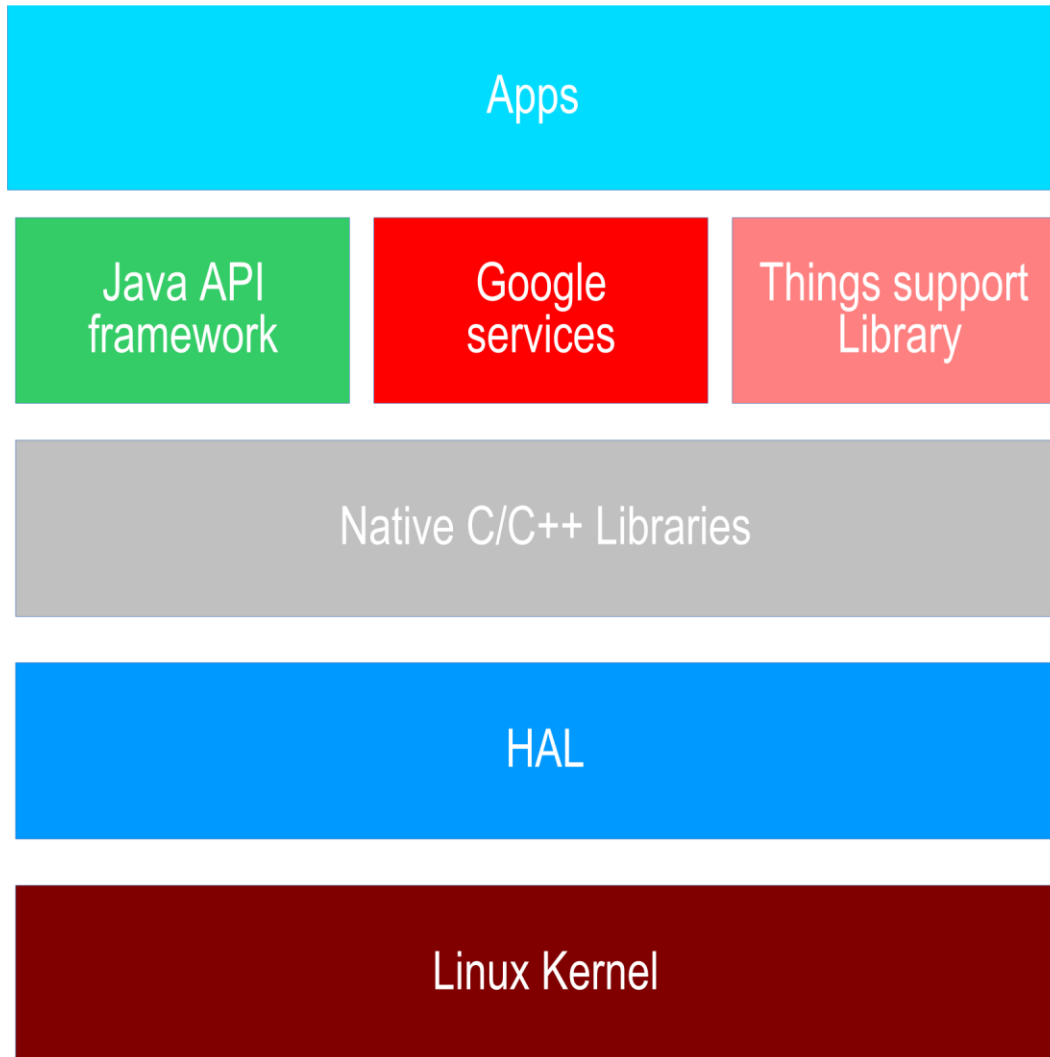
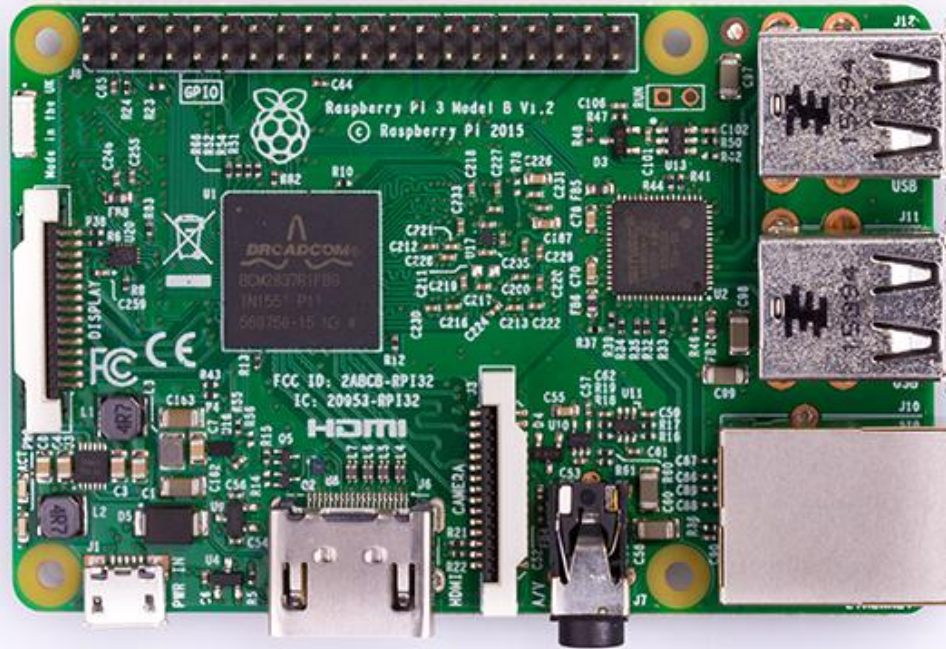


Chapter 1: Getting Started with Android Things





System Image Downloads


This page contains binary image files that allow you to update or restore Android Things on a supported [developer board](#).

Select a platform

Platform	Things package	Size	SHA-1 checksum
Intel	androidthings_edison_devpreview_1.zip	283 MB (297119836 bytes)	7827dfe8a4b7917a5fe536a5af492091b54ed4
NXP	androidthings_imx6ul_pico_devpreview_1.zip	269 MB (282087479 bytes)	d7ce6387be0a2ebb61c55a2e8a20dd205c1fa272
Raspberry Pi	androidthings_rpi3_devpreview_1.zip	268 MB (282016162 bytes)	911227a3c658bf74695118df9156cb20714f79d3

Internal

- ▼ OWC Mercury EX...
- Macintosh HD
- ▼ Apple SDXC Read...
 - A T ▲



Apple SDXC Reader Media

15,93 GB Secure Digital Internal Physical Disk

● **A T**

15,93 GB

- ▼ Hardware
 - ATA
 - Audio
 - Bluetooth
 - Camera
 - Card Reader**
 - Diagnostics
 - Disc Burning
 - Ethernet Cards
 - Fibre Channel
 - FireWire
 - Graphics/Displays
 - Hardware RAID
 - Memory
 - NVMeExpress
 - PCI
 - Parallel SCSI
 - Power
 - Printers
 - SAS
 - SATA/SATA Express
 - SPI
 - Storage
 - Thunderbolt
 - USB
- ▼ Network
 - Firewall
 - Locations

Built in SD Card Reader:

Vendor ID:	0x14e4
Device ID:	0x16bc
Subsystem Vendor ID:	0x14e4
Subsystem ID:	0x0000
Revision:	0x0010
Link Width:	x1
Link Speed:	2.5 GT/s

SDHC Card (Class 10):

Product Name:	SDSL16G
Manufacturer ID:	0x03
Revision:	8,0
Serial Number:	2584482294
Manufacturing Date:	2016-08
Specification Version:	3,0
Capacity:	15,93 GB (15.931.539.456 bytes)
Removable Media:	Yes
BSD Name:	disk1
Partition Map Type:	MBR (Master Boot Record)

Volumes:

A T:

Available:	15,92 GB (15.920.988.160 bytes)
Capacity:	15,93 GB (15.927.345.152 bytes)
Writable:	Yes
File System:	MS-DOS FAT32
BSD Name:	disk1s1
Mount Point:	/Volumes/A T
Content:	DOS_FAT_32
Volume UUID:	FF08045D-59E6-30EC-A66F-0BC1470DBE54

androidthings

Software Version 7.0

No WiFi Connection
Ethernet IP: 192.168.1.3
developer.android.com/things



Flash

Log level

Browse...



Flash file:

Configuration:

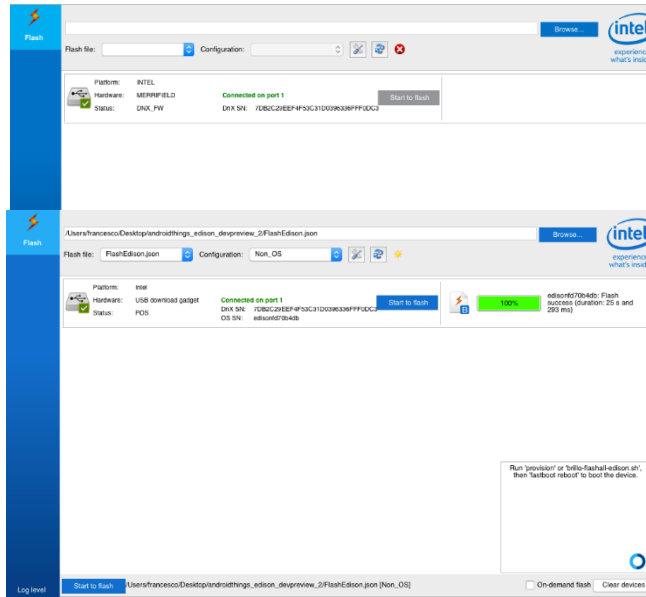


Main content area for flash operations, currently empty.

Start to flash

On-demand flash

Clear devices



Target Android Devices

Select the form factors your app will run on

Different platforms may require separate SDKs

Phone and Tablet

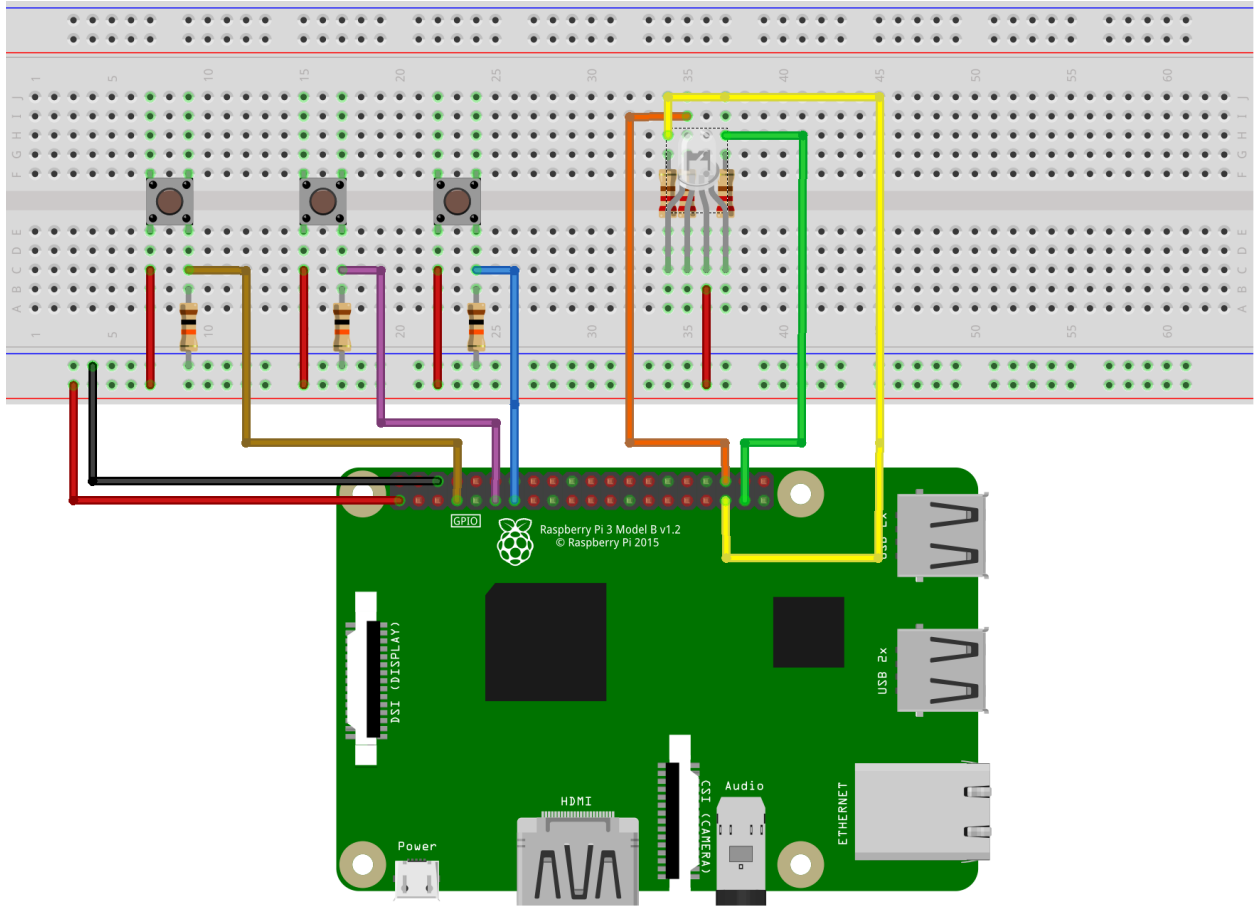
Minimum SDK

Lower API levels target more devices, but have fewer features available. By targeting API 24 and later, your app will run on < 1% of the devices that are active on the Google Play Store.

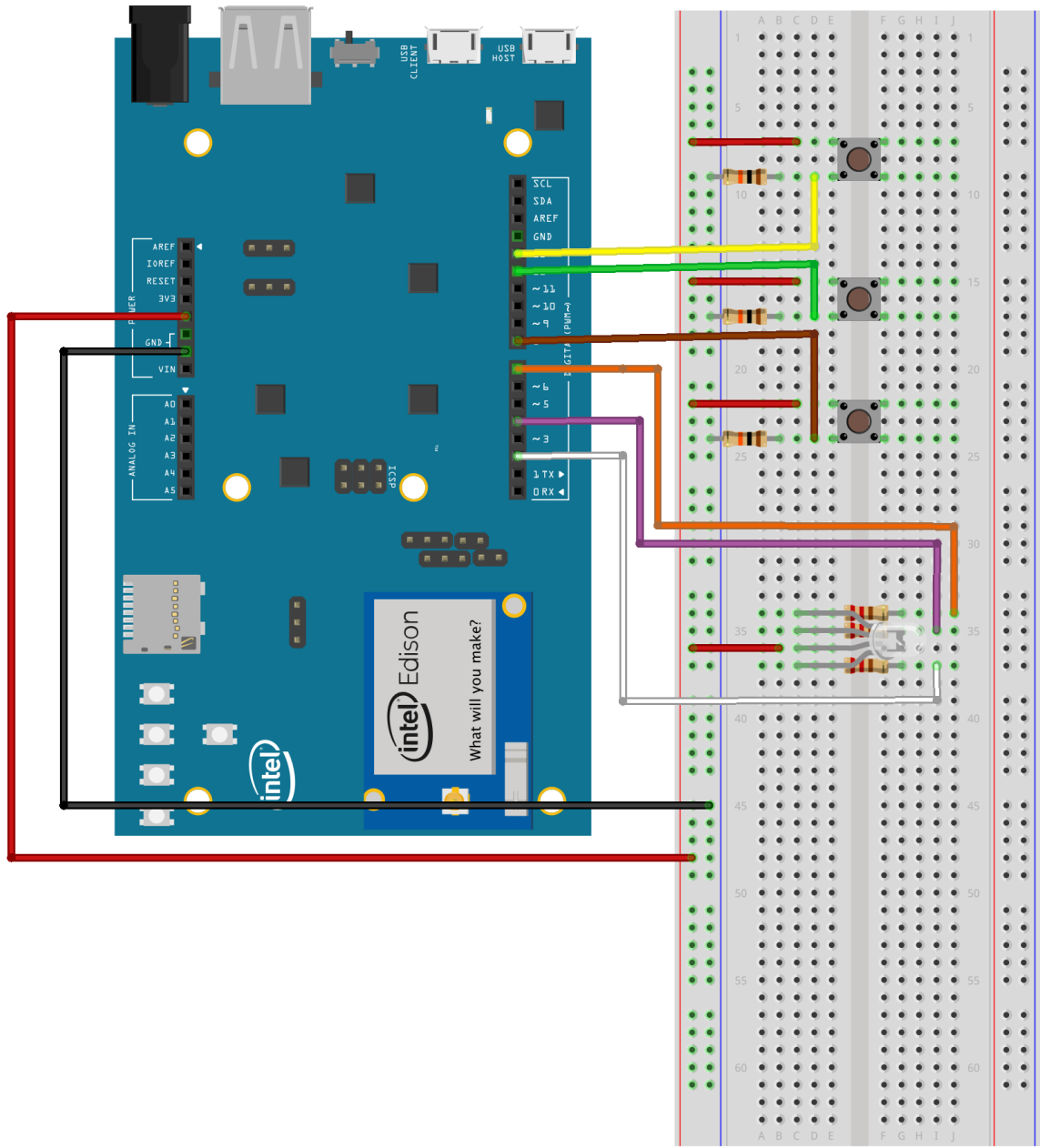
[Help me choose](#)



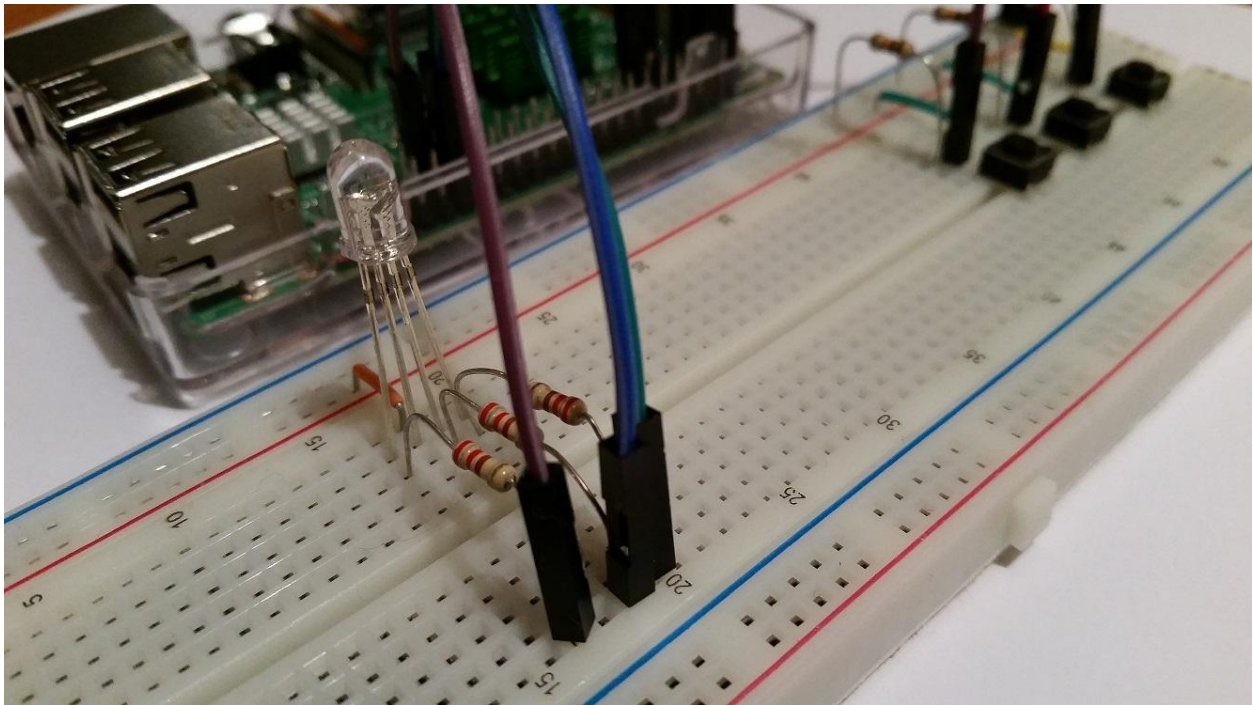
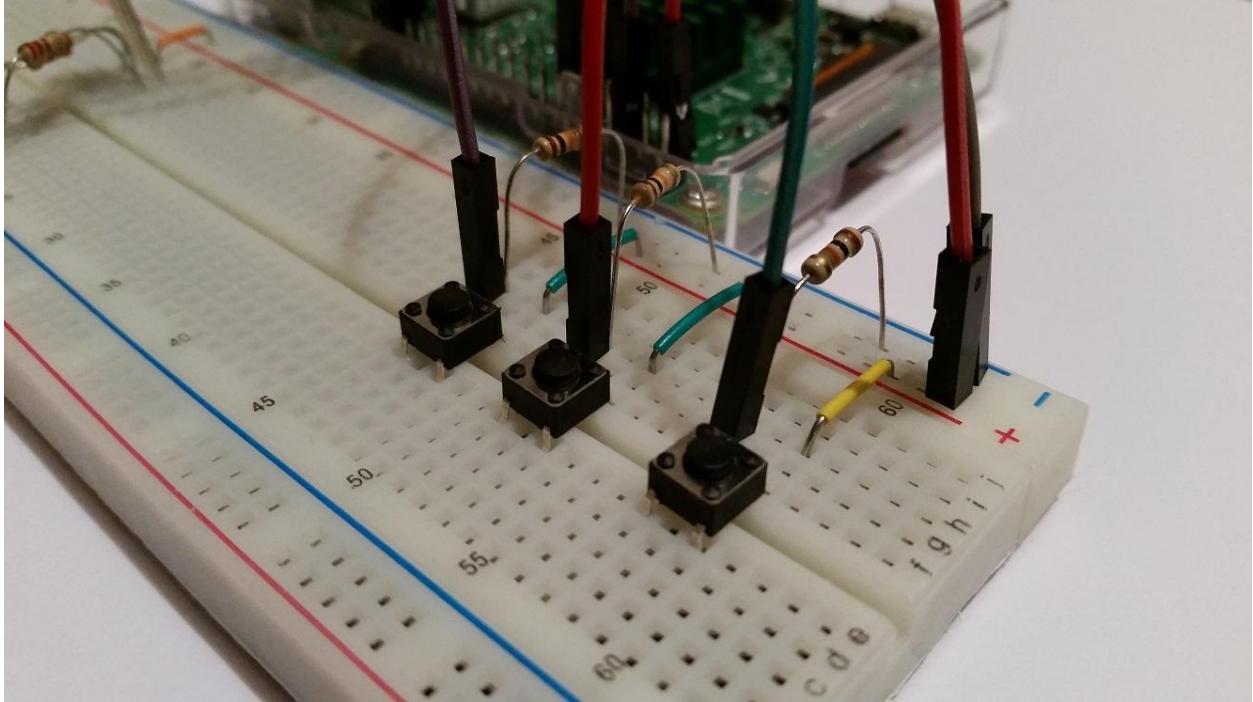




fritzing

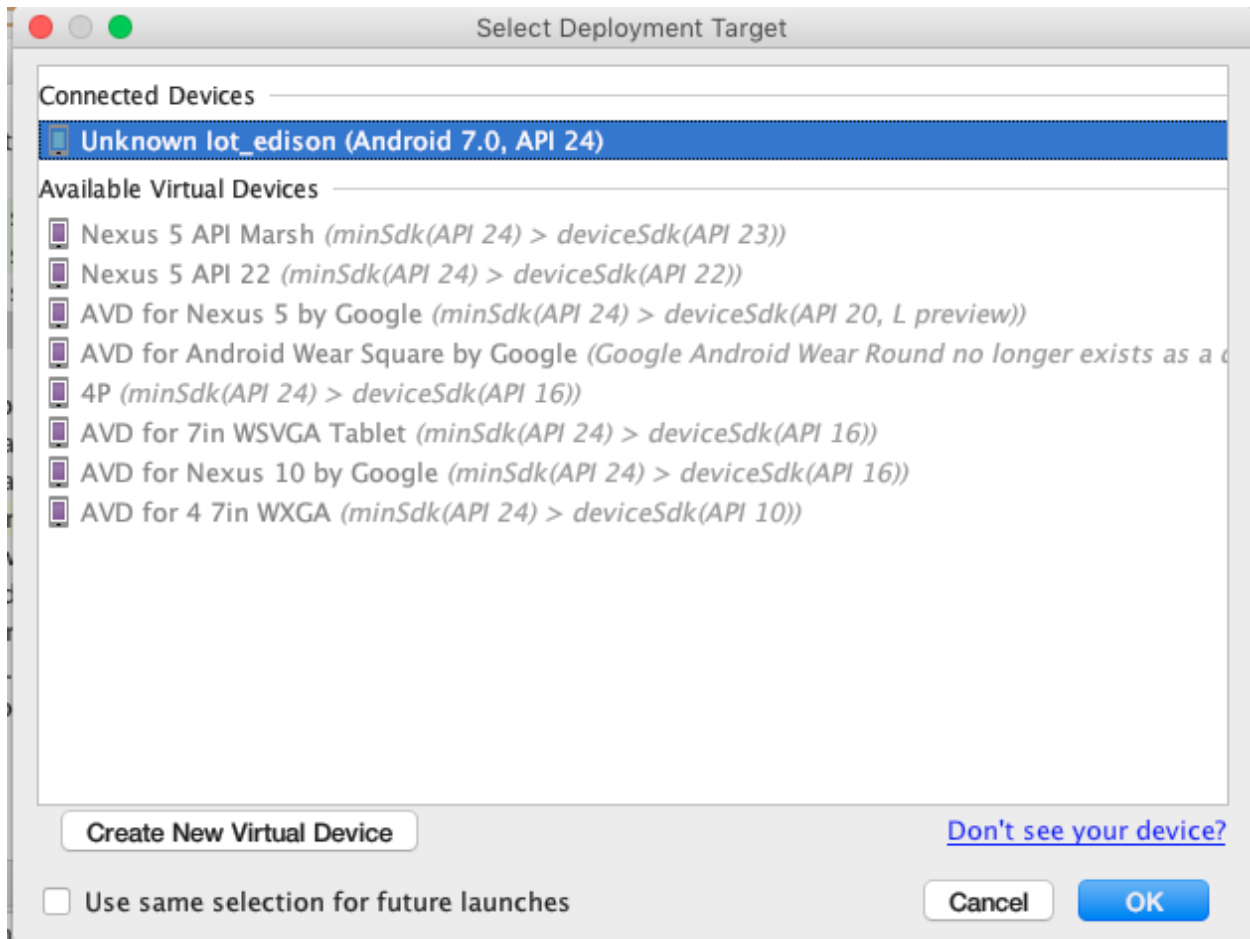


fritzing

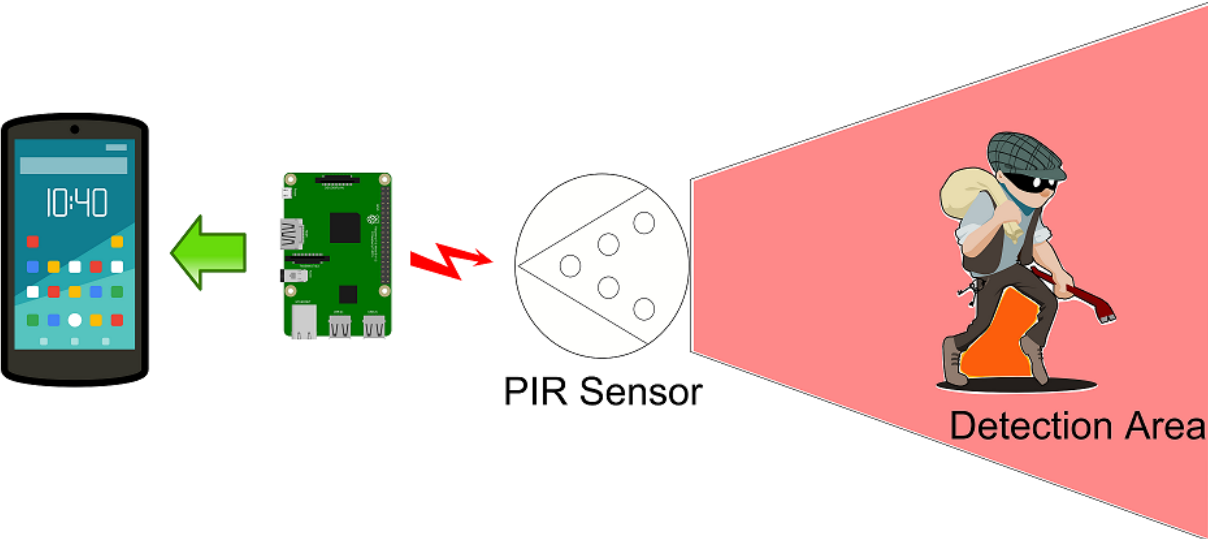


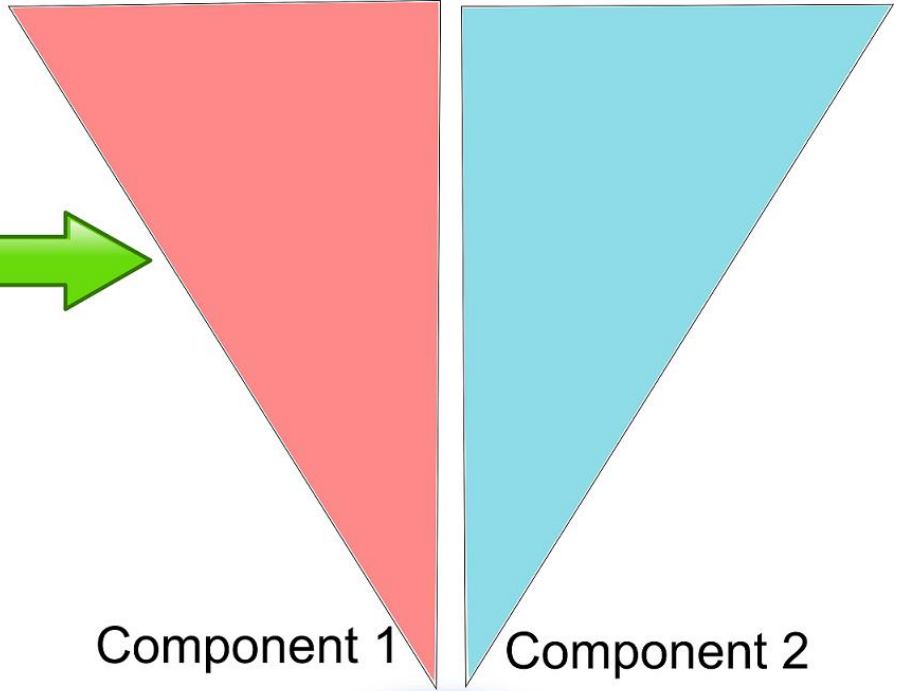
Analyze Refactor Build Run Tools VCS Window Help





Chapter 2: Creating an Alarm System Using Android Things



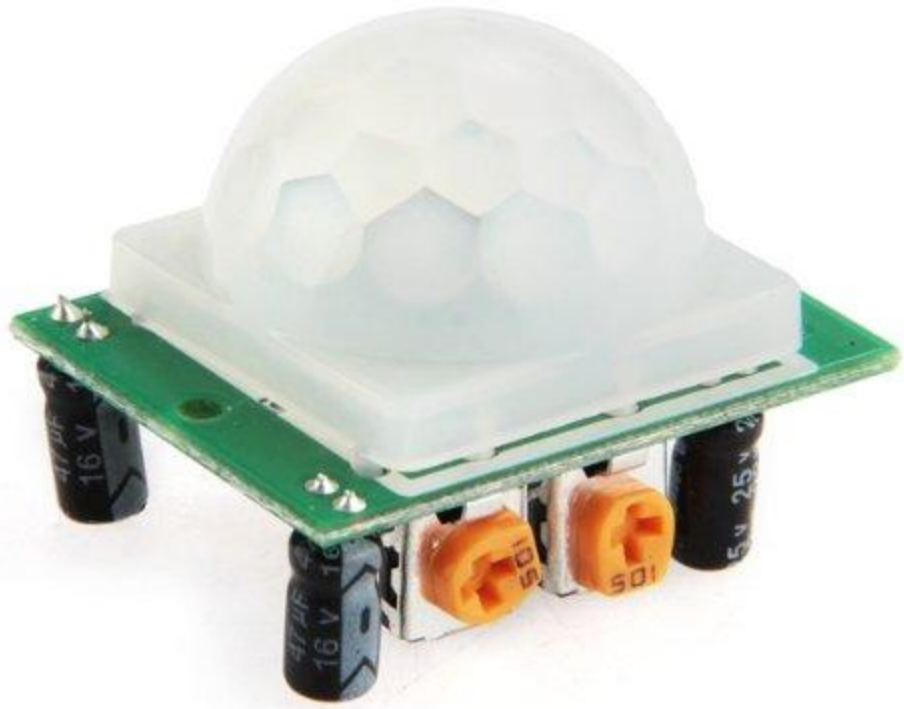


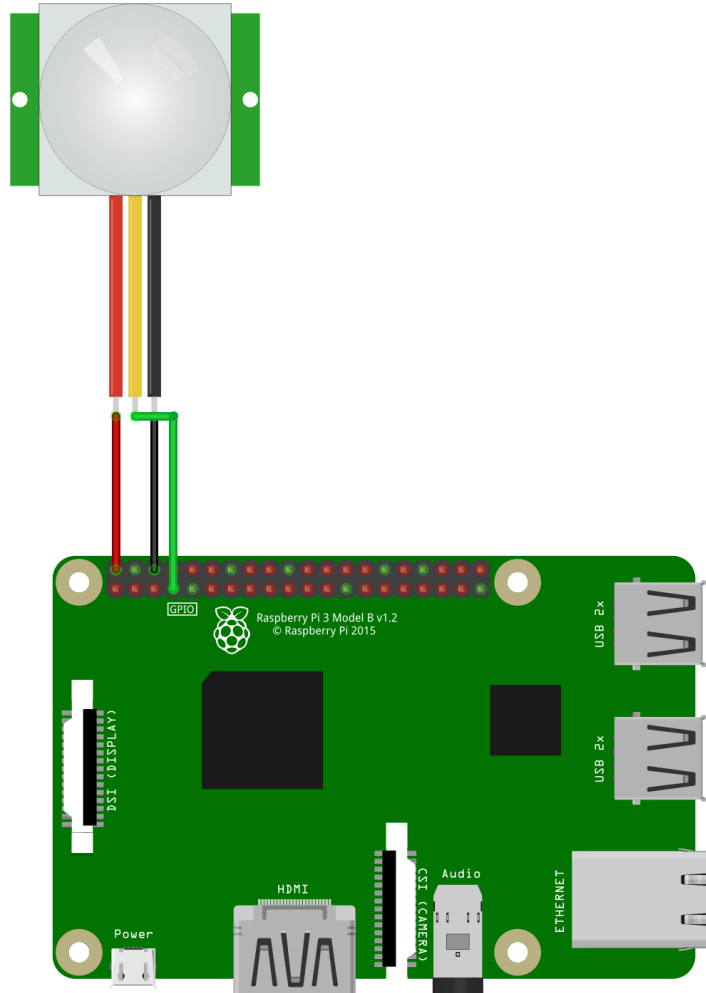
Component 1

Component 2

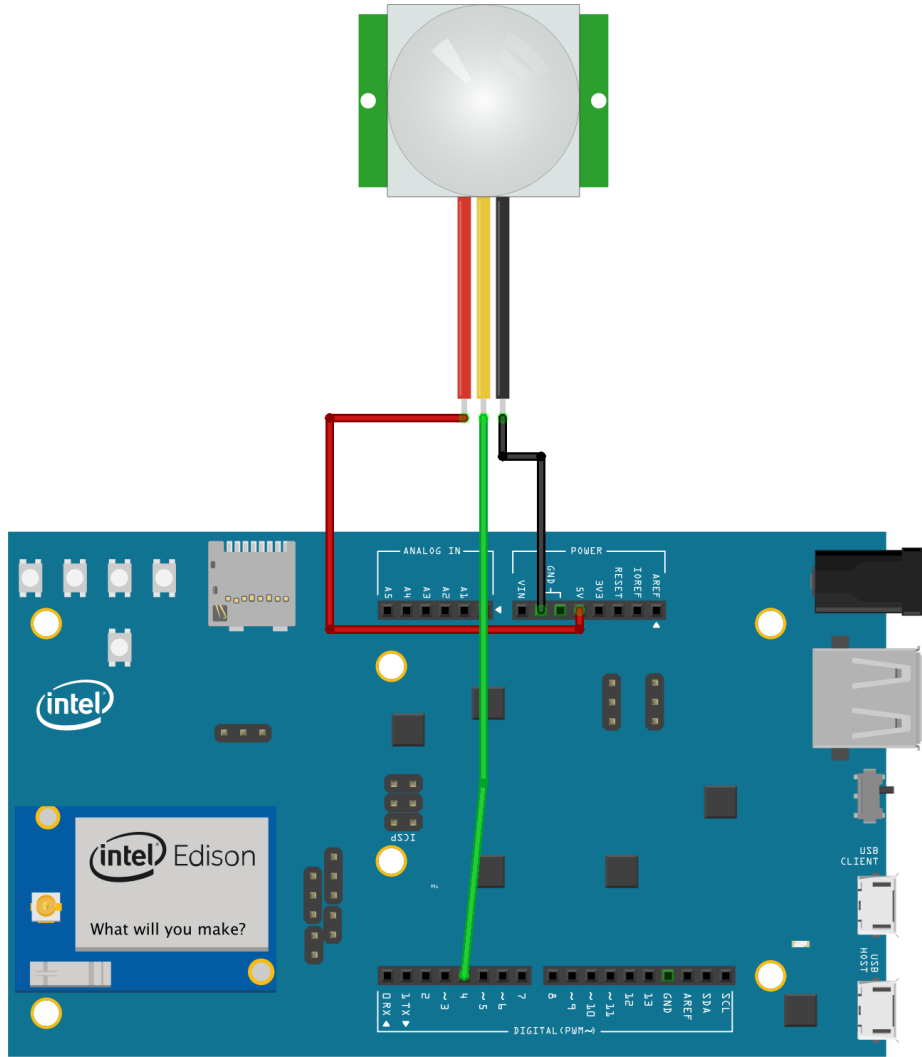


PIR Sensor

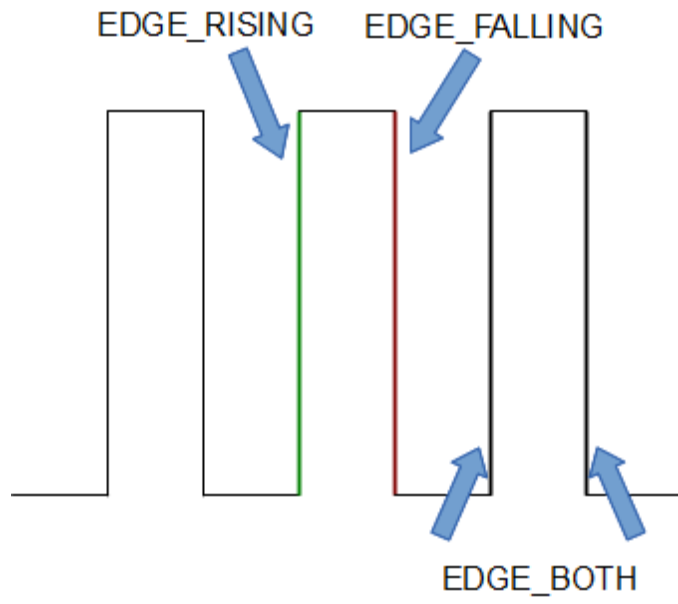




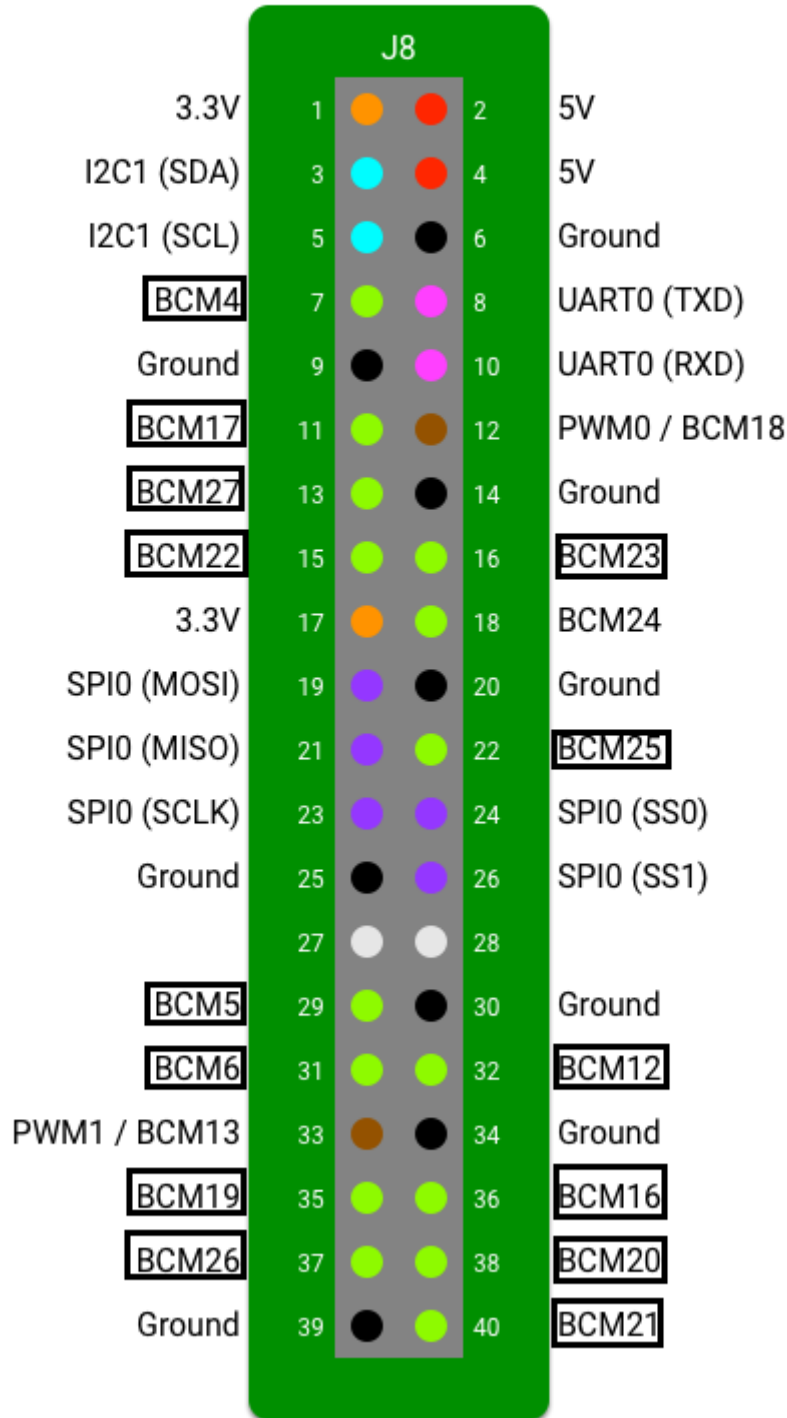
fritzing



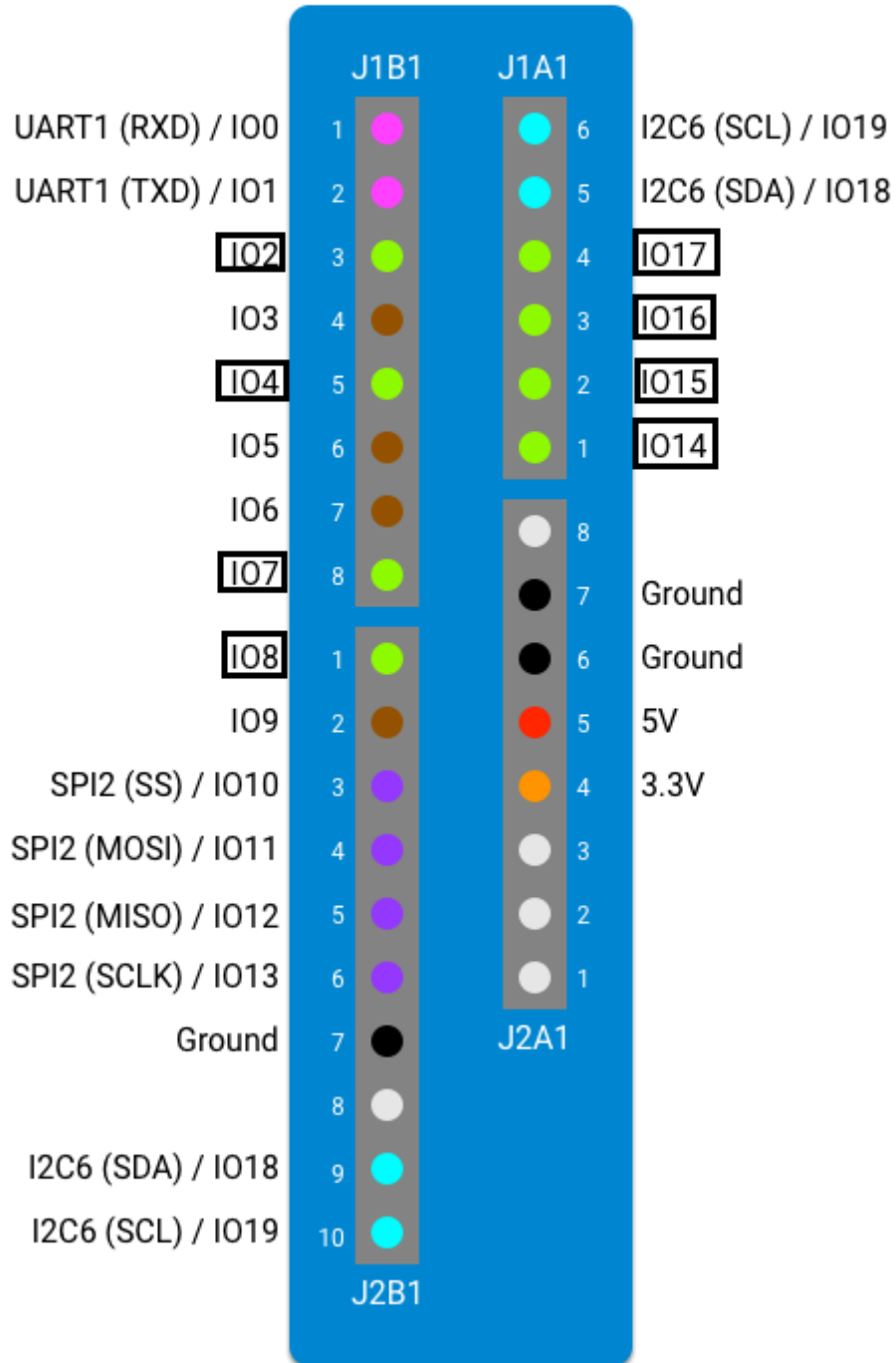
fritzing



- = 5V ● = Ground ● = PWM ● = SPI
- = 3.3V ● = GPIO ● = I2C ● = UART



- = 5V
- = Ground
- = PWM
- = SPI
- = 3.3V
- = GPIO
- = I2C
- = UART



Welcome back to Firebase

Continue building your apps with Firebase using some of the resources below.

[Documentation](#)
[Sample code](#)
[API reference](#)
[Support](#)



Recent projects

CREATE NEW PROJECT

IMPORT GOOGLE PROJECT

Create a project ✕

Project name

AndroidThings Notification

Country/region ?

Italy ▼

By default, your Firebase Analytics data will enhance other Firebase features and Google products. You can control how your Firebase Analytics data is shared in your settings at any time. [Learn more.](#)

CANCEL
CREATE PROJECT

- Analytics
- DEVELOP
- Authentication
- Database
- Storage
- Hosting
- Test Lab
- Crash Reporting
- GROW
- Notifications
- Remote Config
- Dynamic Links

Welcome to Firebase! Get started here.



Add Firebase to your iOS app



Add Firebase to your Android app



Add Firebase to your web app

Discover Firebase

Add Firebase to your Android app



1

Enter app details

2

Copy config file

3

Add to build.gradle



Get started on Android faster by clicking [Tools > Firebase](#) in [Android Studio 2.2+](#)

Package name

androidthings.project.alarm

App nickname (optional)

Android Things alarm notification

Debug signing certificate SHA-1 (optional)

00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00

Required for Dynamic Links, Invites and Google Sign-In support in Auth. Edit SHA-1s in Settings.

CANCEL

ADD APP

Add Firebase to your Android app



1

Enter app details

2

Copy config file

3

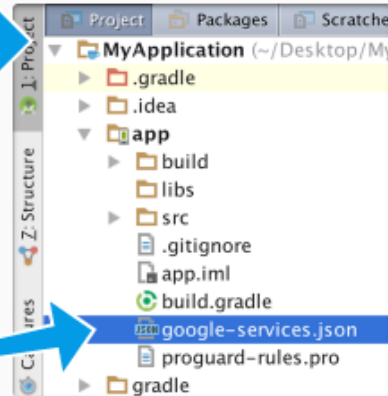
Add to build.gradle

Switch to the **Project** view in Android Studio to see your project root directory.

Move the **google-services.json** file you have just downloaded into your Android app module root directory.



google-services.json



Already added the dependencies?
[Skip to the console](#)

CONTINUE

Add Firebase to your Android app



1

Enter app details

2

Copy config file

3

Add to build.gradle

The Google services plugin for [Gradle](#) loads the `google-services.json` file that you just downloaded. Modify your `build.gradle` files to use the plugin.

1. Project-level `build.gradle` (<project>/`build.gradle`):

```
buildscript {
  dependencies {
    // Add this line
    classpath 'com.google.gms:google-services:3.0.0'
  }
}
```

2. App-level `build.gradle` (<project>/<app-module>/`build.gradle`):

```
...
// Add to the bottom of the file
apply plugin: 'com.google.gms.google-services'
```

includes Firebase Analytics by default

3. Finally, press "Sync now" in the bar that appears in the IDE:

Gradle files have changed since last sync

[Sync now](#)

Settings

GENERAL


CLOUD MESSAGING


ANALYTICS

ACCOUNT LINKING

SERVICE ACCOUNTS

Project credentials

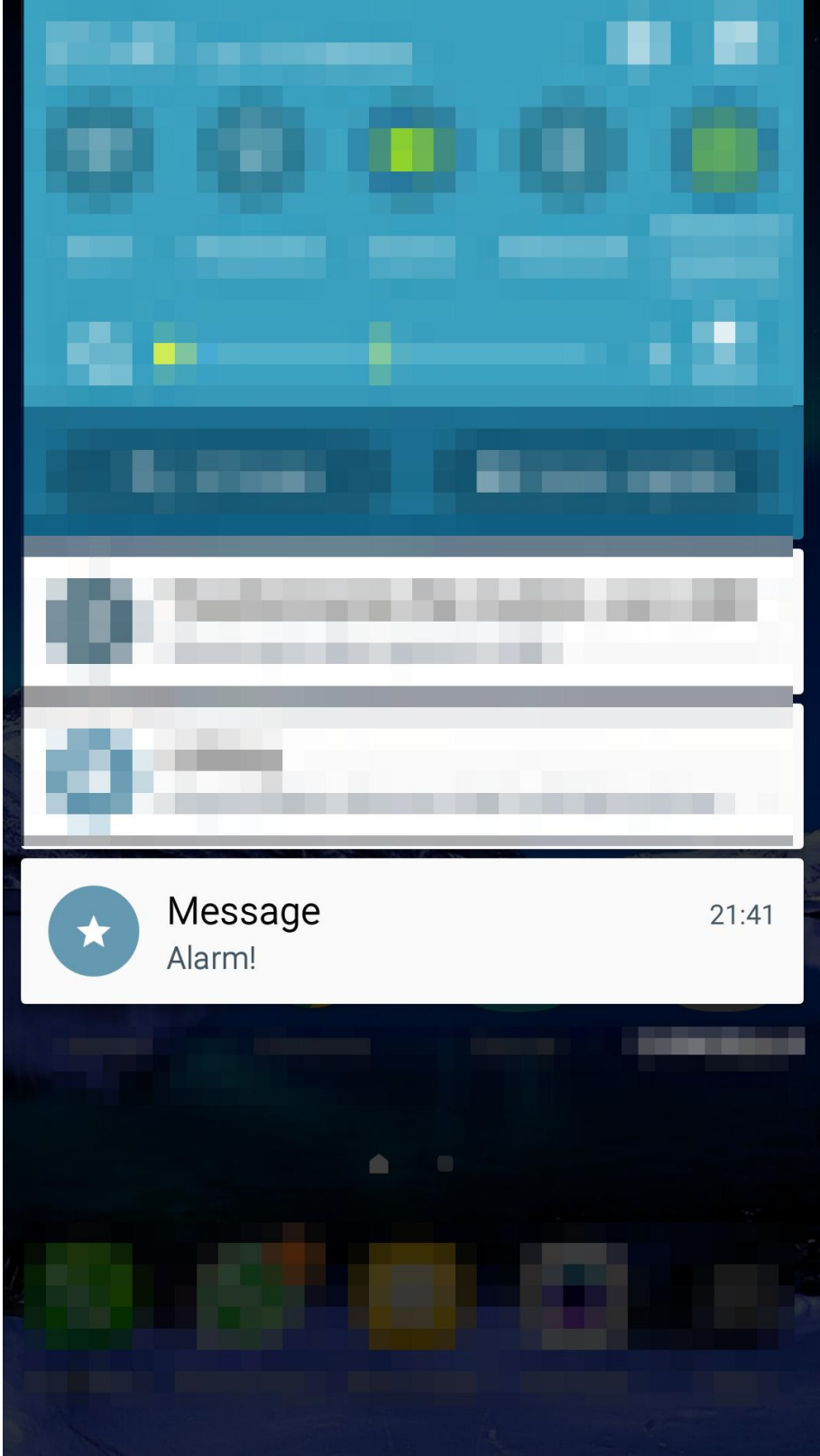
Server key	Sender ID 
AAAAL1SEEv0:APA91bHuKKL8dvC95tFxLjVTX9N4dMPf l-UruhFUw- XR-7uqWAQv3F4RLi6gJOWk7IAaVTYDMax [REDACTED]	203281404669
hsBkXNOATk33eNBBeU5k	

 **Firestore has upgraded our server keys to a new version. You may continue to use your Legacy server key, but we recommend that you upgrade to the newest version.**

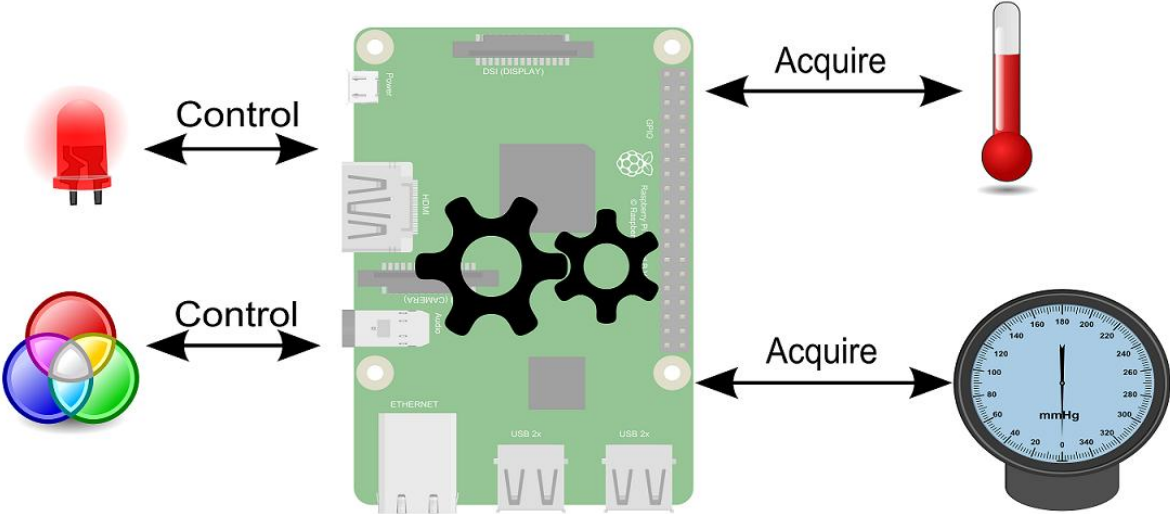
Legacy Server key	Sender ID
AlzaSyALs-3J1JhHXAOumkOVUGt8VIZIeJmx30M	203281404669

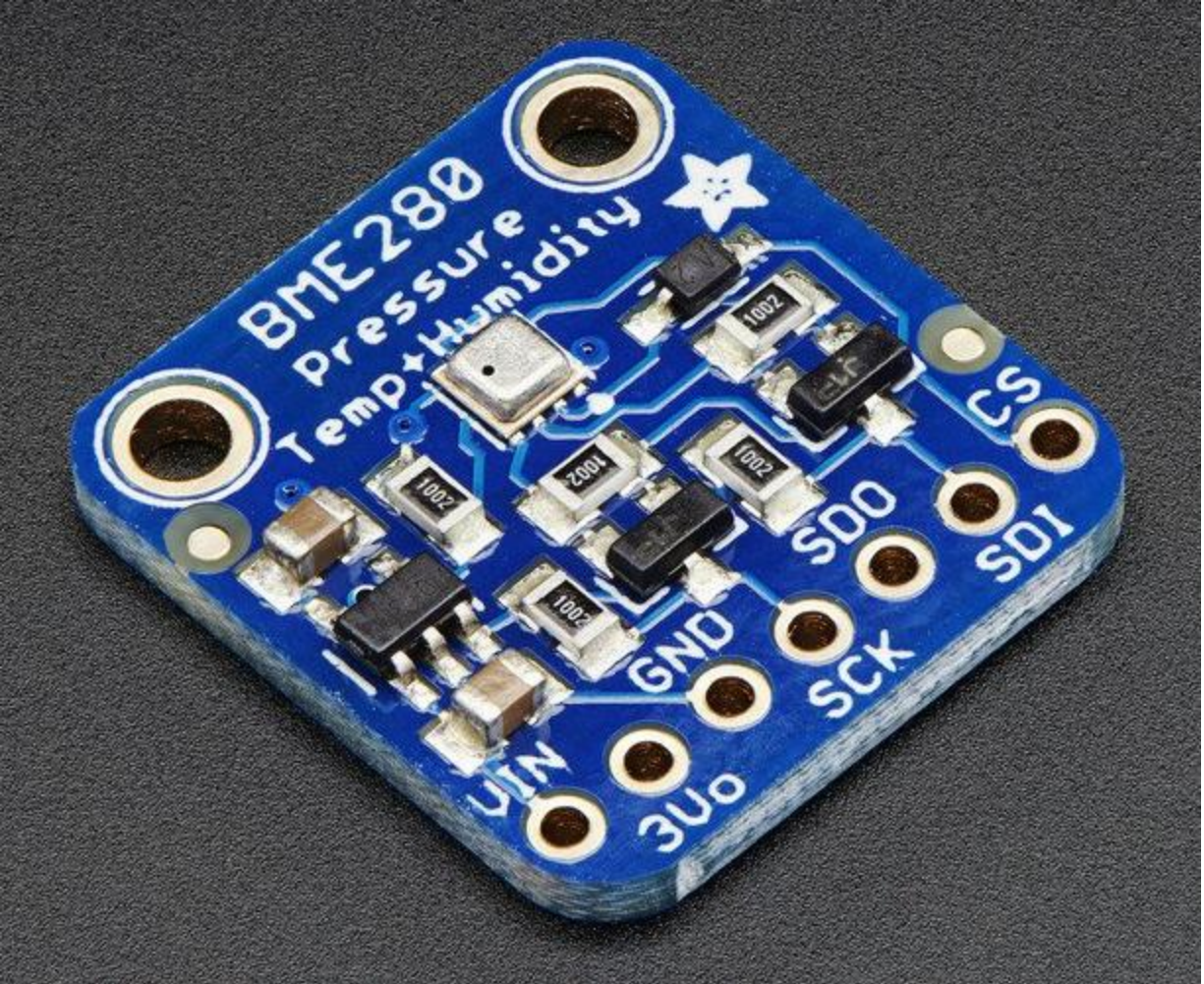
AndroidFirebasePush

SUBSCRIBE

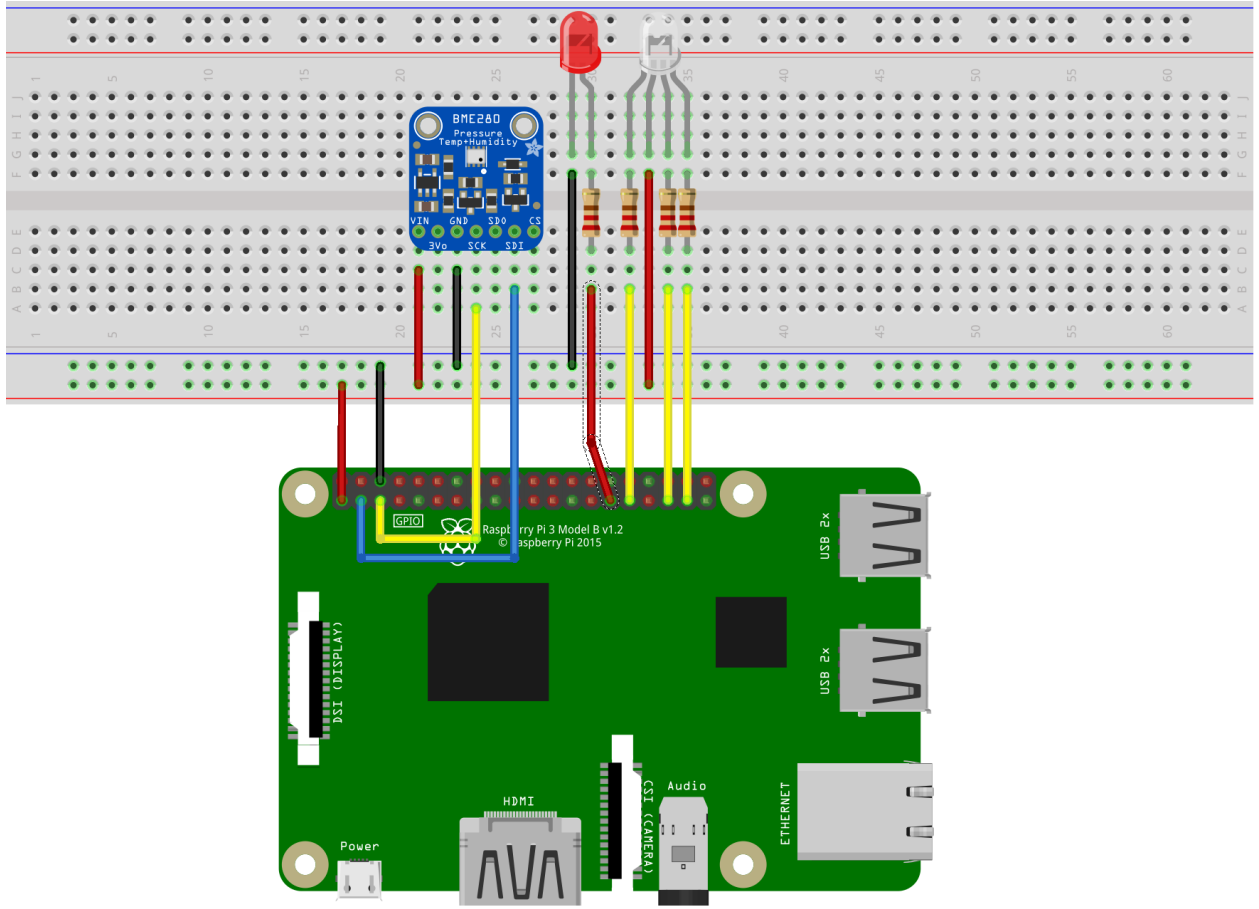


Chapter 3: How to Make an Environmental Monitoring System

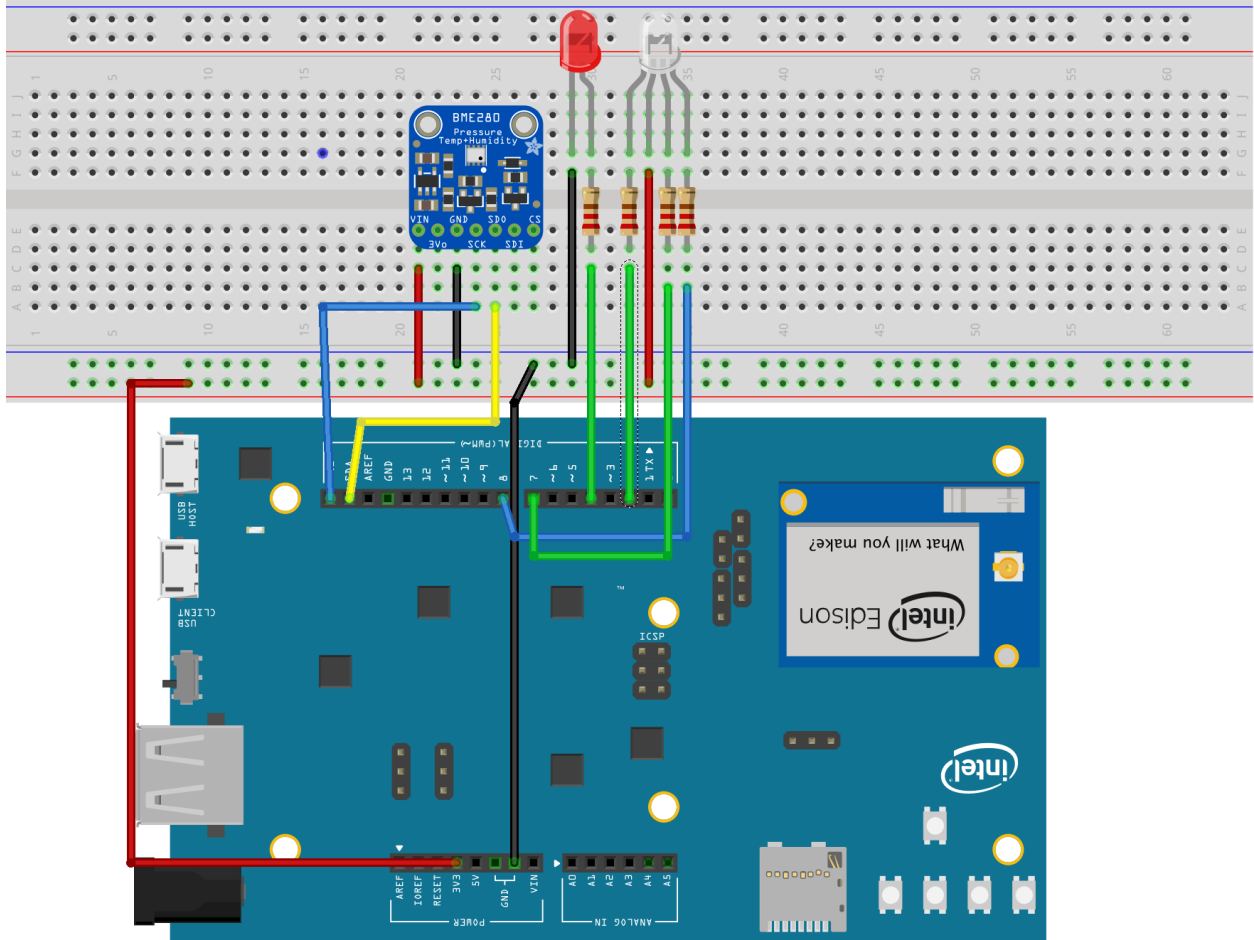




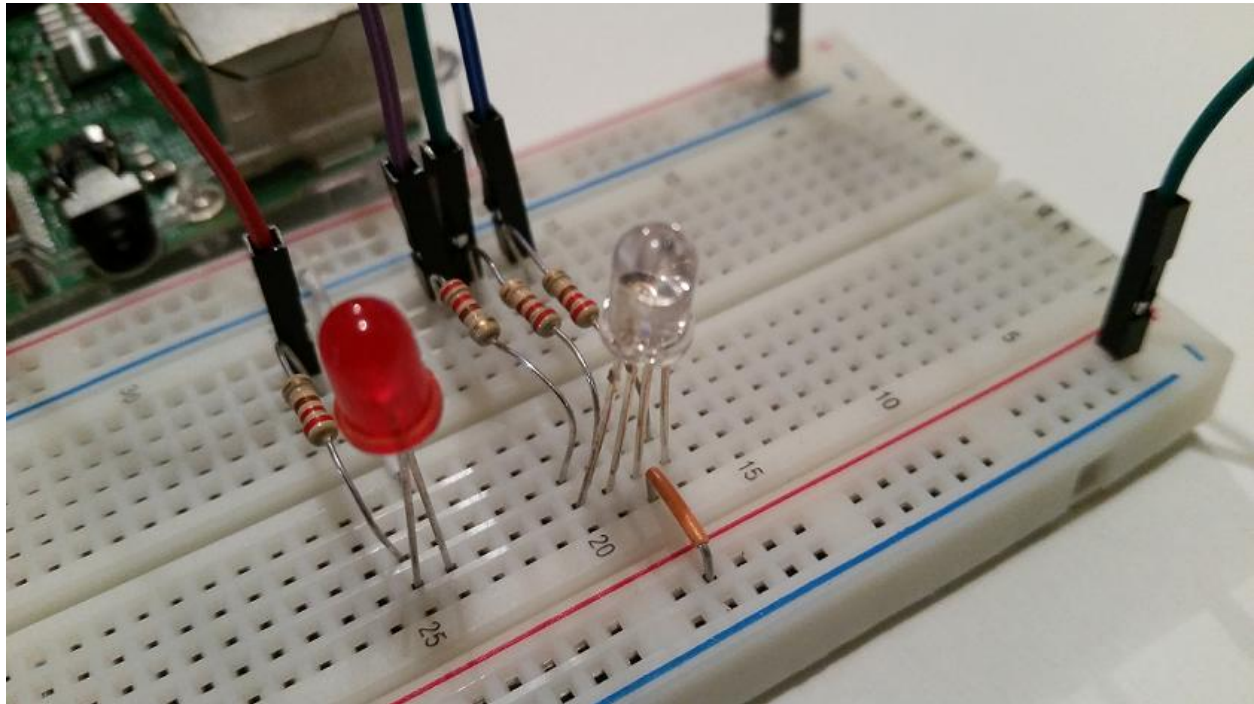


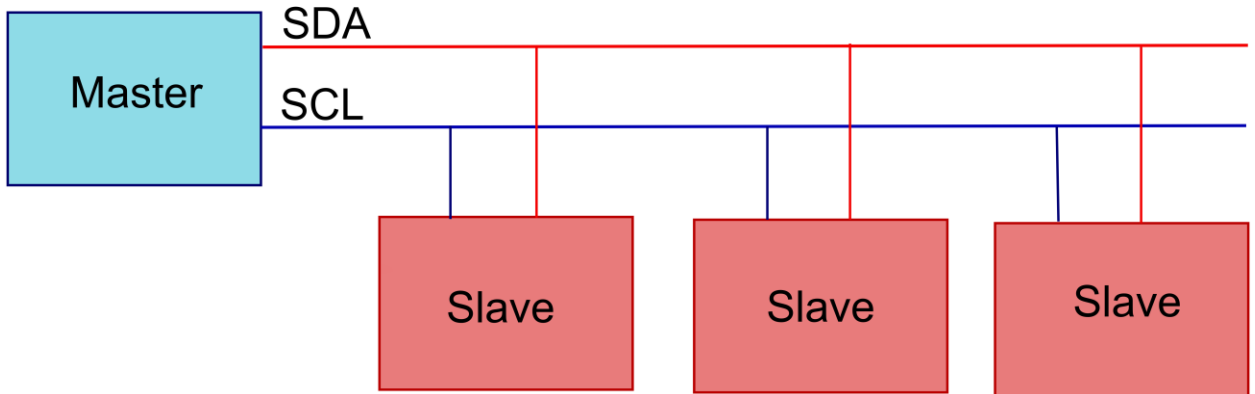
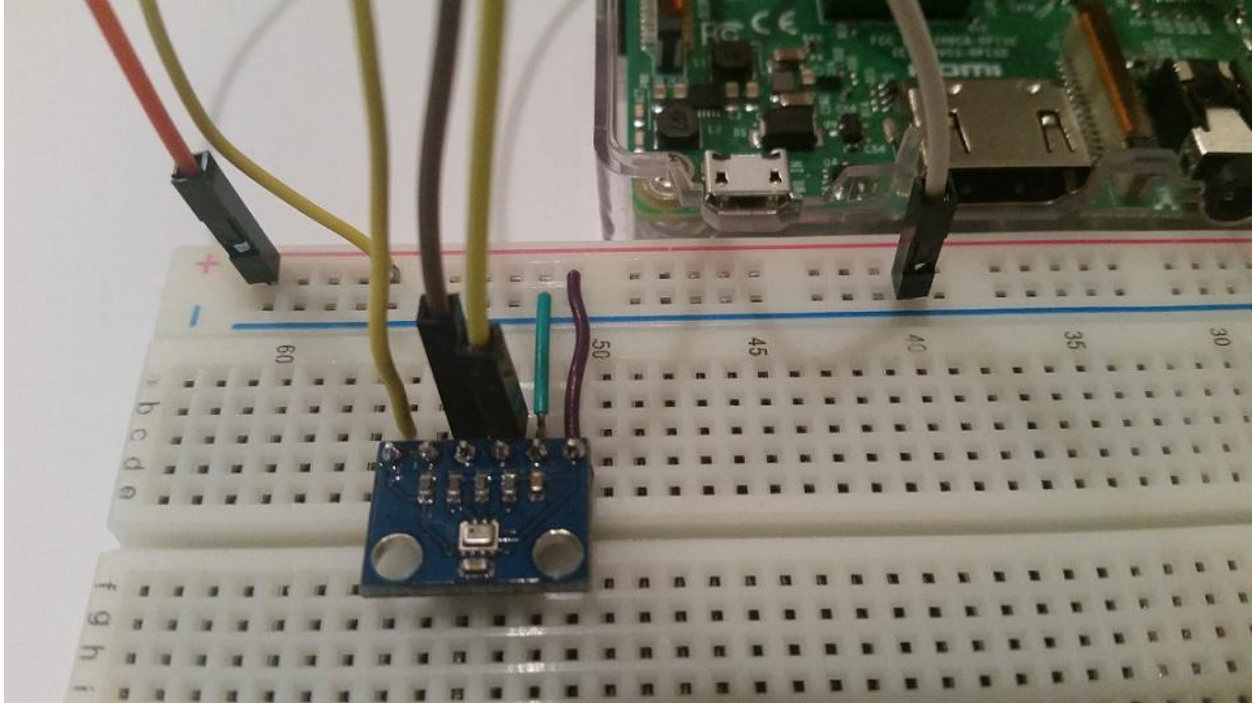


fritzing



fritzing





androidthings / contrib-drivers

Watch 34

Star 144

Fork 41

Code

Issues 9

Pull requests 2

Projects 0

Pulse

Graphs

No description, website, or topics provided.

157 commits

1 branch

19 releases

12 contributors

Apache-2.0

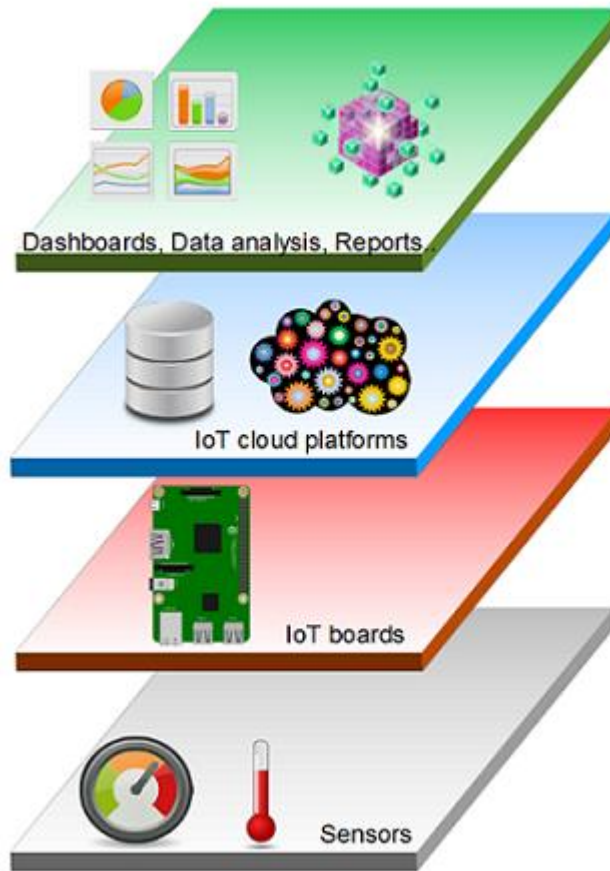
Branch: master

New pull request

Find file

Clone or download

Chapter 4: Integrate Android Things with IoT Cloud Platforms



New Device Type



DEVICE DISPLAY NAME

Android Things board 44

UNIQUE NAME

androidthings.project 234

CREATE DEVICE TYPE

CANCEL

DEVICE TYPES

Overview

Android Things board

Manifest

Device Info

Device Management

Create a manifest for Android Things board

ARTIK Cloud is designed to communicate with any device regardless of how data is structured. The Manifest provides a way for you to describe your data, so that you can start sending data to ARTIK Cloud.

+ NEW MANIFEST

Device Fields

Describe fields for each piece of data produced by this device.

Device Actions

Describe actions that this device is capable of receiving.

Activate Manifest

Publish this device manifest on the ARTIK Cloud platform.

FIELD NAME

[BROWSE STANDARD FIELDS »](#)

Temperature

29

Is Collection *(if the field contains an array)*

DATA TYPE

Double

UNIT OF MEASUREMENT [BROWSE »](#)

°C

ACCEPTABLE VALUE

Any Value Range of Values Selected Values

DESCRIPTION

weather temperature



TAGS (COMMA SEPARATED)

SAVE

CANCEL

Temperature

DOUBLE



FIELD NAME

[BROWSE STANDARD FIELDS >](#)

Pressure

32

Is Collection *(if the field contains an array)*

DATA TYPE

Double

UNIT OF MEASUREMENT [BROWSE >](#)

mmHg

ACCEPTABLE VALUE

Any Value Range of Values Selected Values

DESCRIPTION

atmospheric pressure



TAGS (COMMA SEPARATED)

SAVE

CANCEL



DELETE

Device Fields

Describe fields for each piece of data produced by this device.

Device Actions

Describe actions that this device is capable of receiving.

Activate Manifest

Publish this device manifest on the ARTIK Cloud platform.

Your manifest is ready to be activated and does not require approval before going live. Activating this manifest will not make your device type public.

Fields

Temperature	Double	°C
Pressure	Double	mmHg

There are no device actions listed in this manifest



ACTIVATE MANIFEST

CANCEL



Devices

Manage the devices connected to your ARTIK Cloud account



Rules

Control your devices by instructing them how to behave



Charts

Graph data in real-time or browse historical records



Data Logs

Inspect data being produced by your devices



Exports

Download your data for your own purposes

Manage all your devices with ARTIK Cloud



Connect another device

ARTIK Cloud works with many smart device types – start typing to find yours.

NAME YOUR NEW DEVICE

 24

CONNECT DEVICE...



+ NEW VERSION ▼

▼ v1 SIMPLE CURRENT ✓

Q VIEW SAMPLE MESSAGE

DOWNLOAD MANIFEST

Fields


Pressure	Double	mmHg
Temperature	Double	°C

Sample Message Format




FIELDS

```
{"Pressure":153.122,"Temperature":107.984}
```

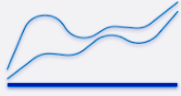
Devices

Manage the devices connected to your ARTIK Cloud account




Rules

Control your devices by instructing them how to behave




Charts

Graph data in real-time or browse historical records



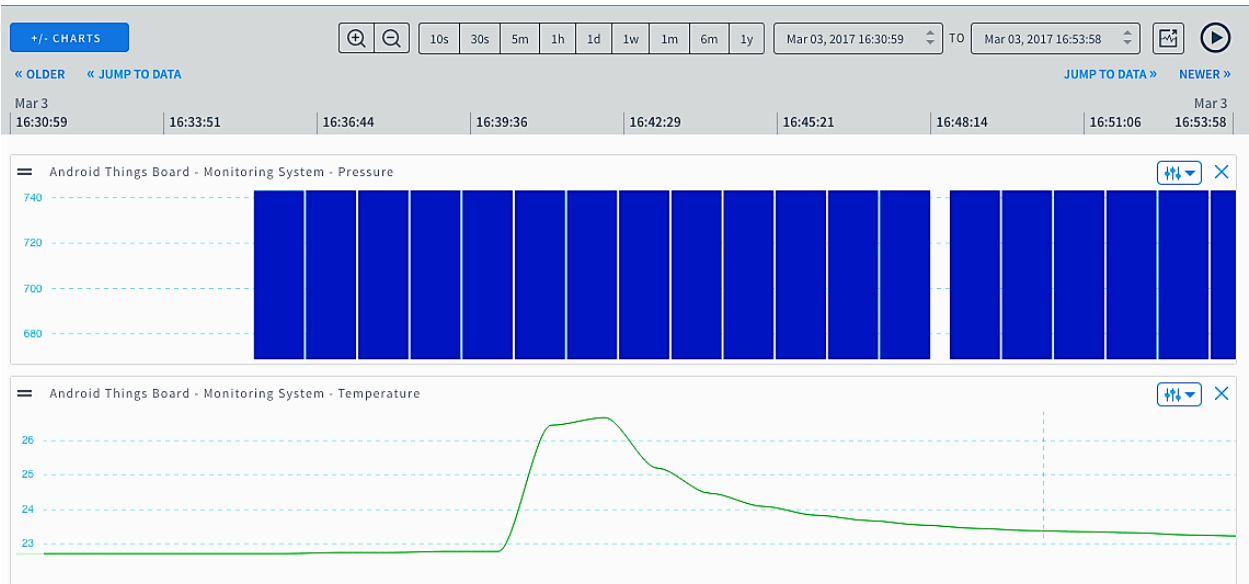
Data Logs

Inspect data being produced by your devices




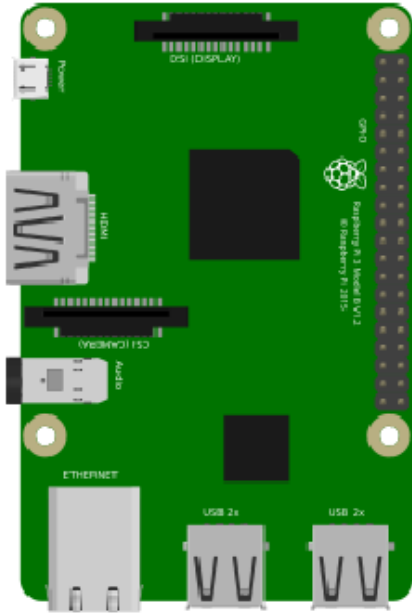
Exports

Download your data for your own purposes



DEVICES RULES CHARTS DATA LOGS EXPORTS

DEVICE	RECORDED AT	RECEIVED AT	DATA 
Android Things board - Monitoring system	Mar 3 2017 16:44:04.523	Mar 3 2017 16:44:05.225	{"Pressure":743.2368145808717,"Temperature":24.4830662
Android Things board - Monitoring system	Mar 3 2017 16:43:04.523	Mar 3 2017 16:43:05.196	{"Pressure":743.2063349270118,"Temperature":25.1952328
Android Things board - Monitoring system	Mar 3 2017 16:42:04.523	Mar 3 2017 16:42:05.196	{"Pressure":743.1804380089573,"Temperature":26.6807213
Android Things board - Monitoring system	Mar 3 2017 16:41:04.523	Mar 3 2017 16:41:05.244	{"Pressure":743.2000930085092,"Temperature":26.4473325
Android Things board - Monitoring system	Mar 3 2017 16:40:04.524	Mar 3 2017 16:40:05.199	{"Pressure":743.2602728650169,"Temperature":22.7661898
Android Things board - Monitoring system	Mar 3 2017 16:39:04.527	Mar 3 2017 16:39:05.211	{"Pressure":743.2648839078688,"Temperature":22.7591543
Android Things board - Monitoring system	Mar 3 2017 16:38:04.526	Mar 3 2017 16:38:05.343	{"Pressure":743.2618311068334,"Temperature":22.7484212



TEMBOO



nexmo



Welcome to Nexmo, Francesco!

Start testing now with your €2 free credit and API credentials:

key

secret 

Try the API

Send an SMS

Make a call

Verify a user

Check a number

```
curl -X POST https://rest.nexmo.com/sms/json \  
-d api_key=0e415 \  
-d api_secret=fe2... \  
-d to=393... \  
-d from="NEXMO" \  
-d text="Hello from Nexmo"
```






Nexmo . Voice ☆

Nexmo's Voice API allows your application to convert text to speech and make phone calls to over 200 countries. This API can also prompt users to enter a pin-code or number.

▼ SETUP INSTRUCTIONS

To use these Choreos:

- You'll need a Nexmo account, which you can create [here](#) .
- Retrieve your Nexmo API Key and API Secret. You can find your Nexmo API Key and Secret in the *API Settings* menu on the top right of the Nexmo dashboard.
- Make sure that your Nexmo number is configured correctly. When making calls with Nexmo, your number must be Voice-enabled. When sending SMS messages, it should be SMS-enabled. Your Nexmo number can be found by going to the [Numbers](#)  tab in your Nexmo account.

Note: Nexmo free trial accounts can only send messages or make calls to registered phone numbers. Your registered *Test Phone Number* can be found [here](#) .

▼ RELATED LINKS

[Nexmo Login](#) 

[Nexmo Sign-up](#) 

[Nexmo API](#) 

▼ CHOREOS

[CaptureTextToSpeechPrompt](#)

Sends a Text-to-Speech message to the specified Number and captures keypad entries from the receiver.

[ConfirmTextToSpeechPrompt](#)

Sends a Text-to-Speech message to the specified Number and confirms the specified pin-code.

[TextToSpeech](#)

Sends a Text-to-Speech message to the specified number.

Nexmo . Voice . **TextToSpeech** ☆

Sends a Text-to-Speech message to the specified number.

INPUT

[Save Profile](#)

APIKey

Your API Key provided to you by Nexmo.

0e415 [REDACTED] 

APISecret

Your API Secret provided to you by Nexmo.

fe22a4 [REDACTED] 

Text

Body of the text message (with a maximum length of 1000 characters).

Hello, the temperature is too high

To

Phone number in international format and one recipient per request. (e.g.: 447525856424 when sending to UK)

+3938 [REDACTED]

▶ **OPTIONAL INPUT**

[Generate Code](#) 

CODE



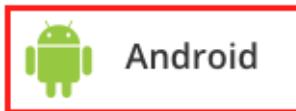
```
// Instantiate the Choreo, using a previously instantiated TembooSession object, eg:  
// TembooSession session = new TembooSession("survivingwithandroid", "myFirstApp", "97a2875f  
  
TextToSpeech textToSpeechChoreo = new TextToSpeech(session);  
  
// Get an InputSet object for the choreo  
TextToSpeechInputSet textToSpeechInputs = textToSpeechChoreo.newInputSet();  
  
// Set inputs  
textToSpeechInputs.set_APIKey("██████████");  
textToSpeechInputs.set_Text("Hello, the temperature is too high");  
textToSpeechInputs.set_To("+393 ██████████");  
textToSpeechInputs.set_APISecret("fe2 ██████████");  
  
// Execute Choreo  
TextToSpeechResultSet textToSpeechResults = textToSpeechChoreo.execute(textToSpeechInputs);
```

COPY

Get the Temboo SDK

Our SDK gets you access to 100+ APIs, databases, and more. [Watch this video](#) or check out these [tutorials and examples](#) to learn more about using the SDK.

Download the SDK in the language of your choice:



Java



PHP



Ruby



C#



JavaScript



Processing



iOS



Node.js



Python

Device Info



Close

DEVICE NAME

Android Things board - Monitoring system 

DEVICE ADDED ON

March 1, 2017

DEVICE TYPE

Android Things board

DEVICE ID

084e88ef363c42289970 

DEVICE TYPE ID

dt4ef9f38f157049c6919cc 

Data Transfer

DEVICE TOKEN

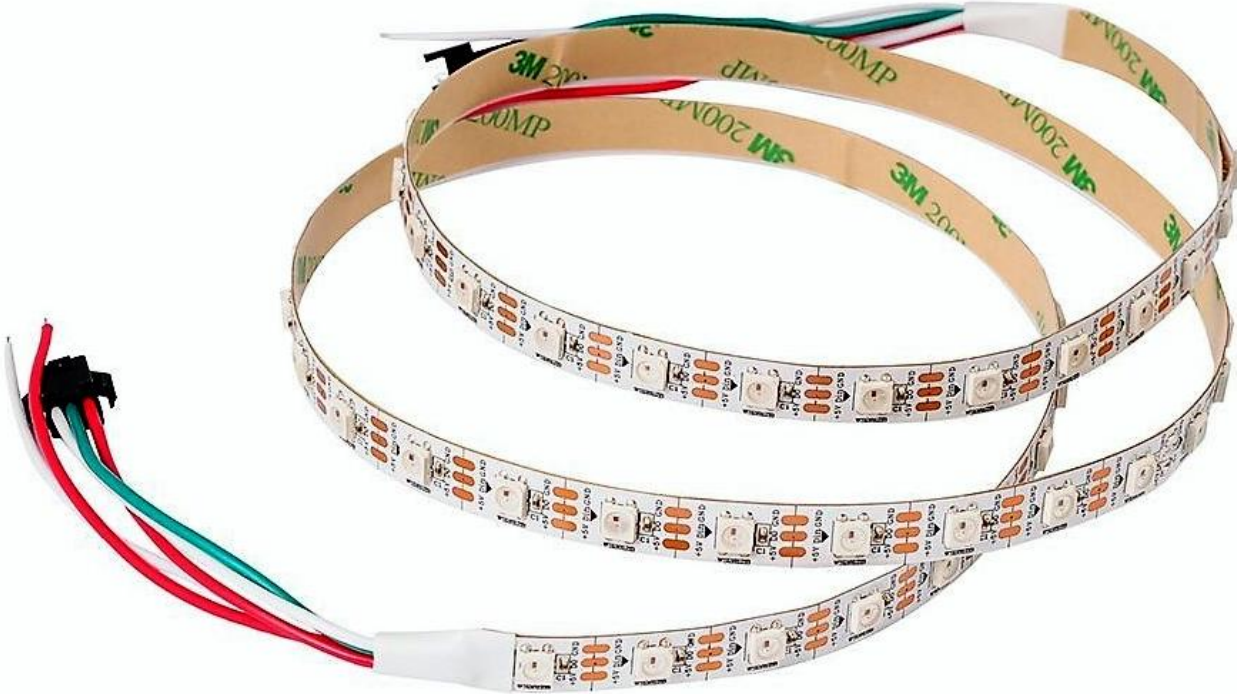
[GENERATE DEVICE TOKEN...](#)

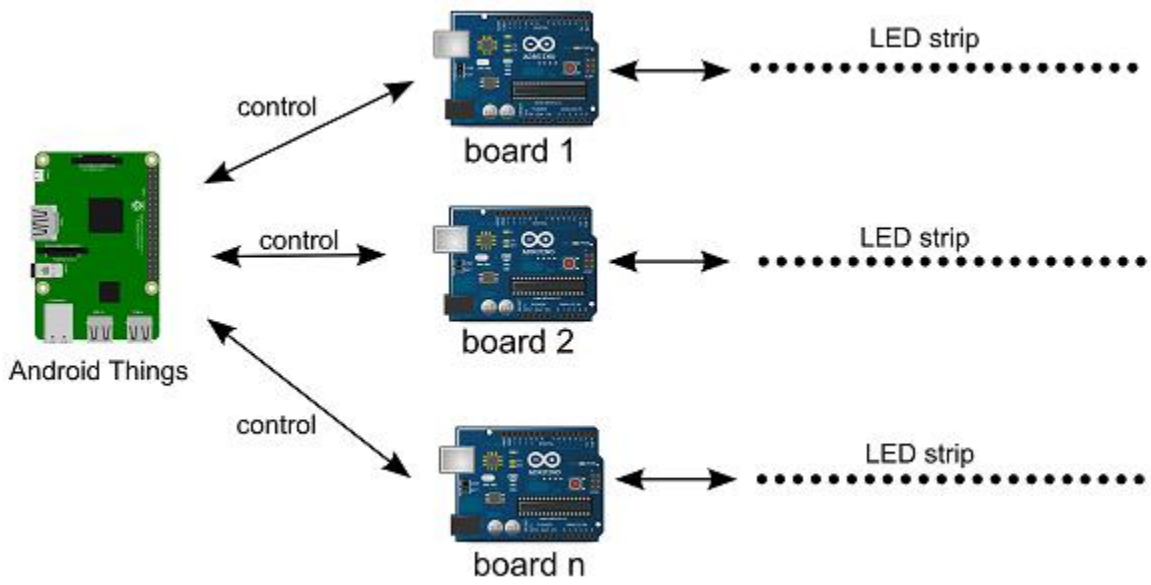
LAST DATA TRANSFER

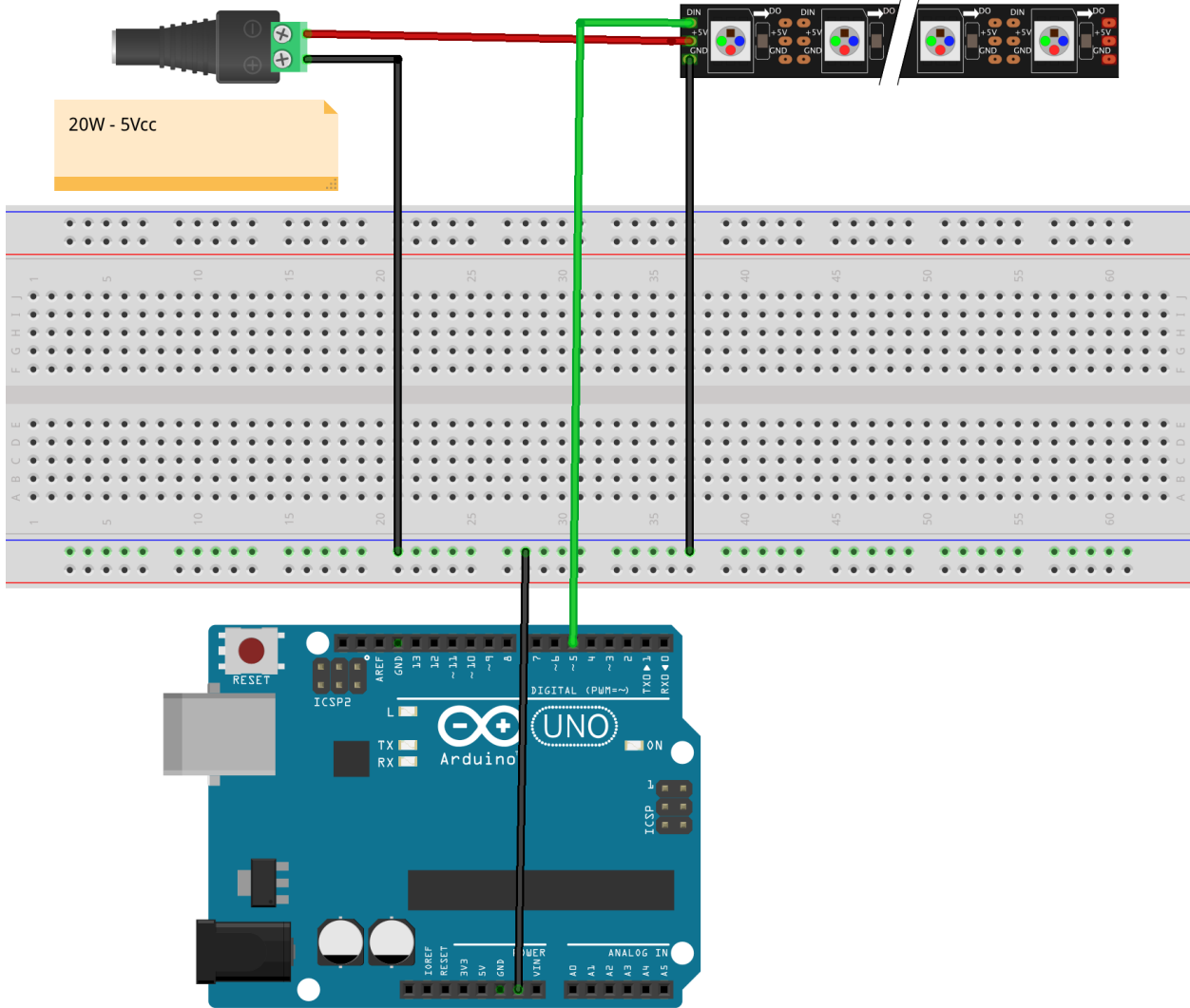
Never

DELETE THIS DEVICE

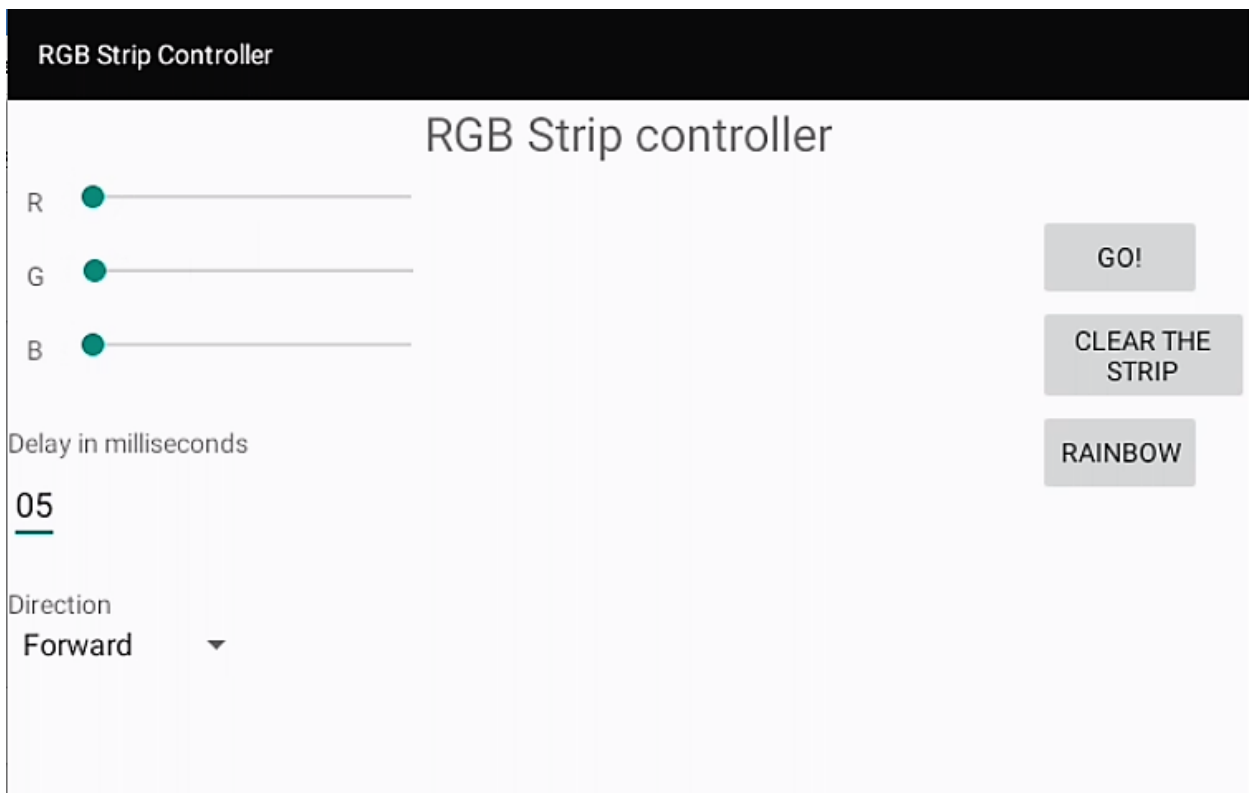
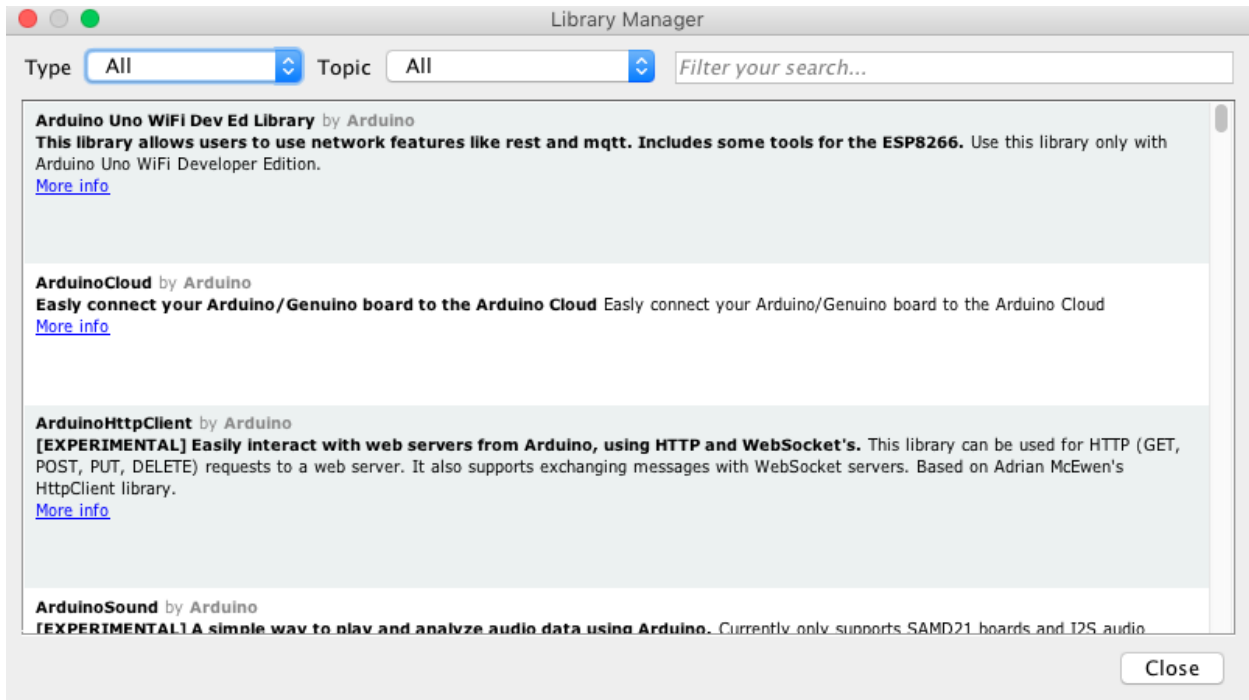
Chapter 5: Create a Smart System to Control Ambient Light



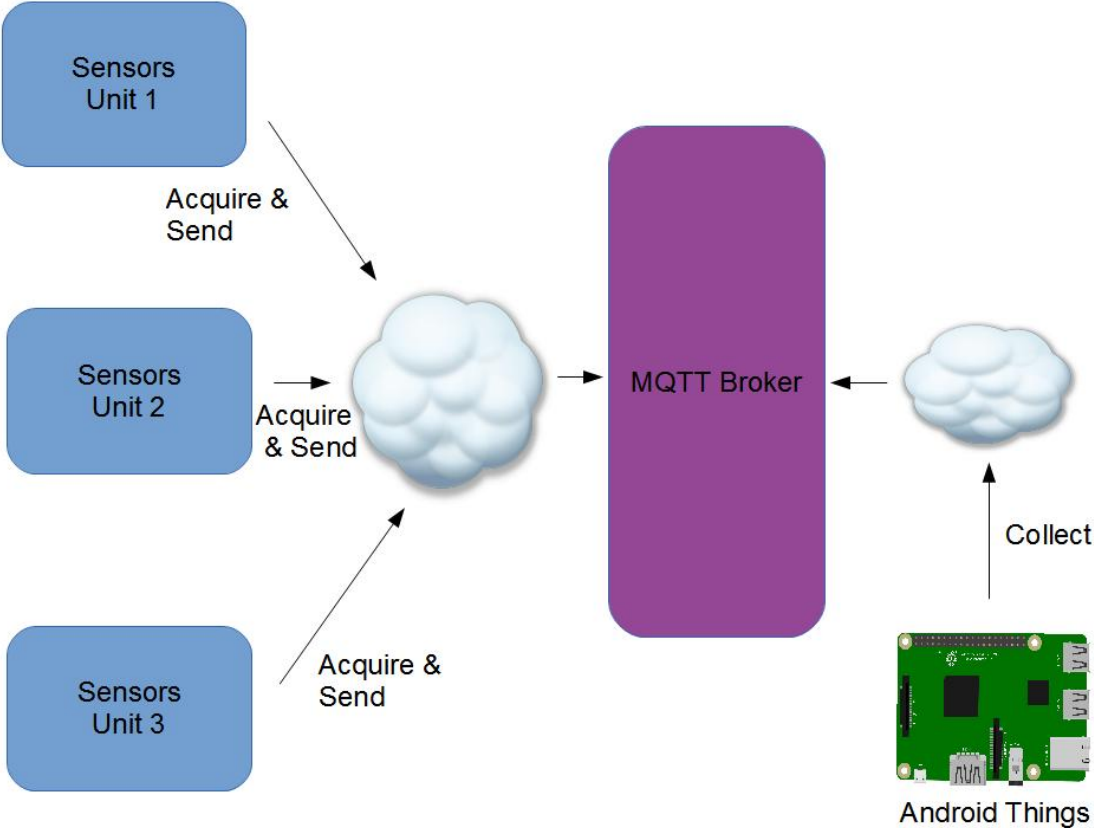


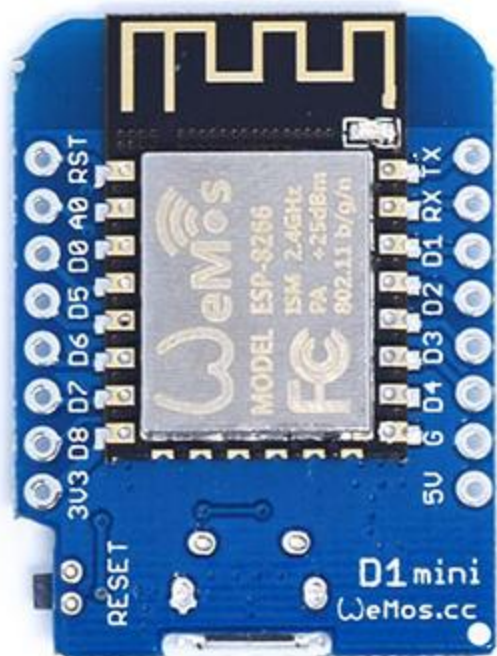


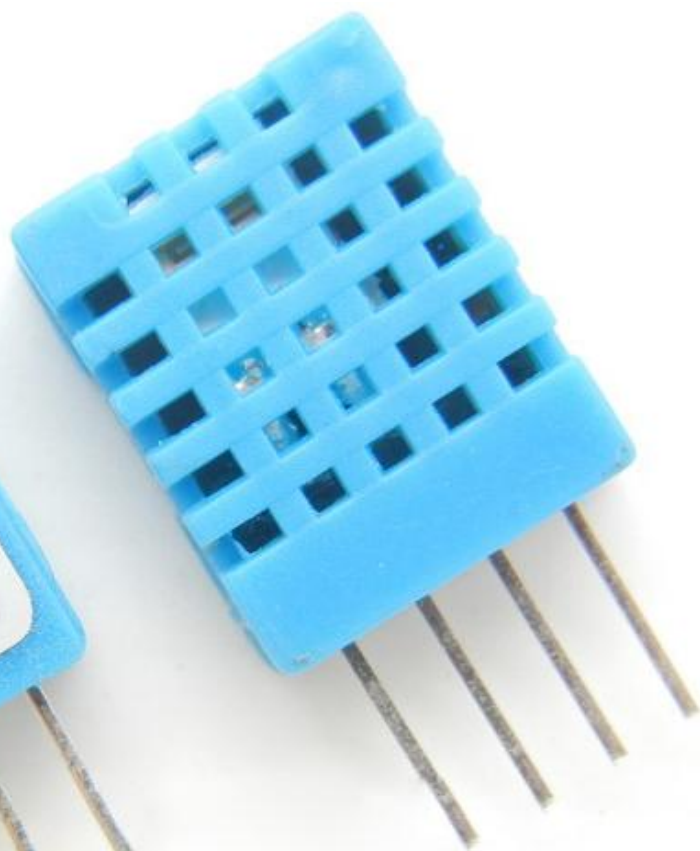
fritzing

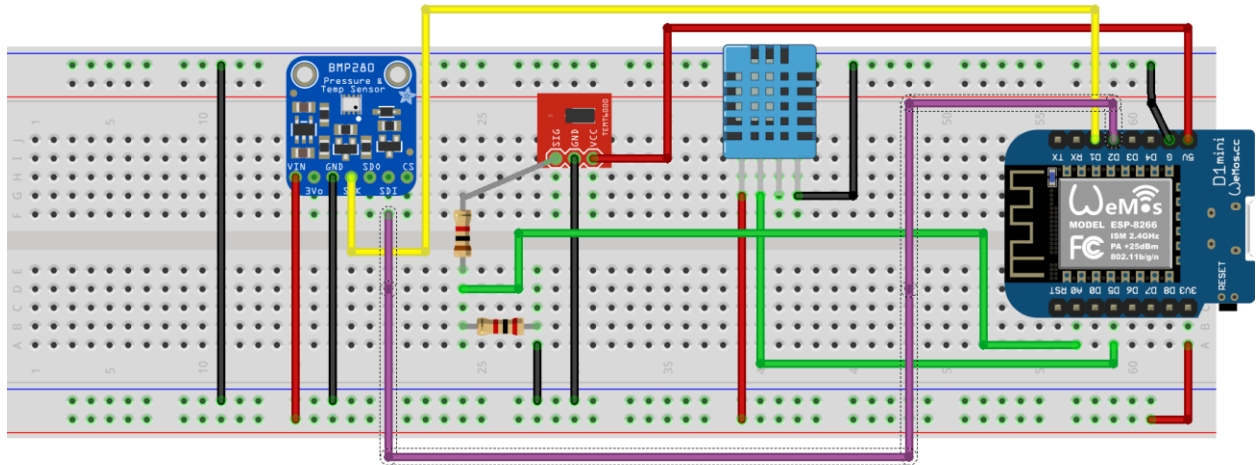
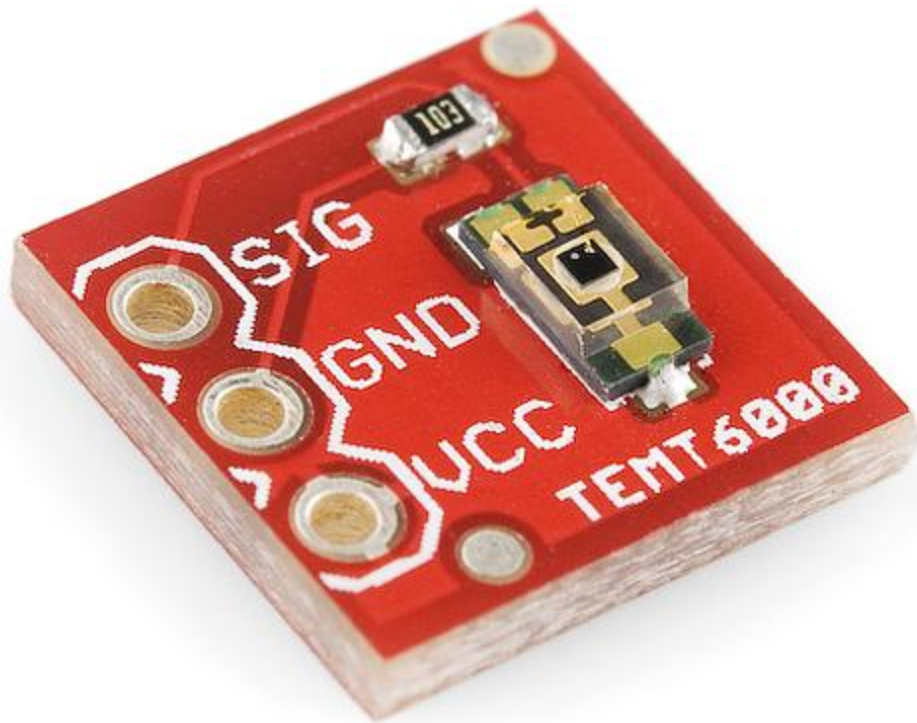


Chapter 6: Remote Weather Station

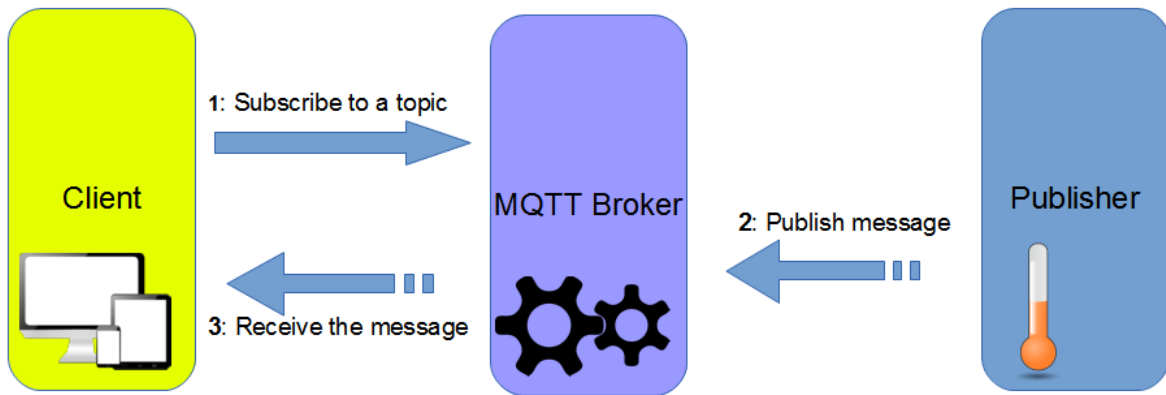
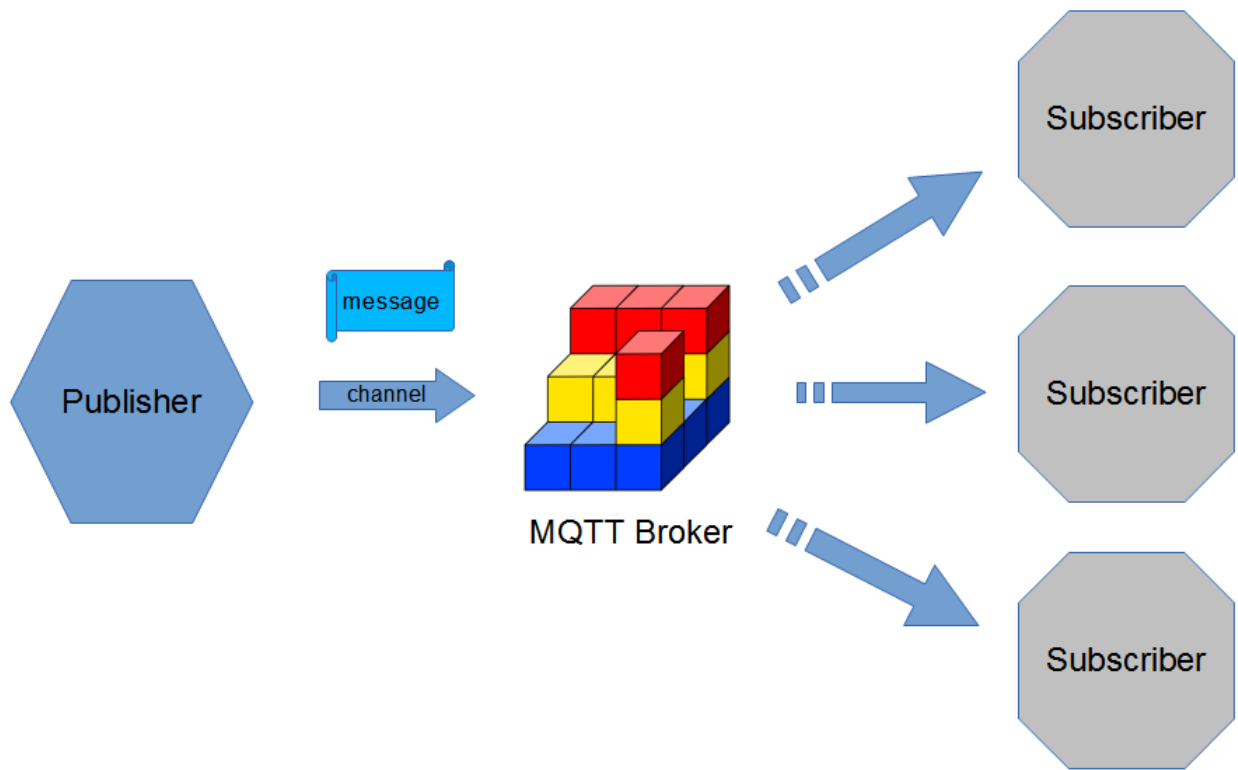








fritzing



Remote Weather station

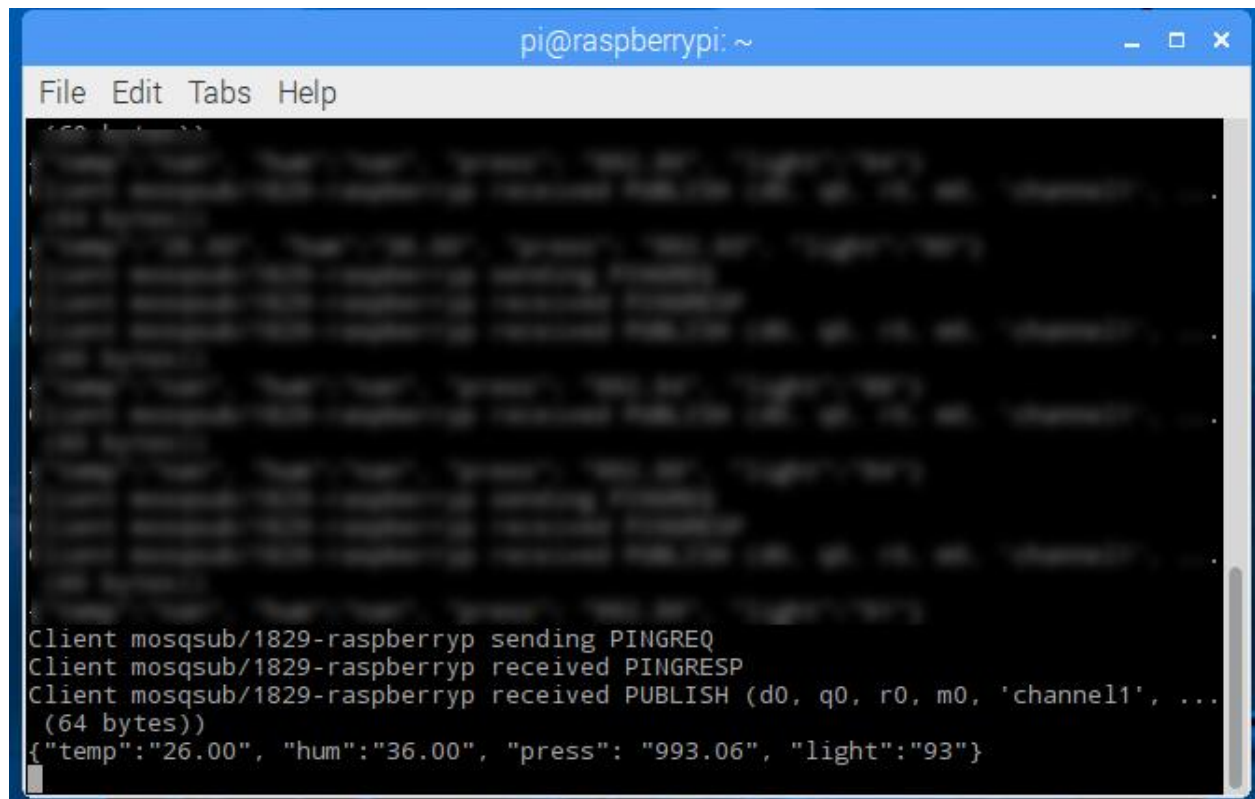
Topic:channel1

Temperature:26.00

Pressure:993.06

Humidity36.00

Light93



The image shows a terminal window titled "pi@raspberrypi: ~" with a menu bar containing "File Edit Tabs Help". The terminal output displays MQTT client activity for a Raspberry Pi client (ID 1829). The logs show a PINGREQ being sent, a PINGRESP being received, and a PUBLISH message being received on the topic "channel1". The PUBLISH message contains a JSON payload with weather data: {"temp": "26.00", "hum": "36.00", "press": "993.06", "light": "93"}.

```
Client mosqsub/1829-raspberryp sending PINGREQ
Client mosqsub/1829-raspberryp received PINGRESP
Client mosqsub/1829-raspberryp received PUBLISH (d0, q0, r0, m0, 'channel1', ...
(64 bytes))
{"temp": "26.00", "hum": "36.00", "press": "993.06", "light": "93"}
```

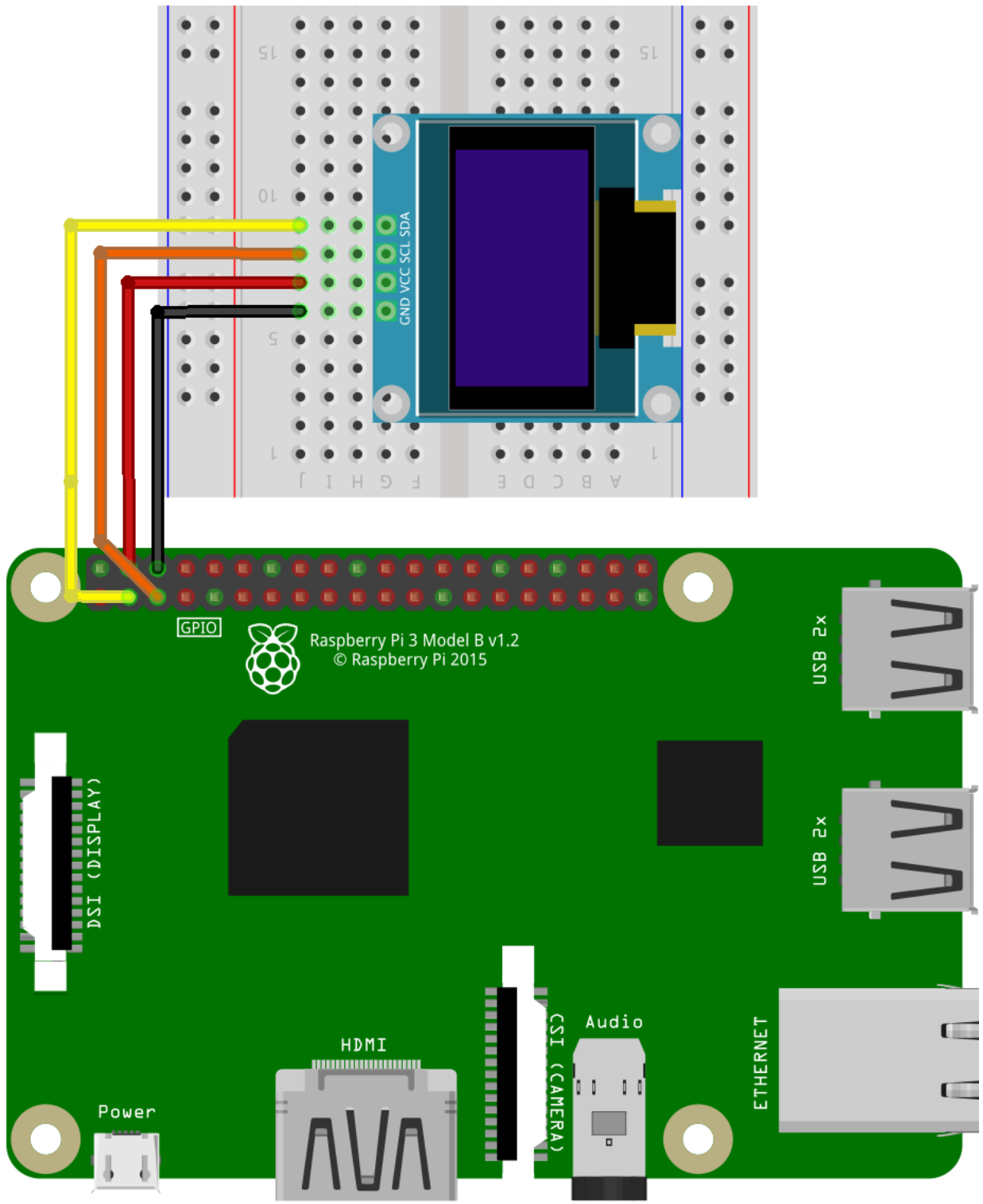


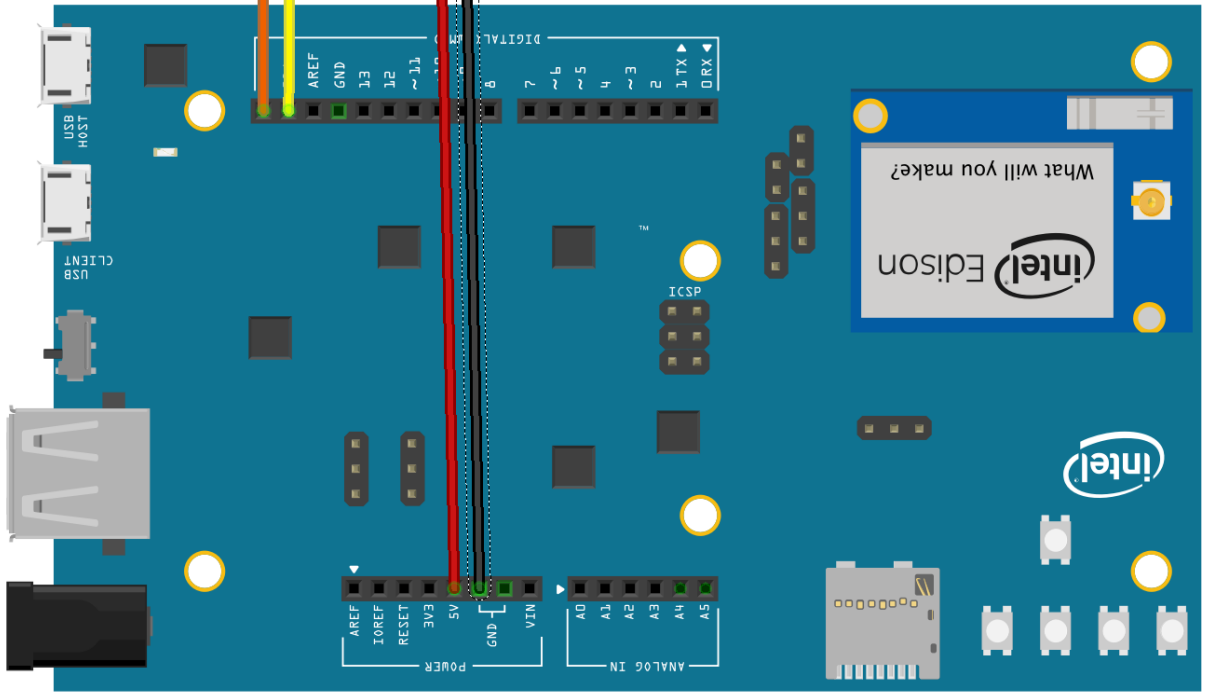
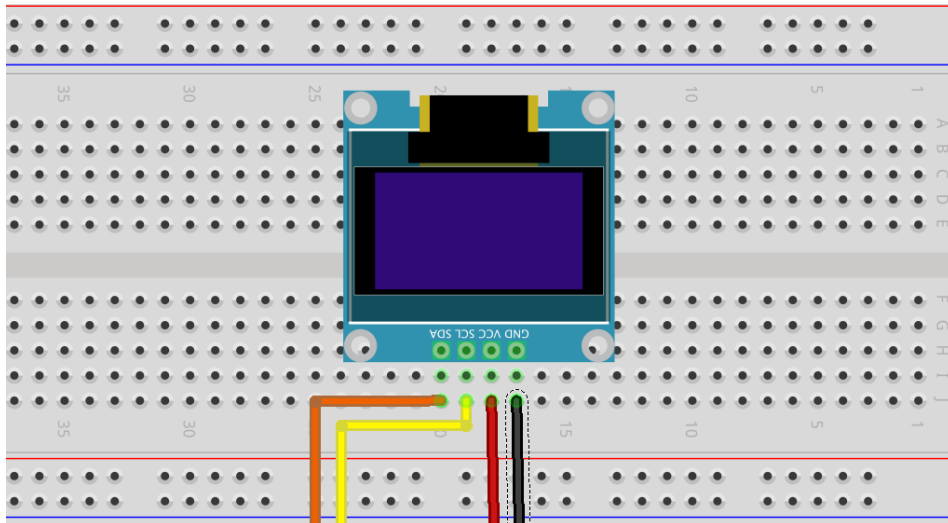
GND VCC SCL SDA

Ublox

code.300316.com/708911b

ELECDRAGON

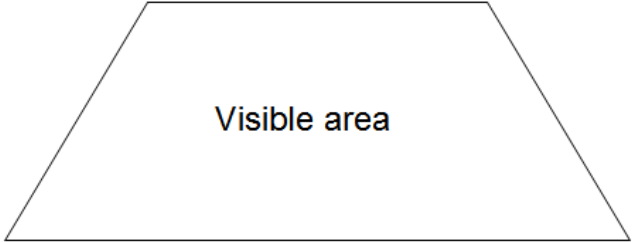
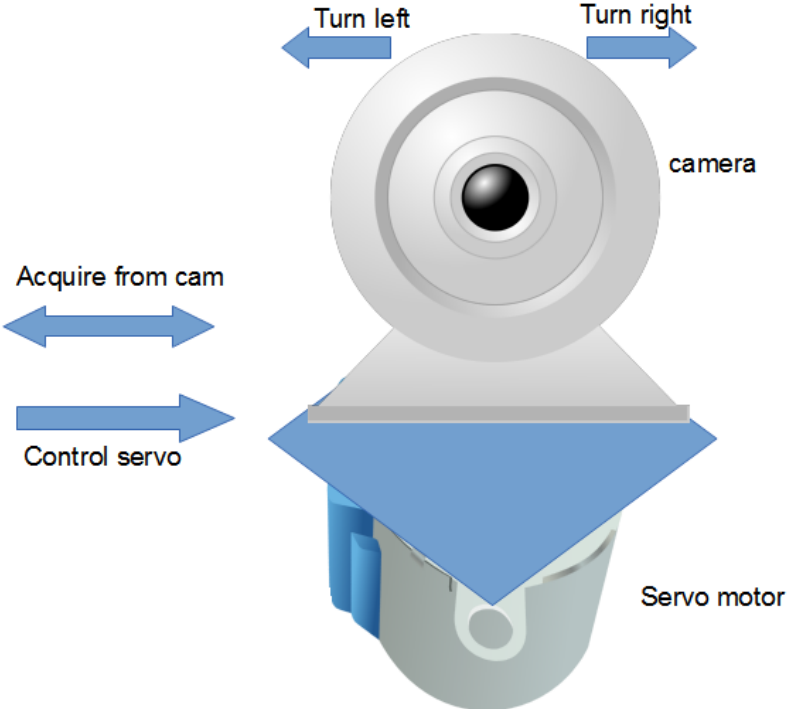
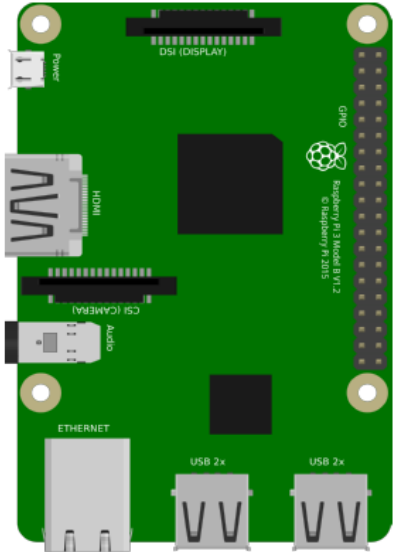


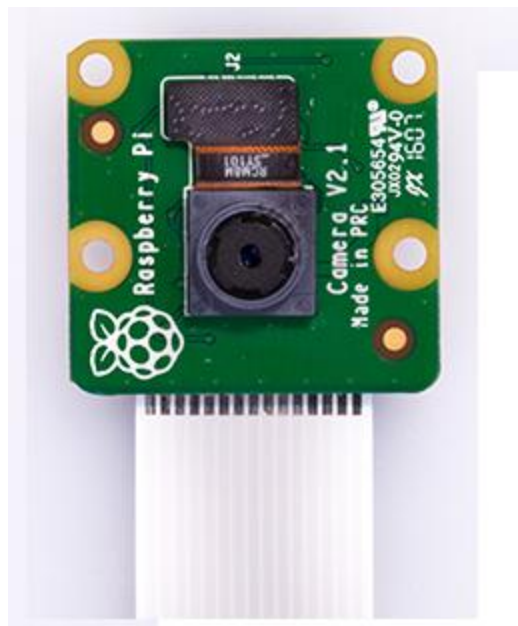


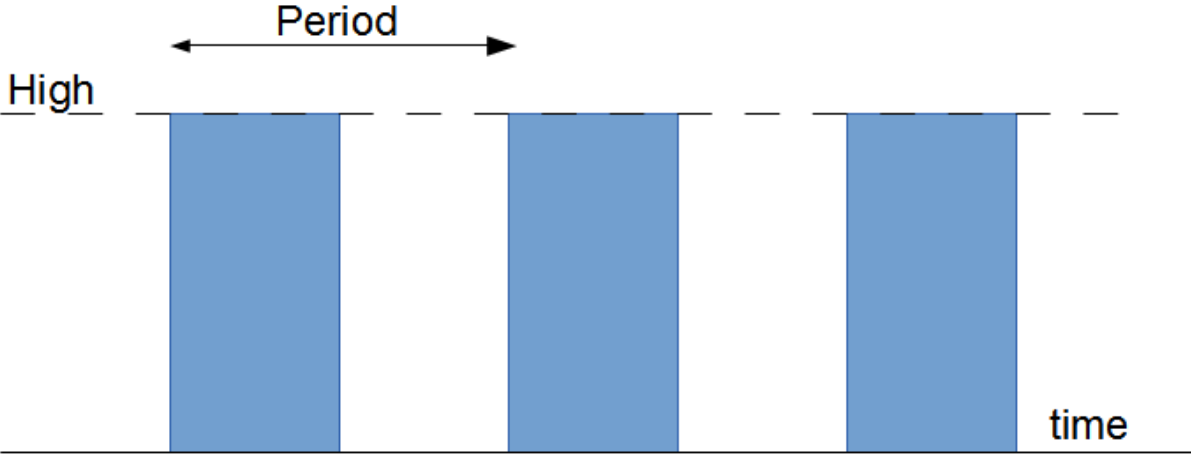
fritzing

```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi:~ $ ps axf | grep mos  
720 ? S 0:00 /usr/sbin/mosquitto -c /etc/mosquitto/mosquitto.conf  
1729 pts/0 S+ 0:00 \_ grep --color=auto mos  
pi@raspberrypi:~ $
```

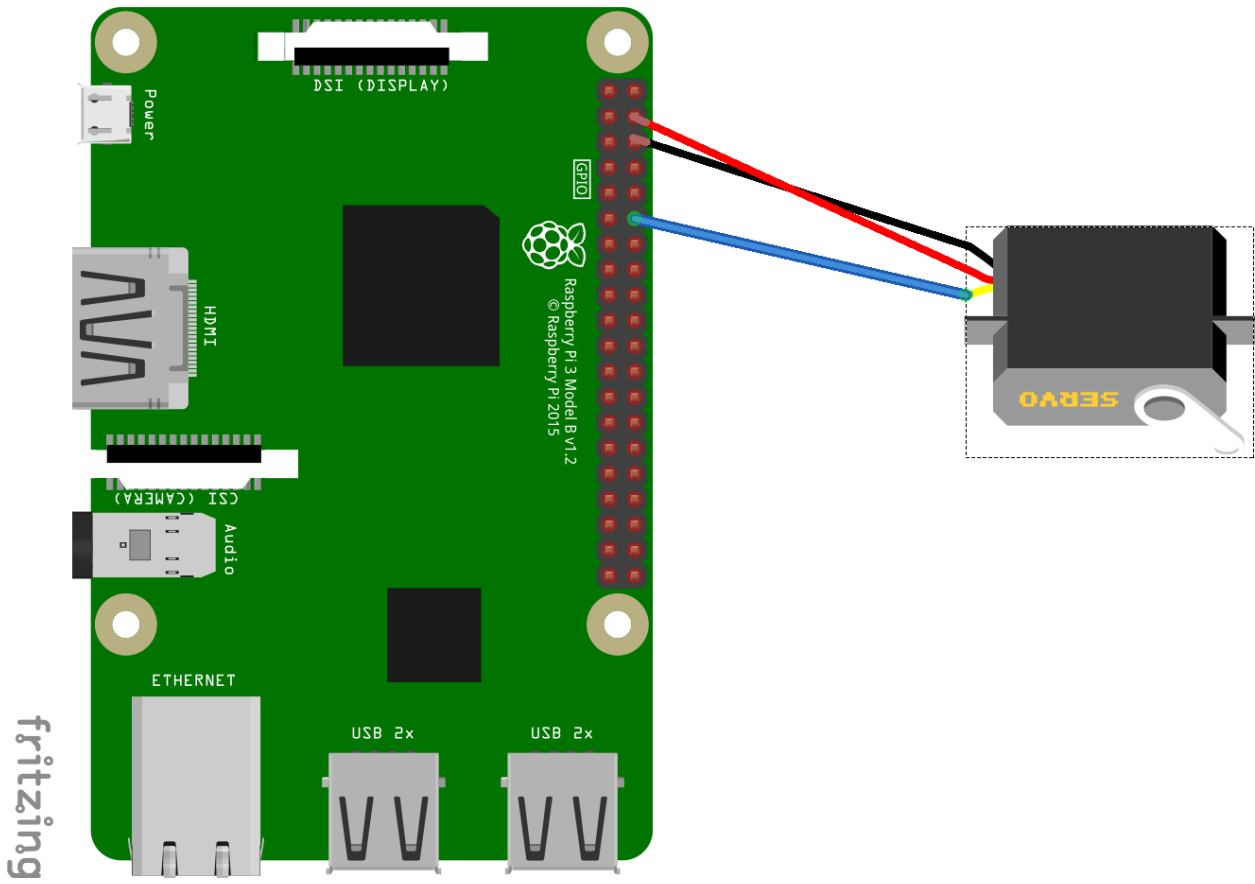
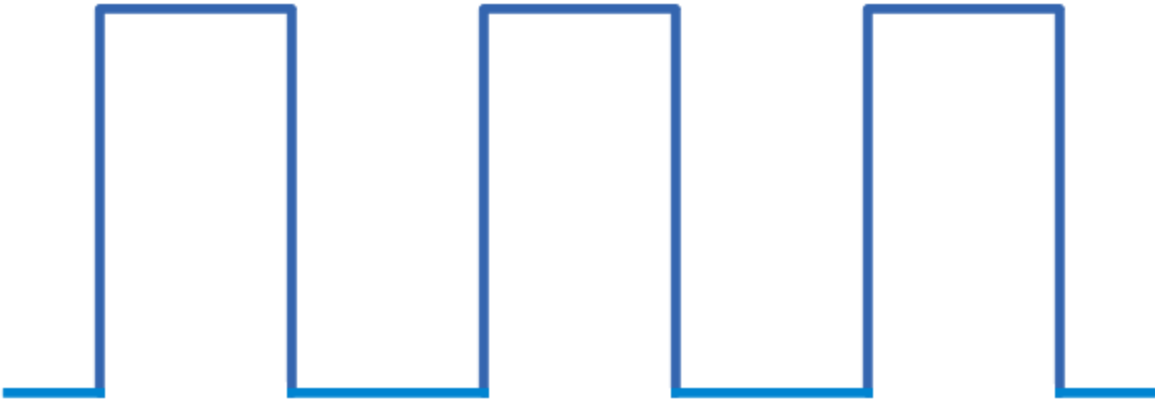
Chapter 7: Build a Spying Eye

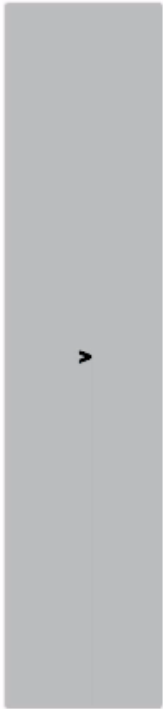
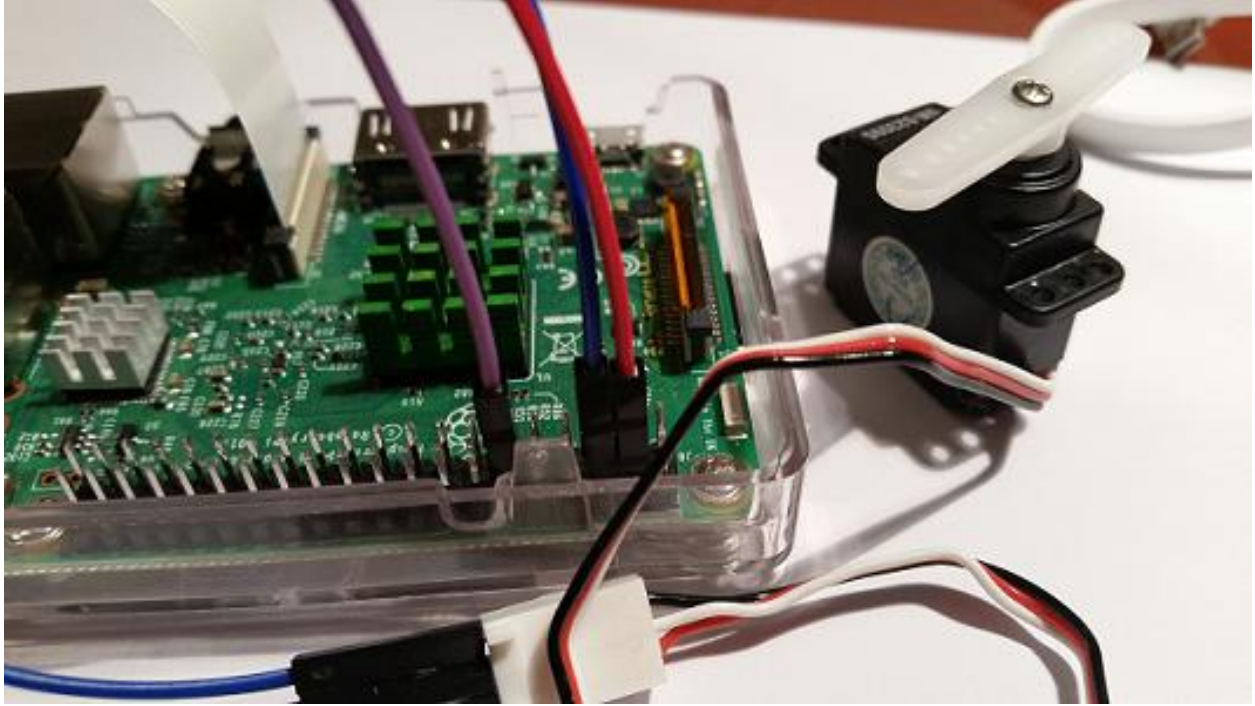






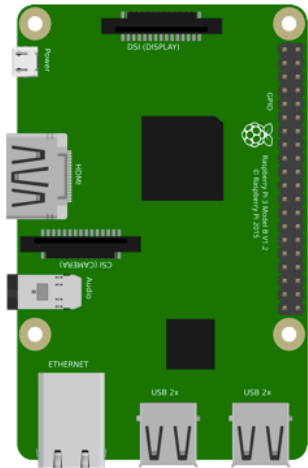
Duty 50%





TAKE PICTURE!

Chapter 8: Android with Android Things

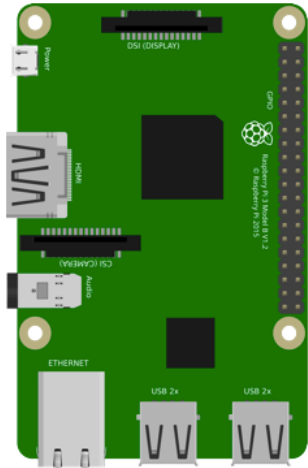


Direct connection

Network link



Cloud integration



IoT Cloud Platform





New Project

Android Studio

Configure your new project

Application name:

Company domain:

Package name: [Done](#)

Include C++ support



Target Android Devices

Select the form factors your app will run on

Different platforms may require separate SDKs

Phone and Tablet

Minimum SDK

Lower API levels target more devices, but have fewer features available.
By targeting API 23 and later, your app will run on approximately 4.7% of the devices that are active on the Google Play Store.
[Help me choose](#)

Wear

Minimum SDK

TV

Minimum SDK

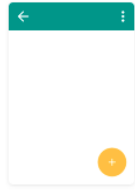
Android Auto



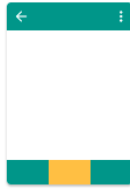
Add an Activity to Mobile



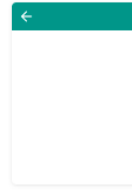
Add No Activity



Basic Activity



Bottom Navigation Activity



Empty Activity



Fullscreen Activity



LTE 11:25

AndroidThing_RGBapp



RGB controller

SET COLOR

Delay 10

Forward Reverse

Set Color Clear Rainbow





LTE 11:30

AndroidThing_RGBApp



RGB controller

Delay 10

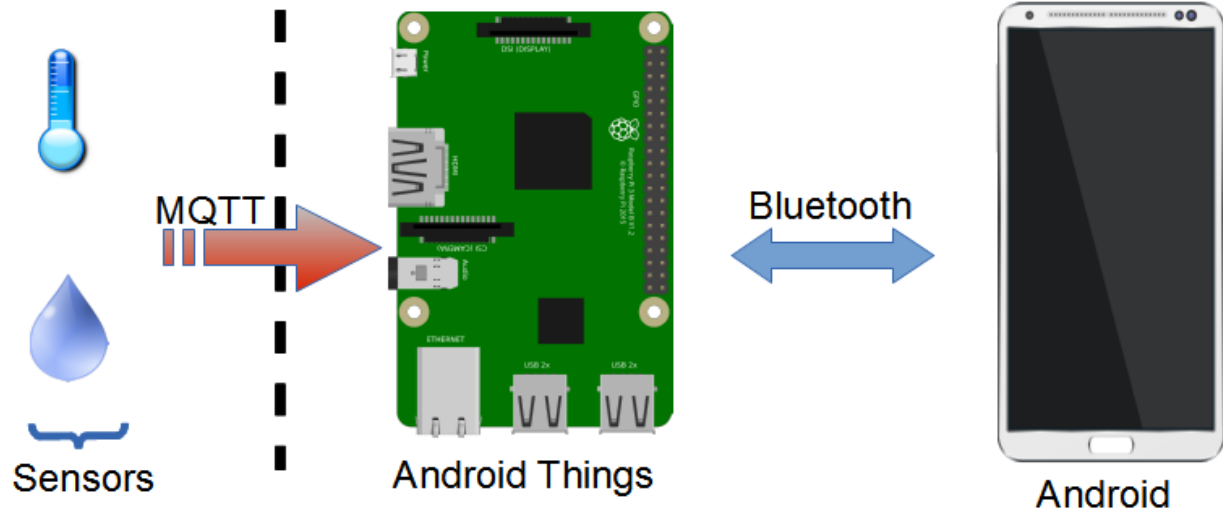
Forward

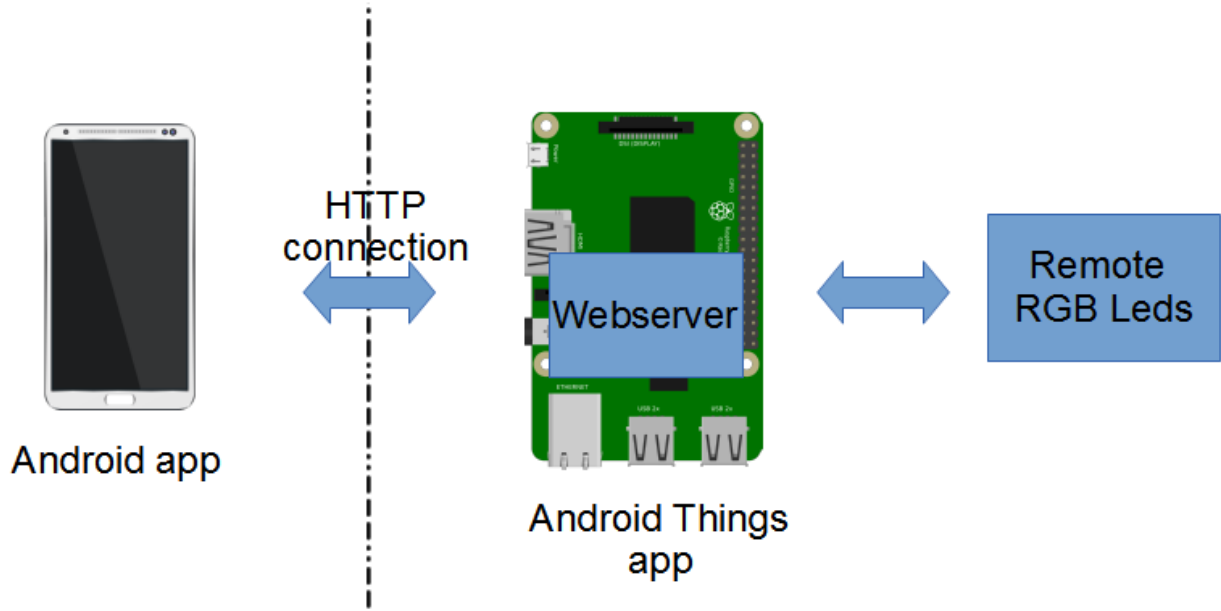


R		0
G		0
B		255

CANCEL OK









59%



20:03

Android_BT_app

Remote Weather app

Temperature: ---

Pressure: ---

Humidity: ---

SCAN..



4G



59%



20:06

T

P

H

RPI3

22:22:B4: [redacted]

Scan