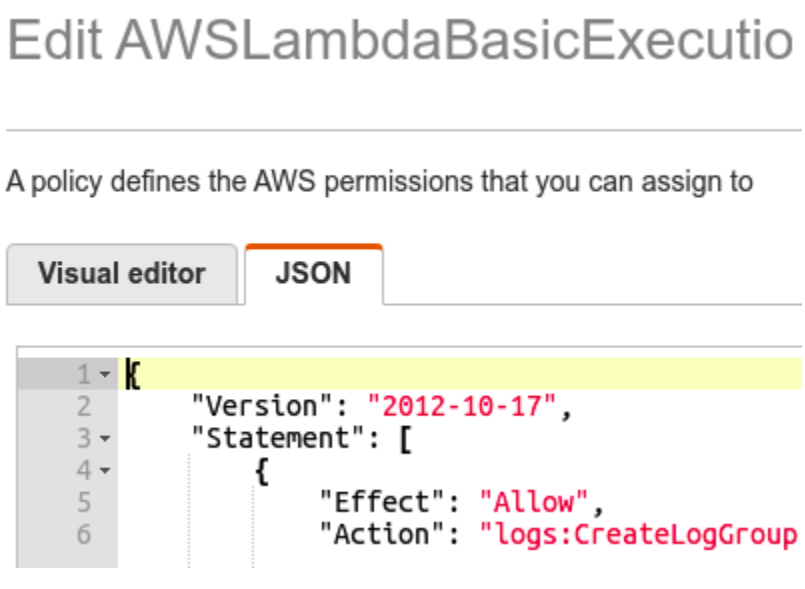

SAVE

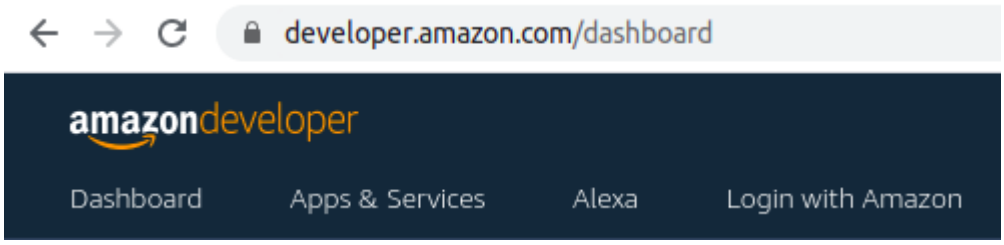

v3 (preferred)
v2 (legacy-deprecated; please select v3)


Your Skill ID
amzn1.ask.skill[redacted]
Copy to clipboard
Default endpoint*
arn:aws:lambda:eu-west-1:[redacted]:function:myhome_temperature_lambda


Code
Test
Monitor
Configuration
Aliases
Versions
General configuration
Triggers
Permissions
Destinations
Execution role
Role name
myhome_temperature_lambda-role-2te5mhug


Permissions
Trust relationships
Tags
Access Advisor
Revoke sessions
Permissions policies (1 policy applied)
Attach policies
Policy name
Policy type
AWSLambdaBasicExecutionRole-6fbb7fbd-9e93-4d72-add2-4245dd59f562
Managed policy


Edit AWSLambdaBasicExecutio
A policy defines the AWS permissions that you can assign to
Visual editor
JSON
{
"Version": "2012-10-17",
"Statement": [
{
"Effect": "Allow",
"Action": "logs:CreateLogGroup


developer.amazon.com/dashboard
amazondeveloper
Dashboard
Apps & Services
Alexa
Login with Amazon

Login with Amazon

Login with Amazon allows users to login to registered third party websites or apps ('clients') using from their Amazon profile, including name, email address, and zip code. To get started, select an

Create a New Security Profile **OR** Select a Security Profile

Name your new Security Profile

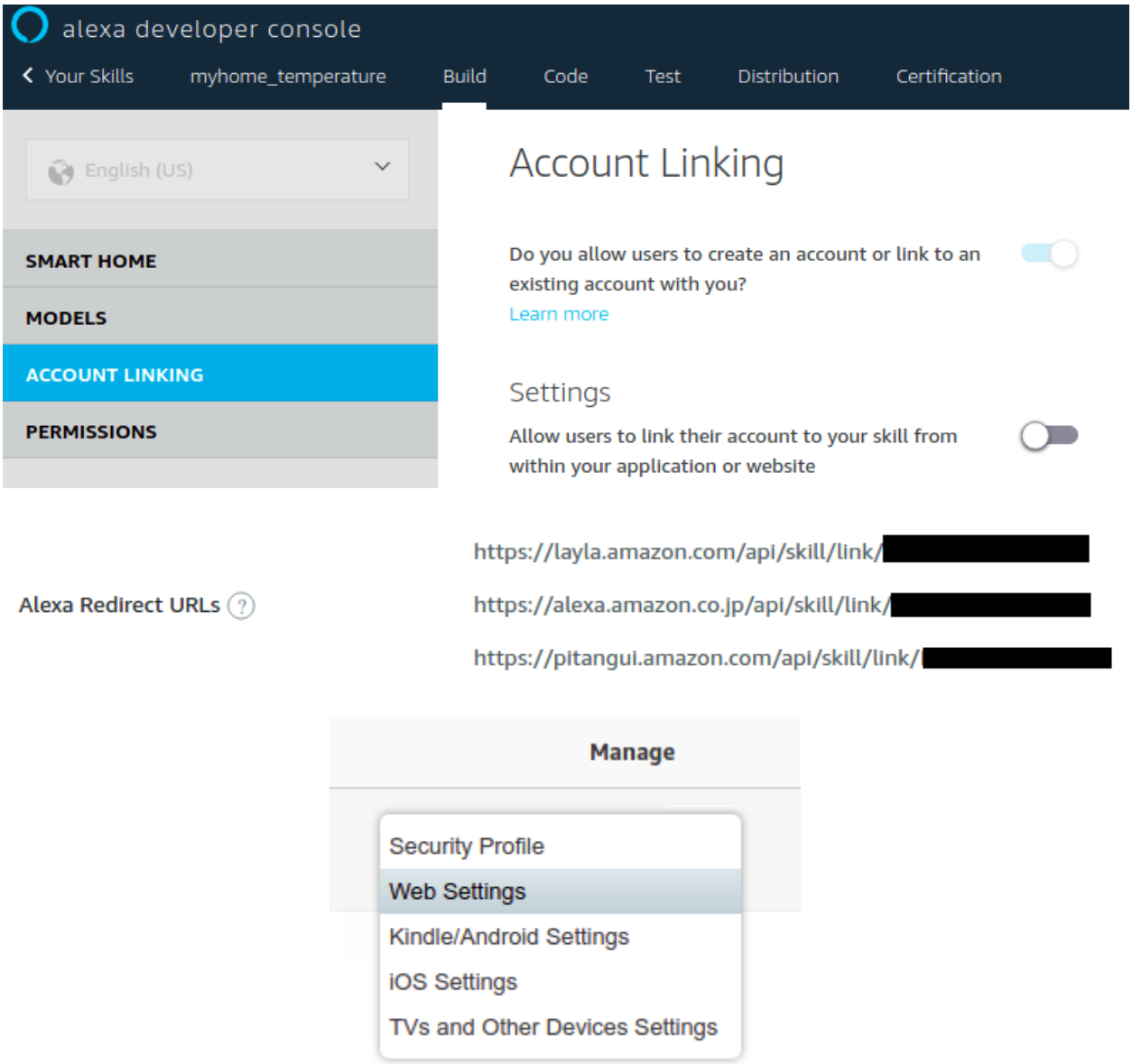
Choose a name for this security profile. You can create multiple security profiles. You of data (for example, a "My App - Free" and a "My App - HD" could share data). For More

* Indicates a required field

Security Profile Name *	myhome_sec_profile
Security Profile Description *	myhome_sec_profile
Consent Privacy Notice URL *	https://mevoo.co.uk
Consent Logo Image	UPLOAD IMAGE

Login with Amazon Configurations

Security Profile Name	OAuth2 Credentials
myhome_sec_profile	**Client ID:** amzn1.application-oa2-client.db **Client Secret:** [redacted]


alexa developer console
Your Skills
myhome_temperature
Build
Code
Test
Distribution
Certification
English (US)
SMART HOME
MODELS
ACCOUNT LINKING
PERMISSIONS
Account Linking
Do you allow users to create an account or link to an existing account with you?
Learn more
Settings
Allow users to link their account to your skill from within your application or website
Alexa Redirect URLs
https://layla.amazon.com/api/skill/link/[redacted]
https://alexa.amazon.co.jp/api/skill/link/[redacted]
https://pitangui.amazon.com/api/skill/link/[redacted]
Manage
Security Profile
Web Settings
Kindle/Android Settings
iOS Settings
TVs and Other Devices Settings

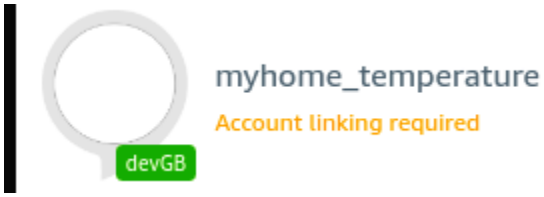
Security Profile Management

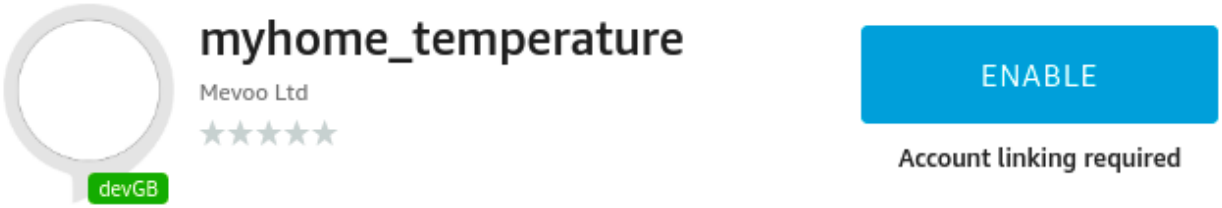
myhome_sec_profile - Security Profile

General | Web Settings | Android/Kindle Settings | iOS Settings | TVs and Other Devices Settings

To use Login with Amazon with a website, you must specify either an allowed JavaScript origin (for the Implicit grant

Client ID	amzn1.application-oa2-client.[redacted]
Client Secret	Show Secret
Allowed Origins	
Allowed Return URLs	https://layla.amazon.com/api/skill/link/[redacted] https://alexa.amazon.co.jp/api/skill/link/[redacted] https://pitangui.amazon.com/api/skill/link/[redacted]



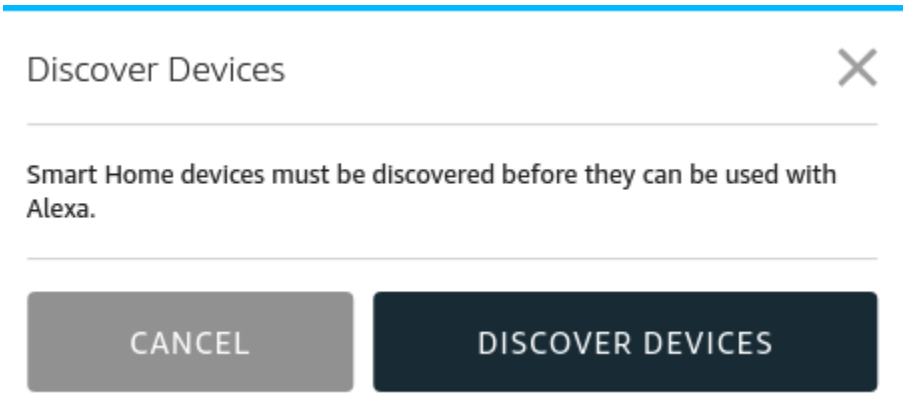


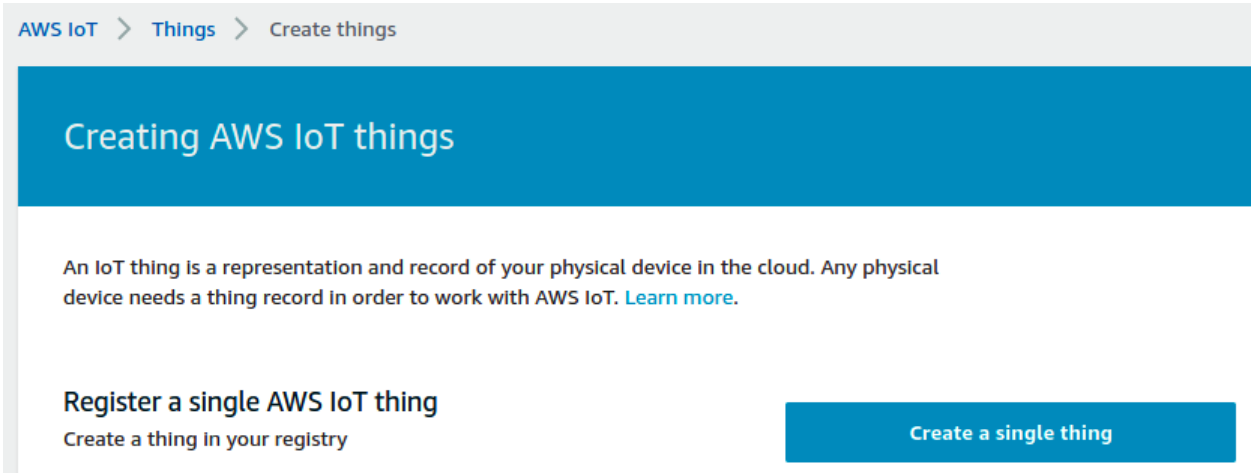
amazon alexa

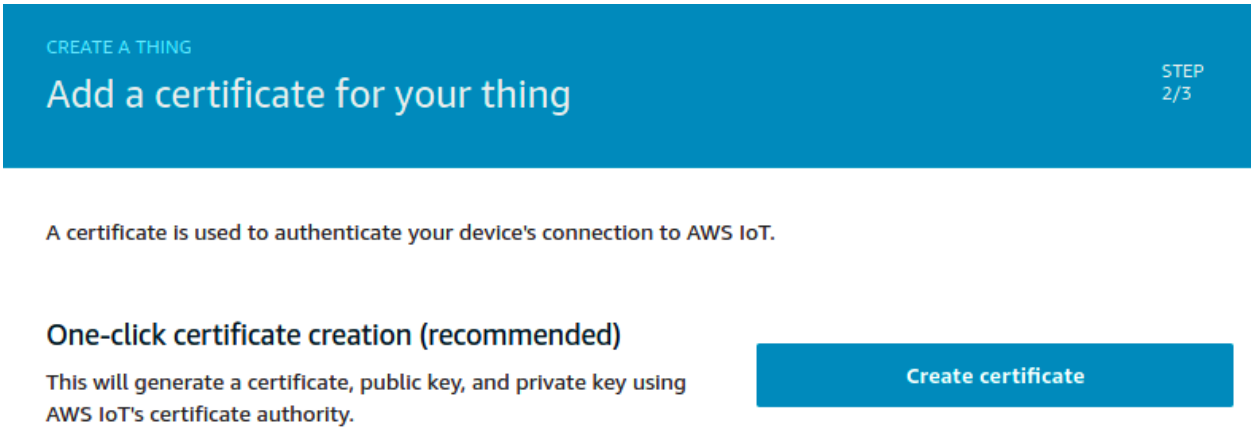
myhome_temperature has been successfully linked.

What to do next:

→ Close this window to discover smart home devices you can control with Alexa.


Discover Devices
Smart Home devices must be discovered before they can be used with Alexa.
CANCEL
DISCOVER DEVICES


AWS IoT > Things > Create things
Creating AWS IoT things
An IoT thing is a representation and record of your physical device in the cloud. Any physical device needs a thing record in order to work with AWS IoT. Learn more.
Register a single AWS IoT thing
Create a thing in your registry
Create a single thing


CREATE A THING
Add a certificate for your thing
STEP 2/3
A certificate is used to authenticate your device's connection to AWS IoT.
One-click certificate creation (recommended)
This will generate a certificate, public key, and private key using AWS IoT's certificate authority.
Create certificate

Certificate created!

Download these files and save them in a safe place. Certificates can be retrieved at any time, but the private and public keys cannot be retrieved after you close this page.

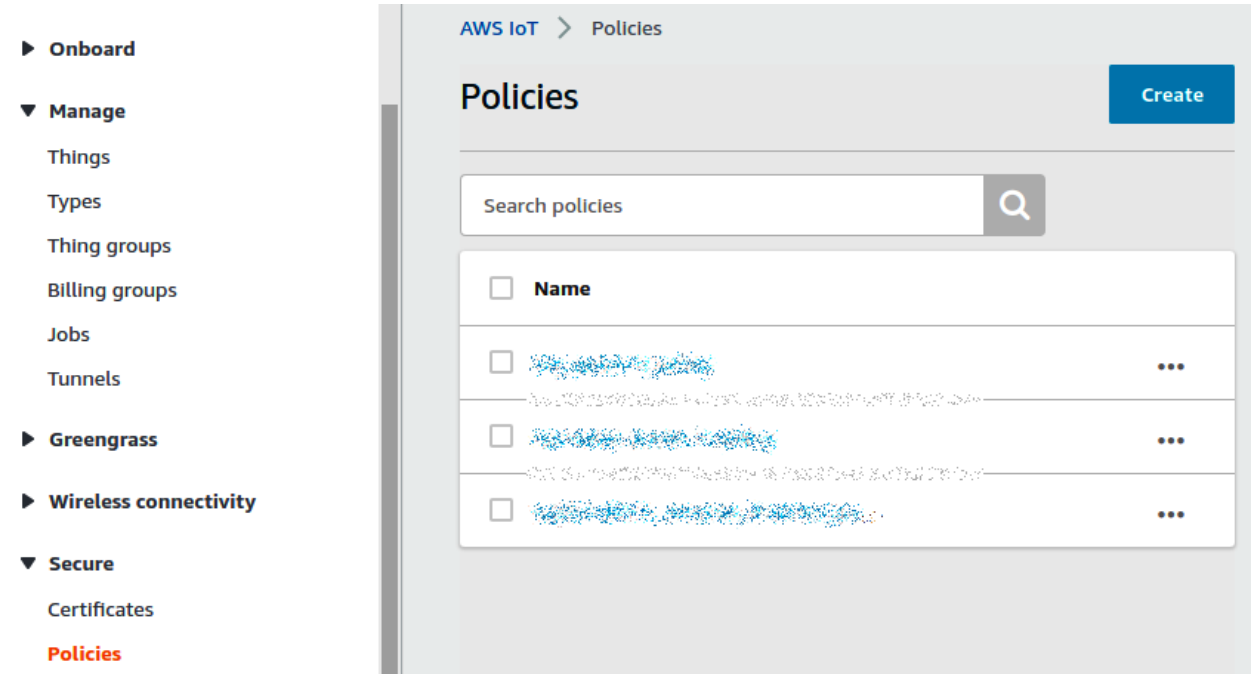
In order to connect a device, you need to download the following:

A certificate for this thing	0ea009c503.cert.pem	Download
A public key	0ea009c503.public.key	Download
A private key	0ea009c503.private.key	Download

You also need to download a root CA for AWS IoT:
A root CA for AWS IoT Download

Activate

Cancel | Done | Attach a policy



Create a policy

Create a policy to define a set of authorized actions. You can authorize actions on one or more resources (things, topics, topic filters). To learn more about IoT policies go to the AWS IoT Policies documentation page.

Name

myhome_thing_policy

Add statements

Policy statements define the types of actions that can be performed by a resource.

Advanced mode

Action

iot:*

Resource ARN

arn:aws:iot:*:*:*

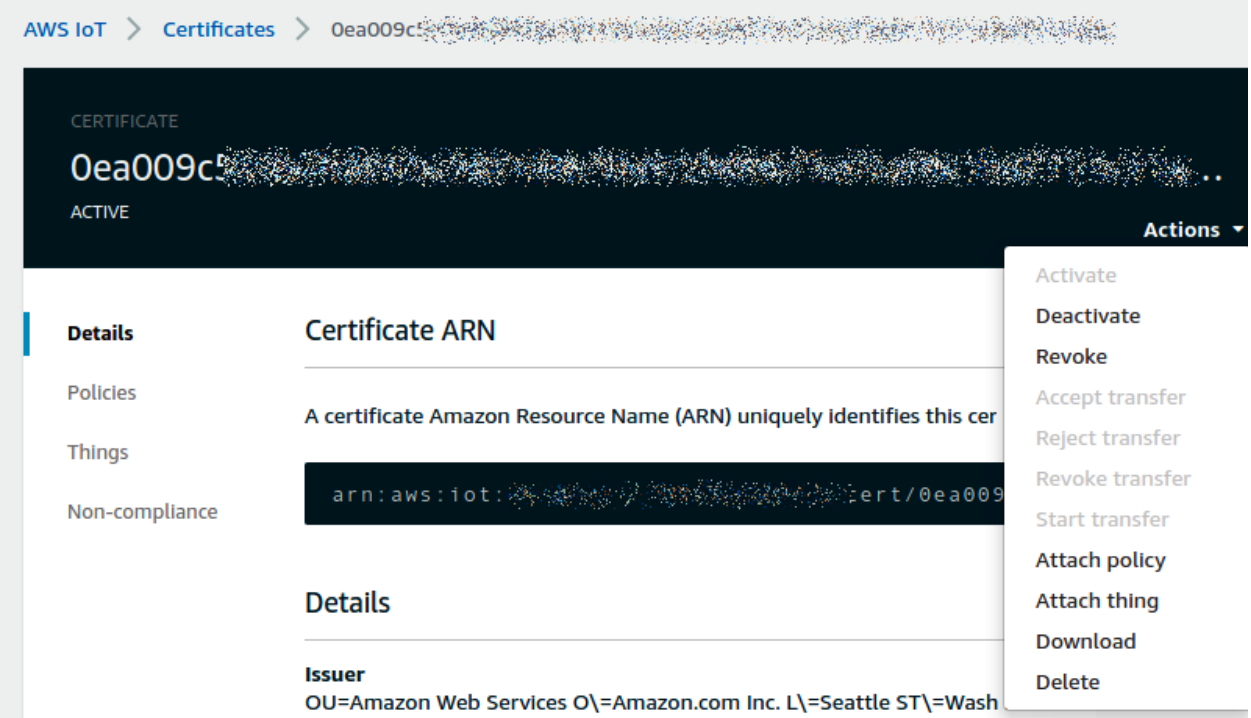
Effect

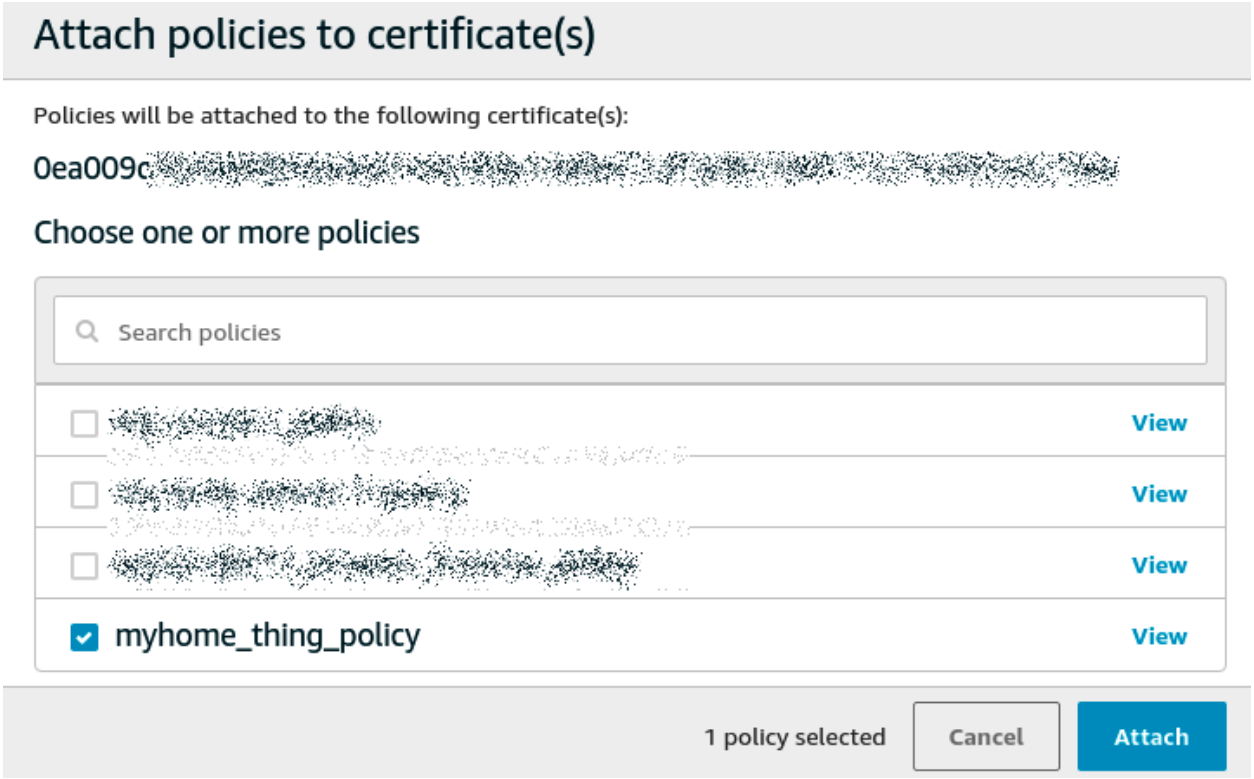
☑ Allow ☐ Deny

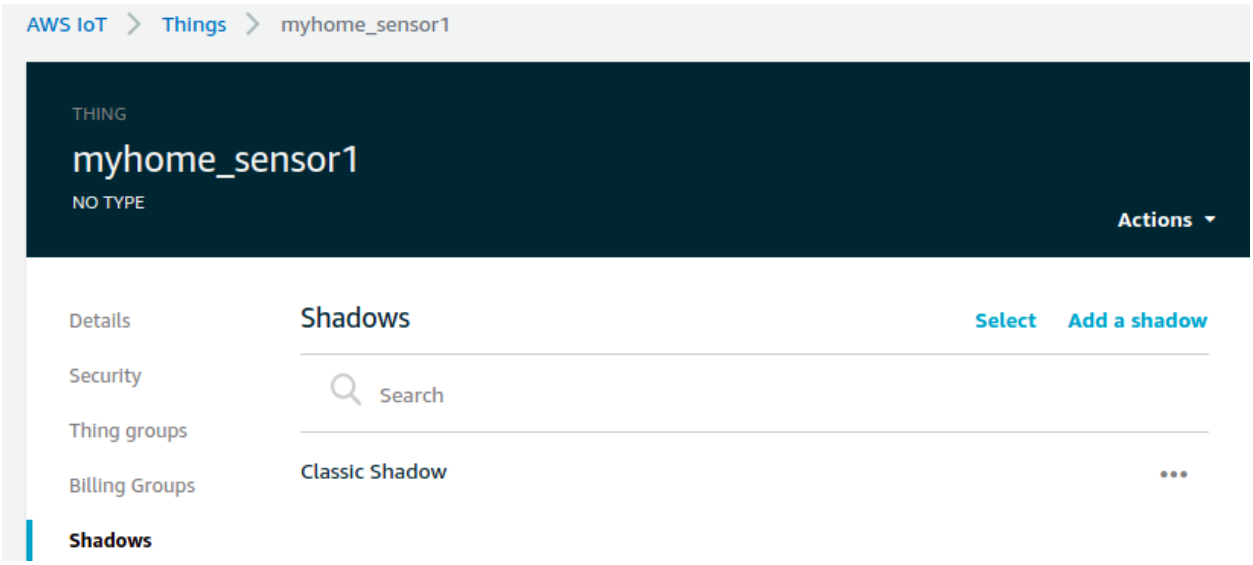
Remove

Add statement

Create


AWS IoT
Certificates
0ea009c
CERTIFICATE
0ea009c
ACTIVE
Actions
Activate
Deactivate
Revoke
Accept transfer
Reject transfer
Revoke transfer
Start transfer
Attach policy
Attach thing
Download
Delete
Details
Policies
Things
Non-compliance
Certificate ARN
A certificate Amazon Resource Name (ARN) uniquely identifies this cer
arn:aws:iot:
ert/0ea009
Details
Issuer
OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Wash


Attach policies to certificate(s)
Policies will be attached to the following certificate(s):
0ea009c
Choose one or more policies
Search policies
View
View
View
myhome_thing_policy
View
1 policy selected
Cancel
Attach



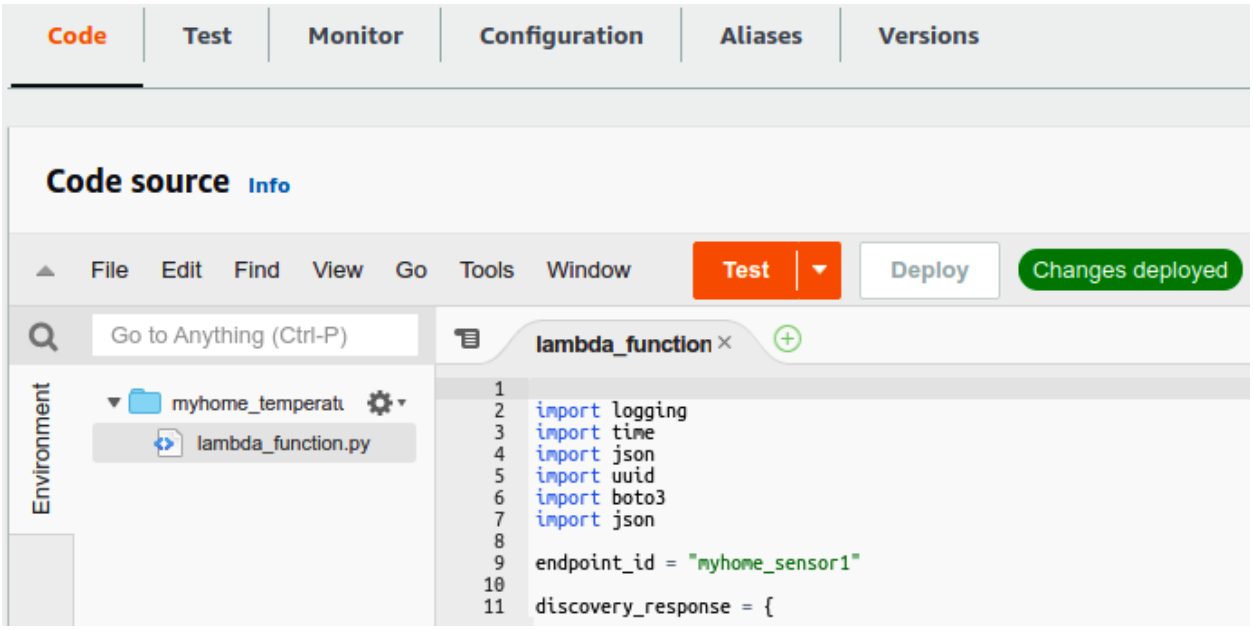
Shadow Document

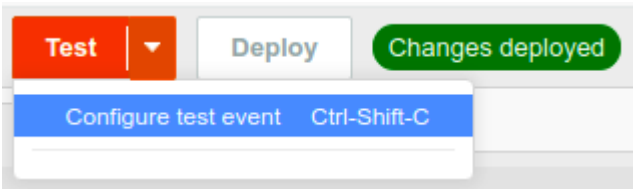
Delete **Edit**

Last update: April 09, 2021, 21:15:59 (UTC+0100)

Shadow state:


```
{
  "desired": {
    "welcome": "aws-iot"
  },
  "reported": {
    "welcome": "aws-iot",
    "temperature": 20
  }
}
```


Code
Test
Monitor
Configuration
Aliases
Versions
Code source Info
File Edit Find View Go Tools Window
Test
Deploy
Changes deployed
Go to Anything (Ctrl-P)
lambda_function
Environment
myhome_temperatu
lambda_function.py
1
2 import logging
3 import time
4 import json
5 import uuid
6 import boto3
7 import json
8
9 endpoint_id = "myhome_sensor1"
10
11 discovery_response = {


Test
Deploy
Changes deployed
Configure test event Ctrl-Shift-C

Configure test event

A function can have up to 10 test events. The events are persisted so you can and test your function with the same events.

- (•) Create new test event
- ( ) Edit saved test events

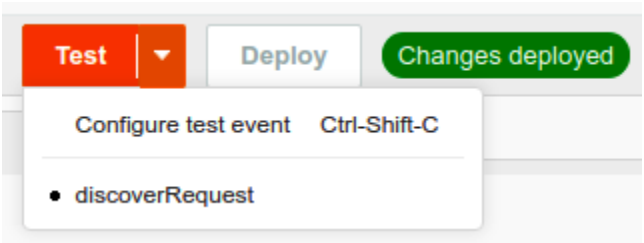
Event template

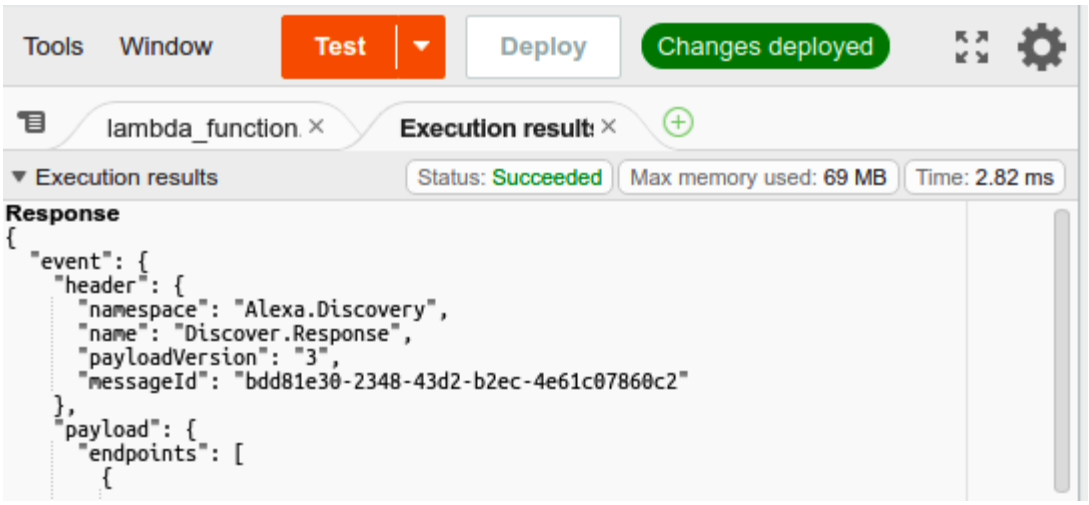
hello-world

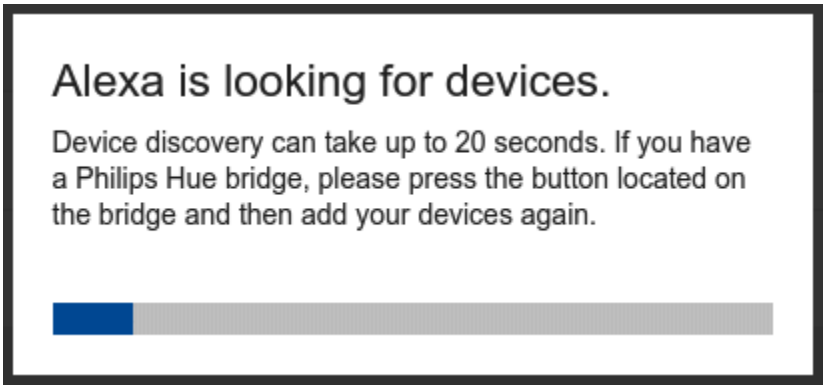
Event name

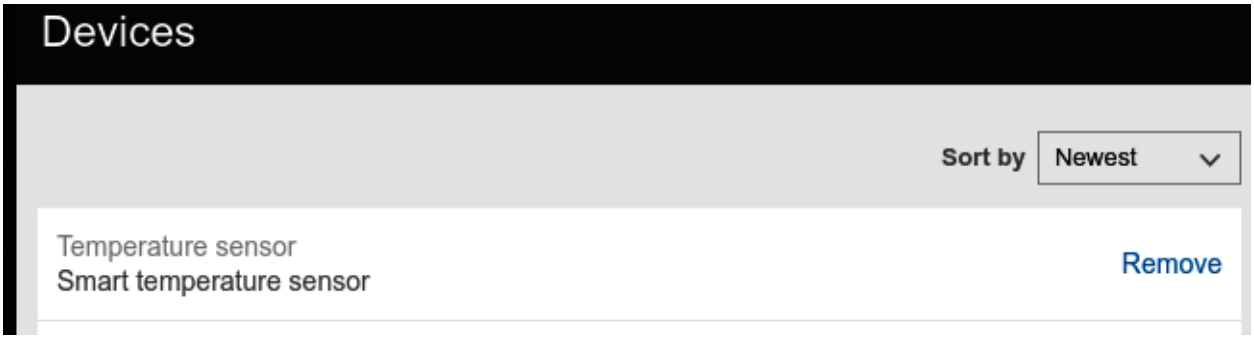
discoverRequest

```
{
  "directive": {
    "header": {
      "namespace": "Alexa.Discovery",
      "name": "Discover",
      "payloadVersion": "3",
      "messageId": "1bd5d003-31b9-476f-ad03-71d471922820"
    },
    "payload": {
      "scope": {
        "type": "BearerToken",
        "token": "access-token-from-skill"
      }
    }
  }
}
```

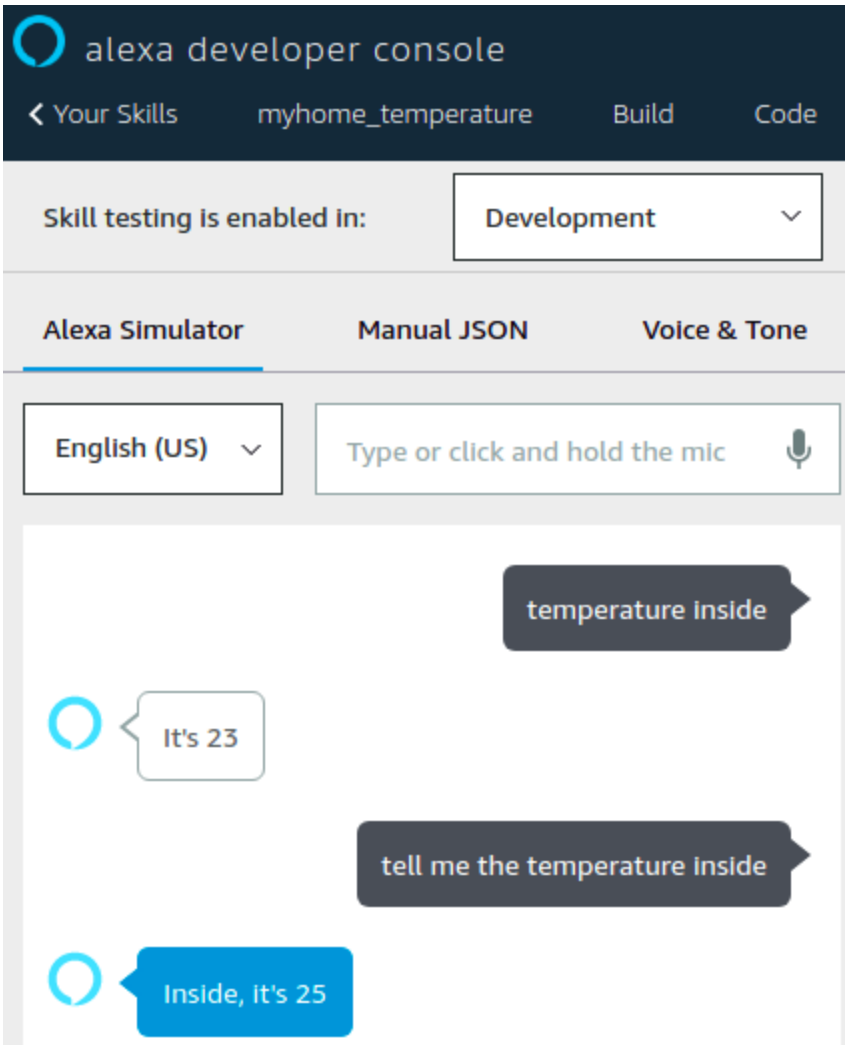



Tools
Window
Test
Deploy
Changes deployed
lambda_function
Execution result
Execution results
Status: Succeeded
Max memory used: 69 MB
Time: 2.82 ms
Response
{
"event": {
"header": {
"namespace": "Alexa.Discovery",
"name": "Discover.Response",
"payloadVersion": "3",
"messageId": "bdd81e30-2348-43d2-b2ec-4e61c07860c2"
},
"payload": {
"endpoints": [
{


Alexa is looking for devices.
Device discovery can take up to 20 seconds. If you have a Philips Hue bridge, please press the button located on the bridge and then add your devices again.


Devices
Sort by
Newest
Temperature sensor
Smart temperature sensor
Remove


alexa developer console
Your Skills
myhome_temperature
Build
Code
Test
Skill testing is enabled in:
Development
Alexa Simulator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
what is the temperature inside
Inside, it's 23


alexa developer console
Your Skills
myhome_temperature
Build
Code
Skill testing is enabled in:
Development
Alexa Simulator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
temperature inside
It's 23
tell me the temperature inside
Inside, it's 25

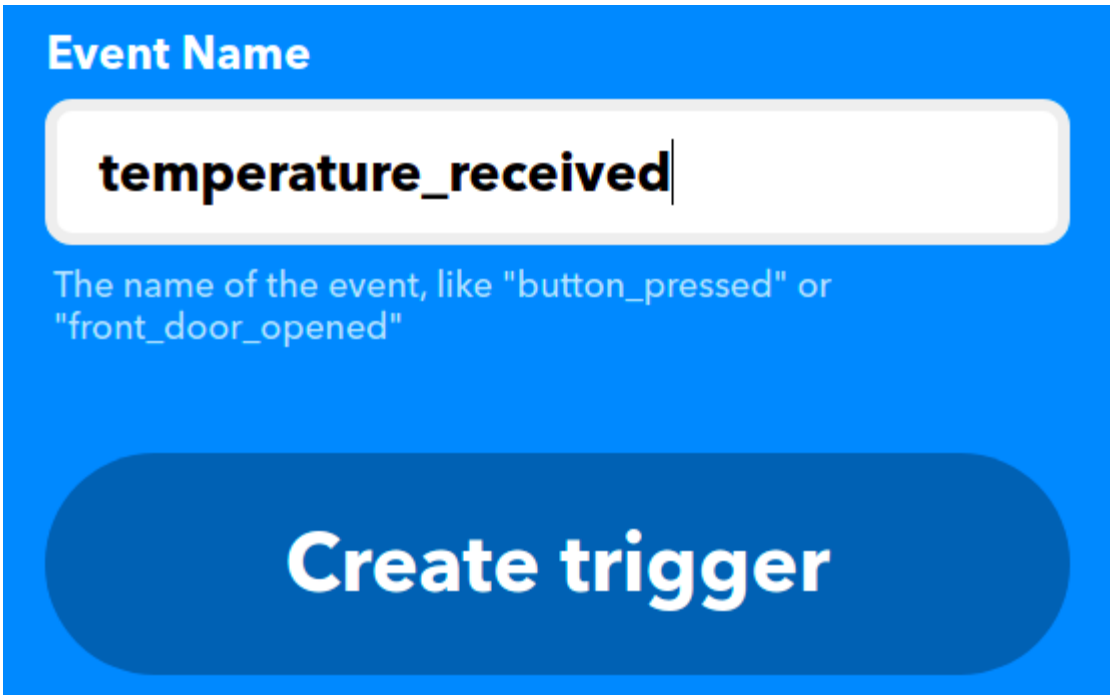
You've created 0 of 3 Applets

If This Add

Then That

Choose a service

web hook



Choose a service

google sheets

Spreadsheet name

temperature_log

Will create a new spreadsheet if one with this title doesn't exist

Add ingredient

Formatted row

OccurredAt ||| Value1

Use "|||" to separate cells

Add ingredient

Drive folder path

ifttt

Format: some/folder/path (defaults to "IFTTT")

Add ingredient

Create action

If temperature_received, then log

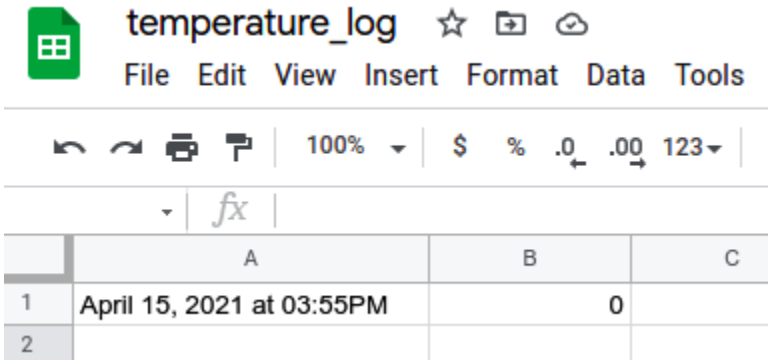
Edit title

by ozanoner

Connected

Your key is: [redacted]

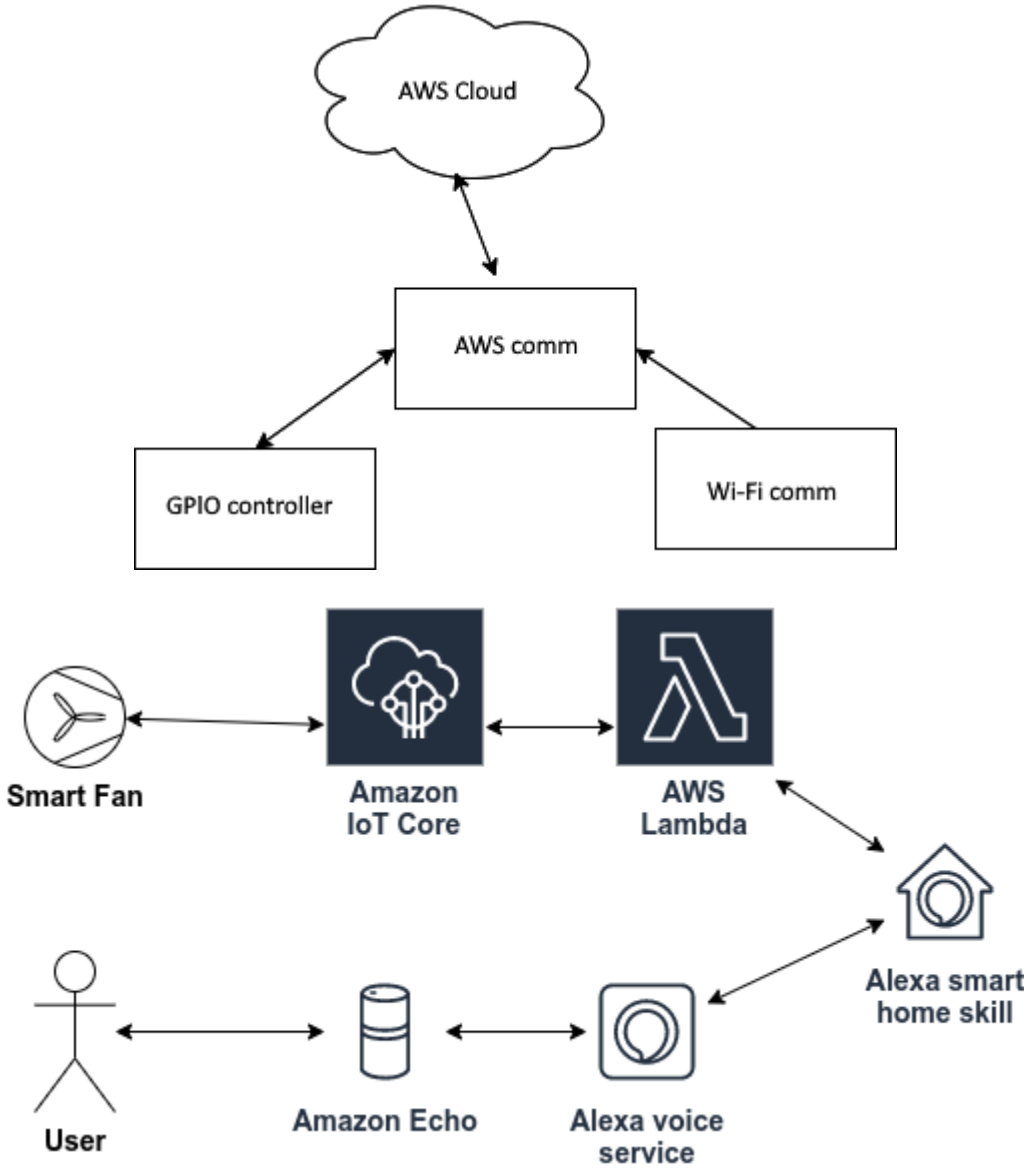
Back to service

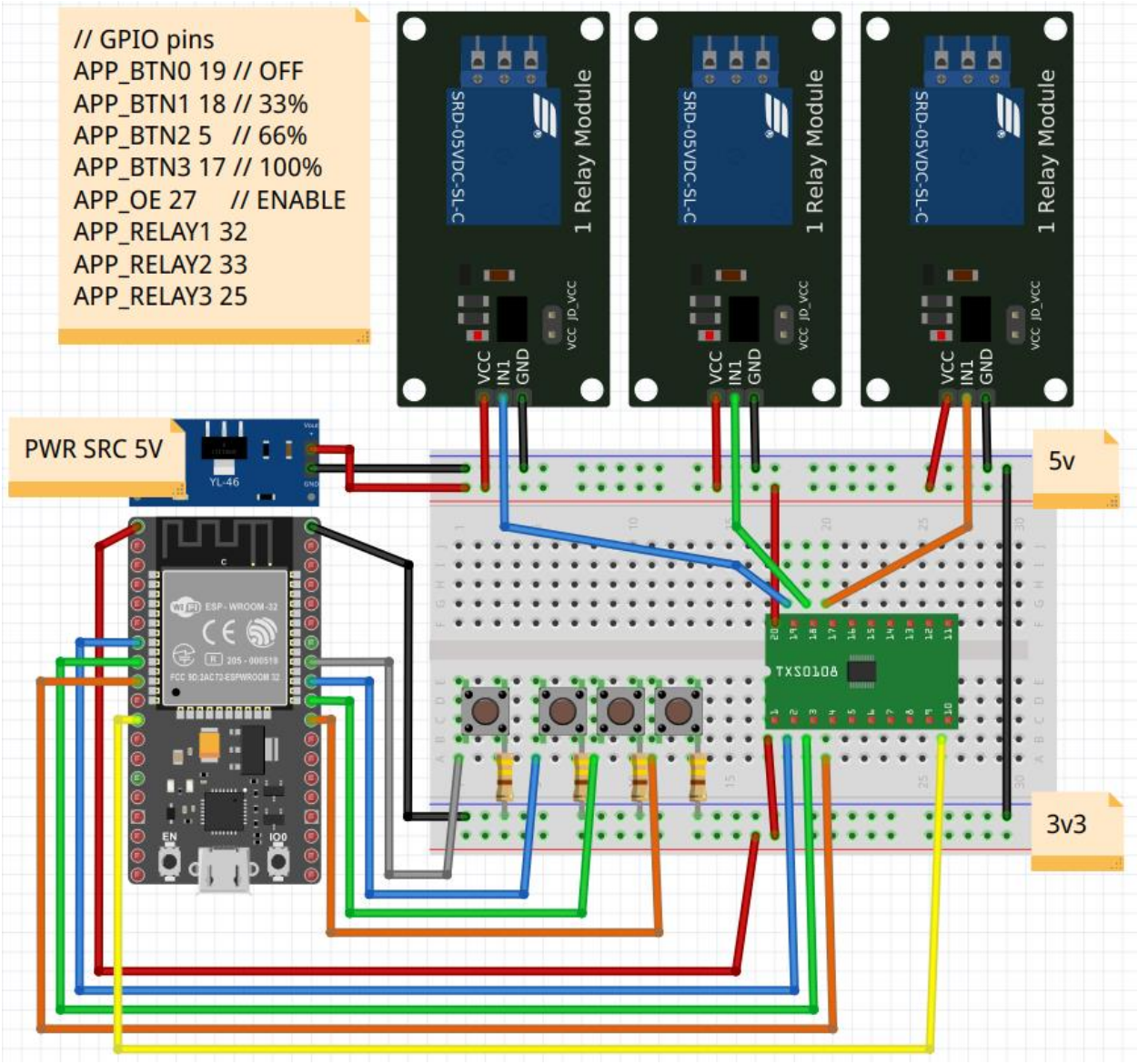


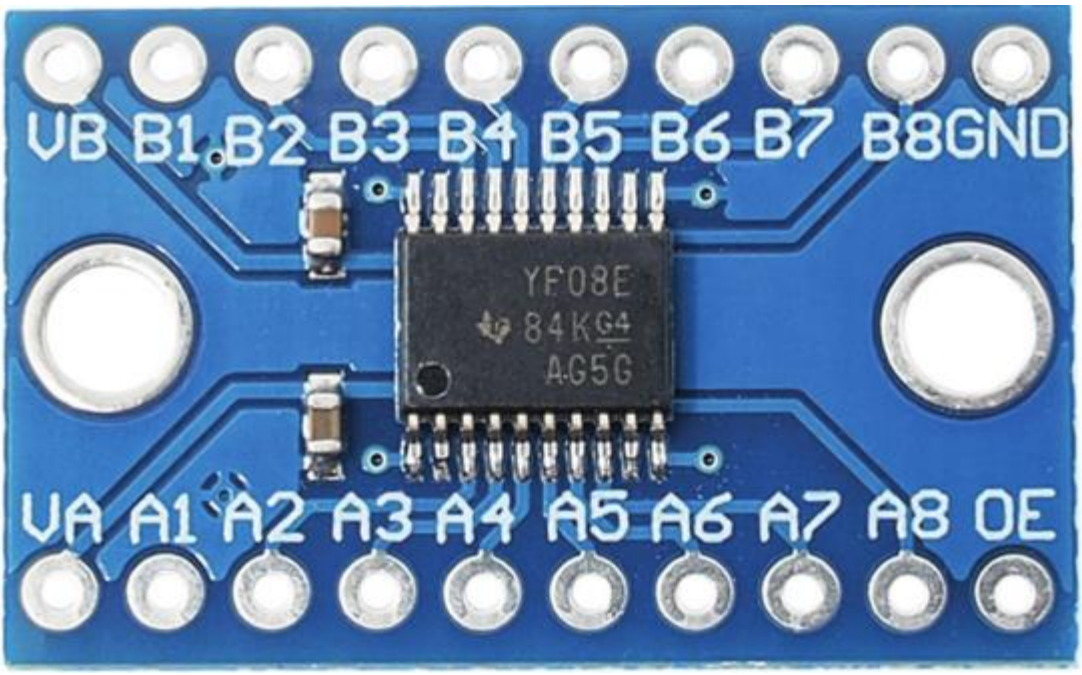
D2 | fx

	A	B
1	April 15, 2021 at 03:55PM	0
2	April 15, 2021 at 06:01PM	22
3	April 15, 2021 at 06:01PM	22
4	April 15, 2021 at 06:02PM	22
5		

Chapter 12: Practice – A Voice-Controlled Smart Fan




// GPIO pins
APP_BTN0 19 // OFF
APP_BTN1 18 // 33%
APP_BTN2 5 // 66%
APP_BTN3 17 // 100%
APP_OE 27 // ENABLE
APP_RELAY1 32
APP_RELAY2 33
APP_RELAY3 25
1 Relay Module
SRD-05VDC-SL-C
VCC
IN1
GND
vcc_jd_vcc
PWR SRC 5V
YL-46
5v
3v3
ESP-WROOM-32
TXS0108



Shadow state:


```
{
  "desired": {
    "powerlevel": 100
  },
  "reported": {
    "powerlevel": 100
  }
}
```

Shadow state:


```
{
  "desired": {
    "powerlevel": 0
  },
  "reported": {
    "powerlevel": 0
  }
}
```


Shadow state:


```
{
  "desired": {
    "powerlevel": 66
  },
  "reported": {
    "powerlevel": 66
  }
}
```