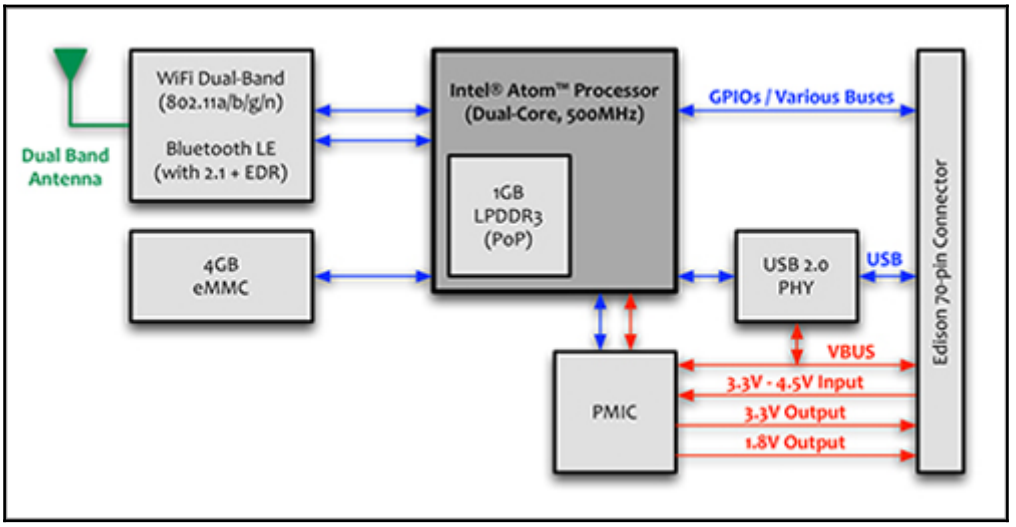
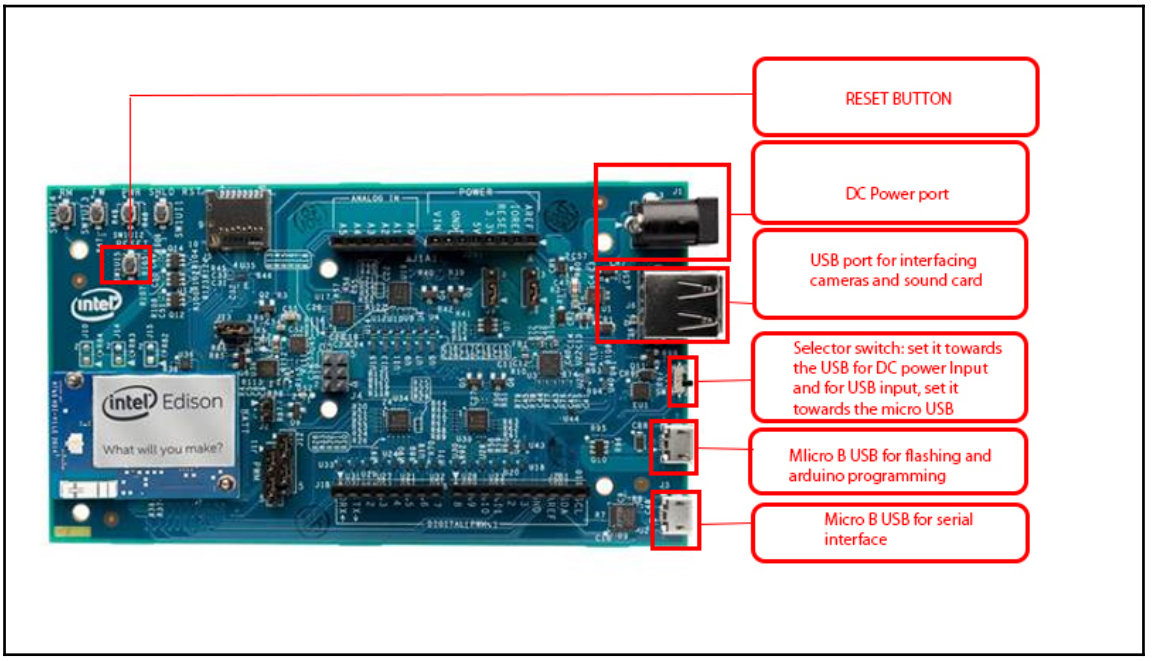
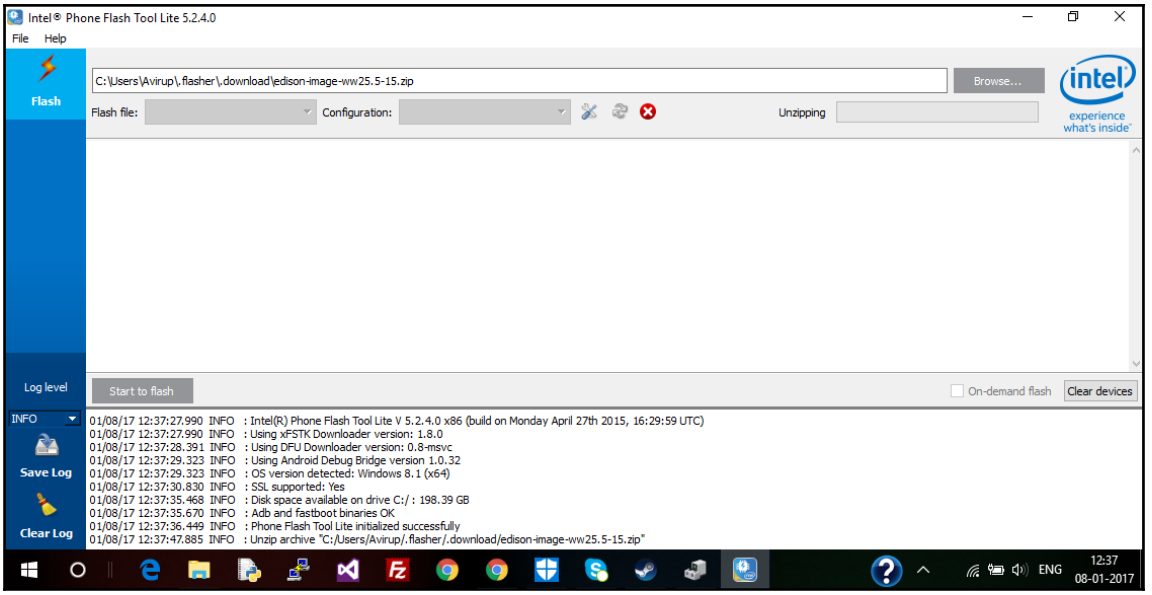
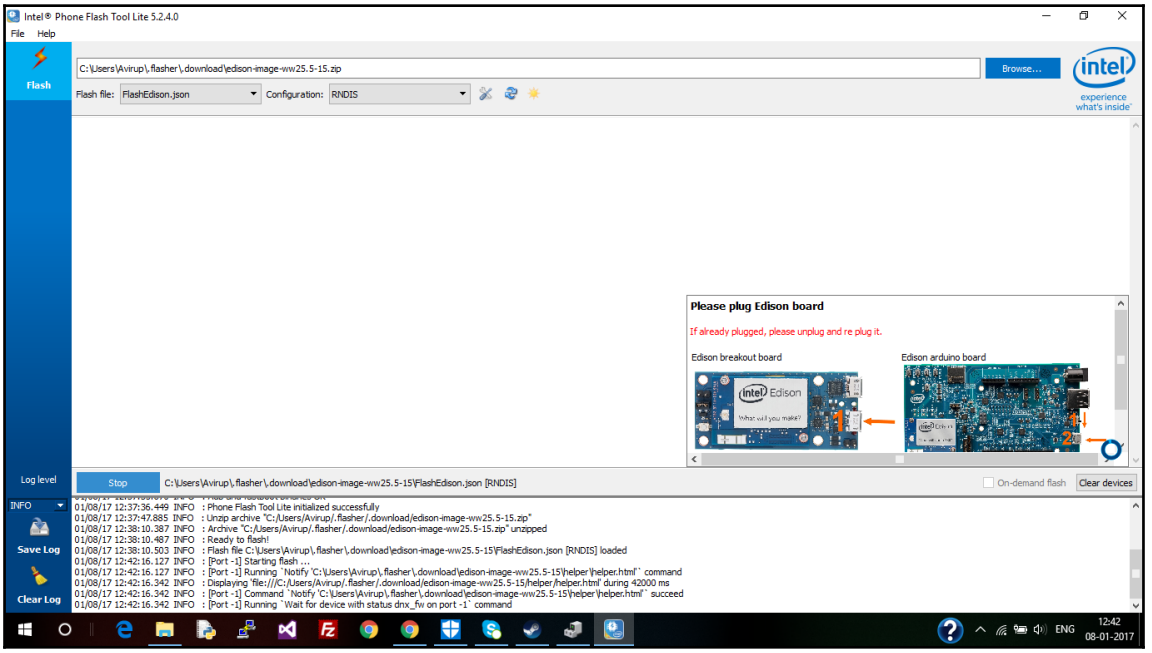
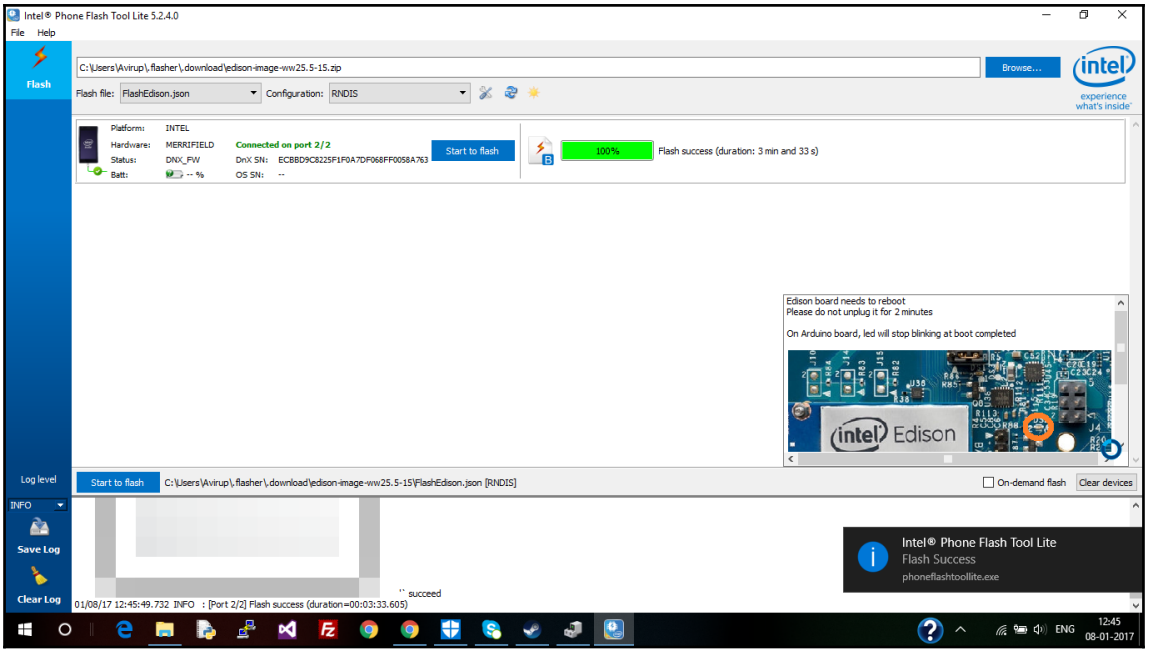
Chapter 1: Setting up Intel Edison

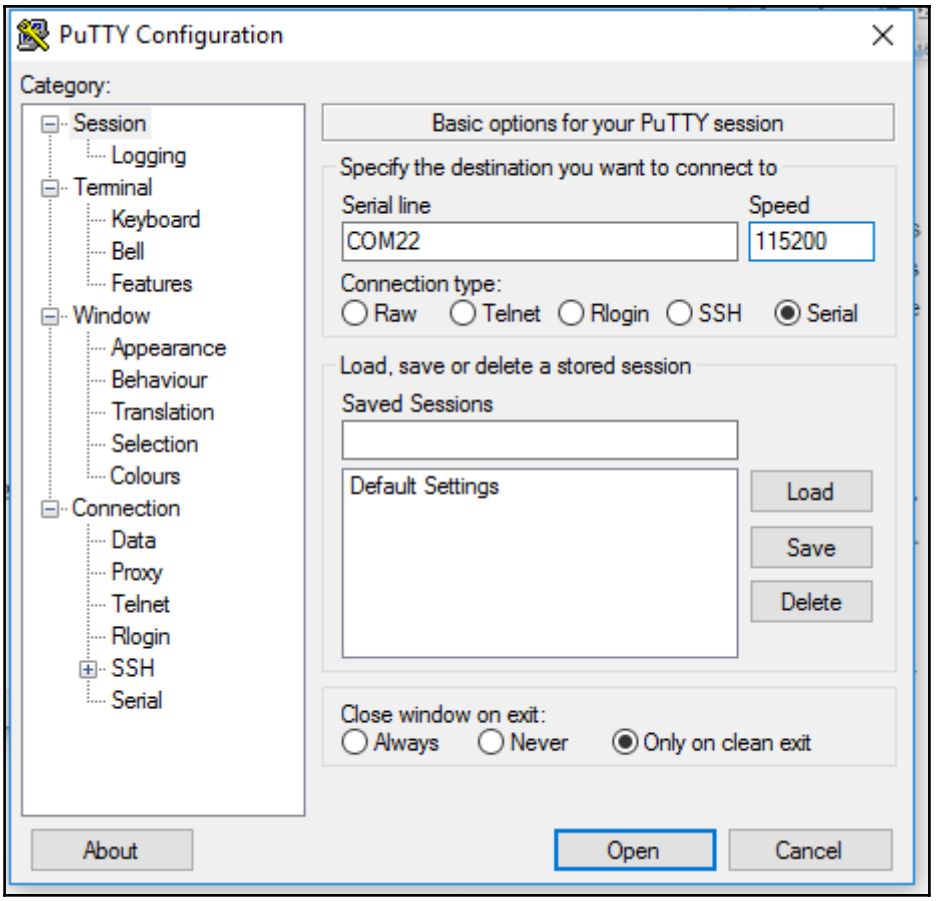


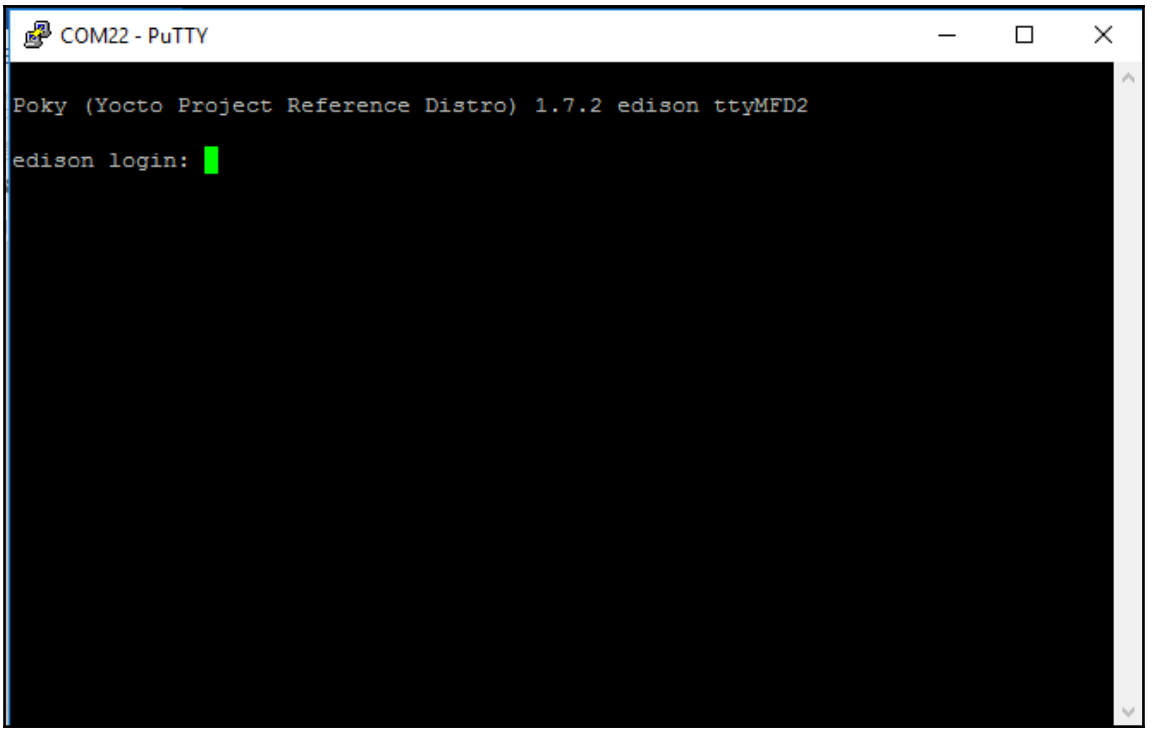


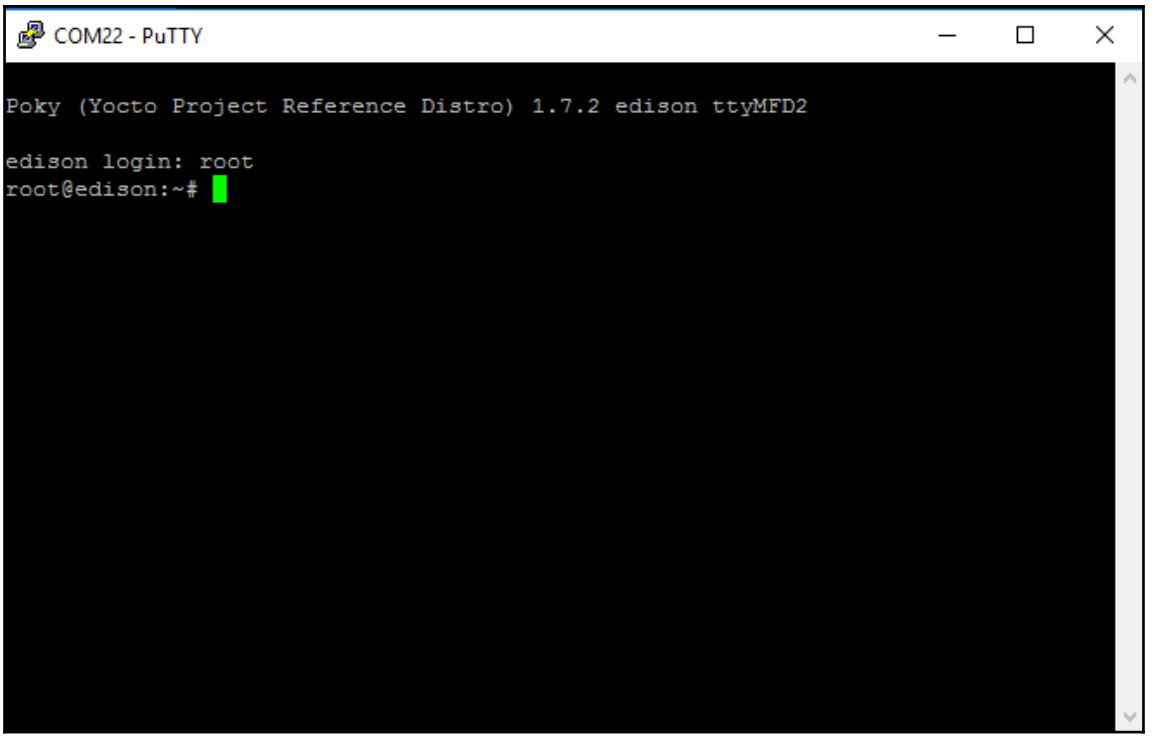

Intel® Phone Flash Tool Lite 5.2.4.0
File
Help
Flash
C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15.zip
Browse...
Flash file:
Configuration:
Unzipping
intel
experience what's inside
Log level
Start to flash
On-demand flash
Clear devices
INFO
Save Log
Clear Log
01/08/17 12:37:27.990 INFO : Intel(R) Phone Flash Tool Lite V 5.2.4.0 x86 (build on Monday April 27th 2015, 16:29:59 UTC)
01/08/17 12:37:27.990 INFO : Using xFSTK Downloader version: 1.8.0
01/08/17 12:37:28.391 INFO : Using DFU Downloader version: 0.8-msvc
01/08/17 12:37:29.323 INFO : Using Android Debug Bridge version 1.0.32
01/08/17 12:37:29.323 INFO : OS version detected: Windows 8.1 (x64)
01/08/17 12:37:30.830 INFO : SSL supported: Yes
01/08/17 12:37:35.468 INFO : Disk space available on drive C:/ : 198.39 GB
01/08/17 12:37:35.670 INFO : Adb and fastboot binaries OK
01/08/17 12:37:36.449 INFO : Phone Flash Tool Lite initialized successfully
01/08/17 12:37:47.885 INFO : Unzip archive "C:/Users/Avirup/.flasher/.download/edison-image-ww25.5-15.zip"
ENG
12:37
08-01-2017

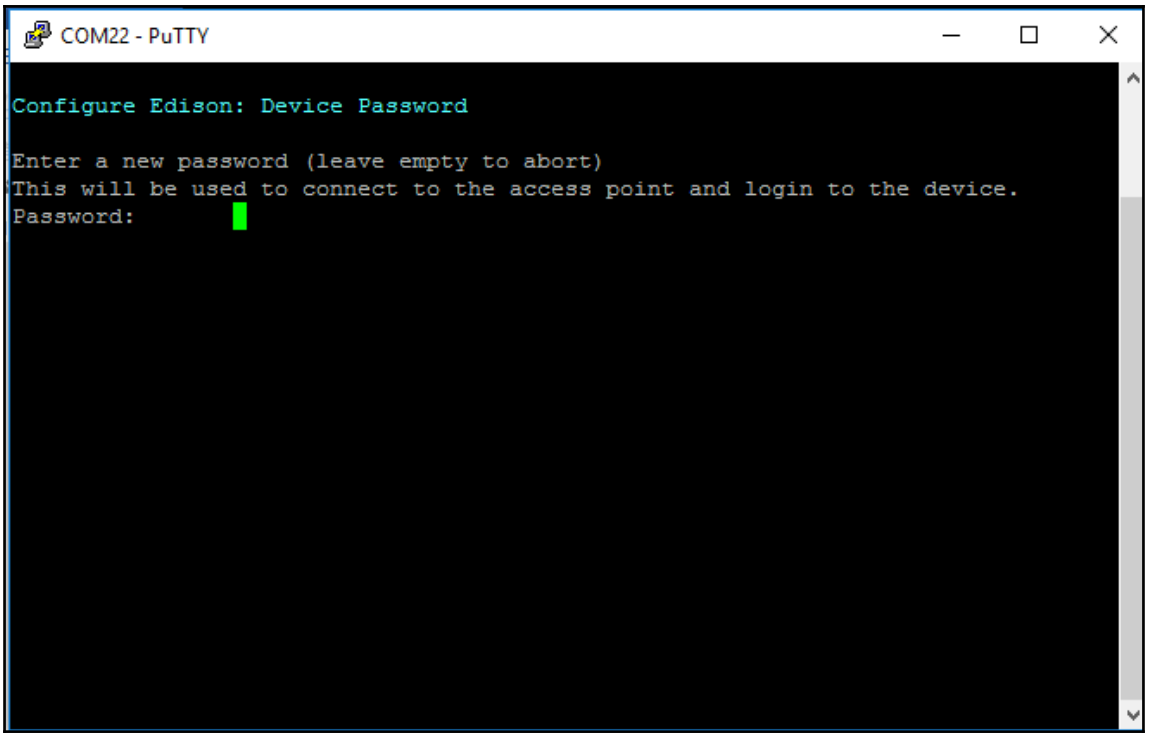

Intel® Phone Flash Tool Lite 5.2.4.0
File
Help
Flash
C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15.zip
Browse...
Flash file:
FlashEdison.json
Configuration:
RNDIS
intel
experience what's inside
Please plug Edison board
If already plugged, please unplug and re plug it.
Edison breakout board
Edison arduino board
Log level
Stop
C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15\FlashEdison.json [RNDIS]
On-demand flash
Clear devices
INFO
Save Log
Clear Log
01/08/17 12:37:36.449 INFO : Phone Flash Tool Lite initialized successfully
01/08/17 12:37:47.885 INFO : Unzip archive "C:/Users/Avirup/.flasher/.download/edison-image-ww25.5-15.zip"
01/08/17 12:38:10.387 INFO : Archive "C:/Users/Avirup/.flasher/.download/edison-image-ww25.5-15.zip" unzipped
01/08/17 12:38:10.487 INFO : Ready to flash!
01/08/17 12:38:10.503 INFO : Flash file C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15\FlashEdison.json [RNDIS] loaded
01/08/17 12:42:16.127 INFO : [Port -1] Starting flash ...
01/08/17 12:42:16.127 INFO : [Port -1] Running `Notify 'C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15\helper\helper.html'` command
01/08/17 12:42:16.342 INFO : Displaying 'file:///C:/Users/Avirup/.flasher/.download/edison-image-ww25.5-15/helper/helper.html' during 42000 ms
01/08/17 12:42:16.342 INFO : [Port -1] Command `Notify 'C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15\helper\helper.html'` succeed
01/08/17 12:42:16.342 INFO : [Port -1] Running `Wait for device with status dnx_fw on port -1` command
ENG
12:42
08-01-2017

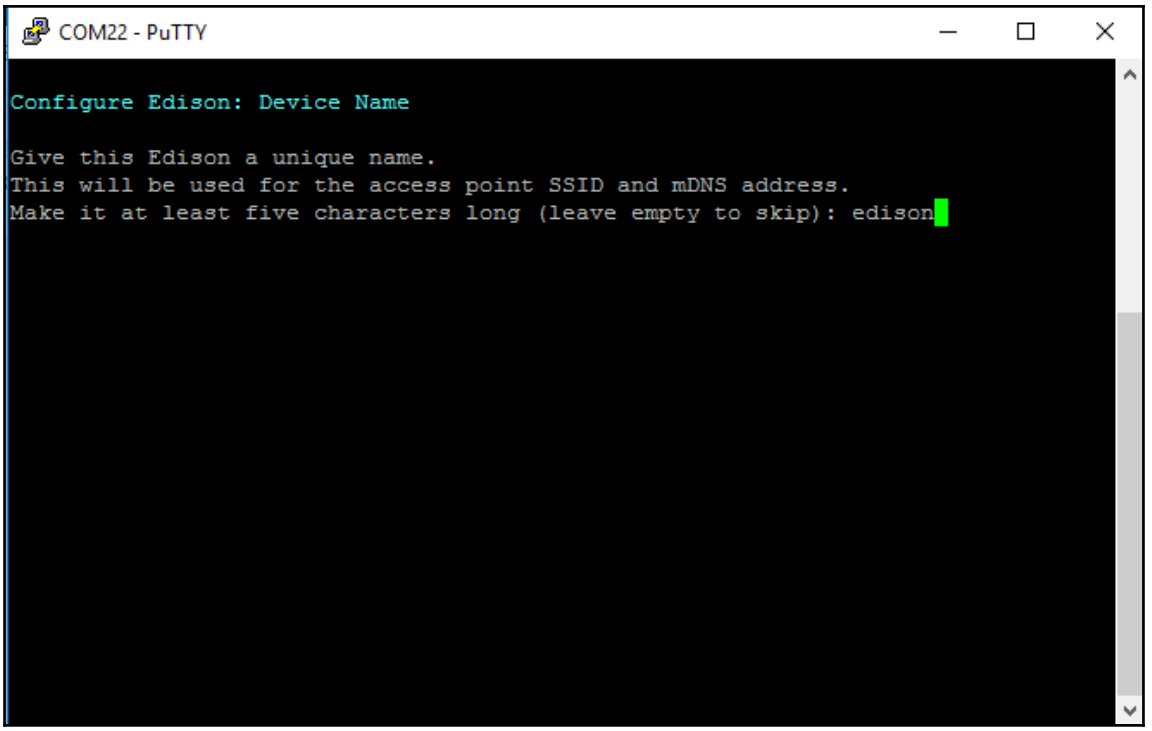

Intel® Phone Flash Tool Lite 5.2.4.0
File Help
Flash
C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15.zip
Browse...
Flash file: FlashEdison.json
Configuration: RNDIS
Platform: INTEL
Hardware: MERRIFIELD
Connected on port 2/2
Status: DNX_FW
DnX SN: ECBBD9C8225F1F0A7DF068FF0058A763
Batt: -- %
OS SN: --
Start to flash
100%
Flash success (duration: 3 min and 33 s)
Edison board needs to reboot
Please do not unplug it for 2 minutes
On Arduino board, led will stop blinking at boot completed
Log level
Start to flash
C:\Users\Avirup\.flasher\.download\edison-image-ww25.5-15\FlashEdison.json [RNDIS]
On-demand flash
Clear devices
INFO
Save Log
Clear Log
succeed
01/08/17 12:45:49.732 INFO : [Port 2/2] Flash success (duration=00:03:33.605)
Intel® Phone Flash Tool Lite
Flash Success
phoneflashtoollite.exe
ENG
12:45
08-01-2017

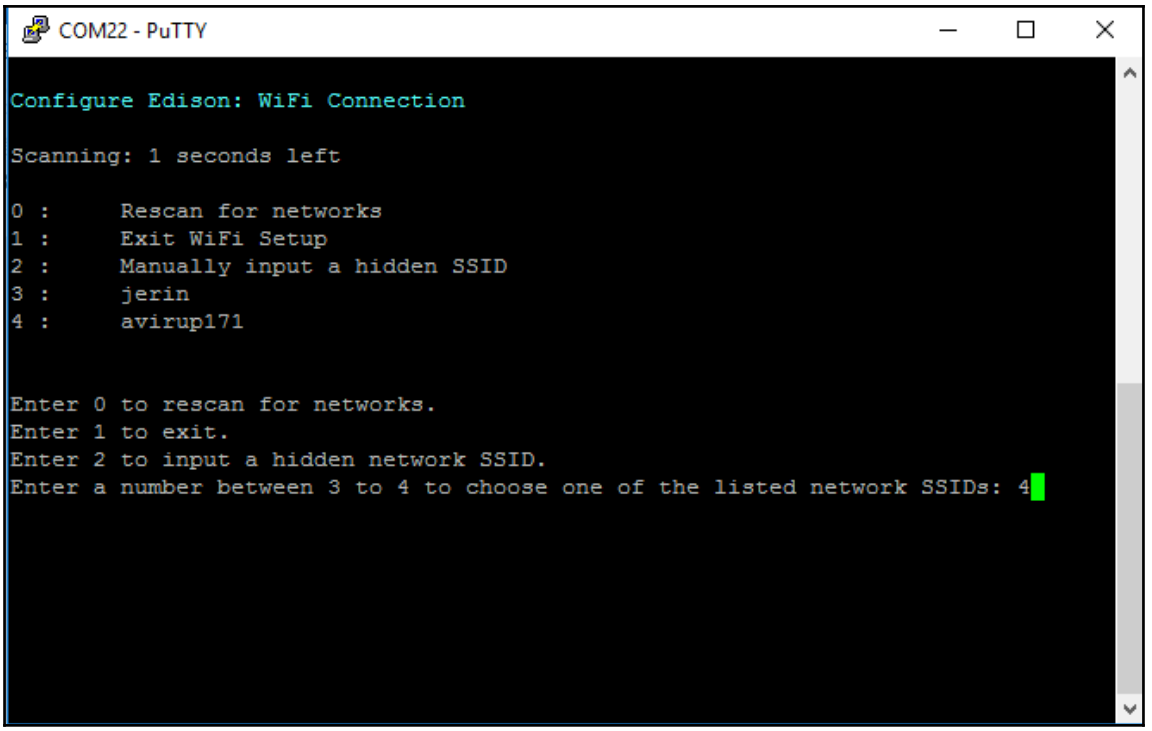

PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
Telnet
Rlogin
SSH
Serial
Basic options for your PuTTY session
Specify the destination you want to connect to
Serial line
Speed
COM22
115200
Connection type:
Raw
Telnet
Rlogin
SSH
Serial
Load, save or delete a stored session
Saved Sessions
Default Settings
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Open
Cancel

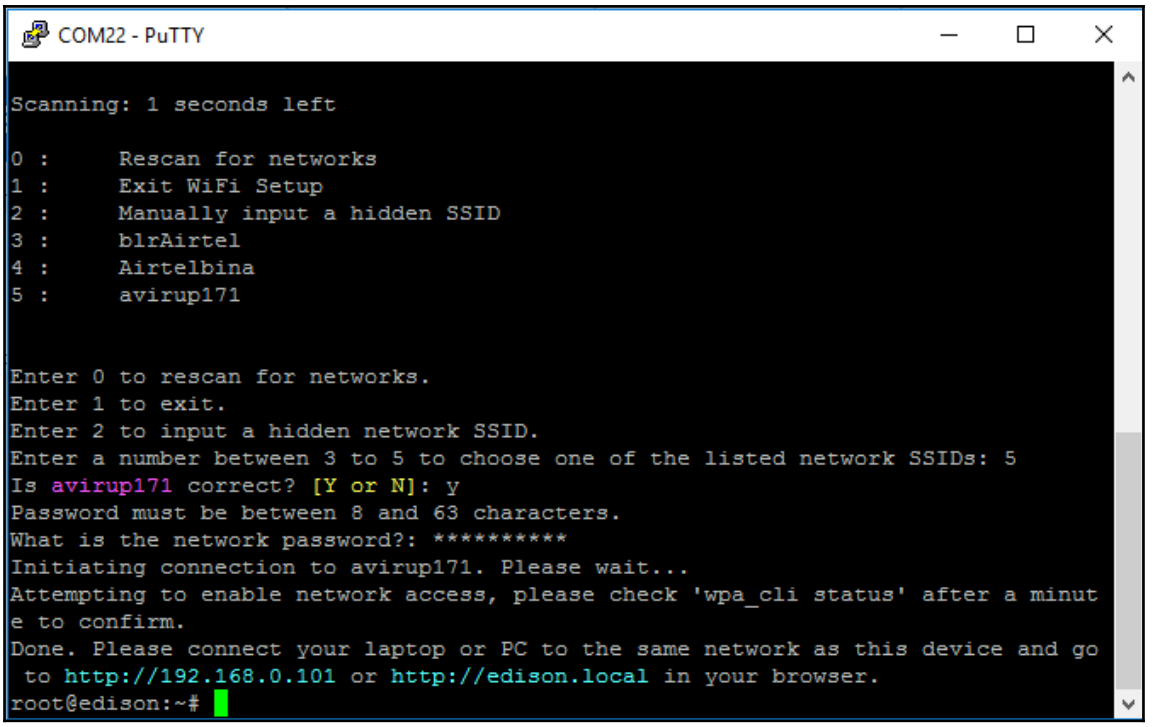

COM22 - PuTTY
Poky (Yocto Project Reference Distro) 1.7.2 edison ttyMFD2
edison login:

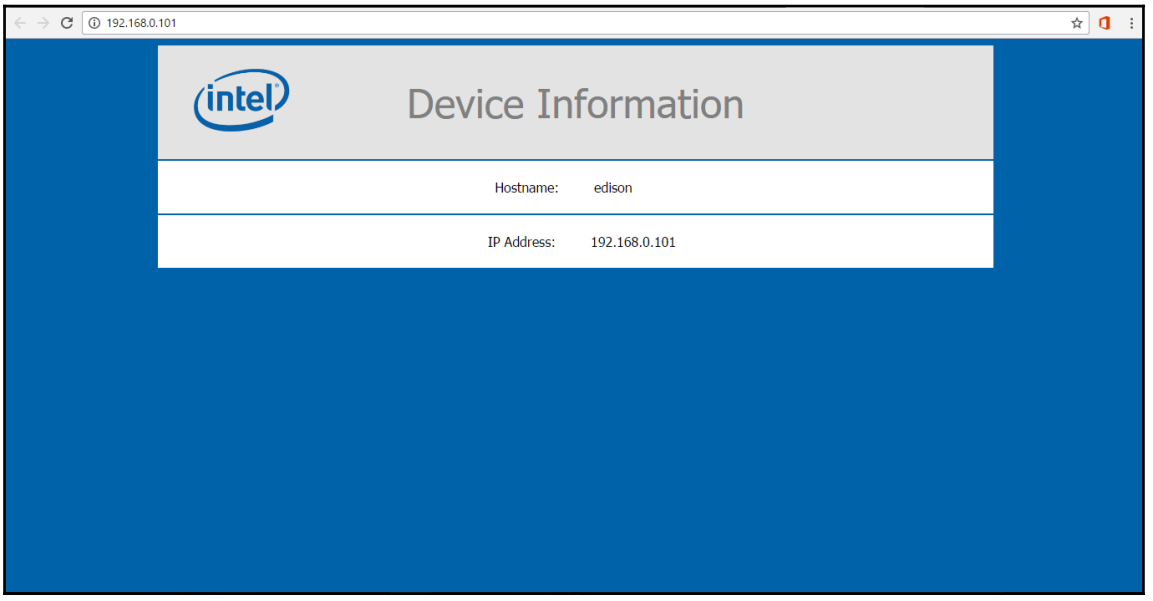

COM22 - PuTTY
Poky (Yocto Project Reference Distro) 1.7.2 edison ttyMFD2
edison login: root
root@edison:~#

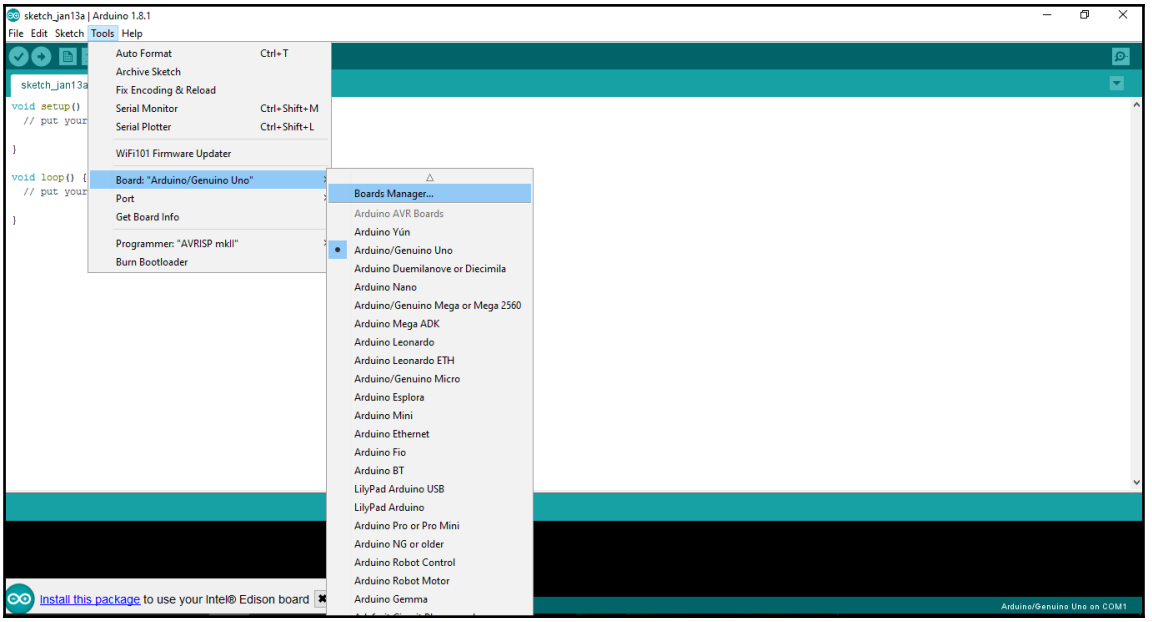

COM22 - PuTTY
Configure Edison: Device Password
Enter a new password (leave empty to abort)
This will be used to connect to the access point and login to the device.
Password:

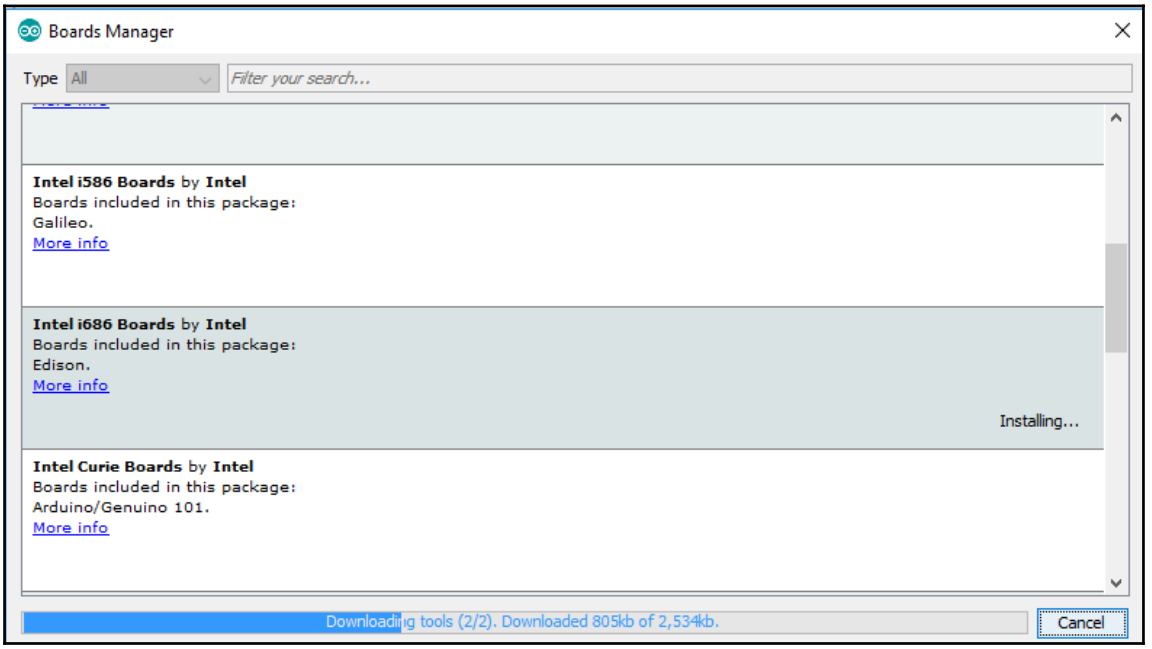

COM22 - PuTTY
Configure Edison: Device Name
Give this Edison a unique name.
This will be used for the access point SSID and mDNS address.
Make it at least five characters long (leave empty to skip): edison

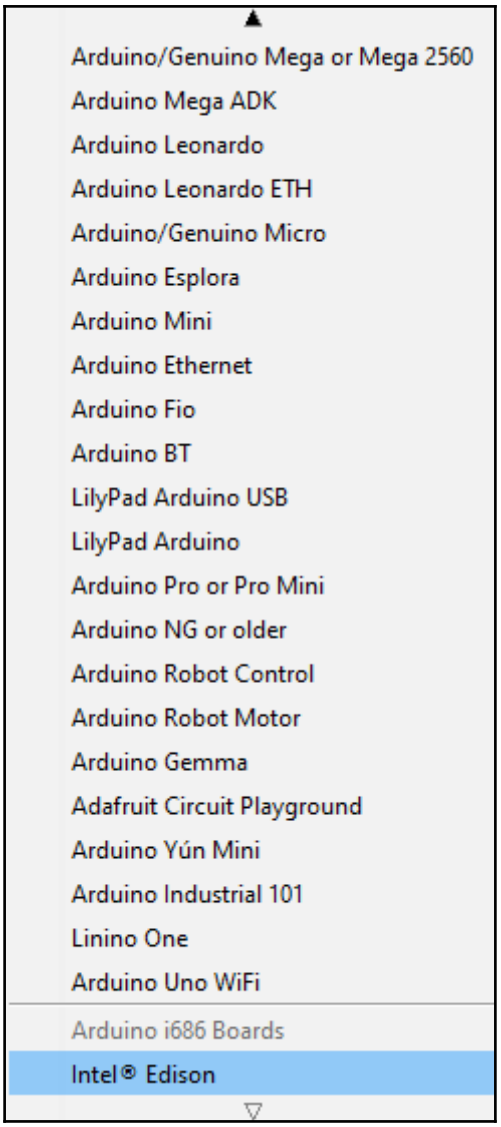

COM22 - PuTTY
Configure Edison: WiFi Connection
Scanning: 1 seconds left
0 : Rescan for networks
1 : Exit WiFi Setup
2 : Manually input a hidden SSID
3 : jerin
4 : avirup171
Enter 0 to rescan for networks.
Enter 1 to exit.
Enter 2 to input a hidden network SSID.
Enter a number between 3 to 4 to choose one of the listed network SSIDs: 4

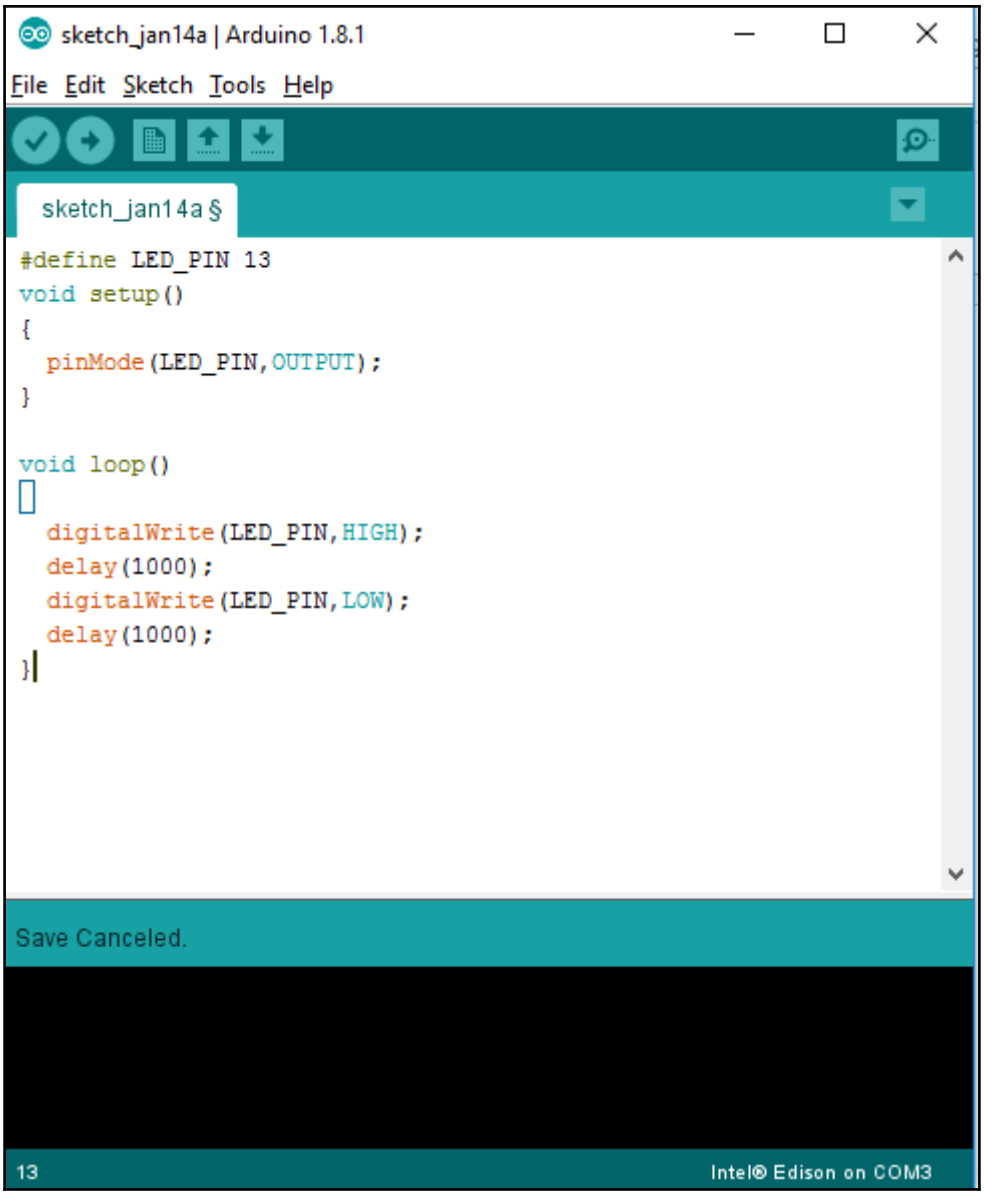

COM22 - PuTTY
Scanning: 1 seconds left
0 : Rescan for networks
1 : Exit WiFi Setup
2 : Manually input a hidden SSID
3 : blrAirtel
4 : Airtelbina
5 : avirup171
Enter 0 to rescan for networks.
Enter 1 to exit.
Enter 2 to input a hidden network SSID.
Enter a number between 3 to 5 to choose one of the listed network SSIDs: 5
Is avirup171 correct? [Y or N]: y
Password must be between 8 and 63 characters.
What is the network password?: **********
Initiating connection to avirup171. Please wait...
Attempting to enable network access, please check 'wpa_cli status' after a minut
e to confirm.
Done. Please connect your laptop or PC to the same network as this device and go
to http://192.168.0.101 or http://edison.local in your browser.
root@edison:~#

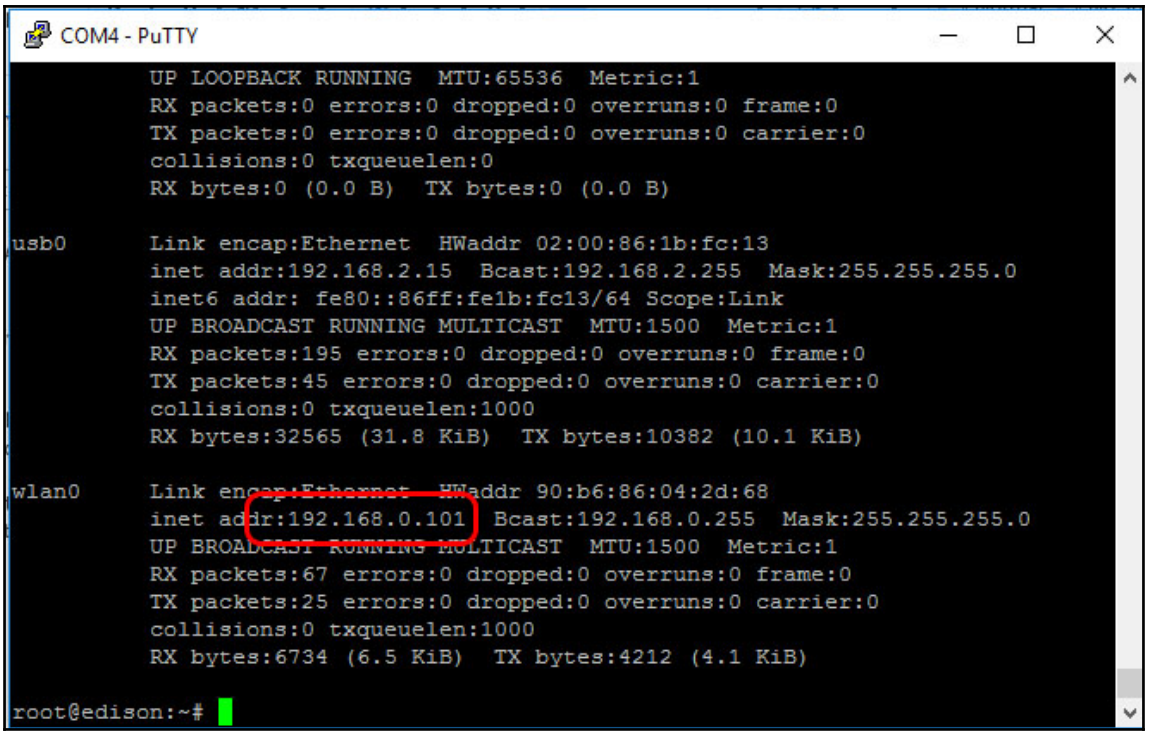

192.168.0.101
intel
Device Information
Hostname: edison
IP Address: 192.168.0.101

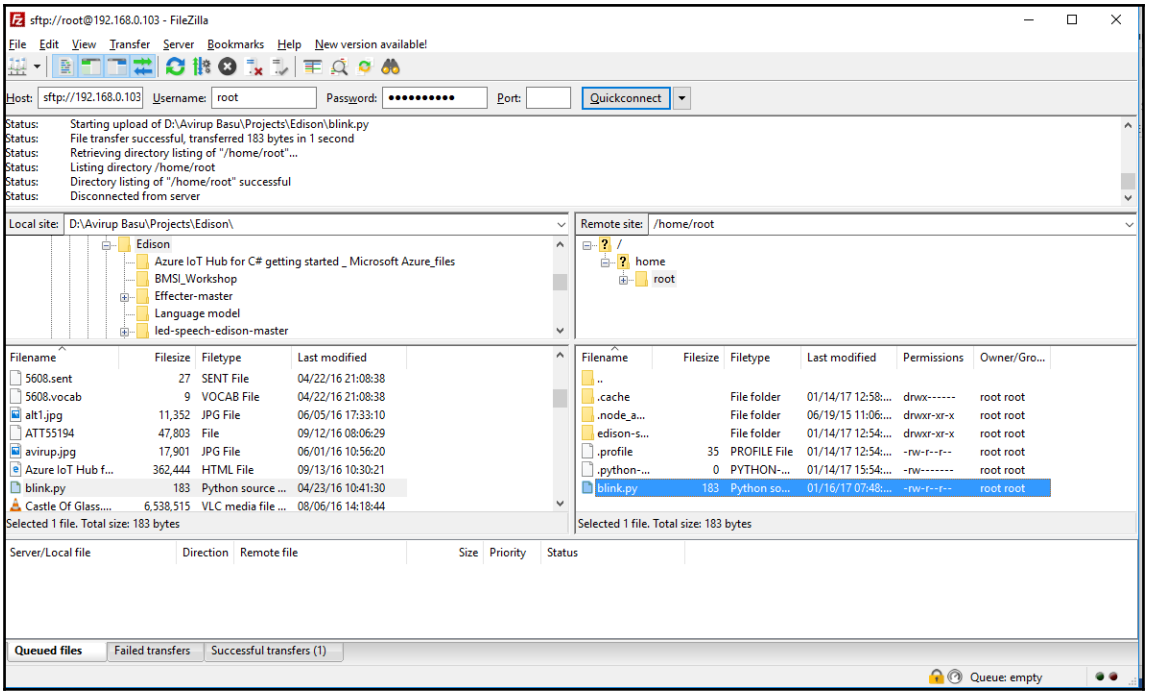

sketch_jan13a | Arduino 1.8.1
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Serial Monitor Ctrl+Shift+M
Serial Plotter Ctrl+Shift+L
WiFi101 Firmware Updater
Board: "Arduino/Genuino Uno"
Port
Get Board Info
Programmer: "AVRISP mkII"
Burn Bootloader
Boards Manager...
Arduino AVR Boards
Arduino Yún
Arduino/Genuino Uno
Arduino Duemilanove or Diecimila
Arduino Nano
Arduino/Genuino Mega or Mega 2560
Arduino Mega ADK
Arduino Leonardo
Arduino Leonardo ETH
Arduino/Genuino Micro
Arduino Esplora
Arduino Mini
Arduino Ethernet
Arduino Fio
Arduino BT
LilyPad Arduino USB
LilyPad Arduino
Arduino Pro or Pro Mini
Arduino NG or older
Arduino Robot Control
Arduino Robot Motor
Arduino Gemma
Install this package to use your Intel® Edison board
Arduino/Genuino Uno on COM1

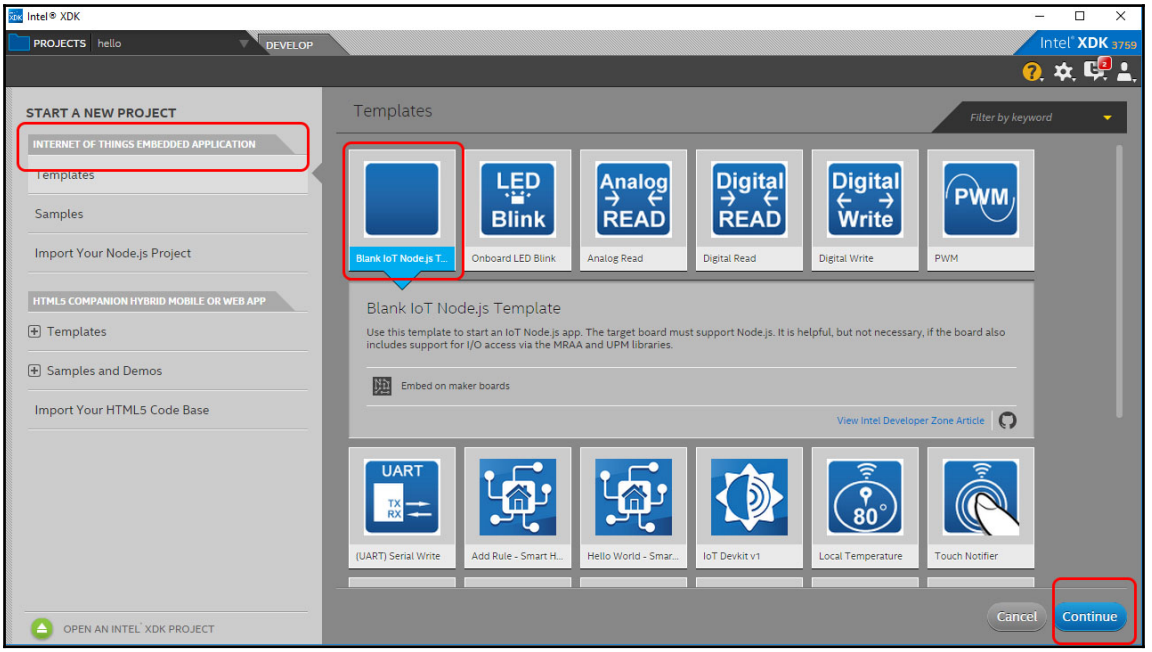

Boards Manager
Type All
Filter your search...
Intel i586 Boards by Intel
Boards included in this package:
Galileo.
More info
Intel i686 Boards by Intel
Boards included in this package:
Edison.
More info
Installing...
Intel Curie Boards by Intel
Boards included in this package:
Arduino/Genuino 101.
More info
Downloading tools (2/2). Downloaded 805kb of 2,534kb.
Cancel

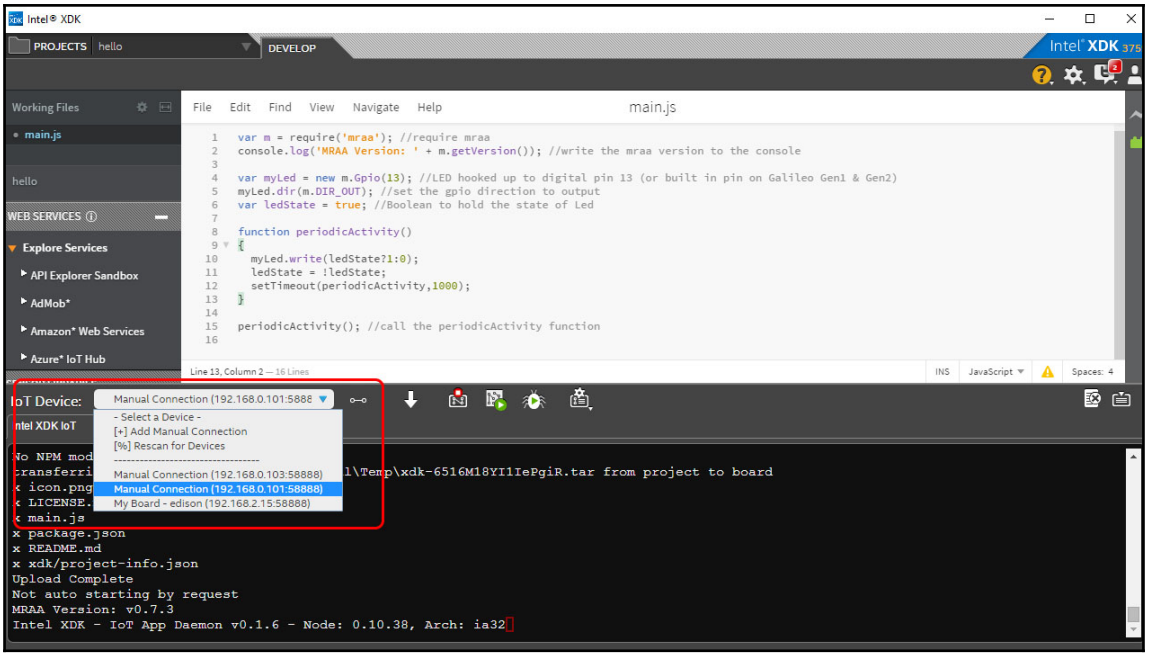

Arduino/Genuino Mega or Mega 2560
Arduino Mega ADK
Arduino Leonardo
Arduino Leonardo ETH
Arduino/Genuino Micro
Arduino Esplora
Arduino Mini
Arduino Ethernet
Arduino Fio
Arduino BT
LilyPad Arduino USB
LilyPad Arduino
Arduino Pro or Pro Mini
Arduino NG or older
Arduino Robot Control
Arduino Robot Motor
Arduino Gemma
Adafruit Circuit Playground
Arduino Yún Mini
Arduino Industrial 101
Linino One
Arduino Uno WiFi
Arduino i686 Boards
Intel® Edison

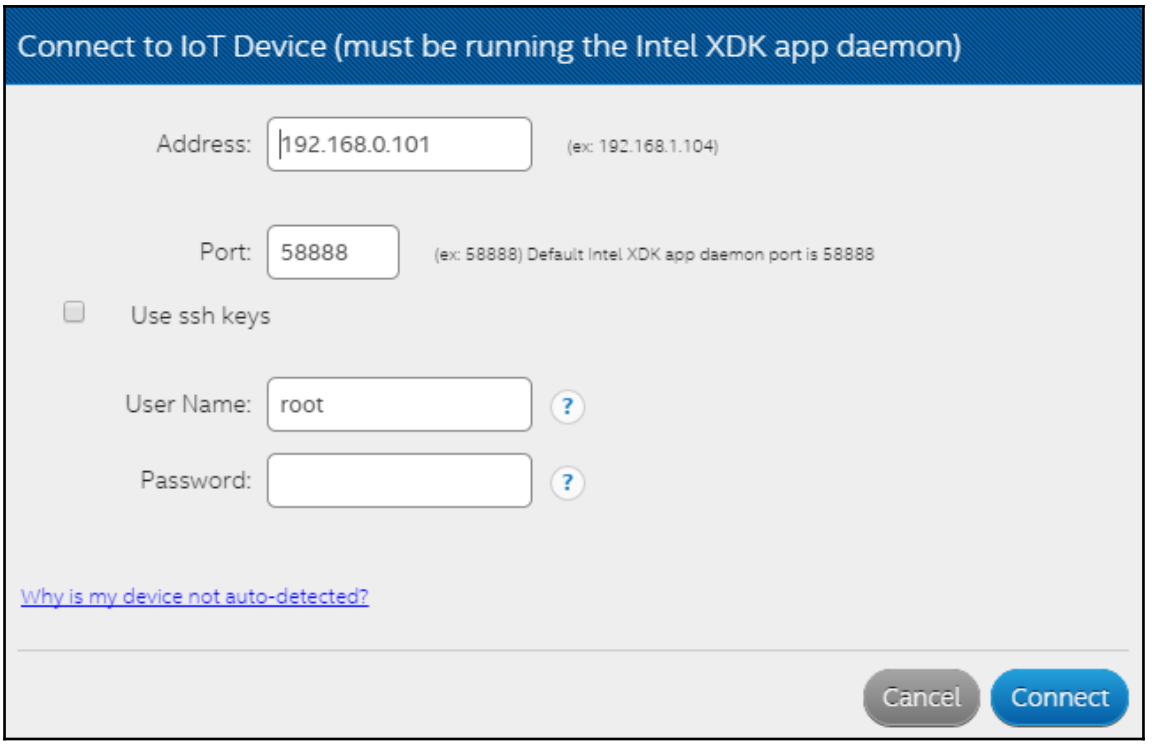

sketch_jan14a | Arduino 1.8.1
File Edit Sketch Tools Help
sketch_jan14a §
#define LED_PIN 13
void setup()
{
pinMode(LED_PIN,OUTPUT);
}
void loop()
{
digitalWrite(LED_PIN,HIGH);
delay(1000);
digitalWrite(LED_PIN,LOW);
delay(1000);
}
Save Canceled.
13
Intel® Edison on COM3

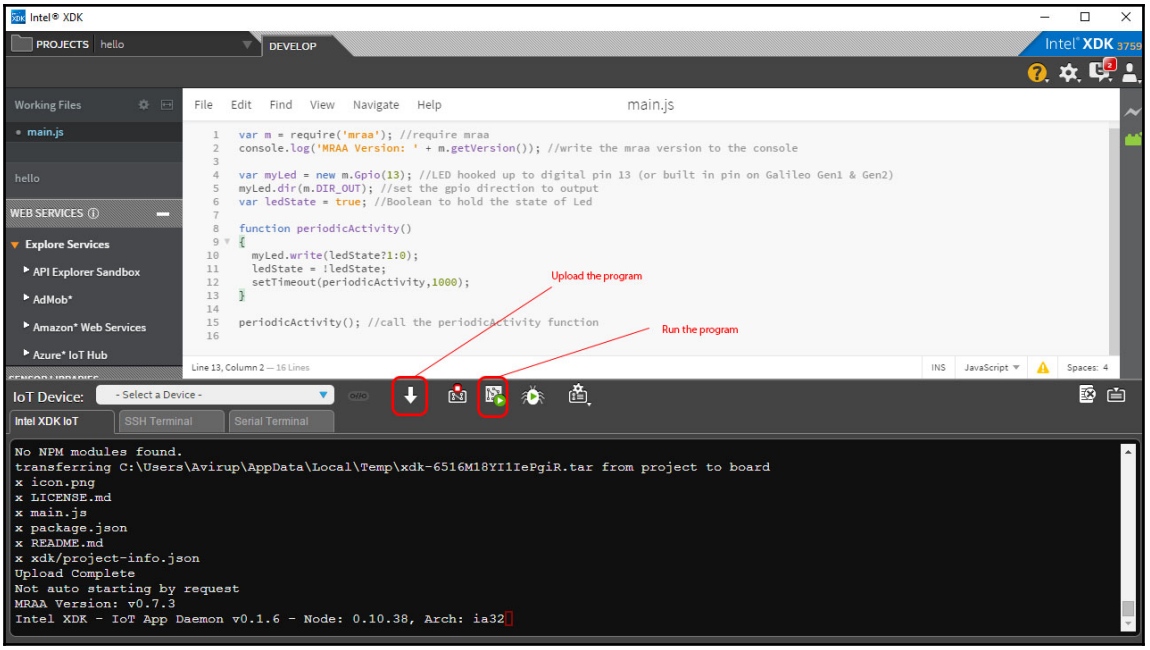

COM4 - PuTTY
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
usb0 Link encap:Ethernet HWaddr 02:00:86:1b:fc:13
inet addr:192.168.2.15 Bcast:192.168.2.255 Mask:255.255.255.0
inet6 addr: fe80::86ff:fe1b:fc13/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:195 errors:0 dropped:0 overruns:0 frame:0
TX packets:45 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:32565 (31.8 KiB) TX bytes:10382 (10.1 KiB)
wlan0 Link encap:Ethernet HWaddr 90:b6:86:04:2d:68
inet addr:192.168.0.101 Bcast:192.168.0.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:67 errors:0 dropped:0 overruns:0 frame:0
TX packets:25 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:6734 (6.5 KiB) TX bytes:4212 (4.1 KiB)
root@edison:~#


sftp://root@192.168.0.103 - FileZilla
File Edit View Transfer Server Bookmarks Help New version available!
Host: sftp://192.168.0.103 Username: root Password: •••••••••• Port: Quickconnect
Status: Starting upload of D:\Avirup Basu\Projects\Edison\blink.py
Status: File transfer successful, transferred 183 bytes in 1 second
Status: Retrieving directory listing of "/home/root"...
Status: Listing directory /home/root
Status: Directory listing of "/home/root" successful
Status: Disconnected from server
Local site: D:\Avirup Basu\Projects\Edison\
Edison
Azure IoT Hub for C# getting started _ Microsoft Azure_files
BMSI_Workshop
Effecter-master
Language model
led-speech-edison-master
Remote site: /home/root
/
home
root
Filename Filesize Filetype Last modified
5608.sent 27 SENT File 04/22/16 21:08:38
5608.vocab 9 VOCAB File 04/22/16 21:08:38
alt1.jpg 11,352 JPG File 06/05/16 17:33:10
ATT55194 47,803 File 09/12/16 08:06:29
avirup.jpg 17,901 JPG File 06/01/16 10:56:20
Azure IoT Hub f... 362,444 HTML File 09/13/16 10:30:21
blink.py 183 Python source ... 04/23/16 10:41:30
Castle Of Glass.... 6,538,515 VLC media file ... 08/06/16 14:18:44
Selected 1 file. Total size: 183 bytes
Filename Filesize Filetype Last modified Permissions Owner/Gro...
.. File folder 01/14/17 12:58:... drwx------ root root
.cache File folder 06/19/15 11:06:... drwxr-xr-x root root
.node_a... File folder 01/14/17 12:54:... drwxr-xr-x root root
edison-s... File folder 01/14/17 12:54:... -rw-r--r-- root root
.profile 35 PROFILE File 01/14/17 15:54:... -rw------- root root
.python-... 0 PYTHON-... 01/16/17 07:48:... -rw-r--r-- root root
blink.py 183 Python so...
Selected 1 file. Total size: 183 bytes
Server/Local file Direction Remote file Size Priority Status
Queued files Failed transfers Successful transfers (1)
Queue: empty

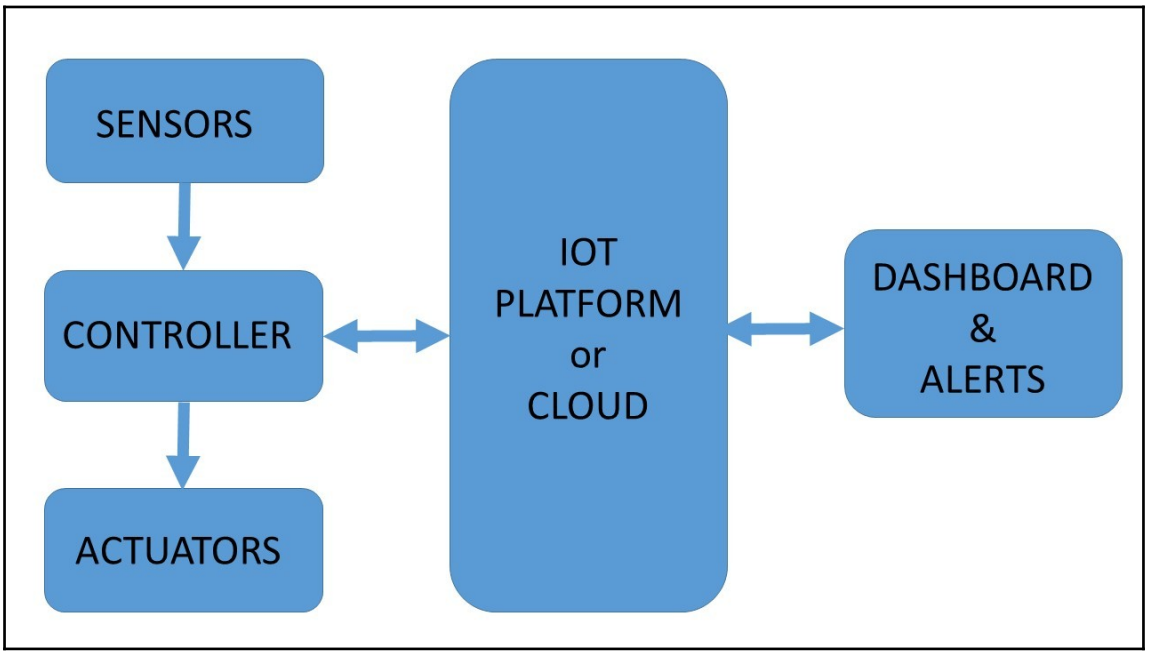

Intel® XDK
PROJECTS hello
DEVELOP
Intel XDK 3759
START A NEW PROJECT
INTERNET OF THINGS EMBEDDED APPLICATION
Templates
Samples
Import Your Node.js Project
HTML5 COMPANION HYBRID MOBILE OR WEB APP
Templates
Samples and Demos
Import Your HTML5 Code Base
OPEN AN INTEL XDK PROJECT
Templates
Filter by keyword
Blank IoT Node.js T...
Onboard LED Blink
Analog Read
Digital Read
Digital Write
PWM
Blank IoT Node.js Template
Use this template to start an IoT Node.js app. The target board must support Node.js. It is helpful, but not necessary, if the board also includes support for I/O access via the MRAA and UPM libraries.
Embed on maker boards
View Intel Developer Zone Article
(UART) Serial Write
Add Rule - Smart H...
Hello World - Smar...
IoT Devkit v1
Local Temperature
Touch Notifier
Cancel
Continue

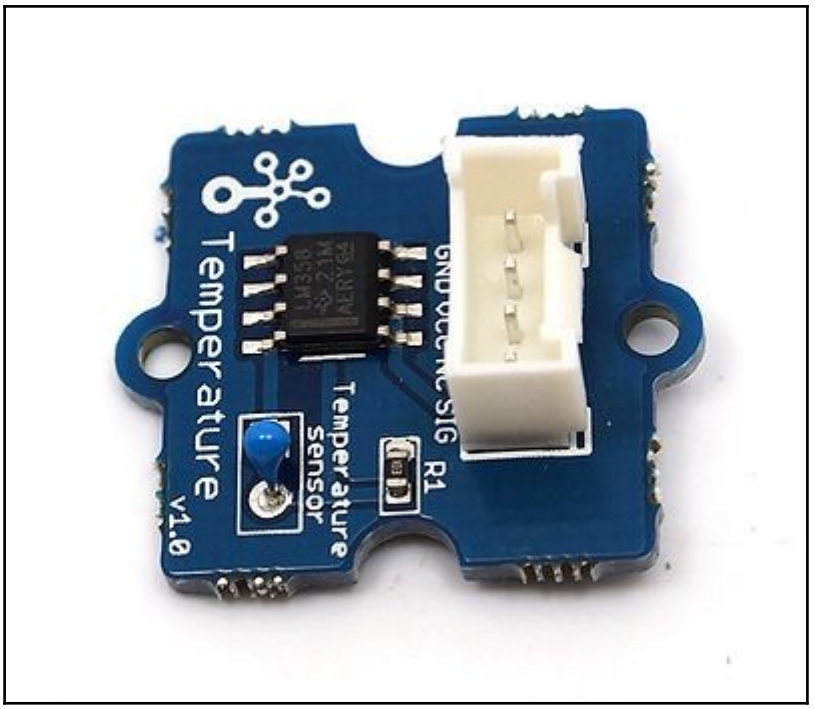

Intel® XDK
PROJECTS
hello
DEVELOP
Intel XDK 375
Working Files
main.js
hello
WEB SERVICES
Explore Services
API Explorer Sandbox
AdMob*
Amazon* Web Services
Azure* IoT Hub
File Edit Find View Navigate Help
main.js
var m = require('mraa'); //require mraa
console.log('MRAA Version: ' + m.getVersion()); //write the mraa version to the console
var myLed = new m.Gpio(13); //LED hooked up to digital pin 13 (or built in pin on Galileo Gen1 & Gen2)
myLed.dir(m.DIR_OUT); //set the gpio direction to output
var ledState = true; //Boolean to hold the state of Led
function periodicActivity()
{
myLed.write(ledState?1:0);
ledState = !ledState;
setTimeout(periodicActivity,1000);
}
periodicActivity(); //call the periodicActivity function
Line 13, Column 2 — 16 Lines
INS
JavaScript
Spaces: 4
IoT Device:
Manual Connection (192.168.0.101:5888
- Select a Device -
[+] Add Manual Connection
[%] Rescan for Devices
Manual Connection (192.168.0.103:58888)
Manual Connection (192.168.0.101:58888)
My Board - edison (192.168.2.15:58888)
Intel XDK IoT
x icon.png
x LICENSE.
x main.js
x package.json
x README.md
x xdk/project-info.json
Upload Complete
Not auto starting by request
MRAA Version: v0.7.3
Intel XDK - IoT App Daemon v0.1.6 - Node: 0.10.38, Arch: ia32

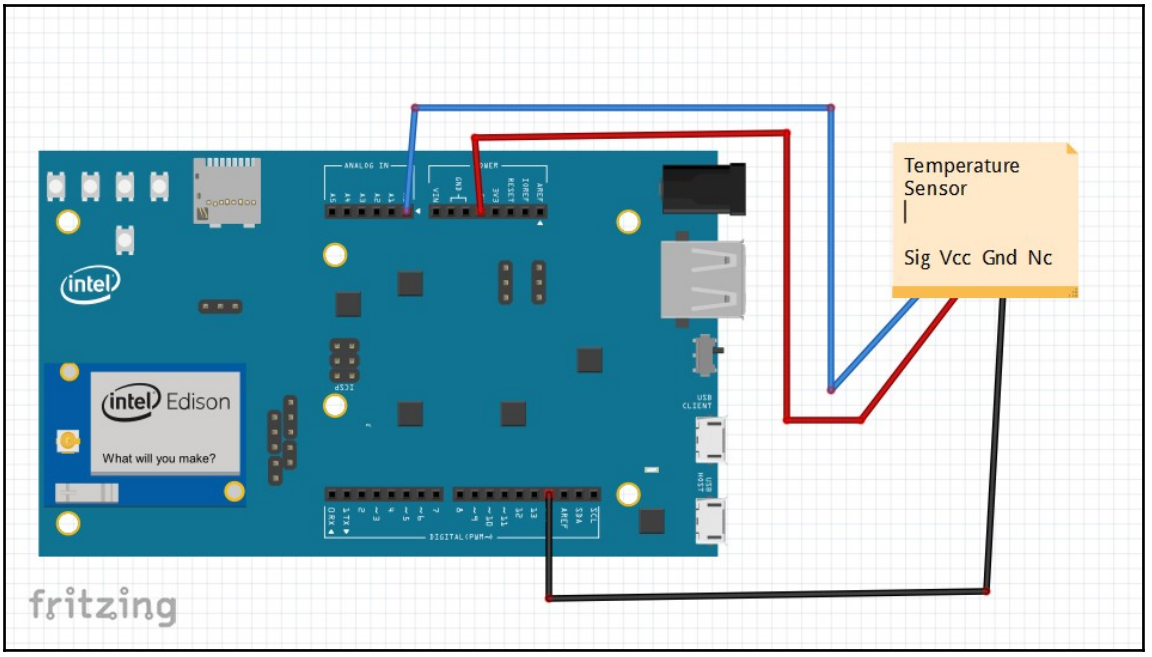

Connect to IoT Device (must be running the Intel XDK app daemon)
Address:
192.168.0.101
(ex: 192.168.1.104)
Port:
58888
(ex: 58888) Default Intel XDK app daemon port is 58888
Use ssh keys
User Name:
root
Password:
Why is my device not auto-detected?
Cancel
Connect


Intel® XDK
PROJECTS
hello
DEVELOP
Intel XDK 3759
Working Files
main.js
hello
WEB SERVICES
Explore Services
API Explorer Sandbox
AdMob*
Amazon* Web Services
Azure* IoT Hub
File Edit Find View Navigate Help
main.js
var m = require('mraa'); //require mraa
console.log('MRAA Version: ' + m.getVersion()); //write the mraa version to the console
var myLed = new m.Gpio(13); //LED hooked up to digital pin 13 (or built in pin on Galileo Gen1 & Gen2)
myLed.dir(m.DIR_OUT); //set the gpio direction to output
var ledState = true; //Boolean to hold the state of Led
function periodicActivity()
{
myLed.write(ledState?1:0);
ledState = !ledState;
setTimeout(periodicActivity,1000);
}
periodicActivity(); //call the periodicActivity function
Upload the program
Run the program
Line 13, Column 2 — 16 Lines
INS
JavaScript
Spaces: 4
IoT Device:
- Select a Device -
Intel XDK IoT
SSH Terminal
Serial Terminal
No NPM modules found.
transferring C:\Users\Avirup\AppData\Local\Temp\xdk-6516M18YI1IePgiR.tar from project to board
x icon.png
x LICENSE.md
x main.js
x package.json
x README.md
x xdk/project-info.json
Upload Complete
Not auto starting by request
MRAA Version: v0.7.3
Intel XDK - IoT App Daemon v0.1.6 - Node: 0.10.38, Arch: ia32

Chapter 2: Weather Station (IoT)




Temperature
v1.0
Temperature
sensor
R1
GND VCC NC SIG


Temperature
Sensor
Sig Vcc Gnd Nc
intel
intel Edison
What will you make?
fritzing

1. Zero-power Resistance of Thermistor: R

$R=R_0 \exp B(1/T-1/T_0)$ ·····(1)

R: Resistance in ambient temperature T (K)

(K: absolute temperature)

R_0: Resistance in ambient temperature T_0 (K)

B: B-Constant of Thermistor

2. B-Constant

as (1) formula

$B= \ell n (R/R_0) / (1/T-1/T_0)$ ·····(2)

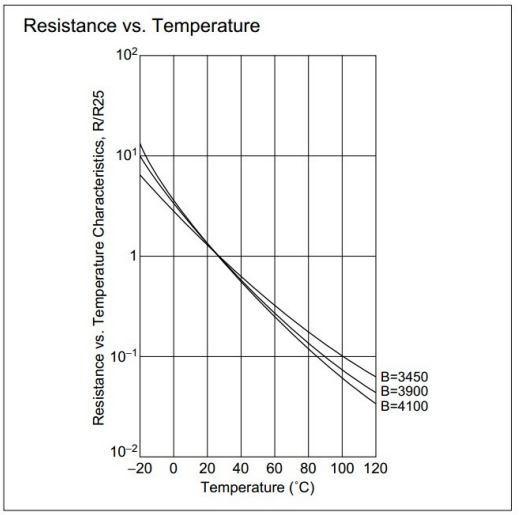
3. Thermal Dissipation Constant

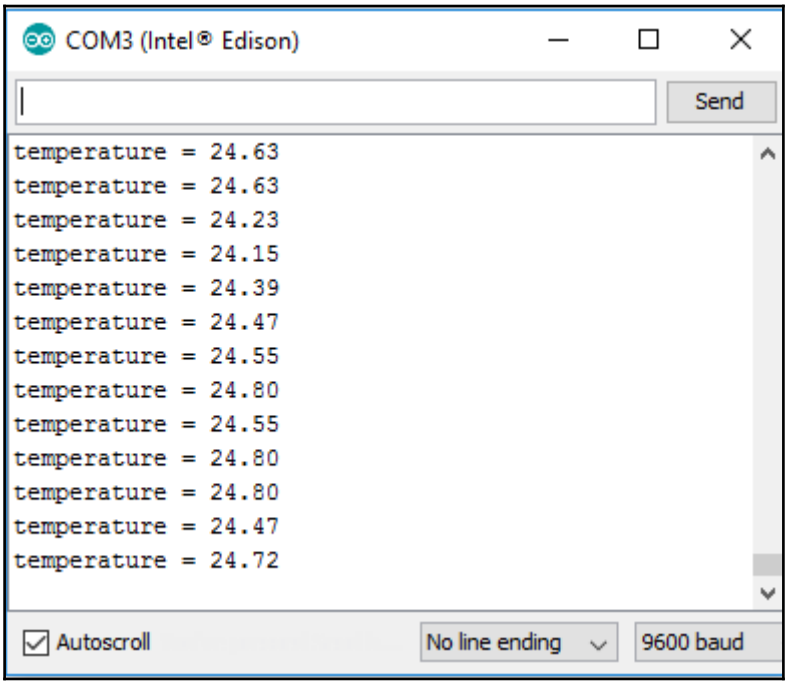
When electric power P (mW) is spent in ambient temperature T_1 and thermistor temperature rises T_2, there is a formula as follows

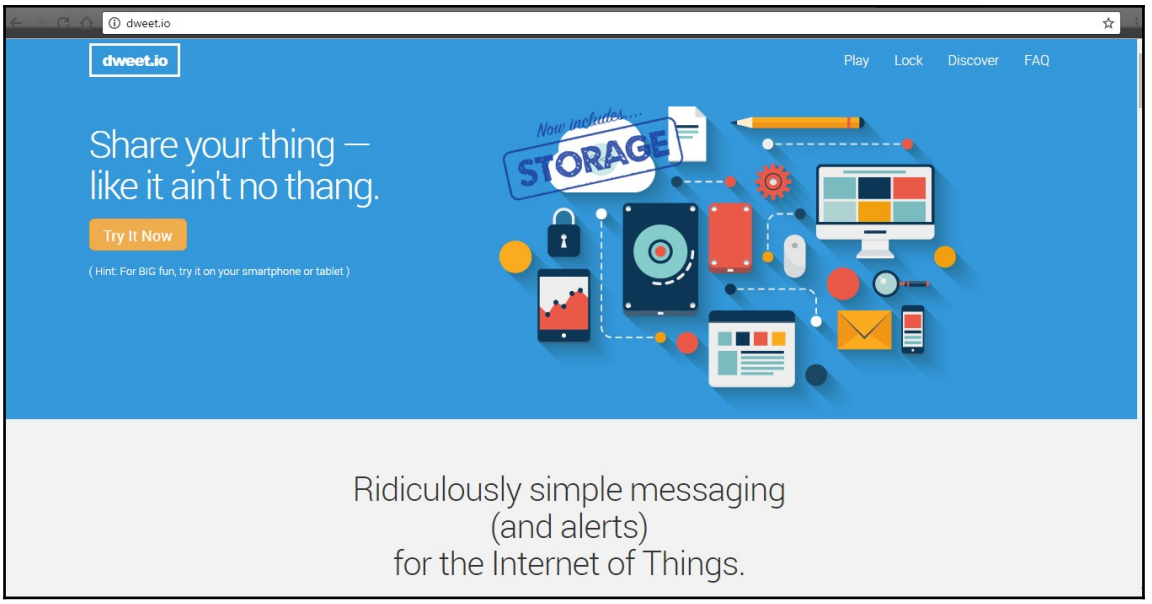
$P=C (T_2-T_1)$ ·····(3)

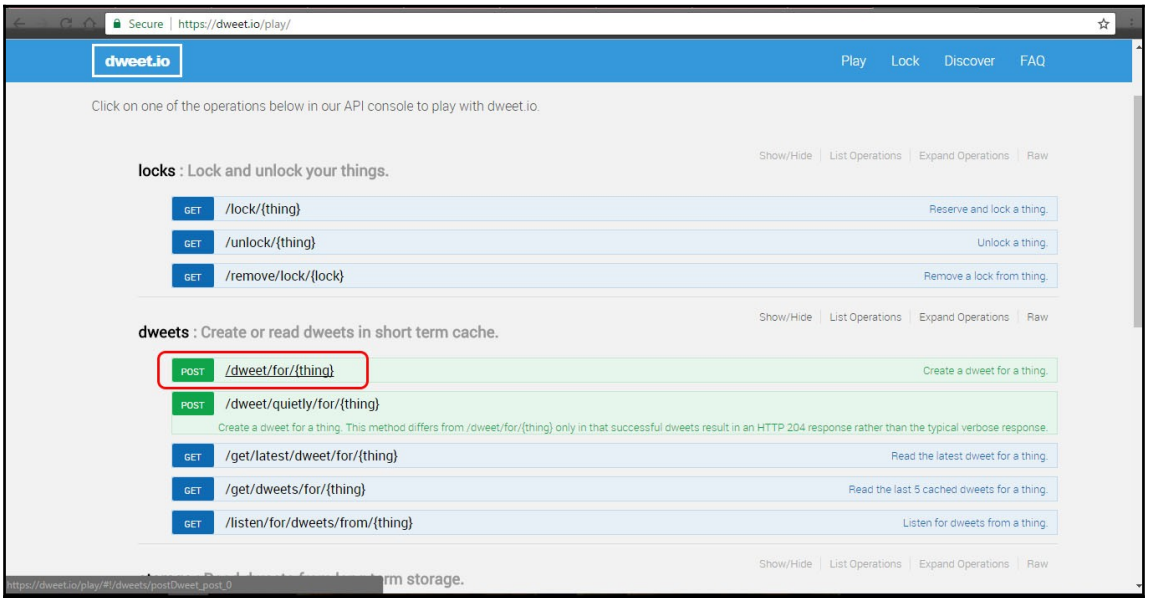
C: Thermal dissipation constant (mW/°C)

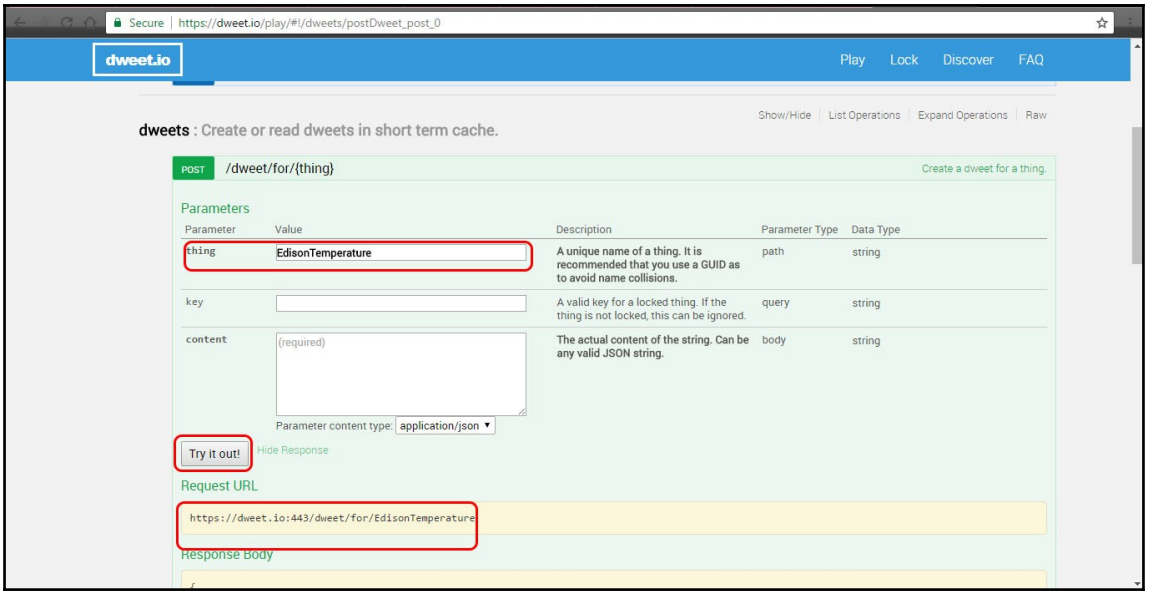
Thermal dissipation constant is varied with dimensions, measurement conditions, etc.

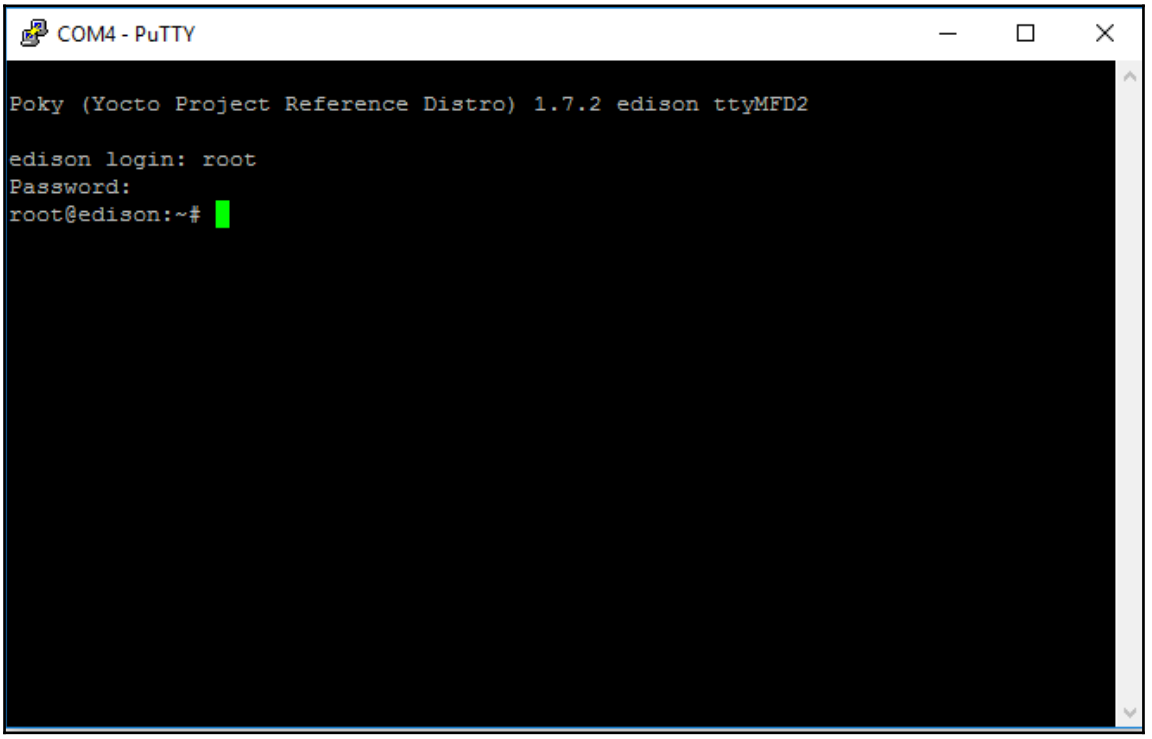


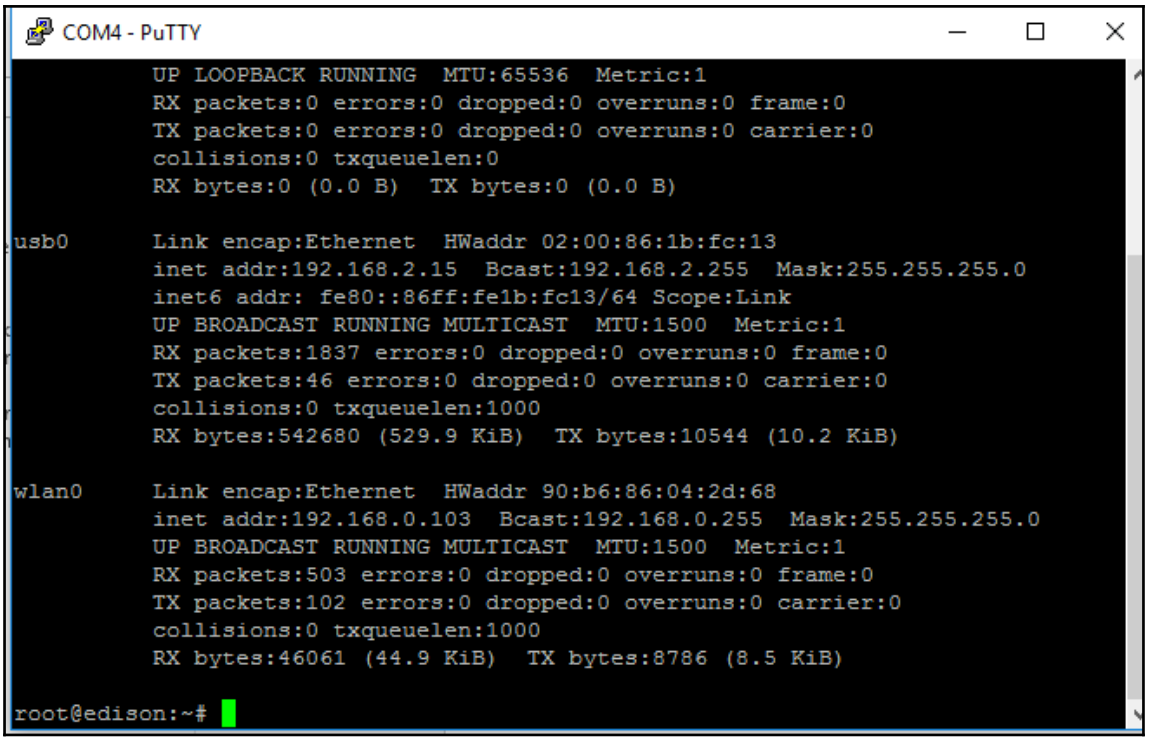


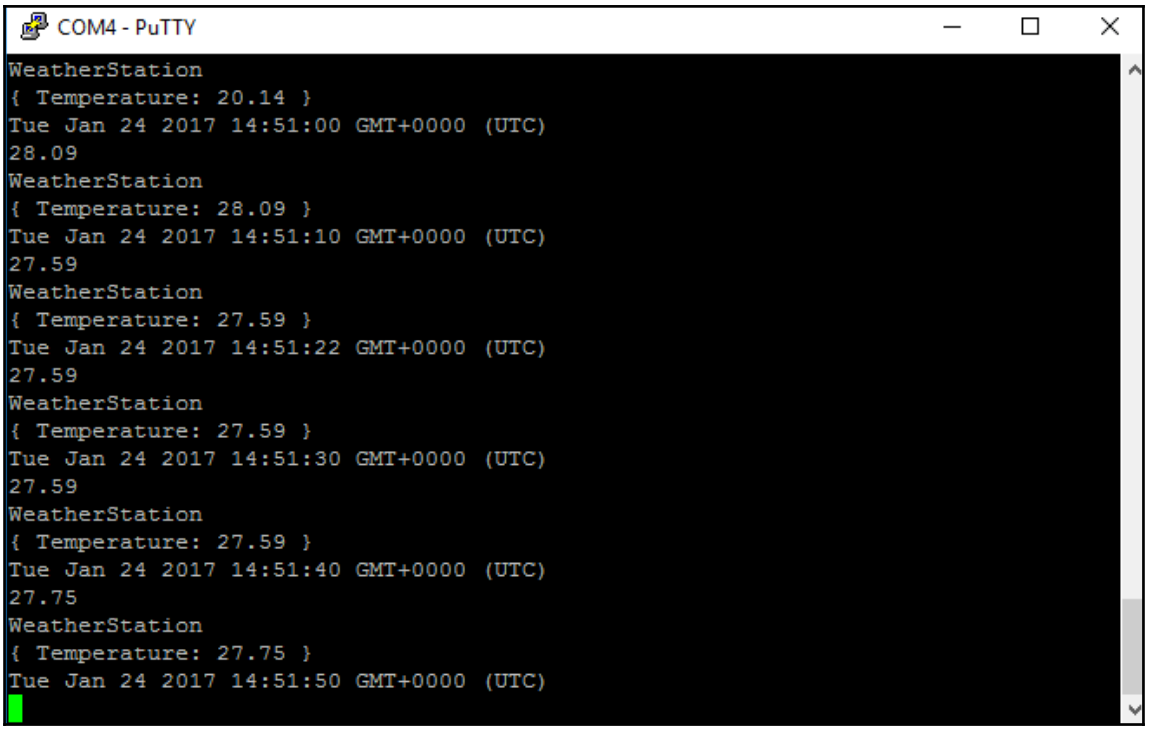

dweet.io
dweet.io
Play
Lock
Discover
FAQ
Share your thing —
like it ain't no thang.
Try It Now
(Hint: For BIG fun, try it on your smartphone or tablet)
Now includes ...
STORAGE
Ridiculously simple messaging
(and alerts)
for the Internet of Things.

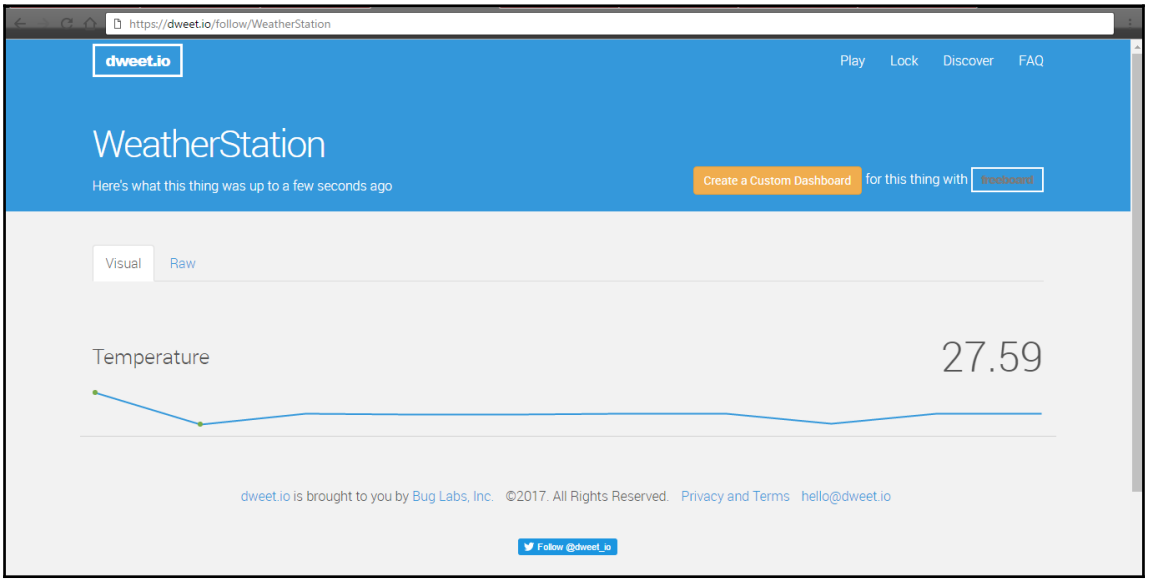

Secure | https://dweet.io/play/
dweet.io
Play
Lock
Discover
FAQ
Click on one of the operations below in our API console to play with dweet.io.
Show/Hide | List Operations | Expand Operations | Raw
locks : Lock and unlock your things.
GET /lock/{thing} Reserve and lock a thing.
GET /unlock/{thing} Unlock a thing.
GET /remove/lock/{lock} Remove a lock from thing.
Show/Hide | List Operations | Expand Operations | Raw
dweets : Create or read dweets in short term cache.
POST /dweet/for/{thing} Create a dweet for a thing.
POST /dweet/quietly/for/{thing}
Create a dweet for a thing. This method differs from /dweet/for/{thing} only in that successful dweets result in an HTTP 204 response rather than the typical verbose response.
GET /get/latest/dweet/for/{thing} Read the latest dweet for a thing.
GET /get/dweets/for/{thing} Read the last 5 cached dweets for a thing.
GET /listen/for/dweets/from/{thing} Listen for dweets from a thing.
Show/Hide | List Operations | Expand Operations | Raw
https://dweet.io/play/#!/dweets/postDweet_post_0

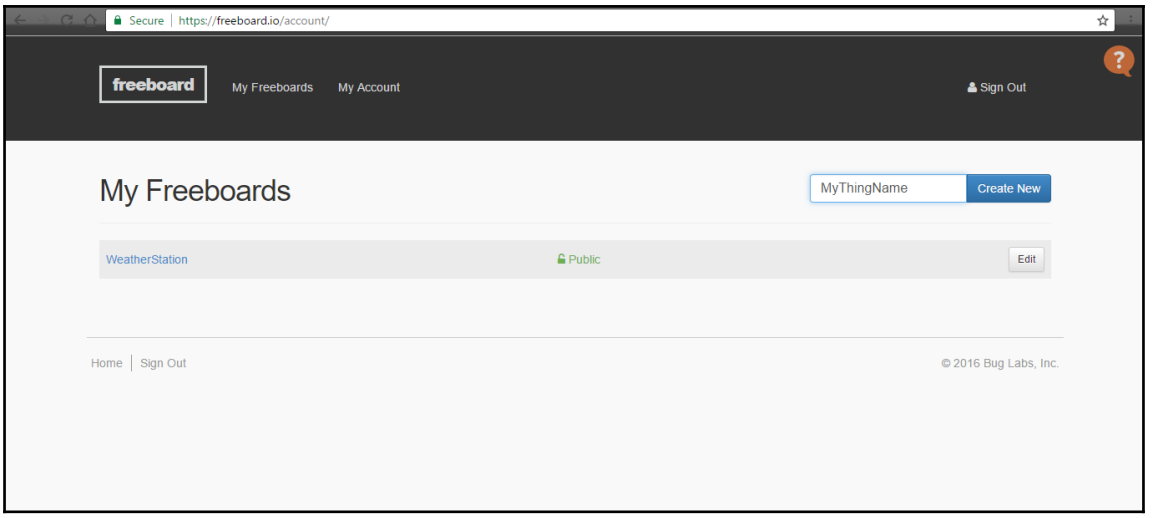

Secure | https://dweet.io/play/#!/dweets/postDweet_post_0
dweet.io
Play
Lock
Discover
FAQ
Show/Hide | List Operations | Expand Operations | Raw
dweets : Create or read dweets in short term cache.
POST
/dweet/for/{thing}
Create a dweet for a thing.
Parameters
Parameter
Value
Description
Parameter Type
Data Type
thing
EdisonTemperature
A unique name of a thing. It is recommended that you use a GUID as to avoid name collisions.
path
string
key
A valid key for a locked thing. If the thing is not locked, this can be ignored.
query
string
content
(required)
The actual content of the string. Can be any valid JSON string.
body
string
Parameter content type: application/json
Try it out!
Hide Response
Request URL
https://dweet.io:443/dweet/for/EdisonTemperature
Response Body

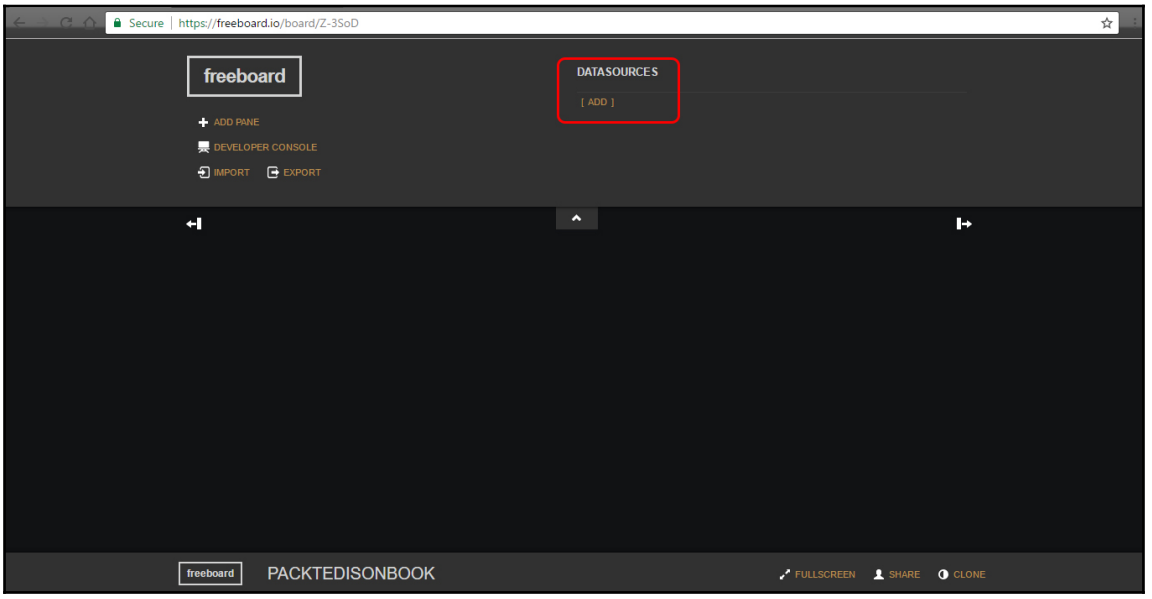

COM4 - PuTTY
Poky (Yocto Project Reference Distro) 1.7.2 edison ttyMFD2
edison login: root
Password:
root@edison:~#

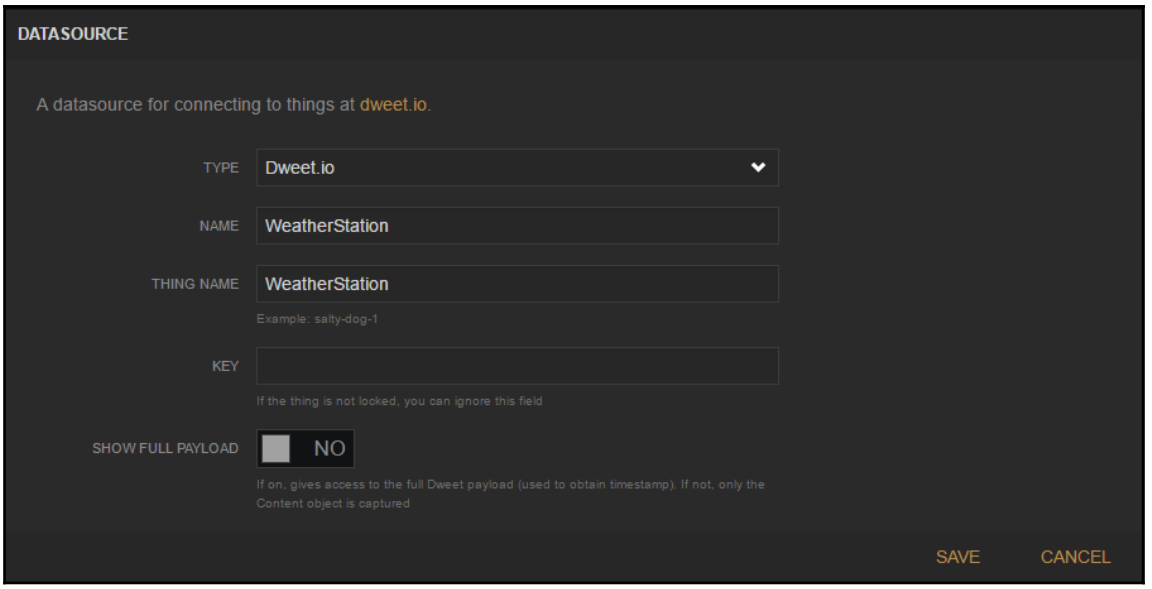

COM4 - PuTTY
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
usb0 Link encap:Ethernet HWaddr 02:00:86:1b:fc:13
inet addr:192.168.2.15 Bcast:192.168.2.255 Mask:255.255.255.0
inet6 addr: fe80::86ff:fe1b:fc13/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:1837 errors:0 dropped:0 overruns:0 frame:0
TX packets:46 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:542680 (529.9 KiB) TX bytes:10544 (10.2 KiB)
wlan0 Link encap:Ethernet HWaddr 90:b6:86:04:2d:68
inet addr:192.168.0.103 Bcast:192.168.0.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:503 errors:0 dropped:0 overruns:0 frame:0
TX packets:102 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:46061 (44.9 KiB) TX bytes:8786 (8.5 KiB)
root@edison:~#

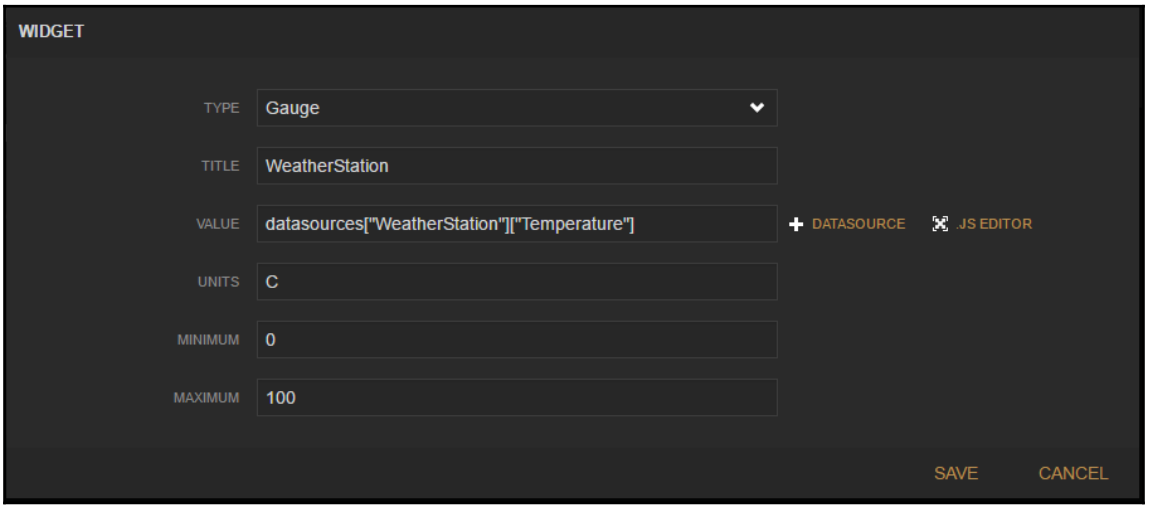

COM4 - PuTTY
WeatherStation
{ Temperature: 20.14 }
Tue Jan 24 2017 14:51:00 GMT+0000 (UTC)
28.09
WeatherStation
{ Temperature: 28.09 }
Tue Jan 24 2017 14:51:10 GMT+0000 (UTC)
27.59
WeatherStation
{ Temperature: 27.59 }
Tue Jan 24 2017 14:51:22 GMT+0000 (UTC)
27.59
WeatherStation
{ Temperature: 27.59 }
Tue Jan 24 2017 14:51:30 GMT+0000 (UTC)
27.59
WeatherStation
{ Temperature: 27.59 }
Tue Jan 24 2017 14:51:40 GMT+0000 (UTC)
27.75
WeatherStation
{ Temperature: 27.75 }
Tue Jan 24 2017 14:51:50 GMT+0000 (UTC)

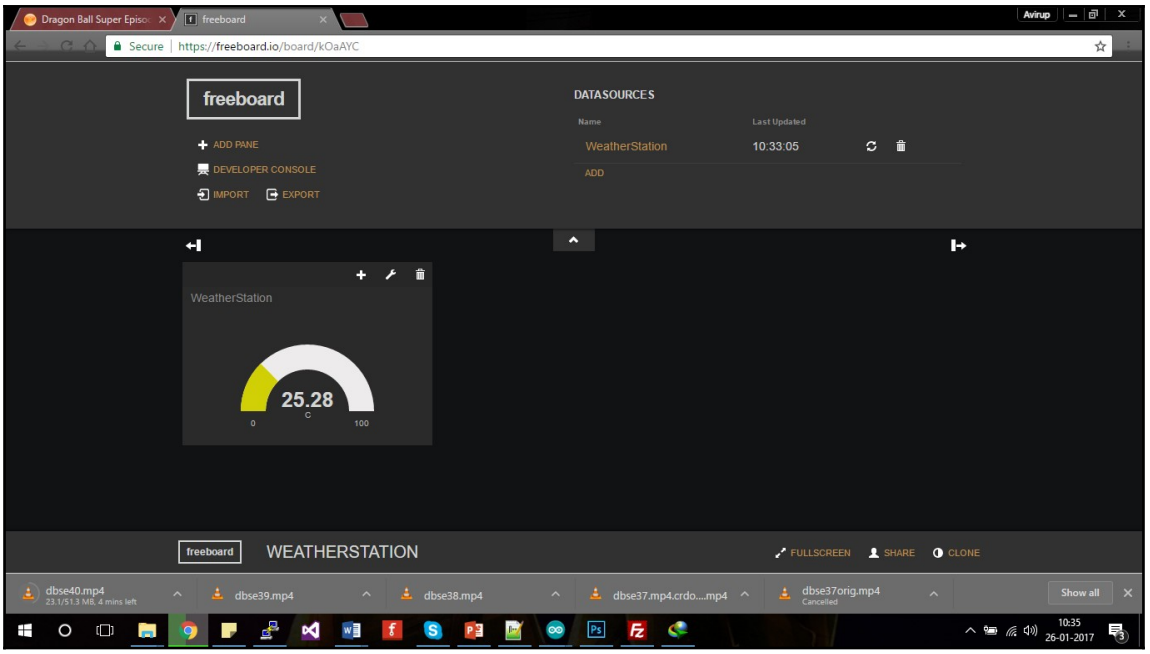

https://dweet.io/follow/WeatherStation
dweet.io
Play
Lock
Discover
FAQ
WeatherStation
Here's what this thing was up to a few seconds ago
Create a Custom Dashboard
for this thing with
Visual
Raw
Temperature
27.59
dweet.io is brought to you by Bug Labs, Inc. ©2017. All Rights Reserved. Privacy and Terms hello@dweet.io
Follow @dweet_io

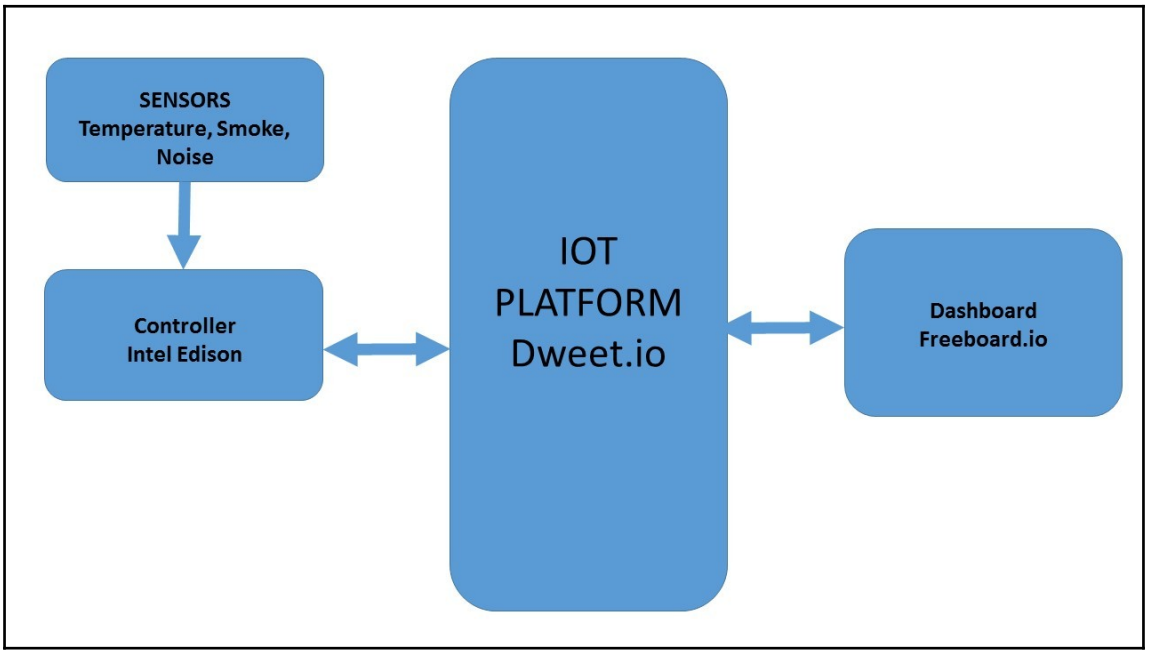

Secure | https://freeboard.io/account/
freeboard
My Freeboards
My Account
Sign Out
My Freeboards
MyThingName
Create New
WeatherStation
Public
Edit
Home | Sign Out
© 2016 Bug Labs, Inc.

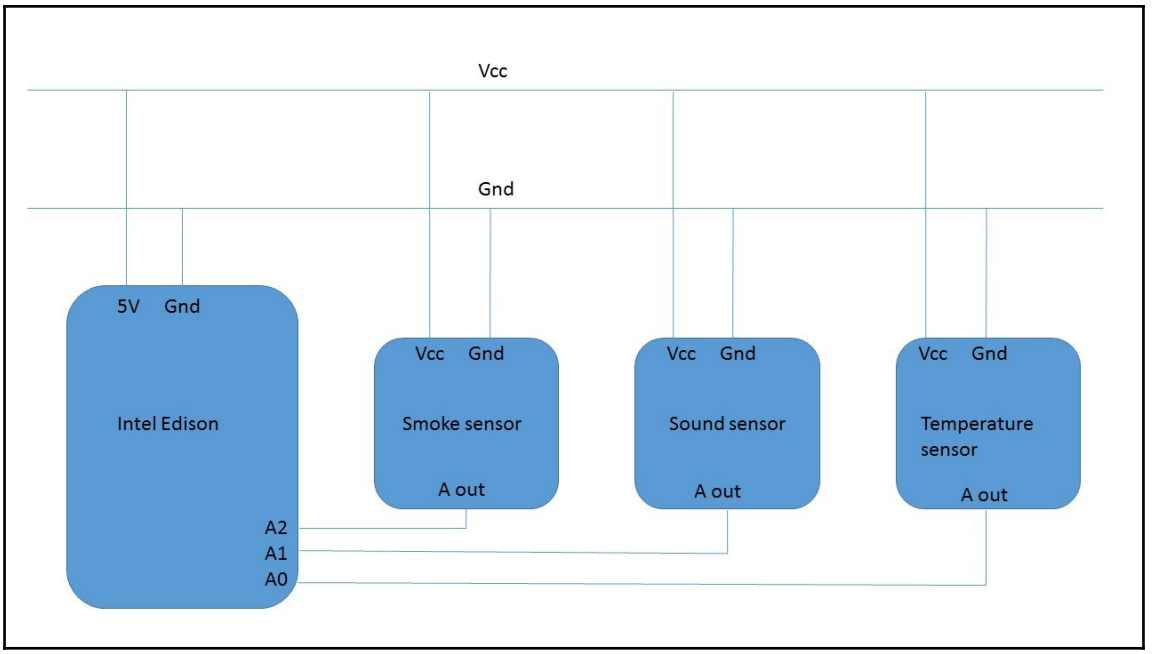

Secure | https://freeboard.io/board/Z-3SoD
freeboard
ADD PANE
DEVELOPER CONSOLE
IMPORT
EXPORT
DATASOURCES
[ADD]
freeboard
PACKTEDISONBOOK
FULLSCREEN
SHARE
CLONE

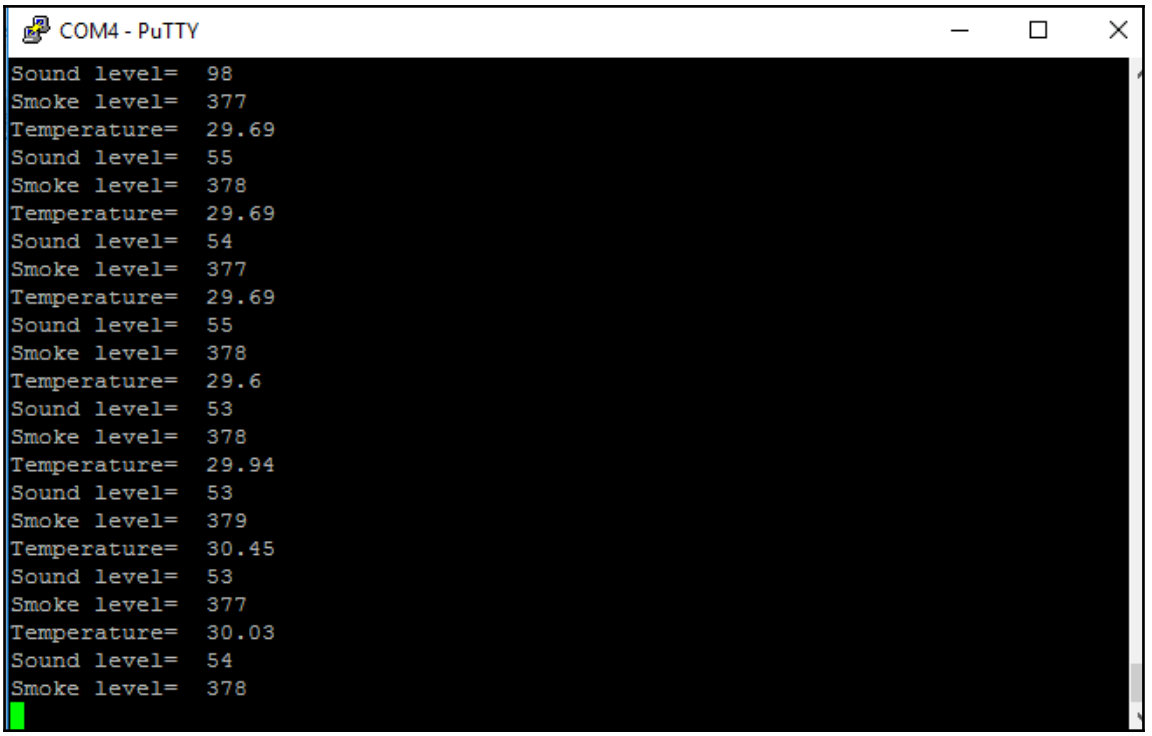

DATASOURCE
A datasource for connecting to things at dweet.io.
TYPE
Dweet.io
NAME
WeatherStation
THING NAME
WeatherStation
Example: salty-dog-1
KEY
If the thing is not locked, you can ignore this field
SHOW FULL PAYLOAD
NO
If on, gives access to the full Dweet payload (used to obtain timestamp). If not, only the Content object is captured
SAVE
CANCEL

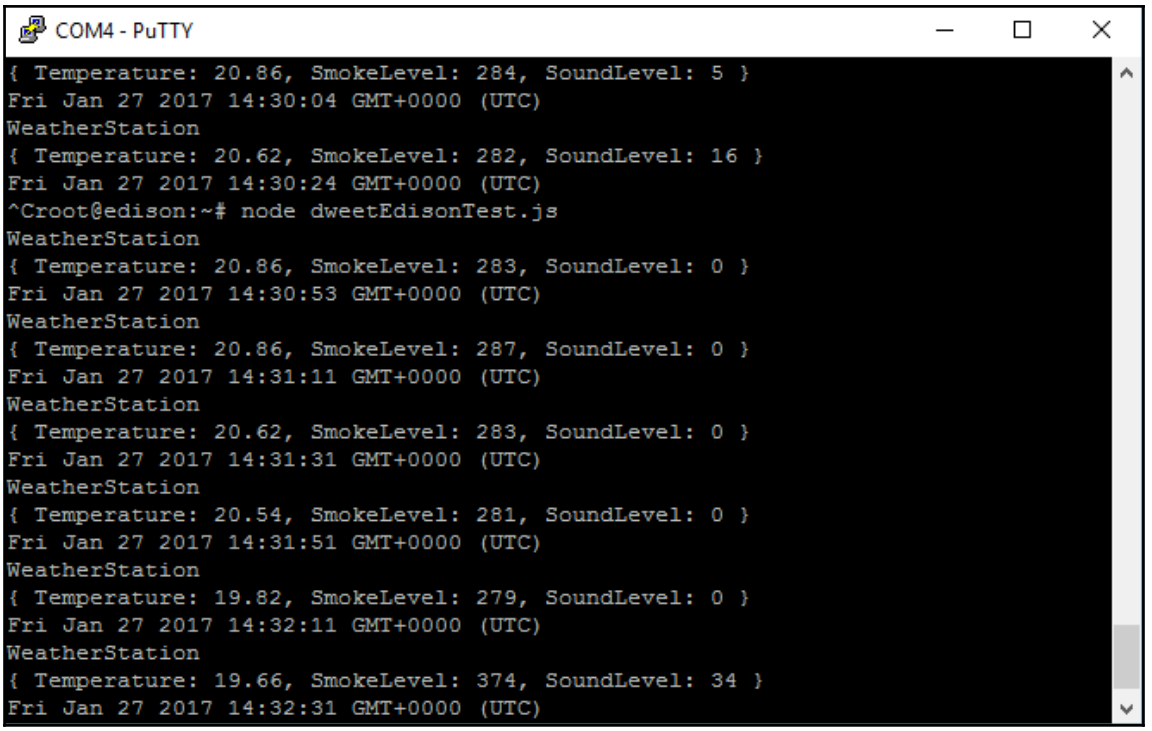

WIDGET
TYPE
Gauge
TITLE
WeatherStation
VALUE
datasources["WeatherStation"]["Temperature"]
DATASOURCE
JS EDITOR
UNITS
C
MINIMUM
0
MAXIMUM
100
SAVE
CANCEL

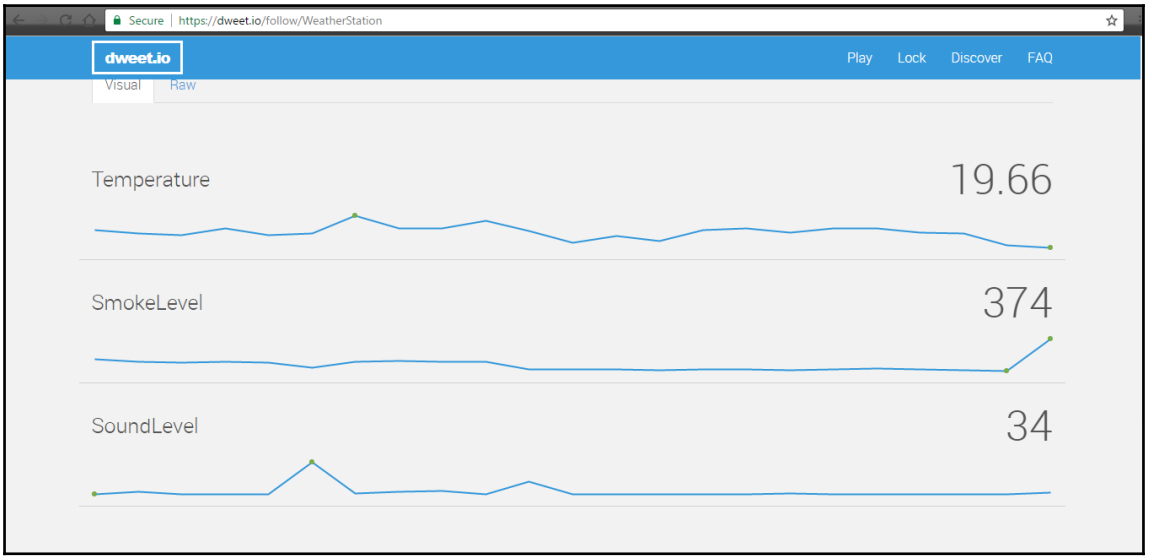

Dragon Ball Super Episo
freeboard
Avirup
Secure
https://freeboard.io/board/kOaAYC
freeboard
ADD PANE
DEVELOPER CONSOLE
IMPORT
EXPORT
DATASOURCES
Name
Last Updated
WeatherStation
10:33:05
ADD
WeatherStation
25.28
C
0
100
freeboard
WEATHERSTATION
FULLSCREEN
SHARE
CLONE
dbse40.mp4
23.1/51.3 MB, 4 mins left
dbse39.mp4
dbse38.mp4
dbse37.mp4.crdo....mp4
dbse37orig.mp4
Cancelled
Show all
10:35
26-01-2017

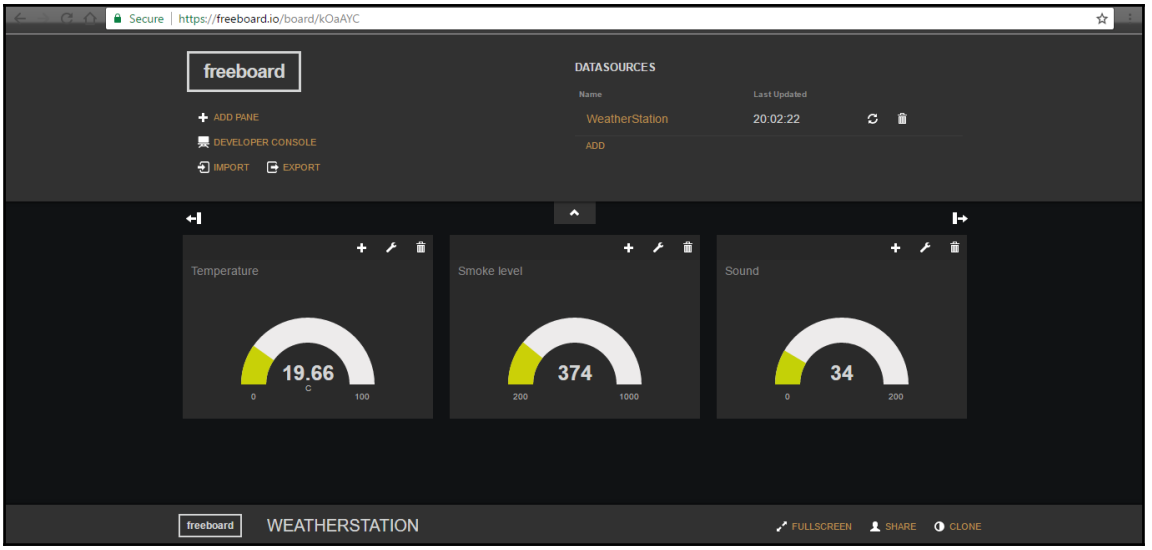

SENSORS
Temperature, Smoke,
Noise
Controller
Intel Edison
IOT
PLATFORM
Dweet.io
Dashboard
Freeboard.io


Vcc
Gnd
5V
Gnd
Intel Edison
A2
A1
A0
Vcc
Gnd
Smoke sensor
A out
Vcc
Gnd
Sound sensor
A out
Vcc
Gnd
Temperature sensor
A out

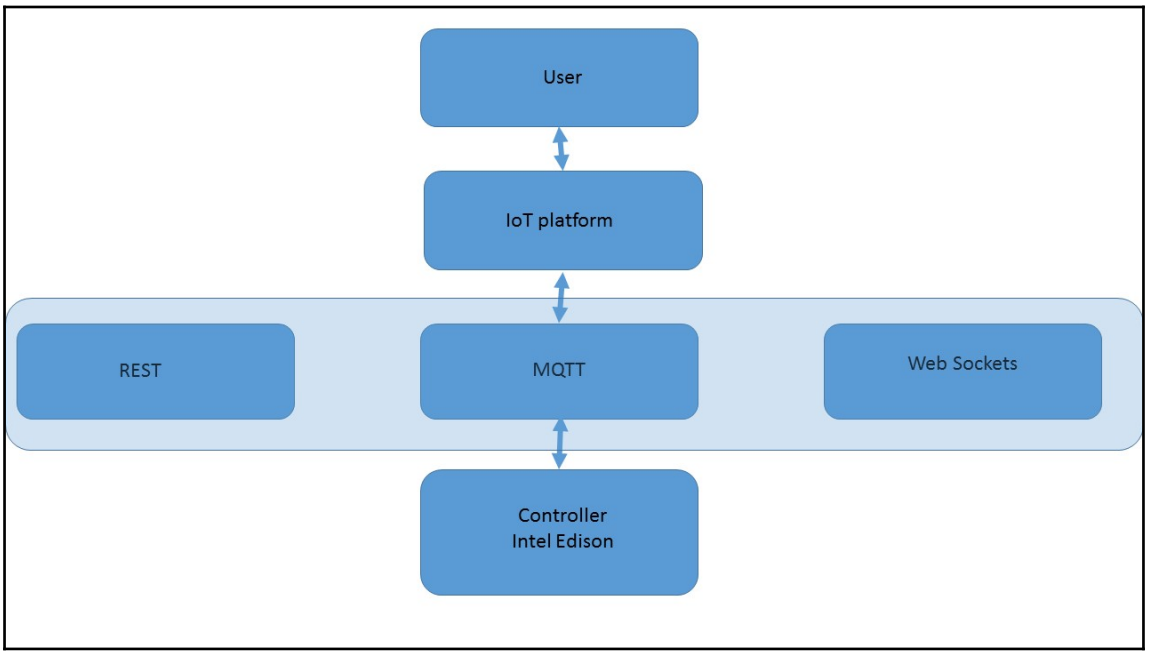

COM4 - PuTTY
Sound level= 98
Smoke level= 377
Temperature= 29.69
Sound level= 55
Smoke level= 378
Temperature= 29.69
Sound level= 54
Smoke level= 377
Temperature= 29.69
Sound level= 55
Smoke level= 378
Temperature= 29.6
Sound level= 53
Smoke level= 378
Temperature= 29.94
Sound level= 53
Smoke level= 379
Temperature= 30.45
Sound level= 53
Smoke level= 377
Temperature= 30.03
Sound level= 54
Smoke level= 378

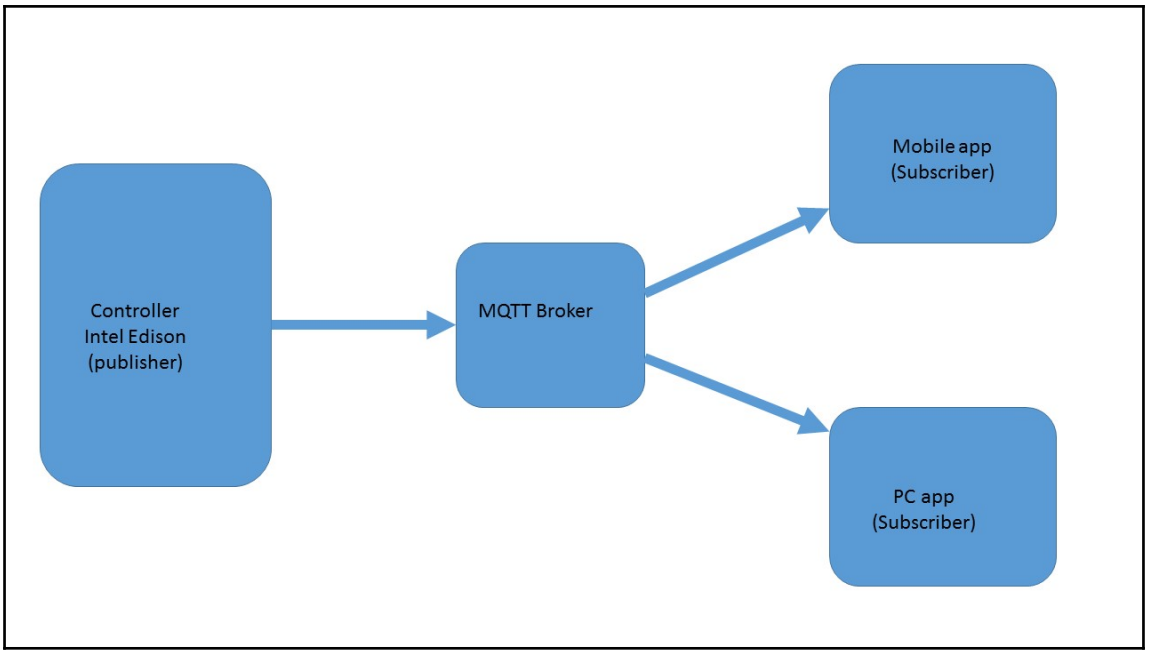

COM4 - PuTTY
{ Temperature: 20.86, SmokeLevel: 284, SoundLevel: 5 }
Fri Jan 27 2017 14:30:04 GMT+0000 (UTC)
WeatherStation
{ Temperature: 20.62, SmokeLevel: 282, SoundLevel: 16 }
Fri Jan 27 2017 14:30:24 GMT+0000 (UTC)
^Croot@edison:~# node dweetEdisonTest.js
WeatherStation
{ Temperature: 20.86, SmokeLevel: 283, SoundLevel: 0 }
Fri Jan 27 2017 14:30:53 GMT+0000 (UTC)
WeatherStation
{ Temperature: 20.86, SmokeLevel: 287, SoundLevel: 0 }
Fri Jan 27 2017 14:31:11 GMT+0000 (UTC)
WeatherStation
{ Temperature: 20.62, SmokeLevel: 283, SoundLevel: 0 }
Fri Jan 27 2017 14:31:31 GMT+0000 (UTC)
WeatherStation
{ Temperature: 20.54, SmokeLevel: 281, SoundLevel: 0 }
Fri Jan 27 2017 14:31:51 GMT+0000 (UTC)
WeatherStation
{ Temperature: 19.82, SmokeLevel: 279, SoundLevel: 0 }
Fri Jan 27 2017 14:32:11 GMT+0000 (UTC)
WeatherStation
{ Temperature: 19.66, SmokeLevel: 374, SoundLevel: 34 }
Fri Jan 27 2017 14:32:31 GMT+0000 (UTC)

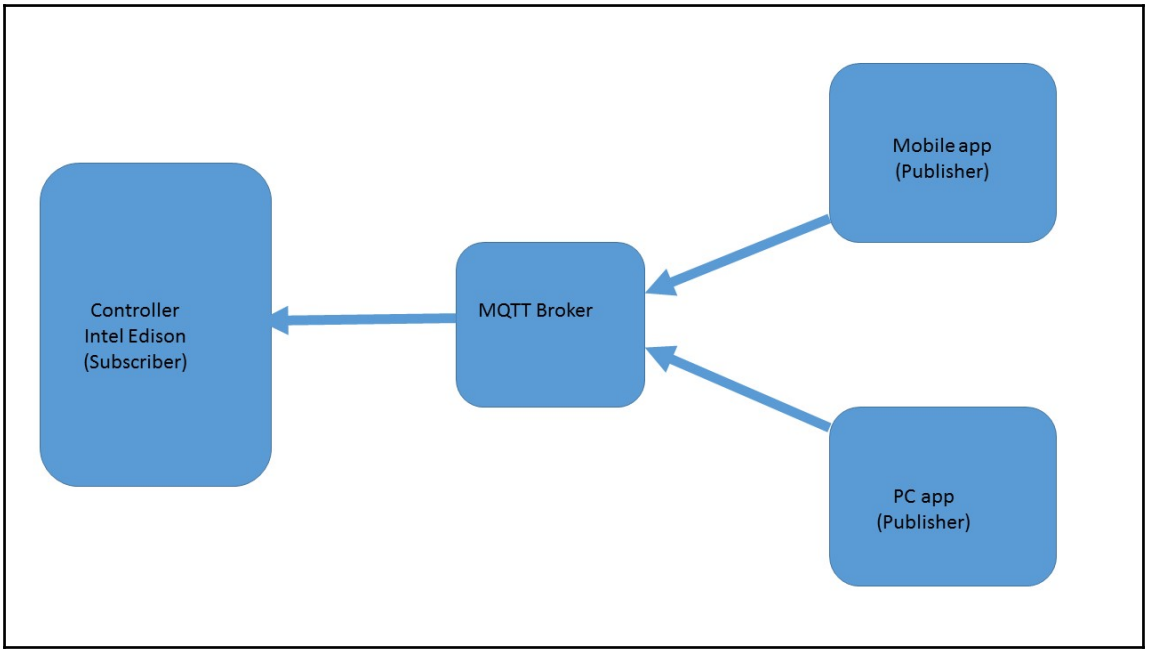

Secure | https://dweet.io/follow/WeatherStation
dweet.io
Play
Lock
Discover
FAQ
Visual
Raw
Temperature
19.66
SmokeLevel
374
SoundLevel
34

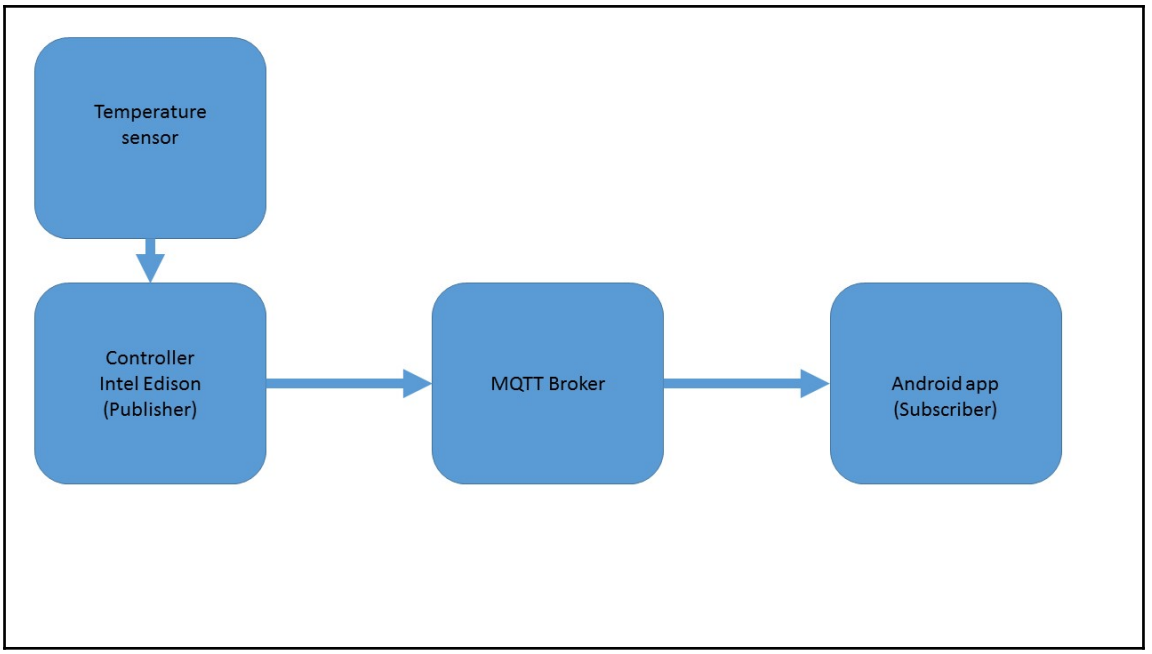

Secure | https://freeboard.io/board/kOaAYC
freeboard
ADD PANE
DEVELOPER CONSOLE
IMPORT
EXPORT
DATASOURCES
Name
Last Updated
WeatherStation
20:02:22
ADD
Temperature
19.66
C
0
100
Smoke level
374
200
1000
Sound
34
0
200
freeboard
WEATHERSTATION
FULLSCREEN
SHARE
CLONE

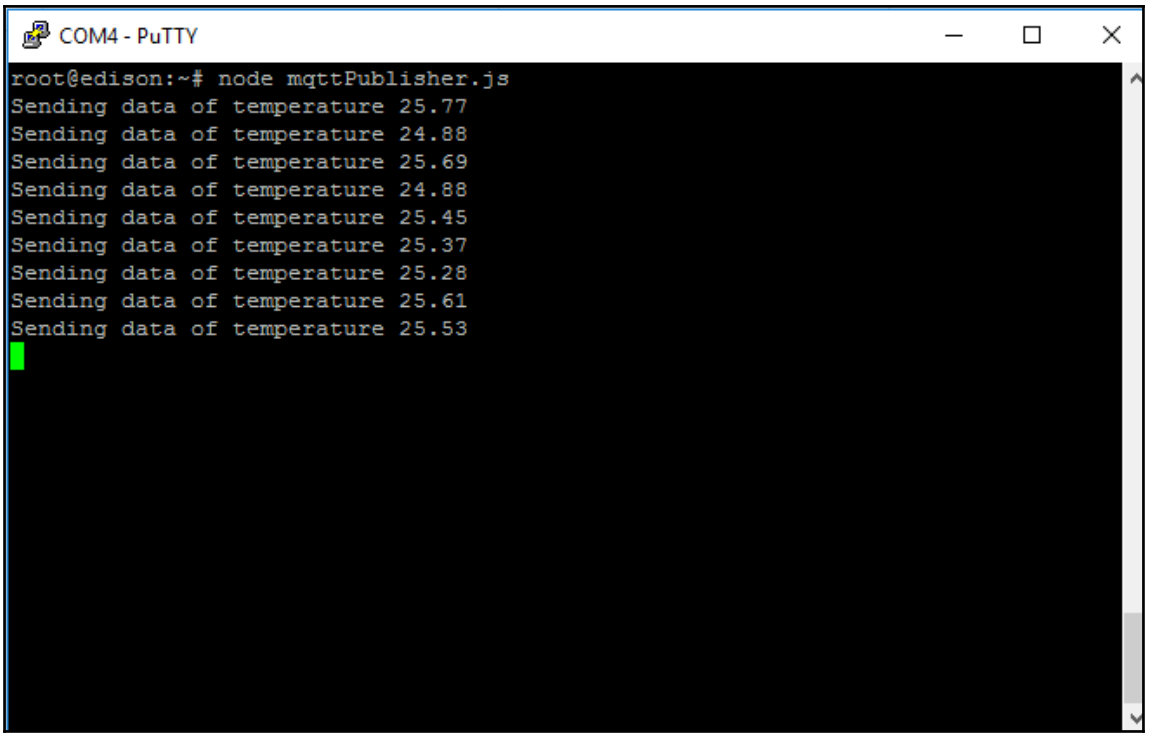
Chapter 3: Intel Edison and IoT (Home Automation)

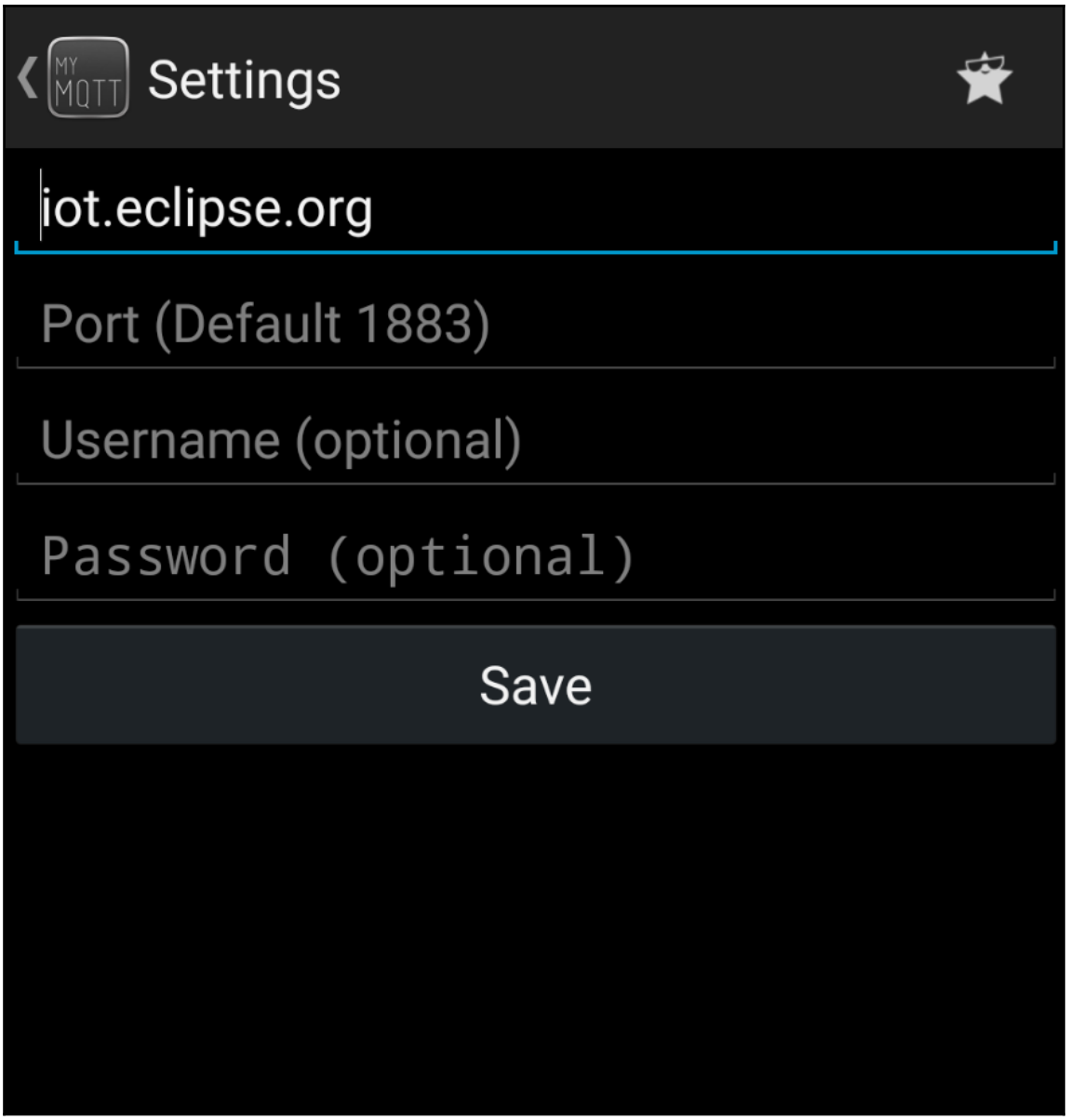


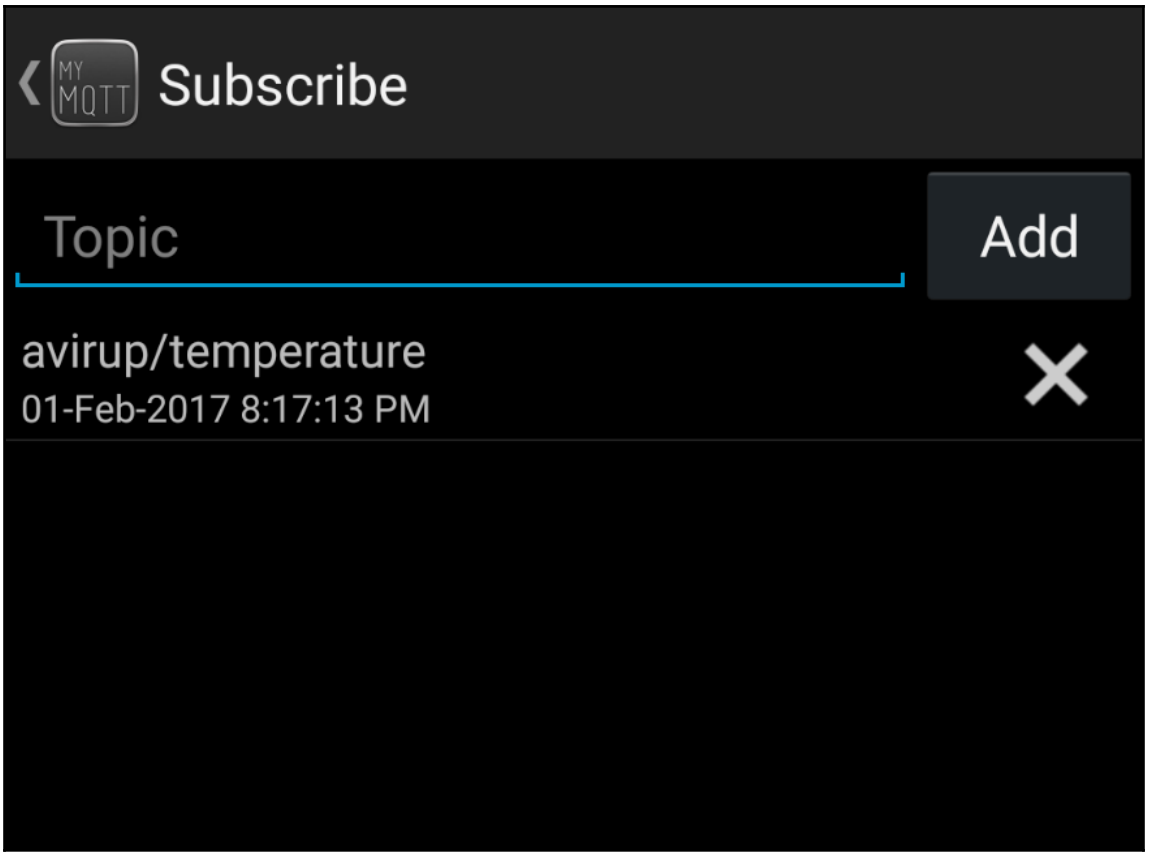

Controller
Intel Edison
(publisher)
MQTT Broker
Mobile app
(Subscriber)
PC app
(Subscriber)

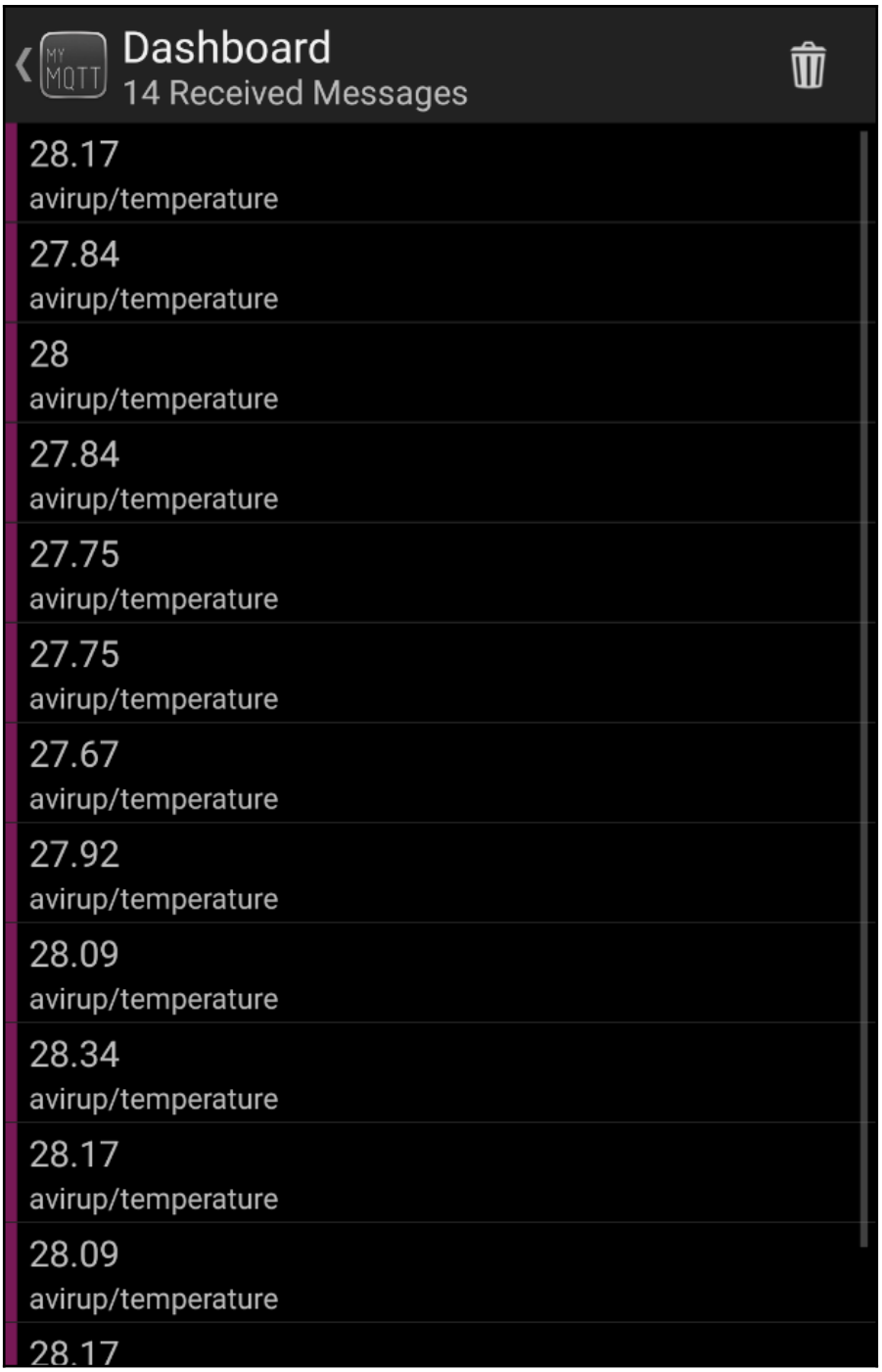

Controller
Intel Edison
(Subscriber)
MQTT Broker
Mobile app
(Publisher)
PC app
(Publisher)

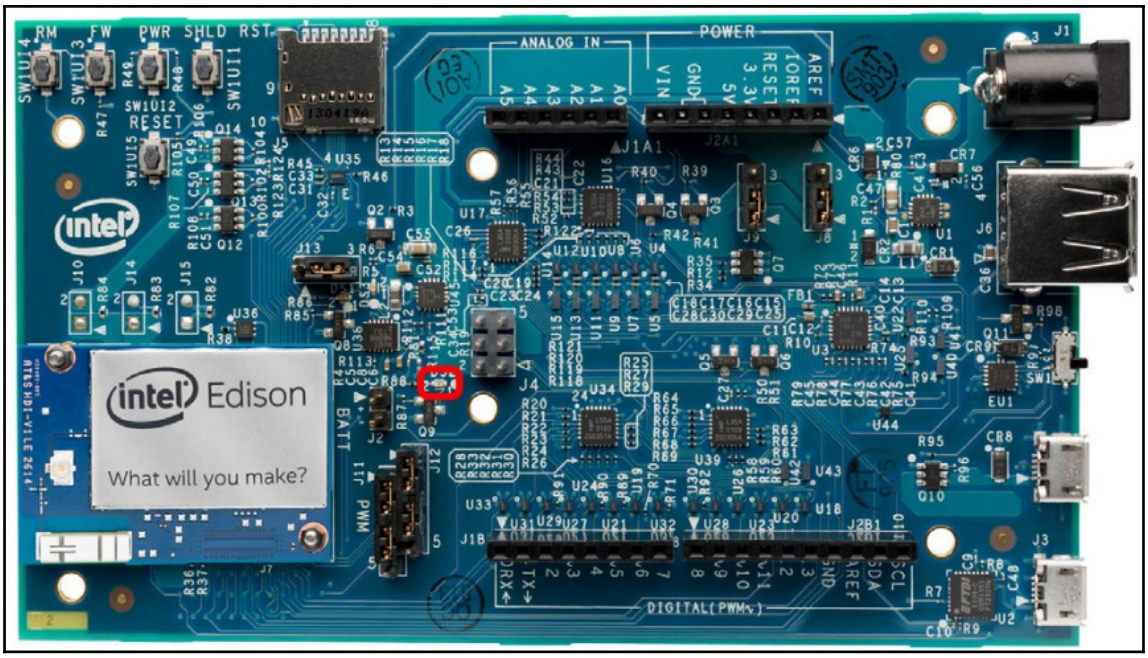

Temperature sensor
Controller Intel Edison (Publisher)
MQTT Broker
Android app (Subscriber)

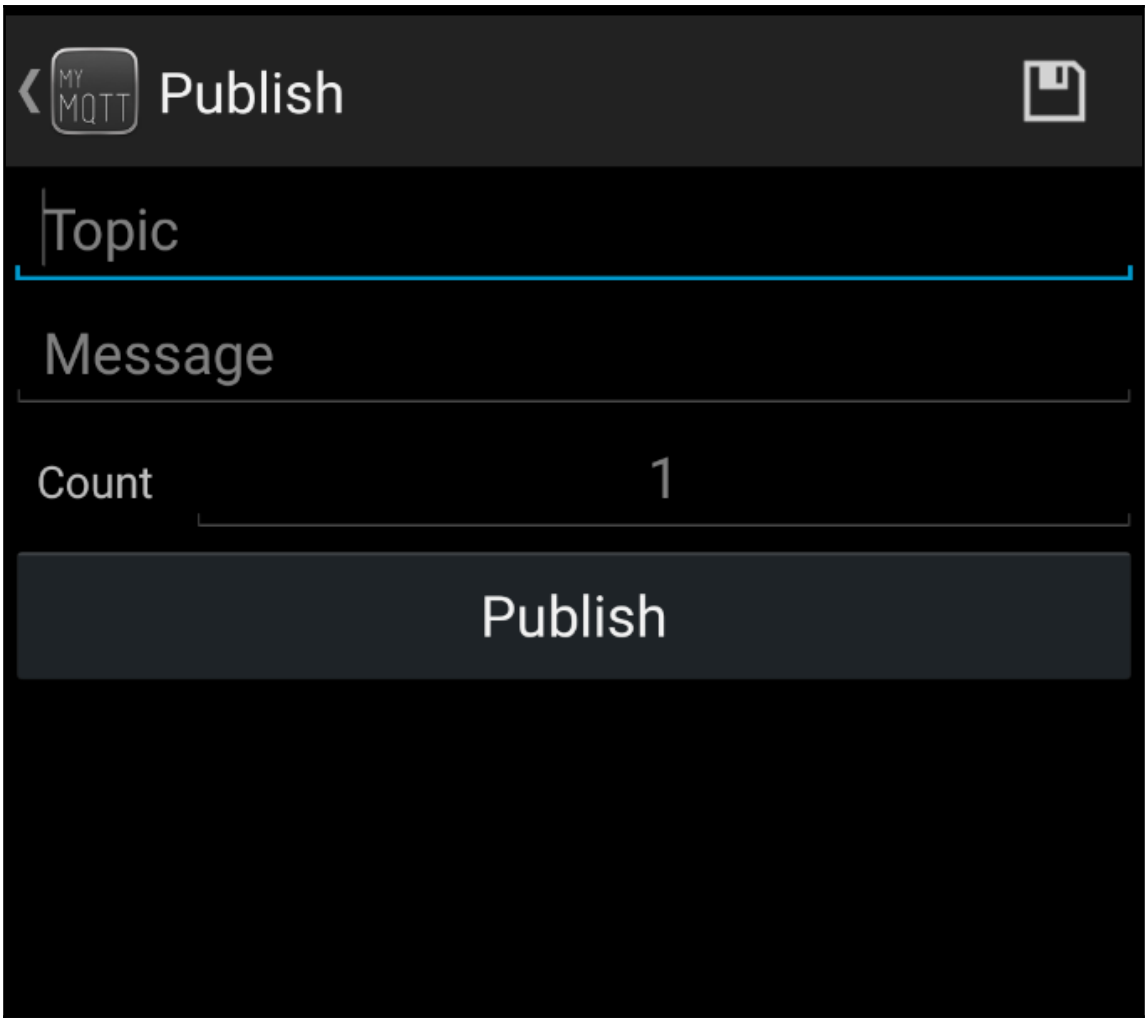

COM4 - PuTTY
root@edison:~# node mqttPublisher.js
Sending data of temperature 25.77
Sending data of temperature 24.88
Sending data of temperature 25.69
Sending data of temperature 24.88
Sending data of temperature 25.45
Sending data of temperature 25.37
Sending data of temperature 25.28
Sending data of temperature 25.61
Sending data of temperature 25.53

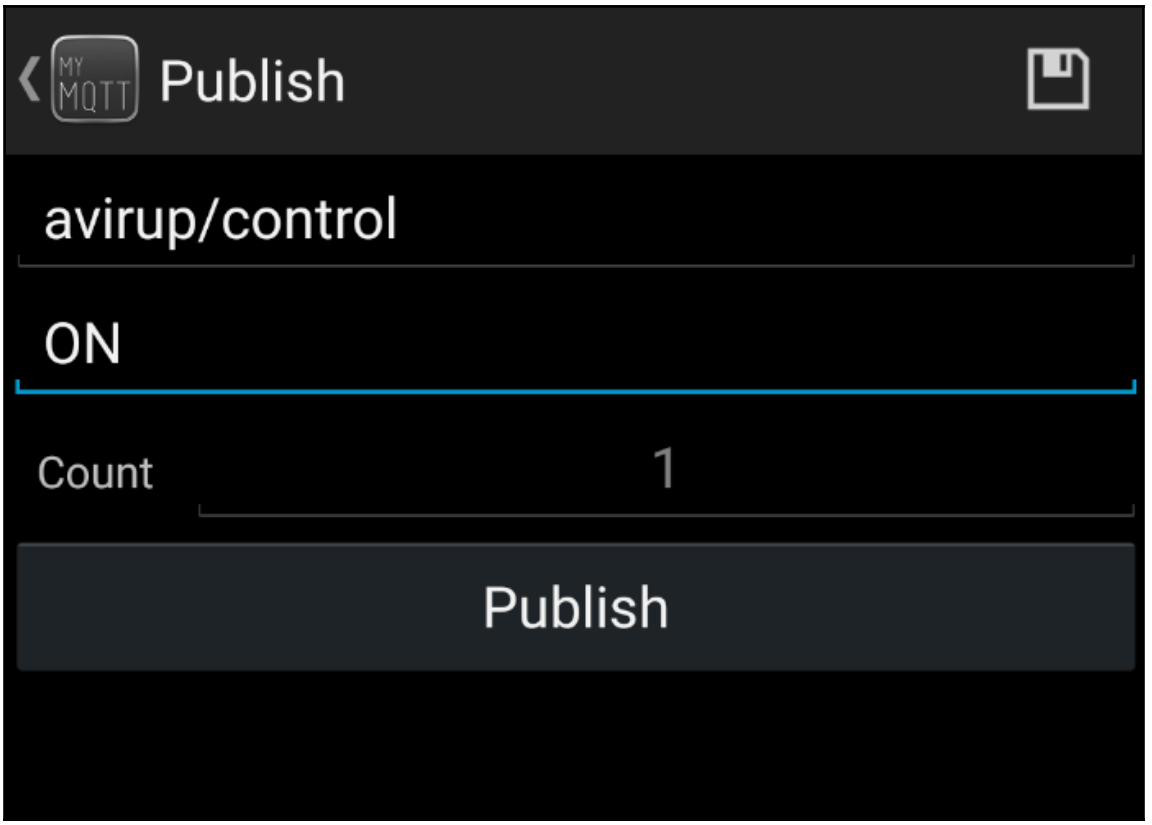

Settings
iot.eclipse.org
Port (Default 1883)
Username (optional)
Password (optional)
Save

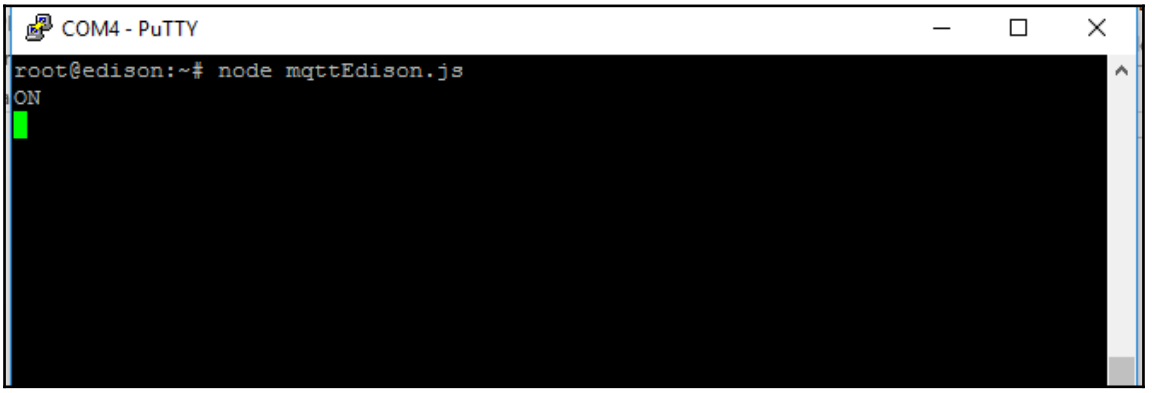

Subscribe
Topic
Add
avirup/temperature
01-Feb-2017 8:17:13 PM

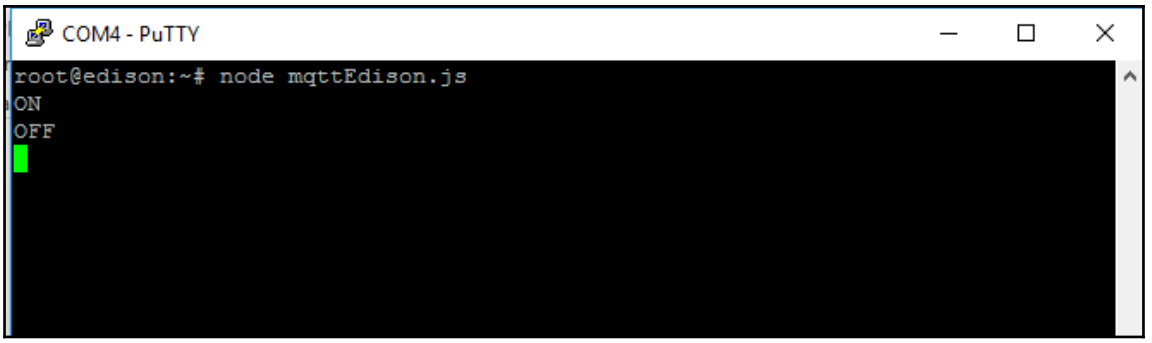

Dashboard
14 Received Messages
28.17
avirup/temperature
27.84
avirup/temperature
28
avirup/temperature
27.84
avirup/temperature
27.75
avirup/temperature
27.75
avirup/temperature
27.67
avirup/temperature
27.92
avirup/temperature
28.09
avirup/temperature
28.34
avirup/temperature
28.17
avirup/temperature
28.09
avirup/temperature
28.17

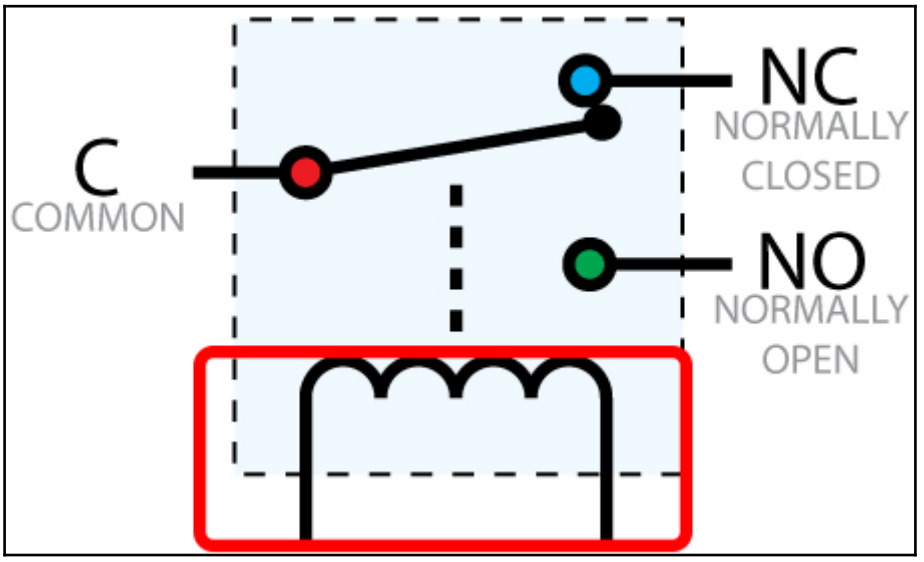

intel Edison
What will you make?
ANALOG IN
POWER
DIGITAL(PWM~)
BATT
PWR
SHLD
RST
RESET

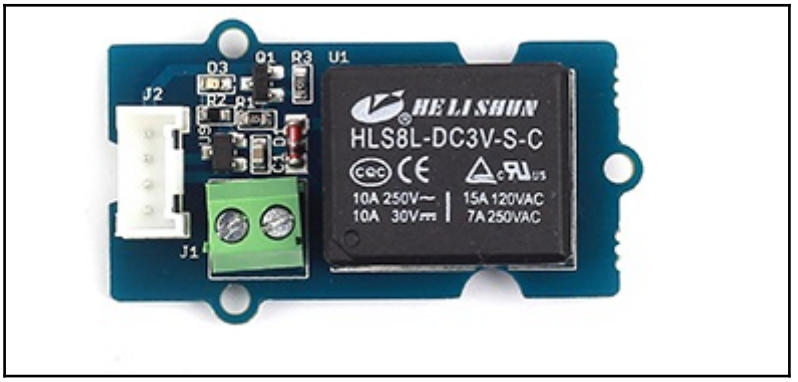

Publish
Topic
Message
Count
1
Publish

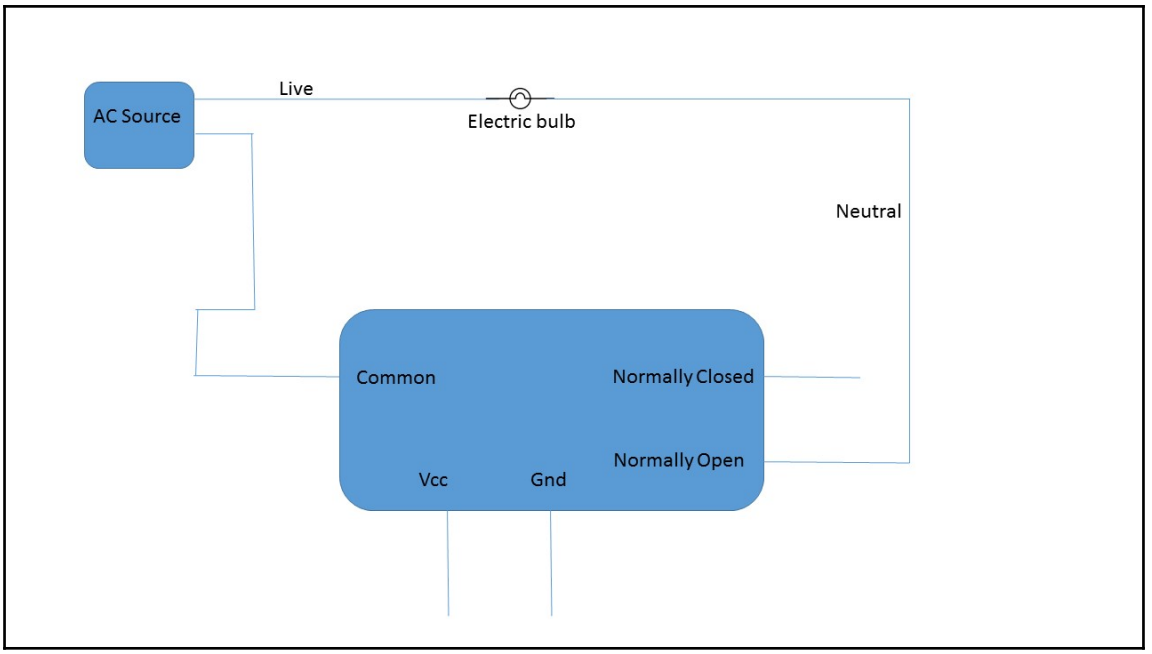

Publish
avirup/control
ON
Count
1
Publish

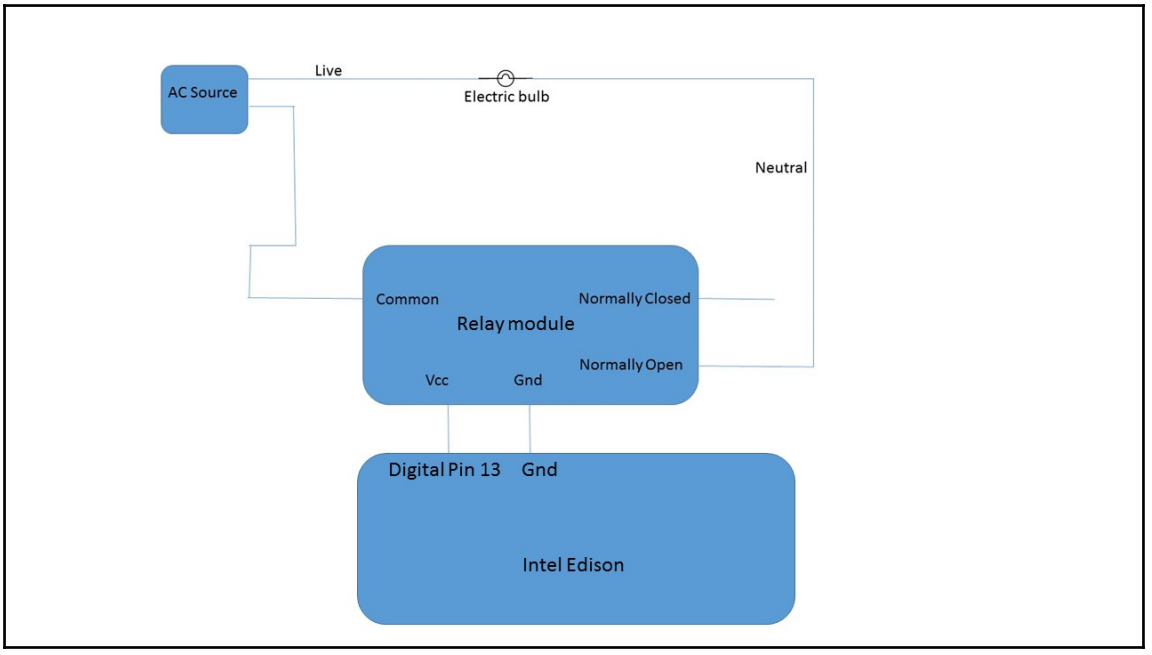

COM4 - PuTTY
root@edison:~# node mqttEdison.js
ON

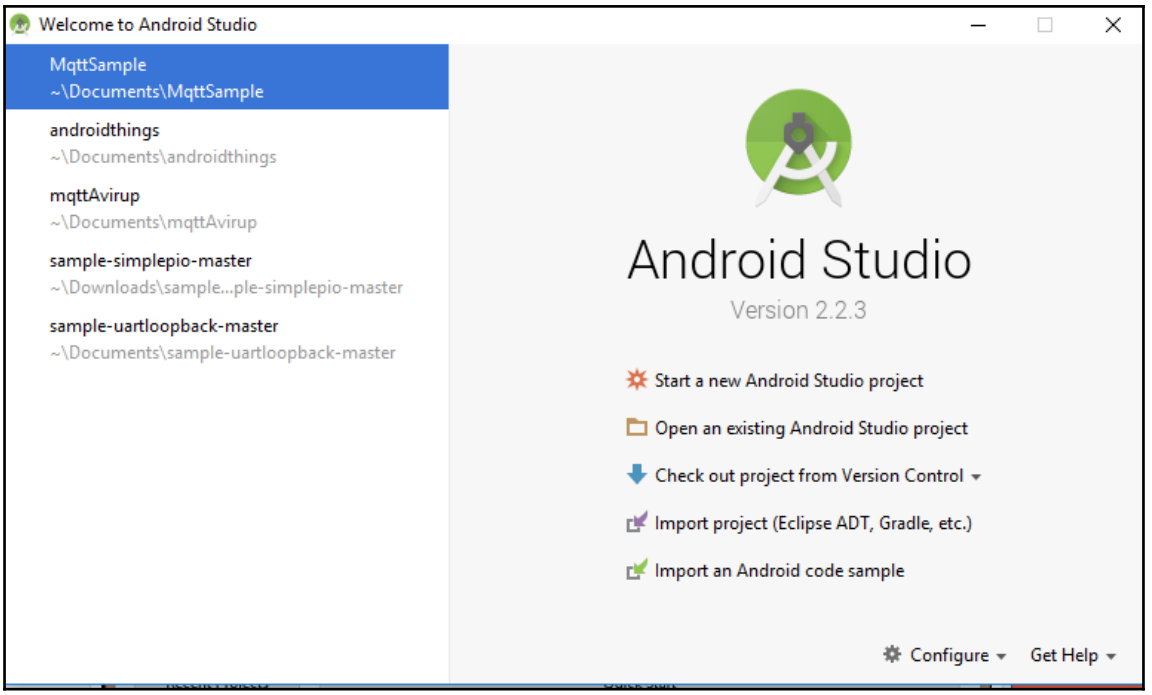

COM4 - PuTTY
root@edison:~# node mqttEdison.js
ON
OFF

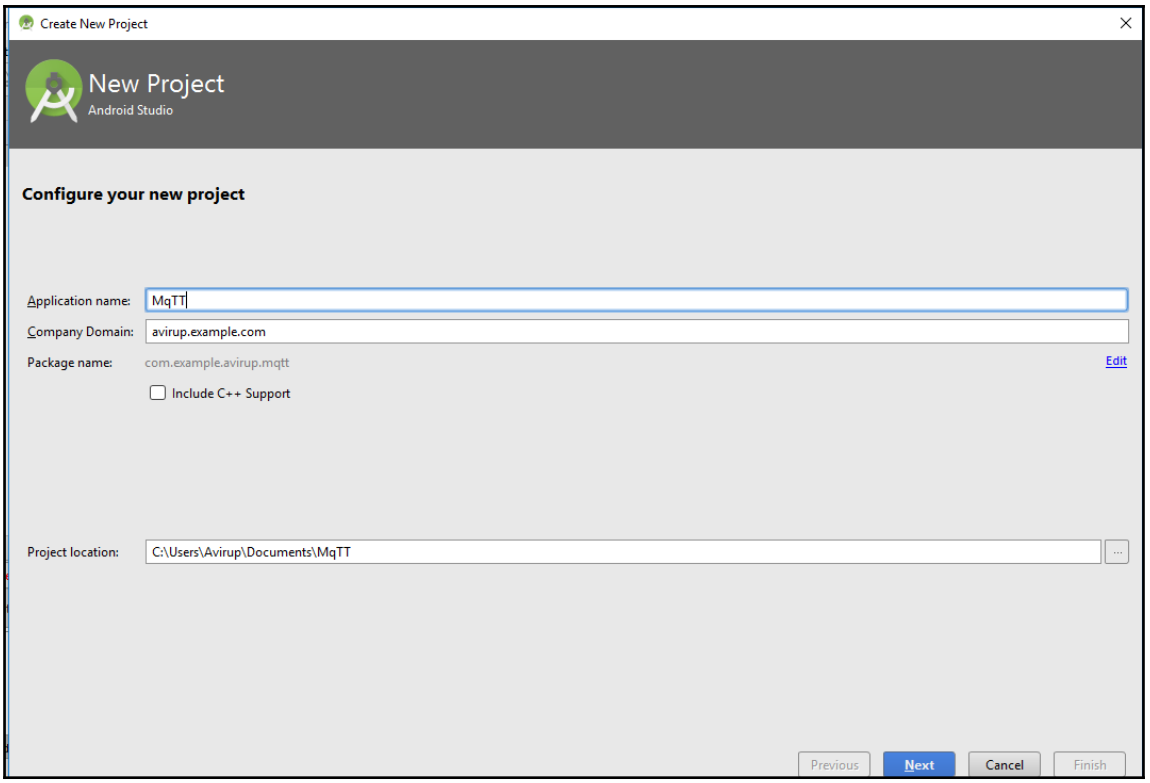

NC
NORMALLY
CLOSED
C
COMMON
NO
NORMALLY
OPEN

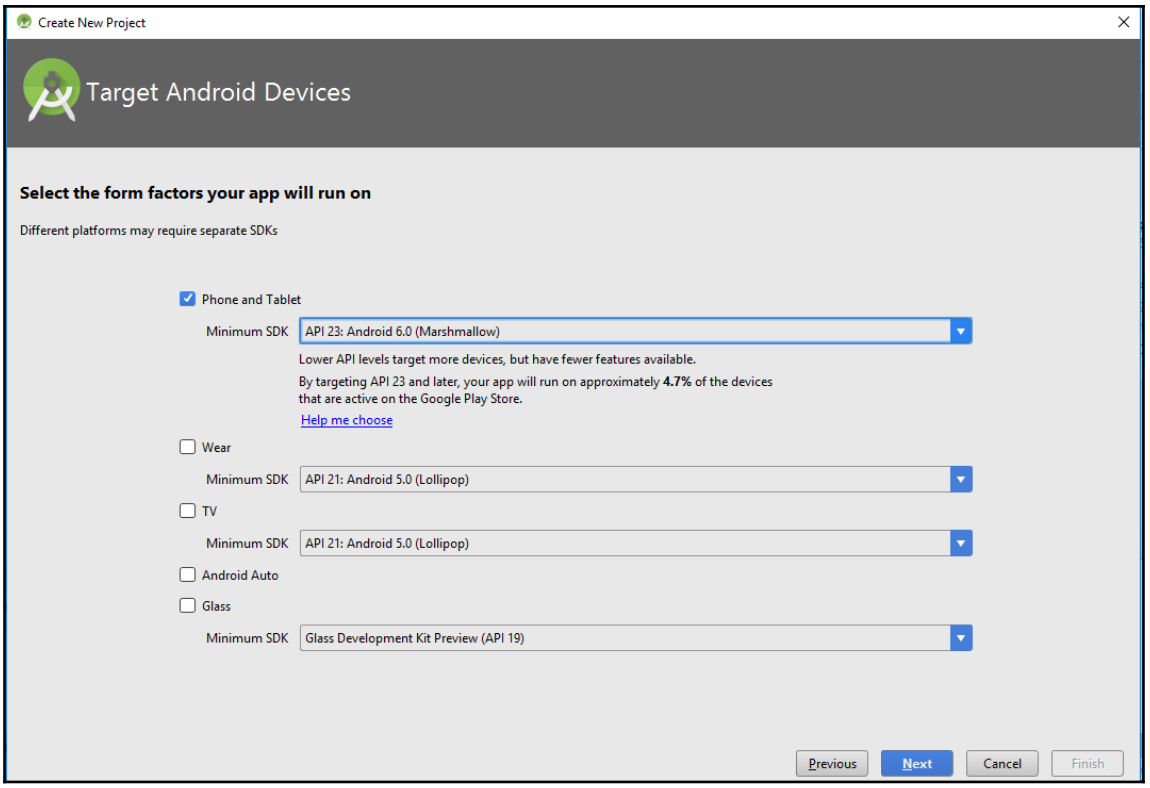

Q3
Q1
R3
U1
J2
R2
R1
J1
HE LI SHUN
HLS8L-DC3V-S-C
10A 250V~
10A 30V
15A 120VAC
7A 250VAC

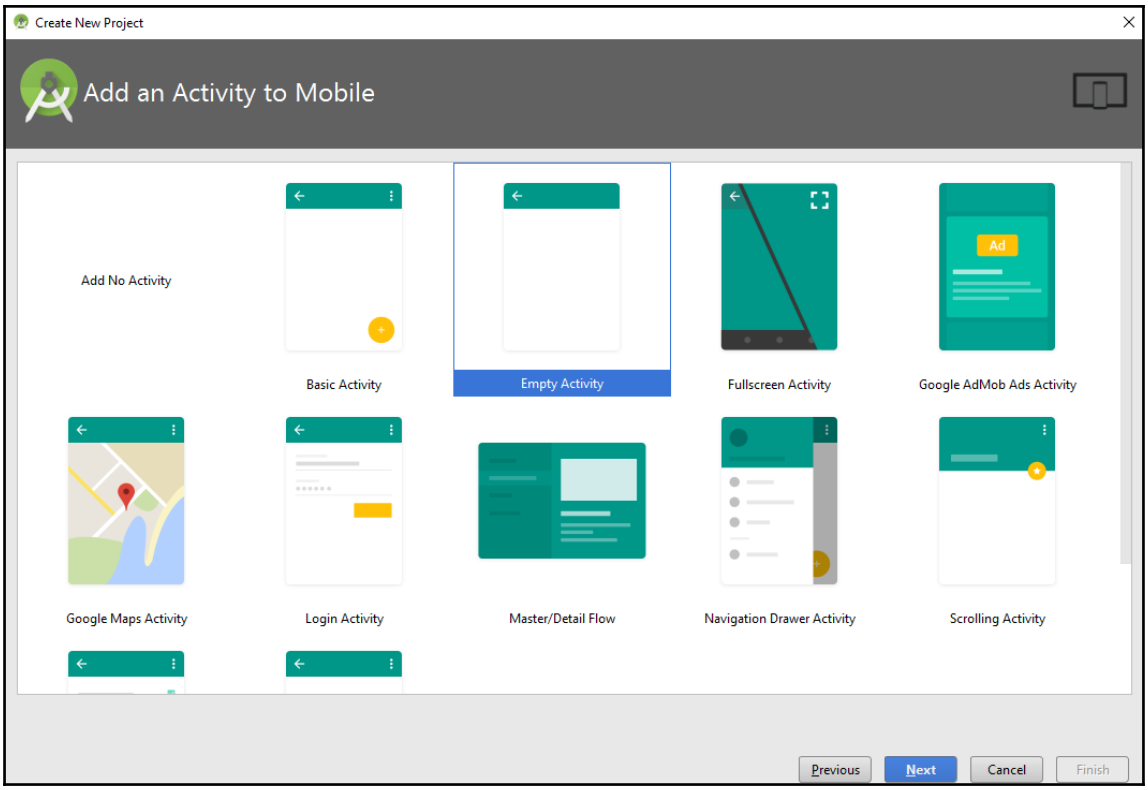

AC Source
Live
Electric bulb
Neutral
Common
Normally Closed
Normally Open
Vcc
Gnd

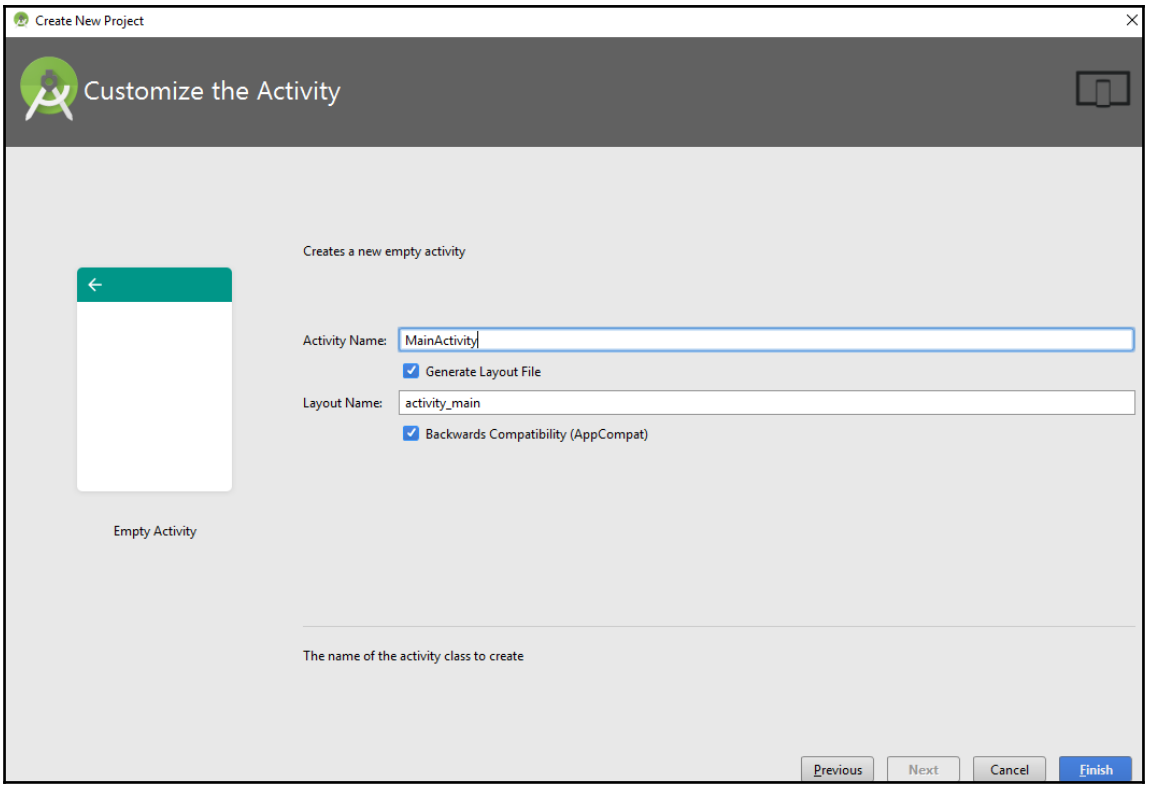

AC Source
Live
Electric bulb
Neutral
Common
Relay module
Normally Closed
Normally Open
Vcc
Gnd
Digital Pin 13
Gnd
Intel Edison

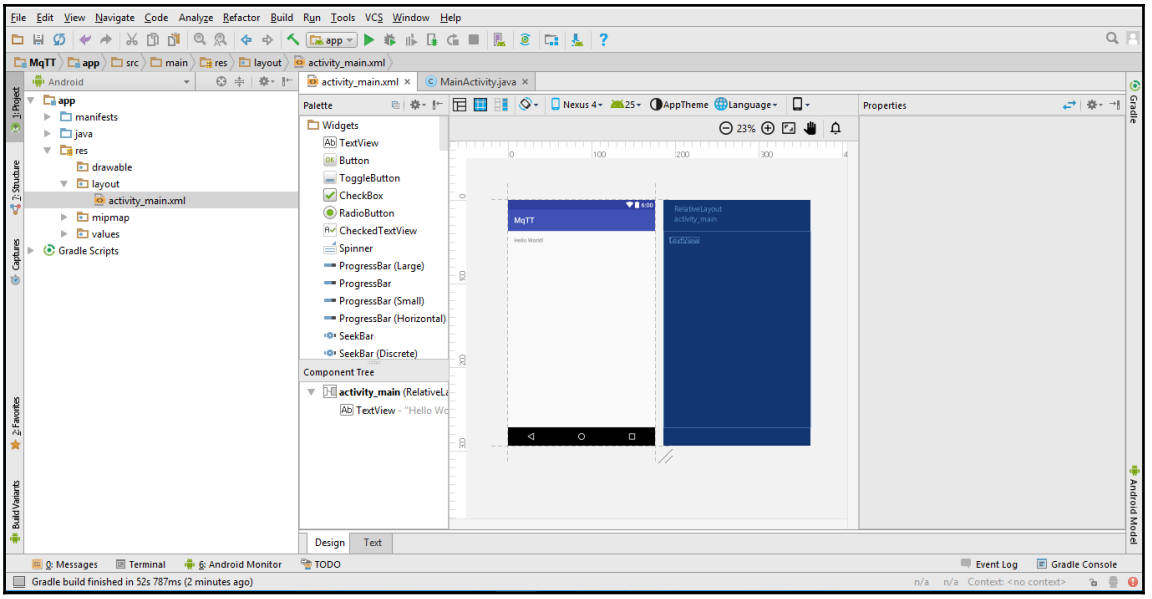

Welcome to Android Studio
MqttSample
~\Documents\MqttSample
androidthings
~\Documents\androidthings
mqttAvirup
~\Documents\mqttAvirup
sample-simplepio-master
~\Downloads\sample...ple-simplepio-master
sample-uartloopback-master
~\Documents\sample-uartloopback-master
Android Studio
Version 2.2.3
Start a new Android Studio project
Open an existing Android Studio project
Check out project from Version Control
Import project (Eclipse ADT, Gradle, etc.)
Import an Android code sample
Configure
Get Help

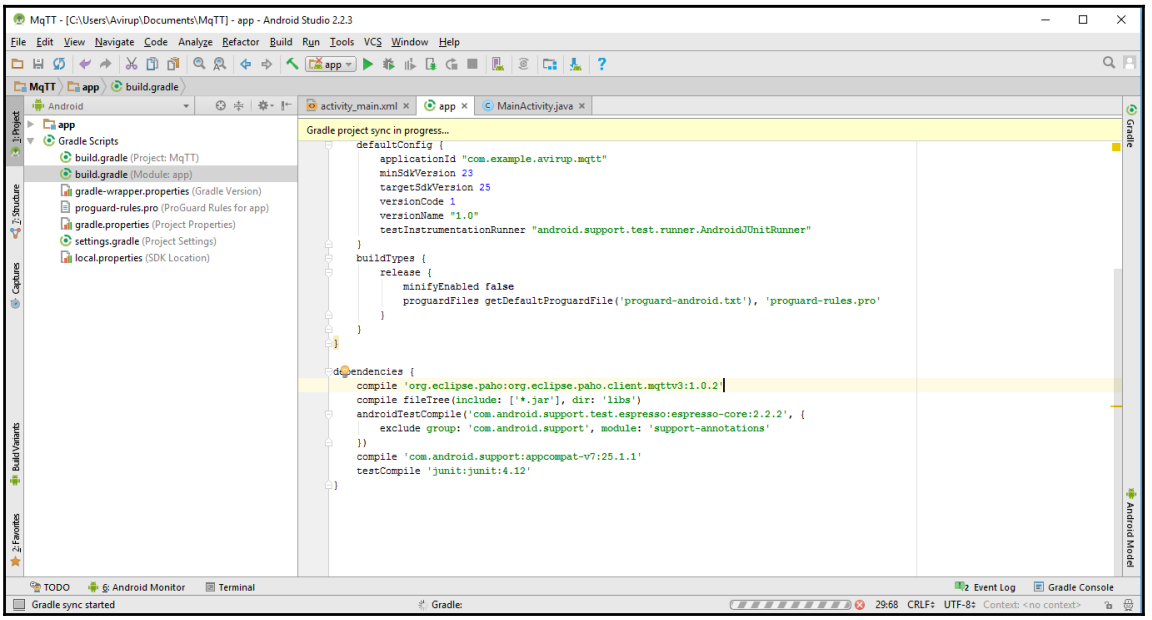

Create New Project
New Project
Android Studio
Configure your new project
Application name:
MqTT
Company Domain:
avirup.example.com
Package name:
com.example.avirup.mqtt
Edit
Include C++ Support
Project location:
C:\Users\Avirup\Documents\MqTT
Previous
Next
Cancel
Finish

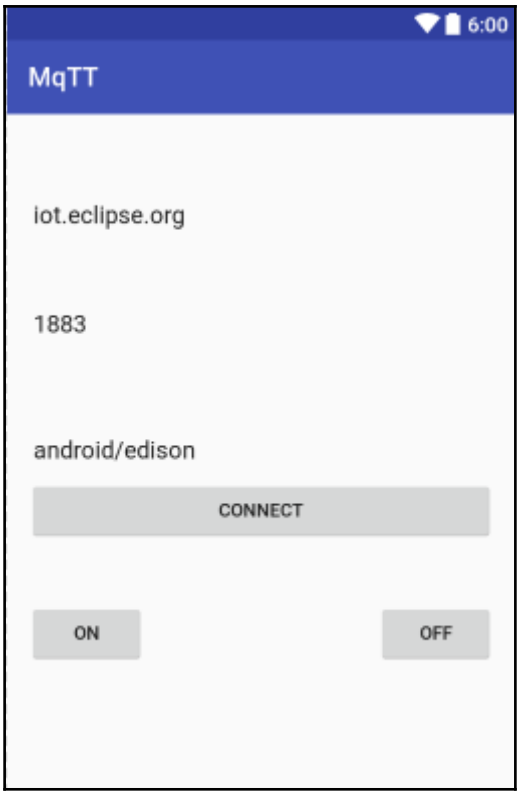

Create New Project
Target Android Devices
Select the form factors your app will run on
Different platforms may require separate SDKs
Phone and Tablet
Minimum SDK
API 23: Android 6.0 (Marshmallow)
Lower API levels target more devices, but have fewer features available.
By targeting API 23 and later, your app will run on approximately 4.7% of the devices that are active on the Google Play Store.
Help me choose
Wear
Minimum SDK
API 21: Android 5.0 (Lollipop)
TV
Minimum SDK
API 21: Android 5.0 (Lollipop)
Android Auto
Glass
Minimum SDK
Glass Development Kit Preview (API 19)
Previous
Next
Cancel
Finish

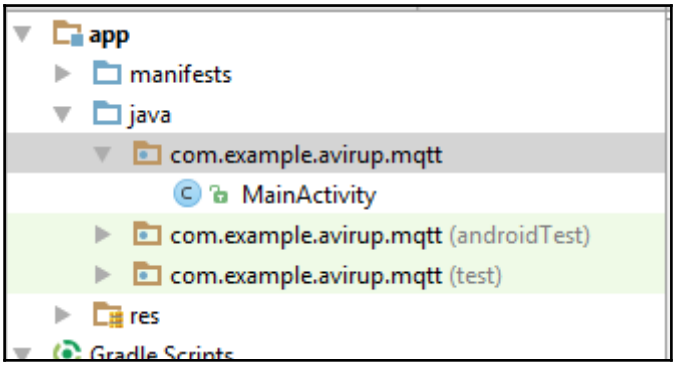

Create New Project
Add an Activity to Mobile
Add No Activity
Basic Activity
Empty Activity
Fullscreen Activity
Ad
Google AdMob Ads Activity
Google Maps Activity
Login Activity
Master/Detail Flow
Navigation Drawer Activity
Scrolling Activity
Previous
Next
Cancel
Finish

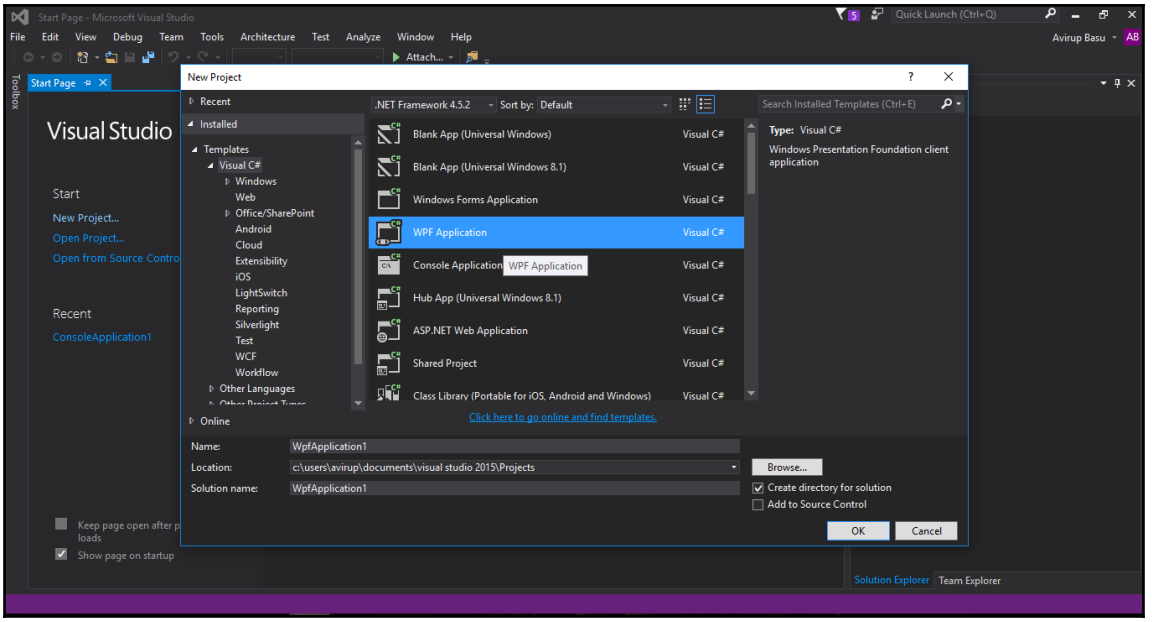

Create New Project
Customize the Activity
Creates a new empty activity
Activity Name:
MainActivity
Generate Layout File
Layout Name:
activity_main
Backwards Compatibility (AppCompat)
Empty Activity
The name of the activity class to create
Previous
Next
Cancel
Finish

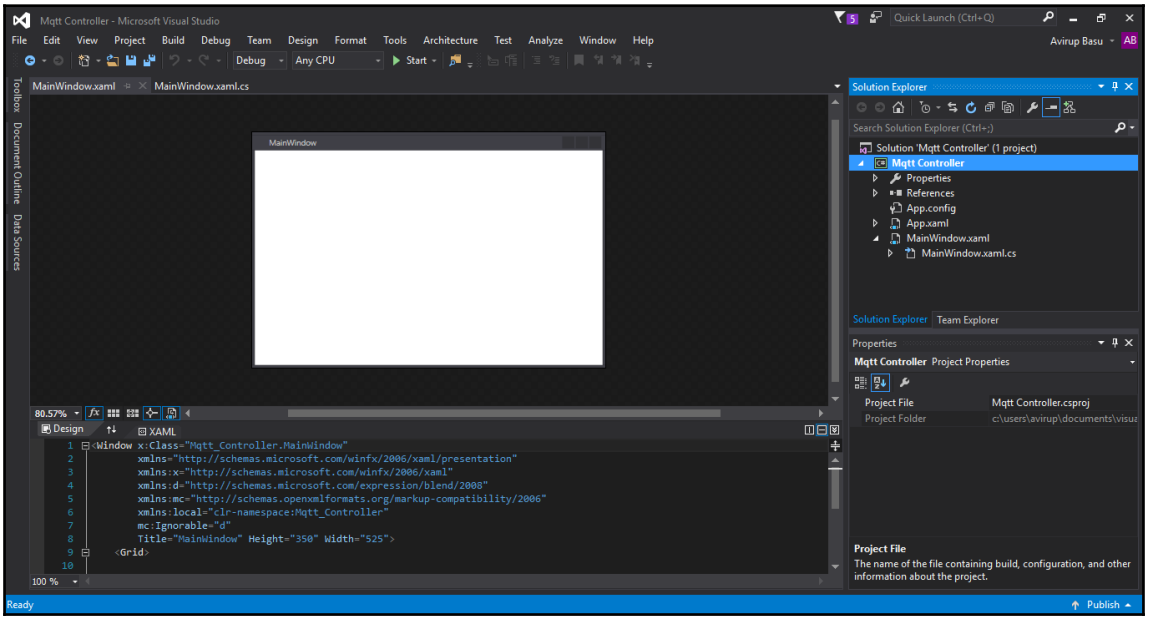

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
MqTT app src main res layout activity_main.xml
Android
app
manifests
java
res
drawable
layout
activity_main.xml
mipmap
values
Gradle Scripts
activity_main.xml
MainActivity.java
Palette
Widgets
TextView
Button
ToggleButton
CheckBox
RadioButton
CheckedTextView
Spinner
ProgressBar (Large)
ProgressBar
ProgressBar (Small)
ProgressBar (Horizontal)
SeekBar
SeekBar (Discrete)
Component Tree
activity_main (RelativeLa
TextView - "Hello Wo
Nexus 4
25
AppTheme
Language
23%
Properties
MqTT
Design
Text
0: Messages
Terminal
6: Android Monitor
TODO
Event Log
Gradle Console
Gradle build finished in 52s 787ms (2 minutes ago)

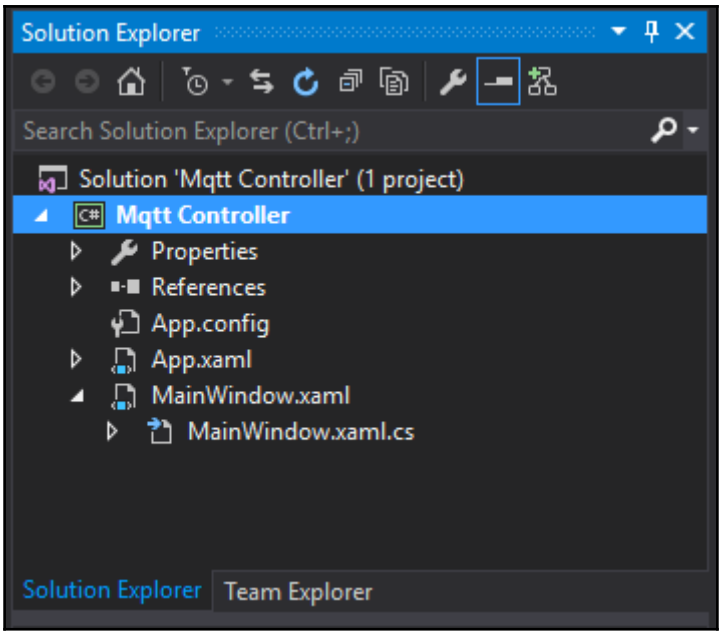

MqTT - [C:\Users\Avirup\Documents\MqTT] - app - Android Studio 2.2.3
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
MqTT app build.gradle
Android
app
Gradle Scripts
build.gradle (Project: MqTT)
build.gradle (Module: app)
gradle-wrapper.properties (Gradle Version)
proguard-rules.pro (ProGuard Rules for app)
gradle.properties (Project Properties)
settings.gradle (Project Settings)
local.properties (SDK Location)
activity_main.xml
app
MainActivity.java
Gradle project sync in progress...
defaultConfig {
applicationId "com.example.avirup.mqtt"
minSdkVersion 23
targetSdkVersion 25
versionCode 1
versionName "1.0"
testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
}
buildTypes {
release {
minifyEnabled false
proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
}
}
}
dependencies {
compile 'org.eclipse.paho:org.eclipse.paho.client.mqttv3:1.0.2'
compile fileTree(include: ['*.jar'], dir: 'libs')
androidTestCompile('com.android.support.test.espresso:espresso-core:2.2.2', {
exclude group: 'com.android.support', module: 'support-annotations'
})
compile 'com.android.support:appcompat-v7:25.1.1'
testCompile 'junit:junit:4.12'
}
TODO
6: Android Monitor
Terminal
Event Log
Gradle Console
Gradle sync started
Gradle:
29:68
CRLF
UTF-8

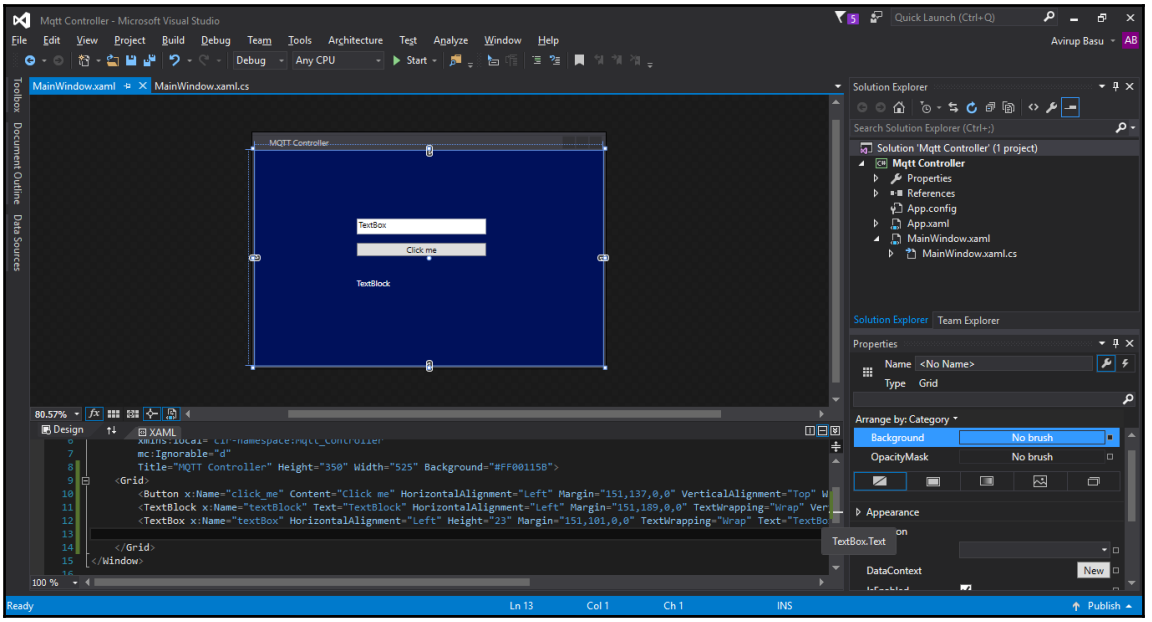

6:00
MqTT
iot.eclipse.org
1883
android/edison
CONNECT
ON
OFF

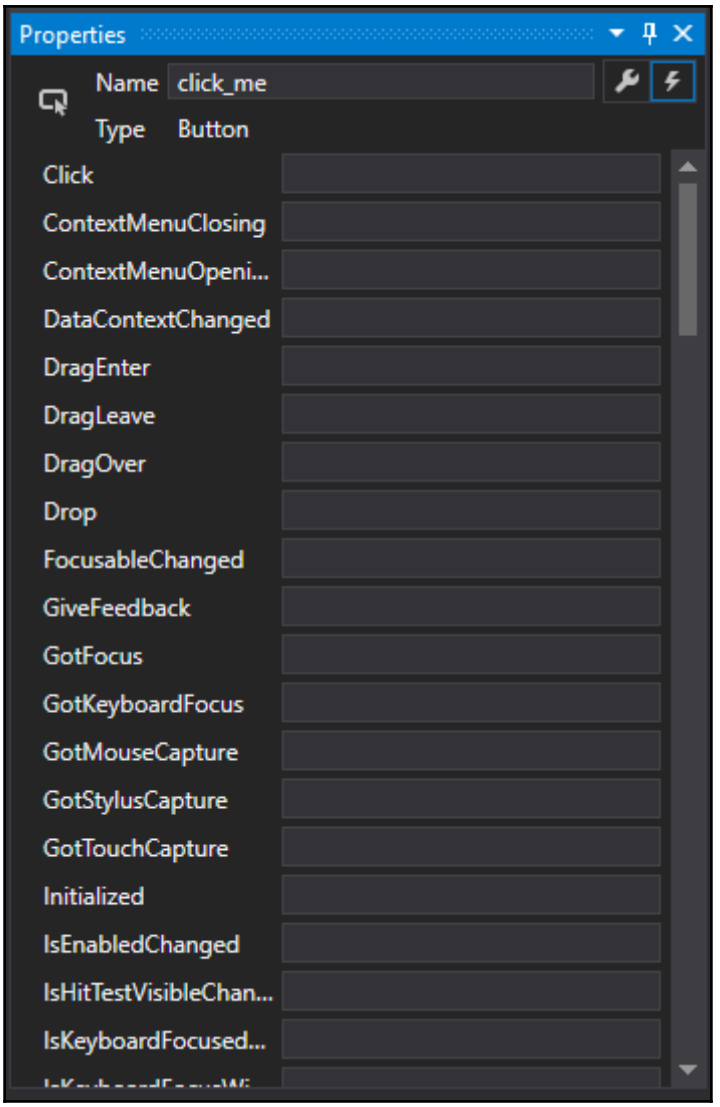

app
manifests
java
com.example.avirup.mqtt
MainActivity
com.example.avirup.mqtt (androidTest)
com.example.avirup.mqtt (test)
res
Gradle Scripts

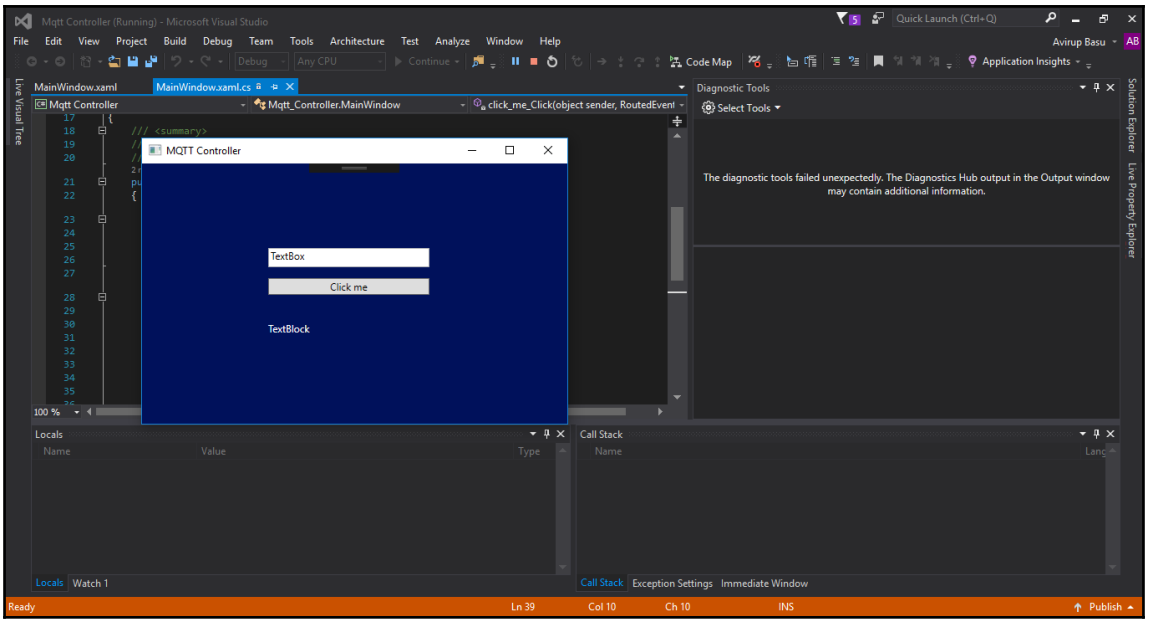

Start Page - Microsoft Visual Studio
File Edit View Debug Team Tools Architecture Test Analyze Window Help
Avirup Basu
Quick Launch (Ctrl+Q)
Attach...
Toolbox
Start Page
Visual Studio
Start
New Project...
Open Project...
Open from Source Control
Recent
ConsoleApplication1
Keep page open after project loads
Show page on startup
New Project
Recent
Installed
Templates
Visual C#
Windows
Web
Office/SharePoint
Android
Cloud
Extensibility
iOS
LightSwitch
Reporting
Silverlight
Test
WCF
Workflow
Other Languages
Online
.NET Framework 4.5.2
Sort by: Default
Search Installed Templates (Ctrl+E)
Blank App (Universal Windows) Visual C#
Blank App (Universal Windows 8.1) Visual C#
Windows Forms Application Visual C#
WPF Application Visual C#
Console Application Visual C#
Hub App (Universal Windows 8.1) Visual C#
ASP.NET Web Application Visual C#
Shared Project Visual C#
Class Library (Portable for iOS, Android and Windows) Visual C#
Type: Visual C#
Windows Presentation Foundation client application
Click here to go online and find templates.
Name: WpfApplication1
Location: c:\users\avirup\documents\visual studio 2015\Projects
Solution name: WpfApplication1
Browse...
Create directory for solution
Add to Source Control
OK
Cancel
Solution Explorer
Team Explorer

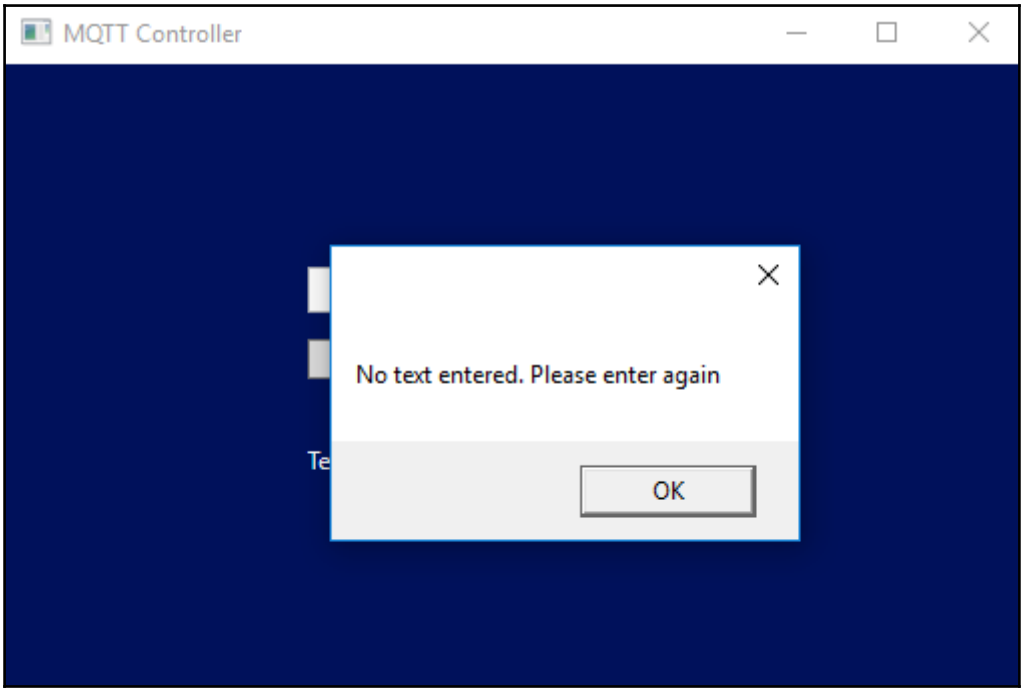

Mqtt Controller - Microsoft Visual Studio
File Edit View Project Build Debug Team Design Format Tools Architecture Test Analyze Window Help
Avirup Basu
Quick Launch (Ctrl+Q)
Debug
Any CPU
Start
Toolbox
Document Outline
Data Sources
MainWindow.xaml
MainWindow.xaml.cs
MainWindow
80.57%
Design
XAML
<Window x:Class="Mqtt_Controller.MainWindow"
xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
xmlns:local="clr-namespace:Mqtt_Controller"
mc:Ignorable="d"
Title="MainWindow" Height="350" Width="525">
<Grid>
100 %
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Mqtt Controller' (1 project)
Mqtt Controller
Properties
References
App.config
App.xaml
MainWindow.xaml
MainWindow.xaml.cs
Solution Explorer
Team Explorer
Properties
Mqtt Controller Project Properties
Project File
Mqtt Controller.csproj
Project Folder
c:\users\avirup\documents\visu
Project File
The name of the file containing build, configuration, and other information about the project.
Ready
Publish

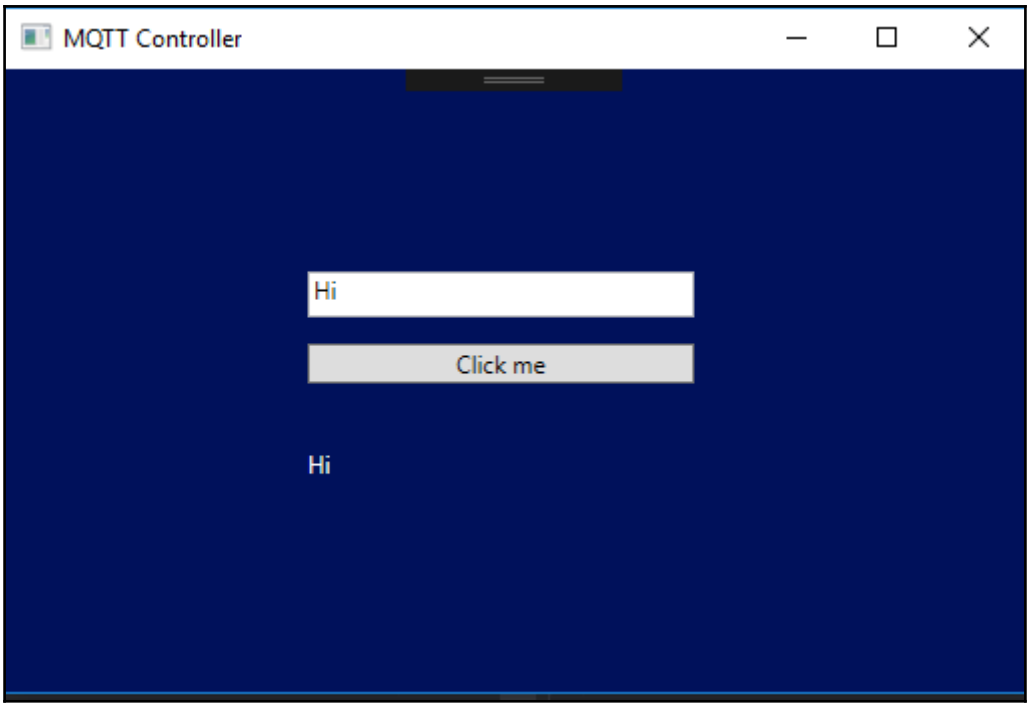

Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Mqtt Controller' (1 project)
Mqtt Controller
Properties
References
App.config
App.xaml
MainWindow.xaml
MainWindow.xaml.cs
Solution Explorer
Team Explorer

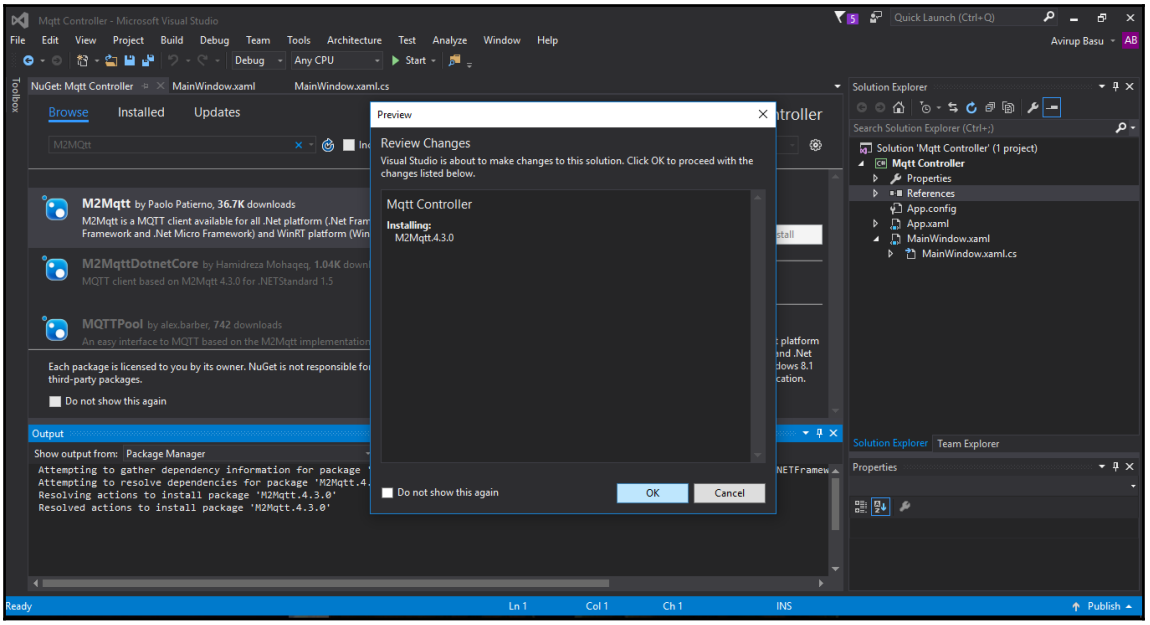

Mqtt Controller - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Architecture Test Analyze Window Help
Avirup Basu
Debug
Any CPU
Start
MainWindow.xaml
MainWindow.xaml.cs
MQTT Controller
TextBox
Click me
TextBlock
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Mqtt Controller' (1 project)
Mqtt Controller
Properties
References
App.config
App.xaml
MainWindow.xaml
MainWindow.xaml.cs
Solution Explorer
Team Explorer
Properties
Name <No Name>
Type Grid
Arrange by: Category
Background
No brush
OpacityMask
No brush
Appearance
DataContext
New
Design
XAML
Title="MQTT Controller" Height="350" Width="525" Background="#FF001158">
<Grid>
<Button x:Name="click_me" Content="Click me" HorizontalAlignment="Left" Margin="151,137,0,0" VerticalAlignment="Top"
<TextBlock x:Name="textBlock" Text="TextBlock" HorizontalAlignment="Left" Margin="151,189,0,0" TextWrapping="Wrap"
<TextBox x:Name="textBox" HorizontalAlignment="Left" Height="23" Margin="151,101,0,0" TextWrapping="Wrap" Text="TextBo
</Grid>
</Window>
TextBox.Text
Ready
Ln 13
Col 1
Ch 1
INS
Publish

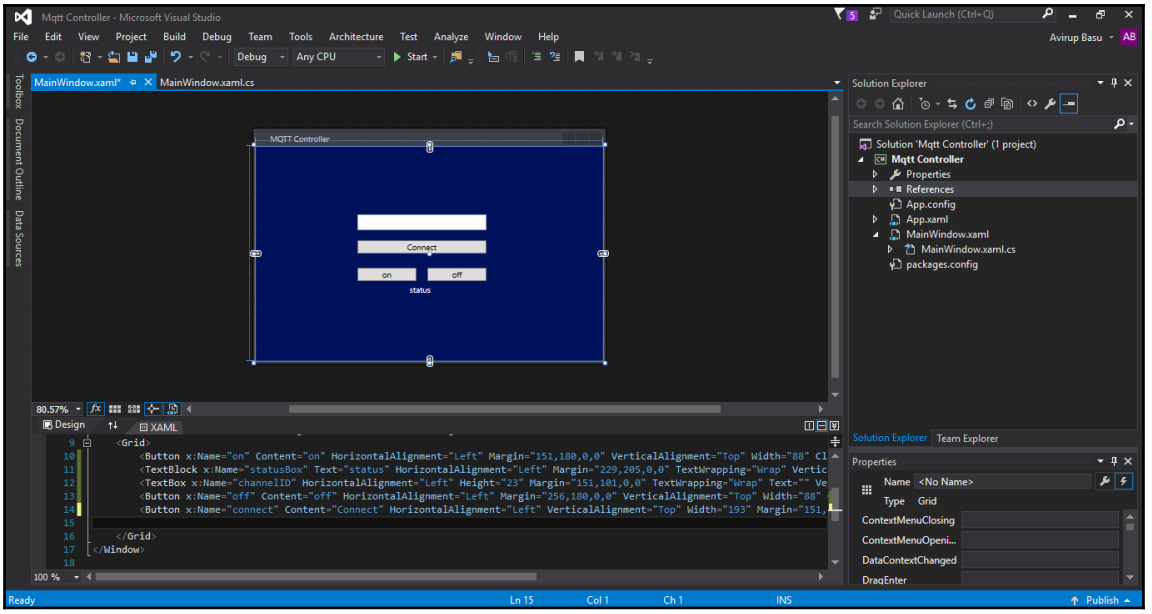

Properties
Name click_me
Type Button
Click
ContextMenuClosing
ContextMenuOpeni...
DataContextChanged
DragEnter
DragLeave
DragOver
Drop
FocusableChanged
GiveFeedback
GotFocus
GotKeyboardFocus
GotMouseCapture
GotStylusCapture
GotTouchCapture
Initialized
IsEnabledChanged
IsHitTestVisibleChan...
IsKeyboardFocused...

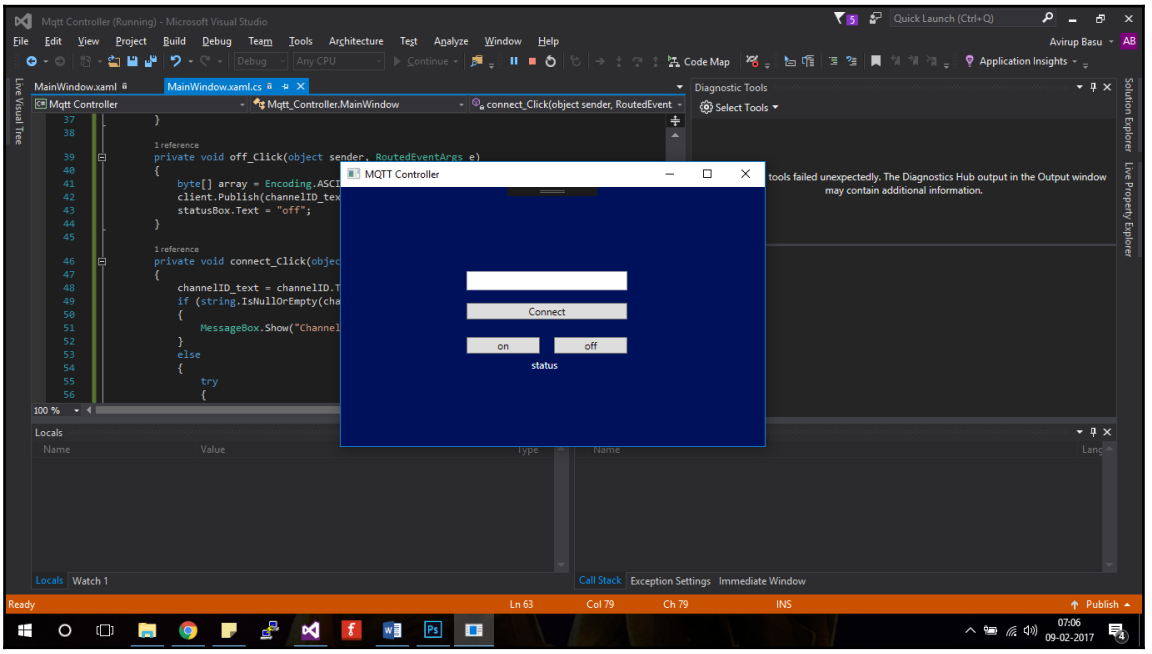

Mqtt Controller (Running) - Microsoft Visual Studio
File Edit View Project Build Debug Team Tools Architecture Test Analyze Window Help
MainWindow.xaml
MainWindow.xaml.cs
Mqtt Controller
Mqtt_Controller.MainWindow
click_me_Click(object sender, RoutedEvent
MQTT Controller
TextBox
Click me
TextBlock
Diagnostic Tools
Select Tools
The diagnostic tools failed unexpectedly. The Diagnostics Hub output in the Output window may contain additional information.
Locals
Name
Value
Type
Call Stack
Locals
Watch 1
Call Stack
Exception Settings
Immediate Window
Ready
Ln 39
Col 10
Ch 10
INS
Publish

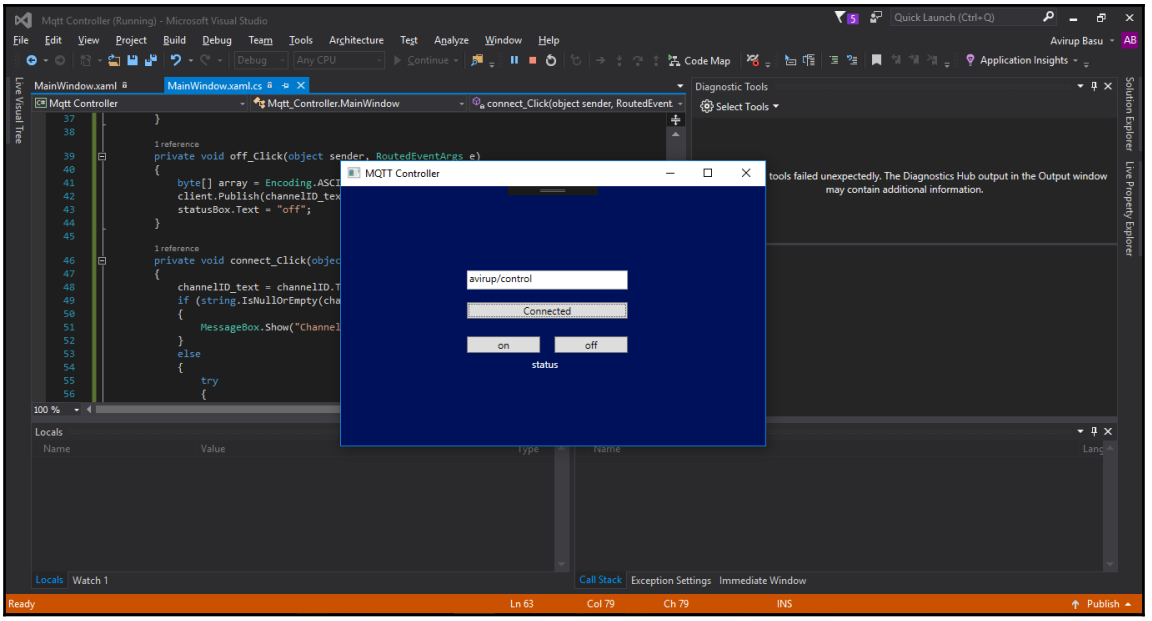

MQTT Controller
No text entered. Please enter again
OK

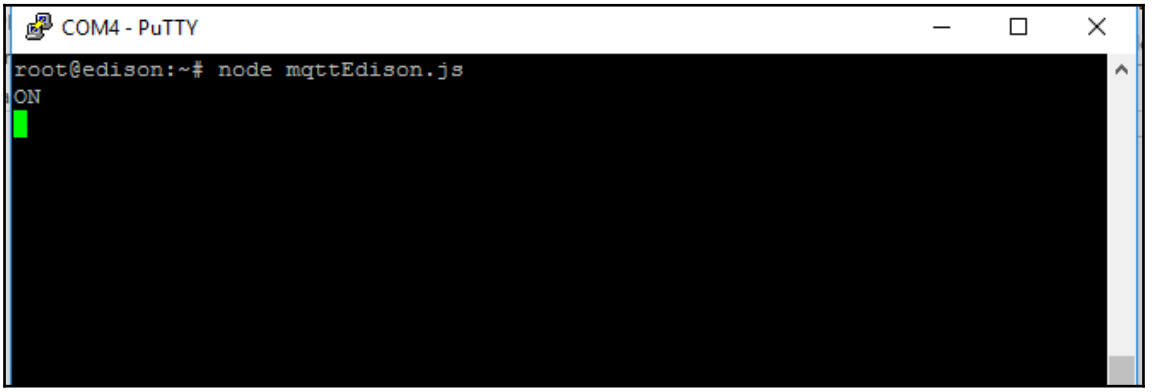

MQTT Controller
Hi
Click me
Hi

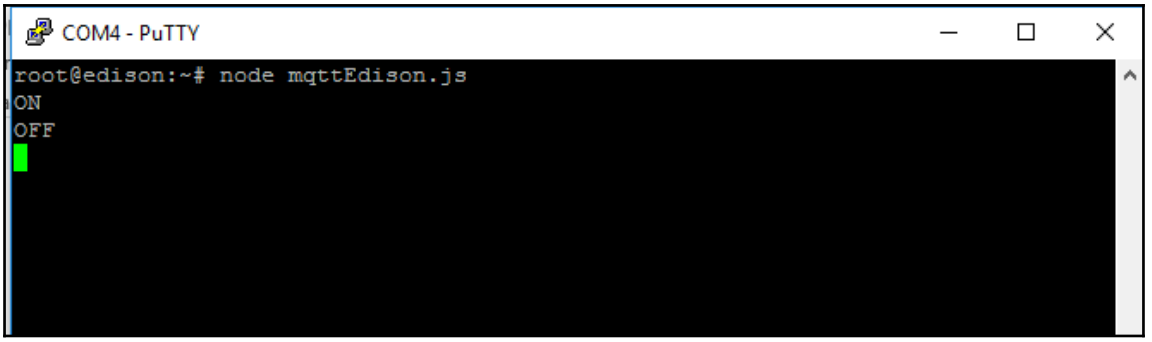

Mqtt Controller - Microsoft Visual Studio
Preview
Review Changes
Visual Studio is about to make changes to this solution. Click OK to proceed with the changes listed below.
Mqtt Controller
Installing:
M2Mqtt.4.3.0
Do not show this again
OK
Cancel
Solution Explorer
Mqtt Controller
Properties
References
App.config
App.xaml
MainWindow.xaml
MainWindow.xaml.cs
Output
Ready

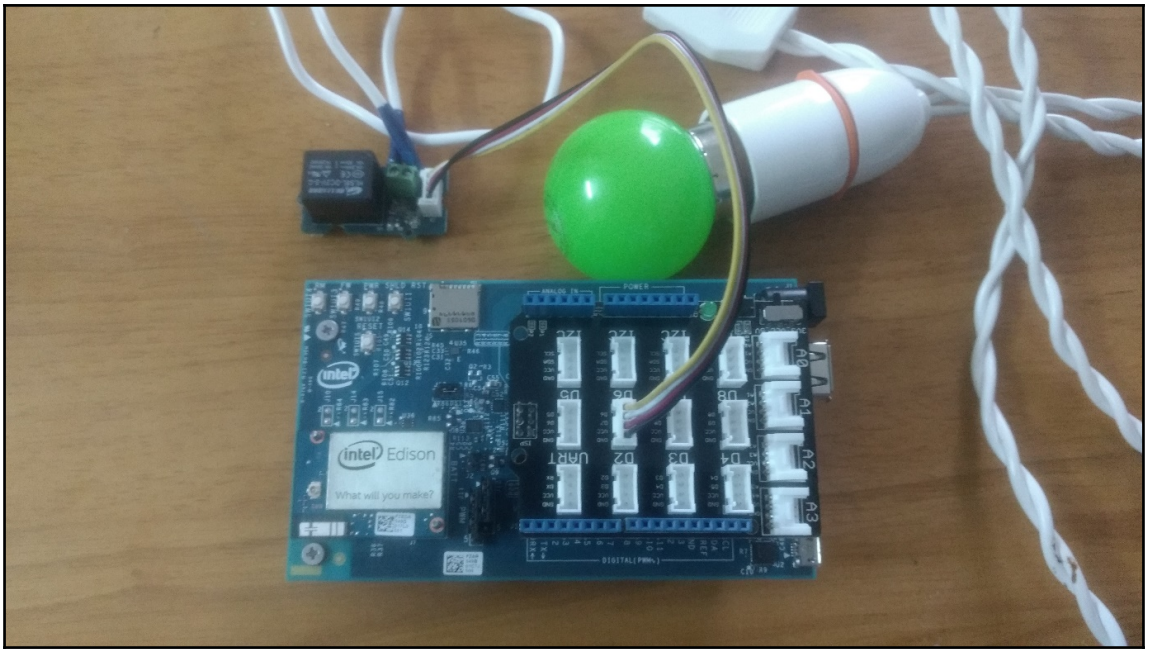

Mqtt Controller - Microsoft Visual Studio
MainWindow.xaml*
MainWindow.xaml.cs
MQTT Controller
Connect
on
off
status
Solution Explorer
Mqtt Controller
Properties
References
App.config
App.xaml
MainWindow.xaml
MainWindow.xaml.cs
packages.config
Ready
Ln 15
Col 1
Ch 1
INS
Publish


Mqtt Controller (Running) - Microsoft Visual Studio
MainWindow.xaml
MainWindow.xaml.cs
MQTT Controller
Connect
on
off
status
Diagnostic Tools
Locals
Ready
Ln 63
Col 79
Ch 79
INS
Publish
07:06
09-02-2017

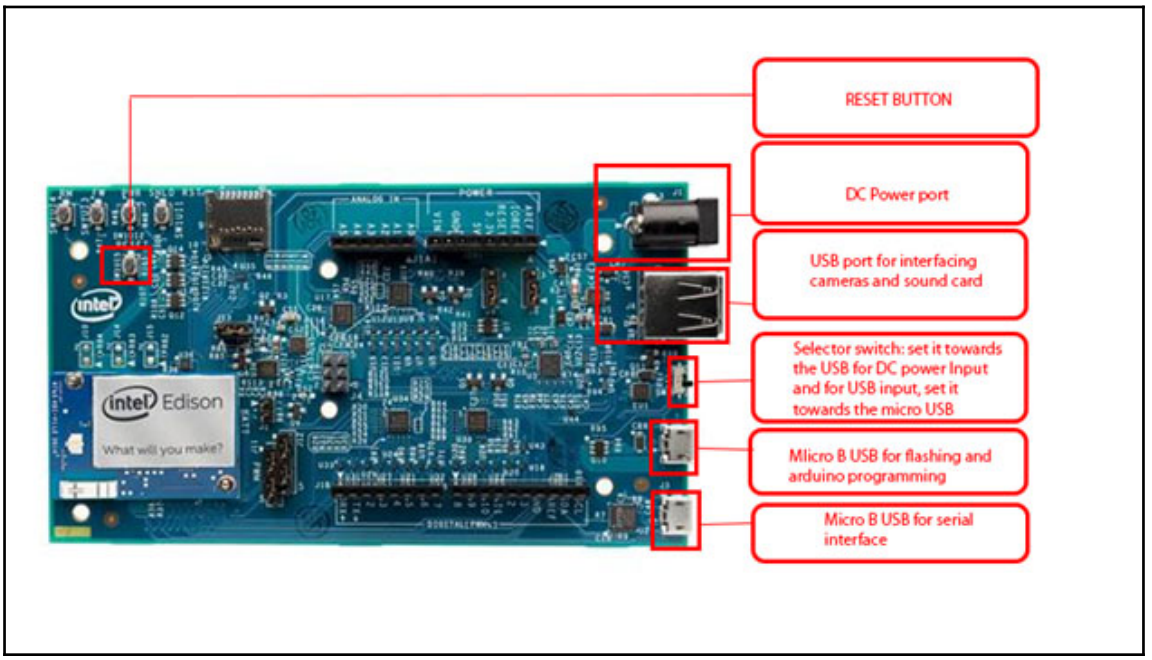

Mqtt Controller (Running) - Microsoft Visual Studio
MainWindow.xaml
MainWindow.xaml.cs
Mqtt Controller
Mqtt_Controller.MainWindow
connect_Click(object sender, RoutedEvent
Diagnostic Tools
Select Tools
tools failed unexpectedly. The Diagnostics Hub output in the Output window may contain additional information.
MQTT Controller
avirup/control
Connected
on
off
status
Locals
Watch 1
Call Stack
Exception Settings
Immediate Window
Ready
Publish

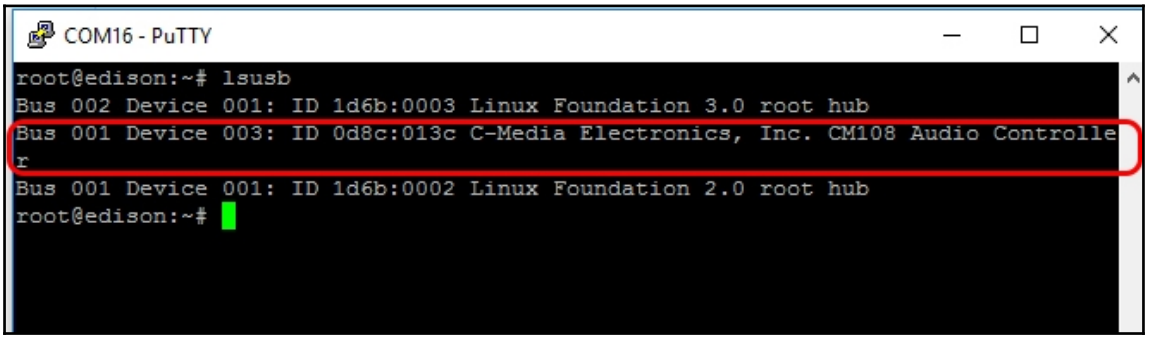

COM4 - PuTTY
root@edison:~# node mqttEdison.js
ON

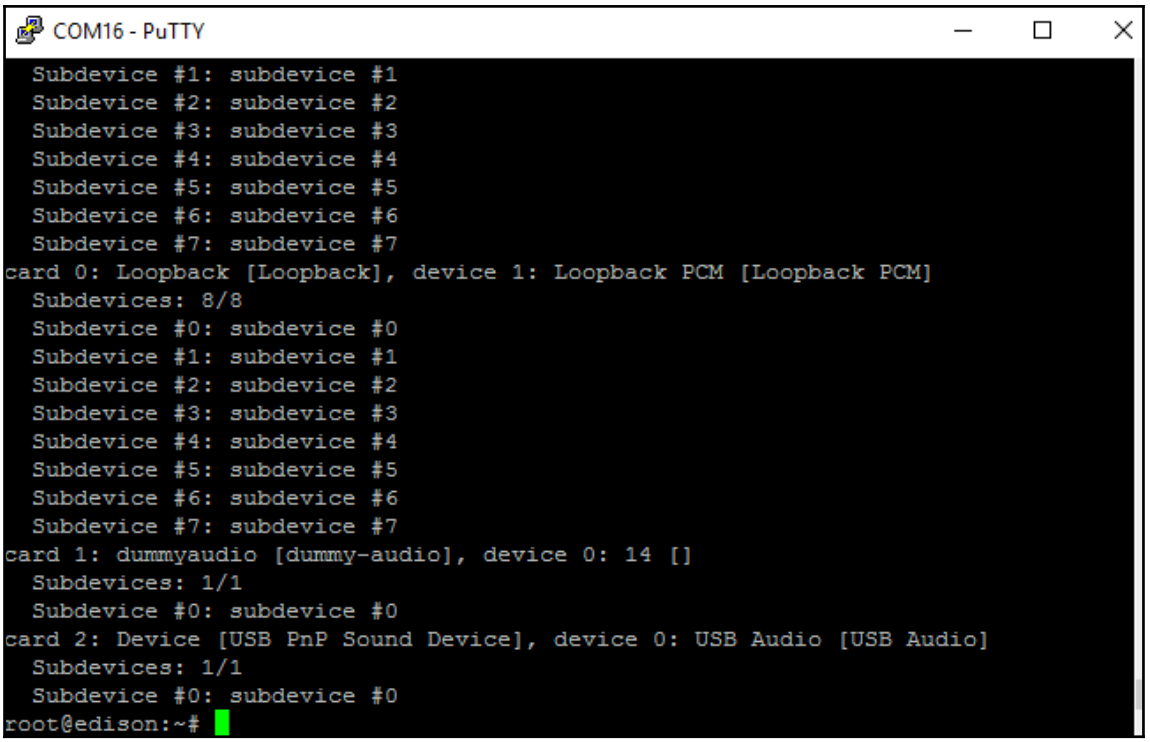

COM4 - PuTTY
root@edison:~# node mqttEdison.js
ON
OFF

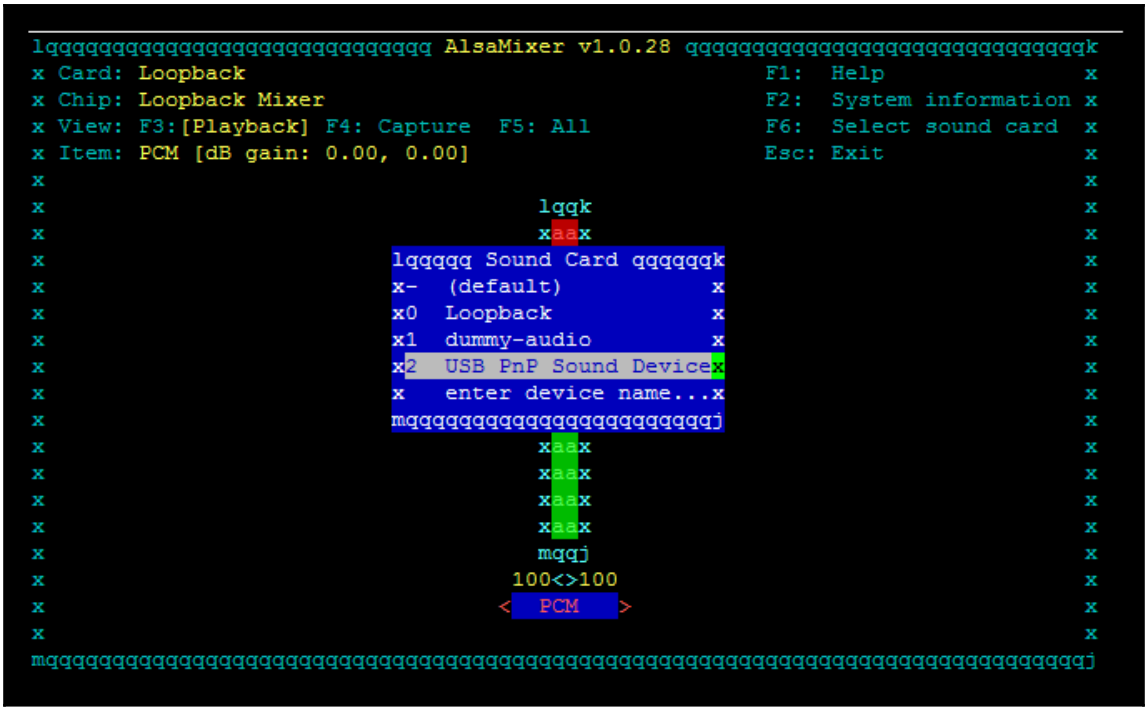

intel Edison
What will you make?
UART

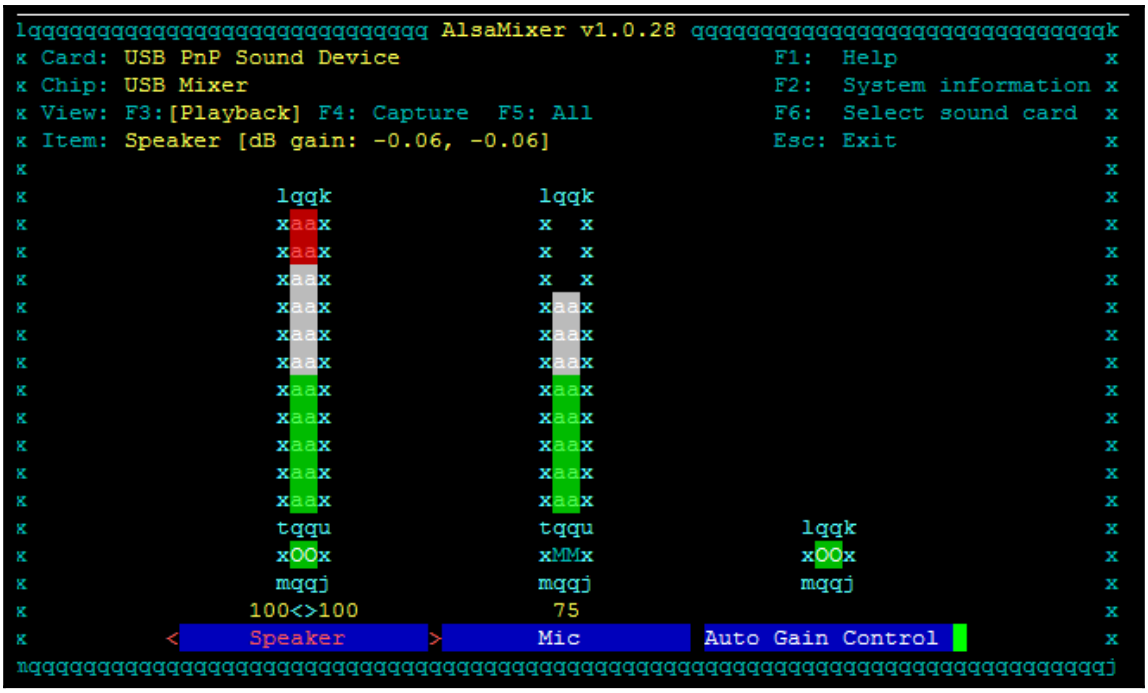
Chapter 4: Intel Edison and Security System

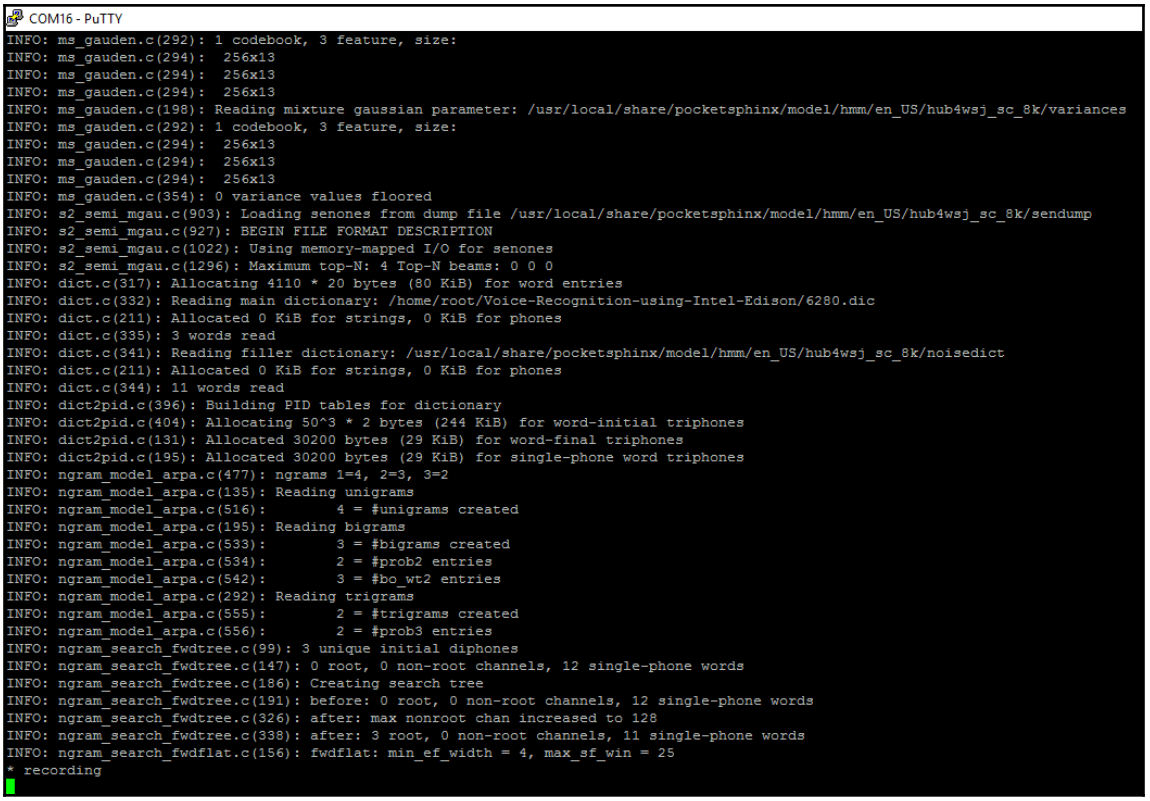


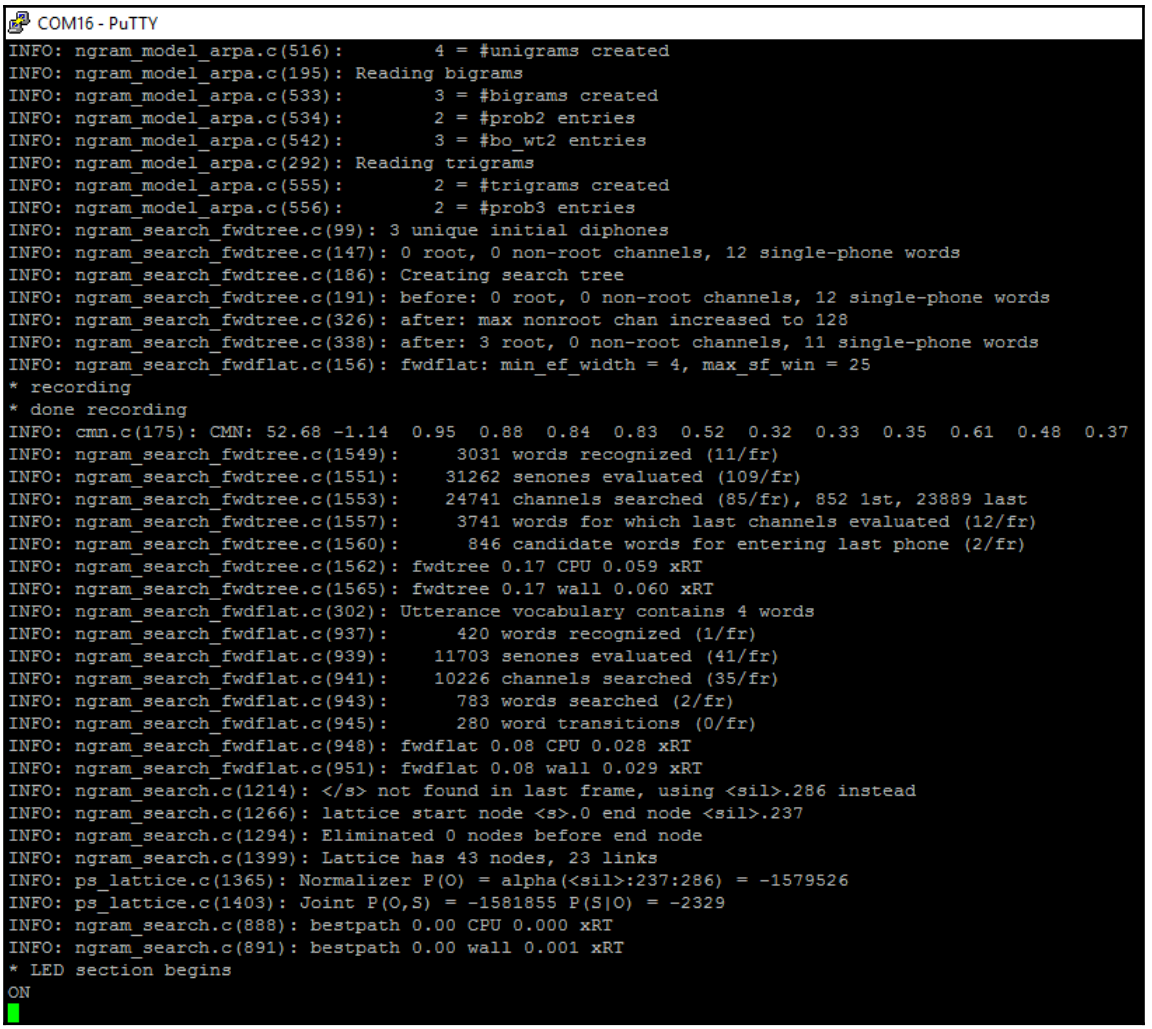


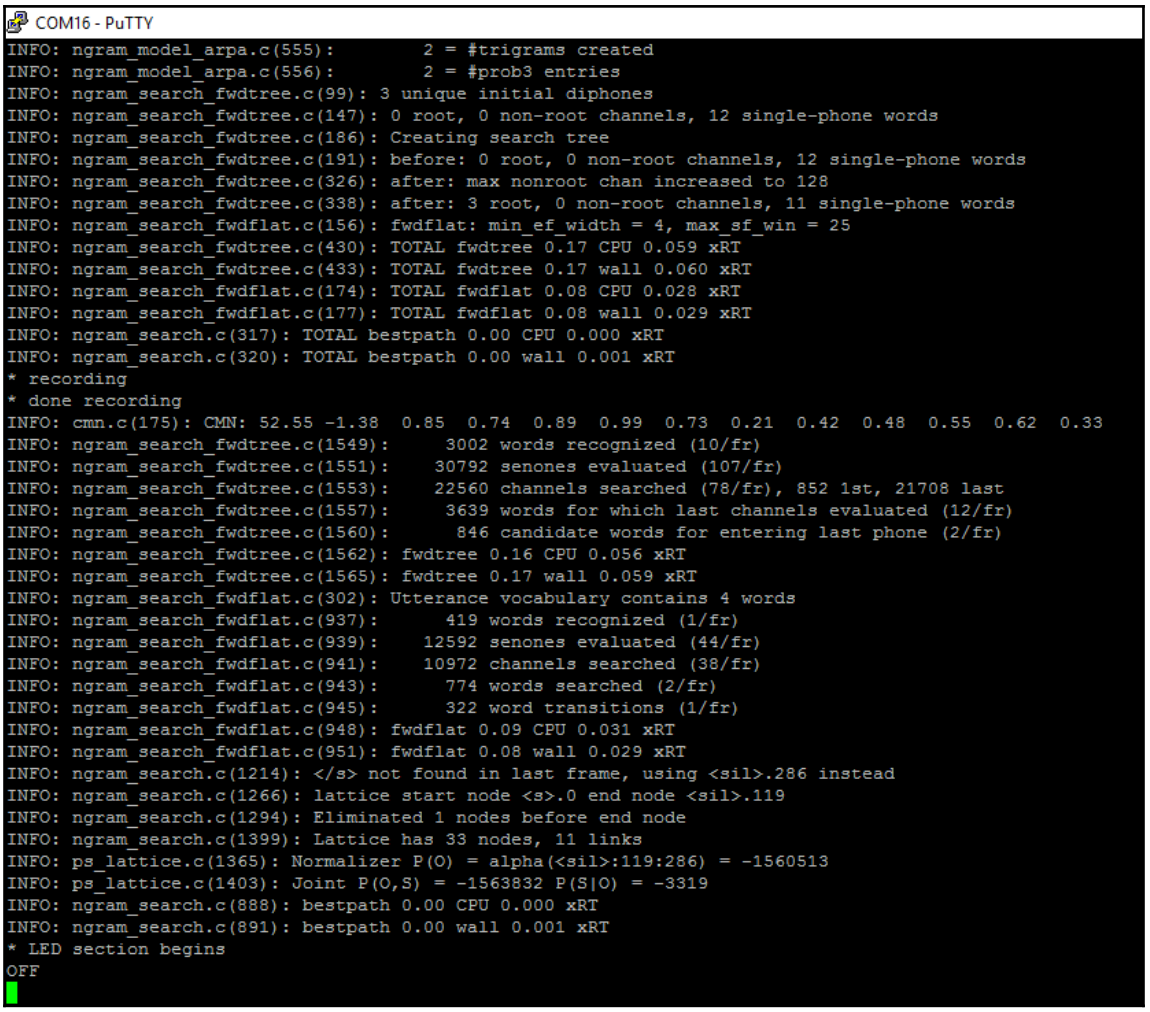

COM16 - PuTTY
Subdevice #1: subdevice #1
Subdevice #2: subdevice #2
Subdevice #3: subdevice #3
Subdevice #4: subdevice #4
Subdevice #5: subdevice #5
Subdevice #6: subdevice #6
Subdevice #7: subdevice #7
card 0: Loopback [Loopback], device 1: Loopback PCM [Loopback PCM]
Subdevices: 8/8
Subdevice #0: subdevice #0
Subdevice #1: subdevice #1
Subdevice #2: subdevice #2
Subdevice #3: subdevice #3
Subdevice #4: subdevice #4
Subdevice #5: subdevice #5
Subdevice #6: subdevice #6
Subdevice #7: subdevice #7
card 1: dummyaudio [dummy-audio], device 0: 14 []
Subdevices: 1/1
Subdevice #0: subdevice #0
card 2: Device [USB PnP Sound Device], device 0: USB Audio [USB Audio]
Subdevices: 1/1
Subdevice #0: subdevice #0
root@edison:~#


AlsaMixer v1.0.28
Card: Loopback
Chip: Loopback Mixer
View: F3:[Playback] F4: Capture F5: All
Item: PCM [dB gain: 0.00, 0.00]
F1: Help
F2: System information
F6: Select sound card
Esc: Exit
Sound Card
(default)
Loopback
dummy-audio
USB PnP Sound Device
enter device name...
100<>100
PCM

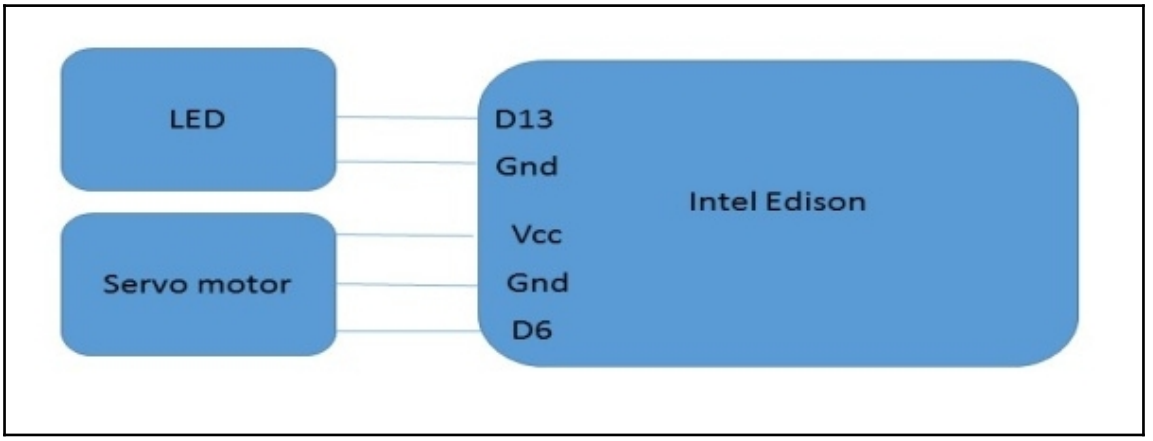

AlsaMixer v1.0.28
Card: USB PnP Sound Device
Chip: USB Mixer
View: F3:[Playback] F4: Capture F5: All
Item: Speaker [dB gain: -0.06, -0.06]
F1: Help
F2: System information
F6: Select sound card
Esc: Exit
100<>100
75
Speaker
Mic
Auto Gain Control


COM16 - PuTTY
INFO: ms_gauden.c(292): 1 codebook, 3 feature, size:
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(198): Reading mixture gaussian parameter: /usr/local/share/pocketsphinx/model/hmm/en_US/hub4wsj_sc_8k/variances
INFO: ms_gauden.c(292): 1 codebook, 3 feature, size:
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(294): 256x13
INFO: ms_gauden.c(354): 0 variance values floored
INFO: s2_semi_mgau.c(903): Loading senones from dump file /usr/local/share/pocketsphinx/model/hmm/en_US/hub4wsj_sc_8k/sendump
INFO: s2_semi_mgau.c(927): BEGIN FILE FORMAT DESCRIPTION
INFO: s2_semi_mgau.c(1022): Using memory-mapped I/O for senones
INFO: s2_semi_mgau.c(1296): Maximum top-N: 4 Top-N beams: 0 0 0
INFO: dict.c(317): Allocating 4110 * 20 bytes (80 KiB) for word entries
INFO: dict.c(332): Reading main dictionary: /home/root/Voice-Recognition-using-Intel-Edison/6280.dic
INFO: dict.c(211): Allocated 0 KiB for strings, 0 KiB for phones
INFO: dict.c(335): 3 words read
INFO: dict.c(341): Reading filler dictionary: /usr/local/share/pocketsphinx/model/hmm/en_US/hub4wsj_sc_8k/noisedict
INFO: dict.c(211): Allocated 0 KiB for strings, 0 KiB for phones
INFO: dict.c(344): 11 words read
INFO: dict2pid.c(396): Building PID tables for dictionary
INFO: dict2pid.c(404): Allocating 50^3 * 2 bytes (244 KiB) for word-initial triphones
INFO: dict2pid.c(131): Allocated 30200 bytes (29 KiB) for word-final triphones
INFO: dict2pid.c(195): Allocated 30200 bytes (29 KiB) for single-phone word triphones
INFO: ngram_model_arpa.c(477): ngrams 1=4, 2=3, 3=2
INFO: ngram_model_arpa.c(135): Reading unigrams
INFO: ngram_model_arpa.c(516):   4 = #unigrams created
INFO: ngram_model_arpa.c(195): Reading bigrams
INFO: ngram_model_arpa.c(533):   3 = #bigrams created
INFO: ngram_model_arpa.c(534):   2 = #prob2 entries
INFO: ngram_model_arpa.c(542):   3 = #bo_wt2 entries
INFO: ngram_model_arpa.c(292): Reading trigrams
INFO: ngram_model_arpa.c(555):   2 = #trigrams created
INFO: ngram_model_arpa.c(556):   2 = #prob3 entries
INFO: ngram_search_fwdtree.c(99): 3 unique initial diphones
INFO: ngram_search_fwdtree.c(147): 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(186): Creating search tree
INFO: ngram_search_fwdtree.c(191): before: 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(326): after: max nonroot chan increased to 128
INFO: ngram_search_fwdtree.c(338): after: 3 root, 0 non-root channels, 11 single-phone words
INFO: ngram_search_fwdflat.c(156): fwdflat: min_ef_width = 4, max_sf_win = 25
* recording


COM16 - PuTTY
INFO: ngram_model_arpa.c(516):   4 = #unigrams created
INFO: ngram_model_arpa.c(195): Reading bigrams
INFO: ngram_model_arpa.c(533):   3 = #bigrams created
INFO: ngram_model_arpa.c(534):   2 = #prob2 entries
INFO: ngram_model_arpa.c(542):   3 = #bo_wt2 entries
INFO: ngram_model_arpa.c(292): Reading trigrams
INFO: ngram_model_arpa.c(555):   2 = #trigrams created
INFO: ngram_model_arpa.c(556):   2 = #prob3 entries
INFO: ngram_search_fwdtree.c(99): 3 unique initial diphones
INFO: ngram_search_fwdtree.c(147): 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(186): Creating search tree
INFO: ngram_search_fwdtree.c(191): before: 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(326): after: max nonroot chan increased to 128
INFO: ngram_search_fwdtree.c(338): after: 3 root, 0 non-root channels, 11 single-phone words
INFO: ngram_search_fwdflat.c(156): fwdflat: min_ef_width = 4, max_sf_win = 25
* recording
* done recording
INFO: cmn.c(175): CMN: 52.68 -1.14 0.95 0.88 0.84 0.83 0.52 0.32 0.33 0.35 0.61 0.48 0.37
INFO: ngram_search_fwdtree.c(1549):   3031 words recognized (11/fr)
INFO: ngram_search_fwdtree.c(1551):   31262 senones evaluated (109/fr)
INFO: ngram_search_fwdtree.c(1553):   24741 channels searched (85/fr), 852 1st, 23889 last
INFO: ngram_search_fwdtree.c(1557):   3741 words for which last channels evaluated (12/fr)
INFO: ngram_search_fwdtree.c(1560):   846 candidate words for entering last phone (2/fr)
INFO: ngram_search_fwdtree.c(1562): fwdtree 0.17 CPU 0.059 xRT
INFO: ngram_search_fwdtree.c(1565): fwdtree 0.17 wall 0.060 xRT
INFO: ngram_search_fwdflat.c(302): Utterance vocabulary contains 4 words
INFO: ngram_search_fwdflat.c(937):   420 words recognized (1/fr)
INFO: ngram_search_fwdflat.c(939):   11703 senones evaluated (41/fr)
INFO: ngram_search_fwdflat.c(941):   10226 channels searched (35/fr)
INFO: ngram_search_fwdflat.c(943):   783 words searched (2/fr)
INFO: ngram_search_fwdflat.c(945):   280 word transitions (0/fr)
INFO: ngram_search_fwdflat.c(948): fwdflat 0.08 CPU 0.028 xRT
INFO: ngram_search_fwdflat.c(951): fwdflat 0.08 wall 0.029 xRT
INFO: ngram_search.c(1214): </s> not found in last frame, using <sil>.286 instead
INFO: ngram_search.c(1266): lattice start node <s>.0 end node <sil>.237
INFO: ngram_search.c(1294): Eliminated 0 nodes before end node
INFO: ngram_search.c(1399): Lattice has 43 nodes, 23 links
INFO: ps_lattice.c(1365): Normalizer P(O) = alpha(<sil>:237:286) = -1579526
INFO: ps_lattice.c(1403): Joint P(O,S) = -1581855 P(S|O) = -2329
INFO: ngram_search.c(888): bestpath 0.00 CPU 0.000 xRT
INFO: ngram_search.c(891): bestpath 0.00 wall 0.001 xRT
* LED section begins
ON

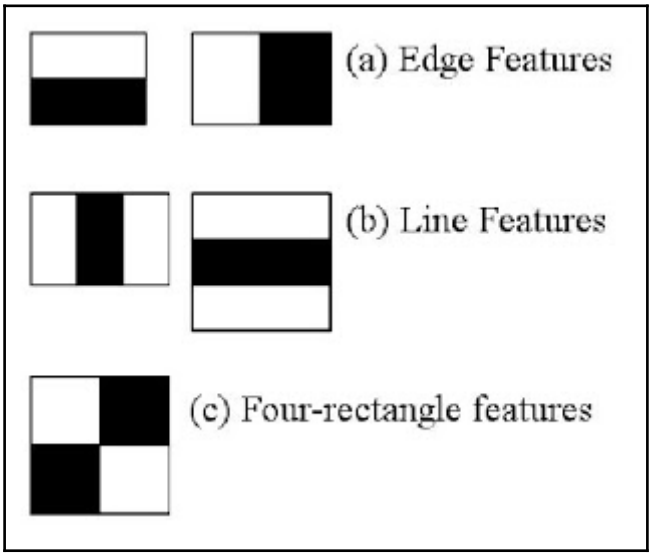

COM16 - PuTTY
INFO: ngram_model_arpa.c(555):   2 = #trigrams created
INFO: ngram_model_arpa.c(556):   2 = #prob3 entries
INFO: ngram_search_fwdtree.c(99): 3 unique initial diphones
INFO: ngram_search_fwdtree.c(147): 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(186): Creating search tree
INFO: ngram_search_fwdtree.c(191): before: 0 root, 0 non-root channels, 12 single-phone words
INFO: ngram_search_fwdtree.c(326): after: max nonroot chan increased to 128
INFO: ngram_search_fwdtree.c(338): after: 3 root, 0 non-root channels, 11 single-phone words
INFO: ngram_search_fwdflat.c(156): fwdflat: min_ef_width = 4, max_sf_win = 25
INFO: ngram_search_fwdtree.c(430): TOTAL fwdtree 0.17 CPU 0.059 xRT
INFO: ngram_search_fwdtree.c(433): TOTAL fwdtree 0.17 wall 0.060 xRT
INFO: ngram_search_fwdflat.c(174): TOTAL fwdflat 0.08 CPU 0.028 xRT
INFO: ngram_search_fwdflat.c(177): TOTAL fwdflat 0.08 wall 0.029 xRT
INFO: ngram_search.c(317): TOTAL bestpath 0.00 CPU 0.000 xRT
INFO: ngram_search.c(320): TOTAL bestpath 0.00 wall 0.001 xRT
* recording
* done recording
INFO: cmn.c(175): CMN: 52.55 -1.38 0.85 0.74 0.89 0.99 0.73 0.21 0.42 0.48 0.55 0.62 0.33
INFO: ngram_search_fwdtree.c(1549):   3002 words recognized (10/fr)
INFO: ngram_search_fwdtree.c(1551):   30792 senones evaluated (107/fr)
INFO: ngram_search_fwdtree.c(1553):   22560 channels searched (78/fr), 852 1st, 21708 last
INFO: ngram_search_fwdtree.c(1557):   3639 words for which last channels evaluated (12/fr)
INFO: ngram_search_fwdtree.c(1560):   846 candidate words for entering last phone (2/fr)
INFO: ngram_search_fwdtree.c(1562): fwdtree 0.16 CPU 0.056 xRT
INFO: ngram_search_fwdtree.c(1565): fwdtree 0.17 wall 0.059 xRT
INFO: ngram_search_fwdflat.c(302): Utterance vocabulary contains 4 words
INFO: ngram_search_fwdflat.c(937):   419 words recognized (1/fr)
INFO: ngram_search_fwdflat.c(939):   12592 senones evaluated (44/fr)
INFO: ngram_search_fwdflat.c(941):   10972 channels searched (38/fr)
INFO: ngram_search_fwdflat.c(943):   774 words searched (2/fr)
INFO: ngram_search_fwdflat.c(945):   322 word transitions (1/fr)
INFO: ngram_search_fwdflat.c(948): fwdflat 0.09 CPU 0.031 xRT
INFO: ngram_search_fwdflat.c(951): fwdflat 0.08 wall 0.029 xRT
INFO: ngram_search.c(1214): </s> not found in last frame, using <sil>.286 instead
INFO: ngram_search.c(1266): lattice start node <s>.0 end node <sil>.119
INFO: ngram_search.c(1294): Eliminated 1 nodes before end node
INFO: ngram_search.c(1399): Lattice has 33 nodes, 11 links
INFO: ps_lattice.c(1365): Normalizer P(O) = alpha(<sil>:119:286) = -1560513
INFO: ps_lattice.c(1403): Joint P(O,S) = -1563832 P(S|O) = -3319
INFO: ngram_search.c(888): bestpath 0.00 CPU 0.000 xRT
INFO: ngram_search.c(891): bestpath 0.00 wall 0.001 xRT
* LED section begins
OFF

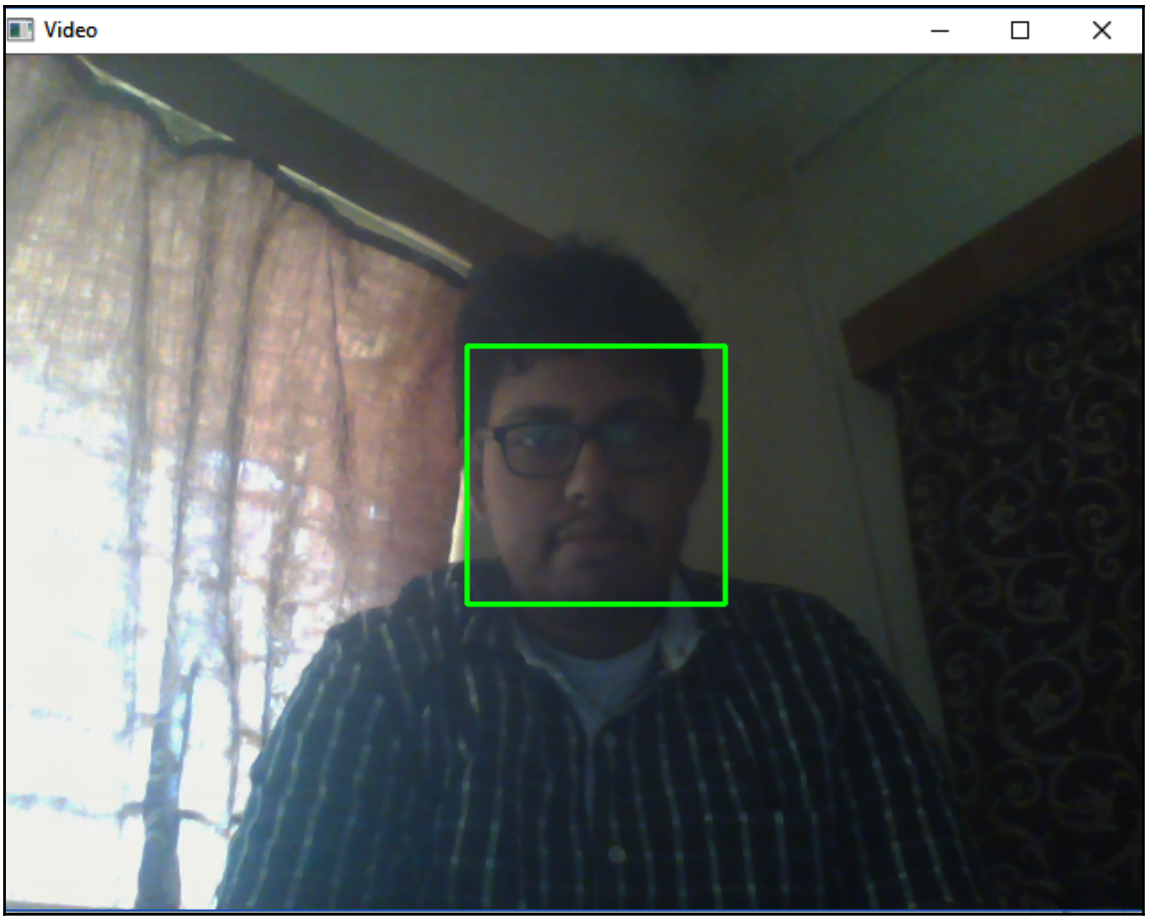
TOWER PRO™
Micro Servo
9g
SG90

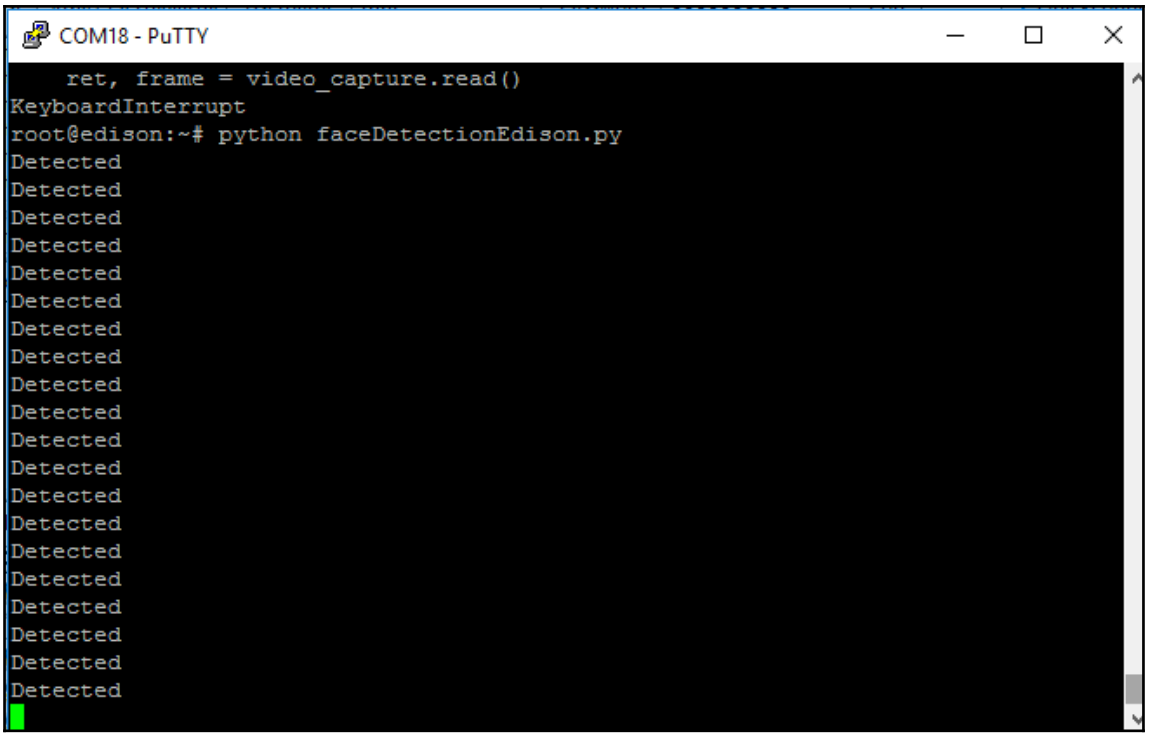

LED
Servo motor
D13
Gnd
Vcc
Gnd
D6
Intel Edison

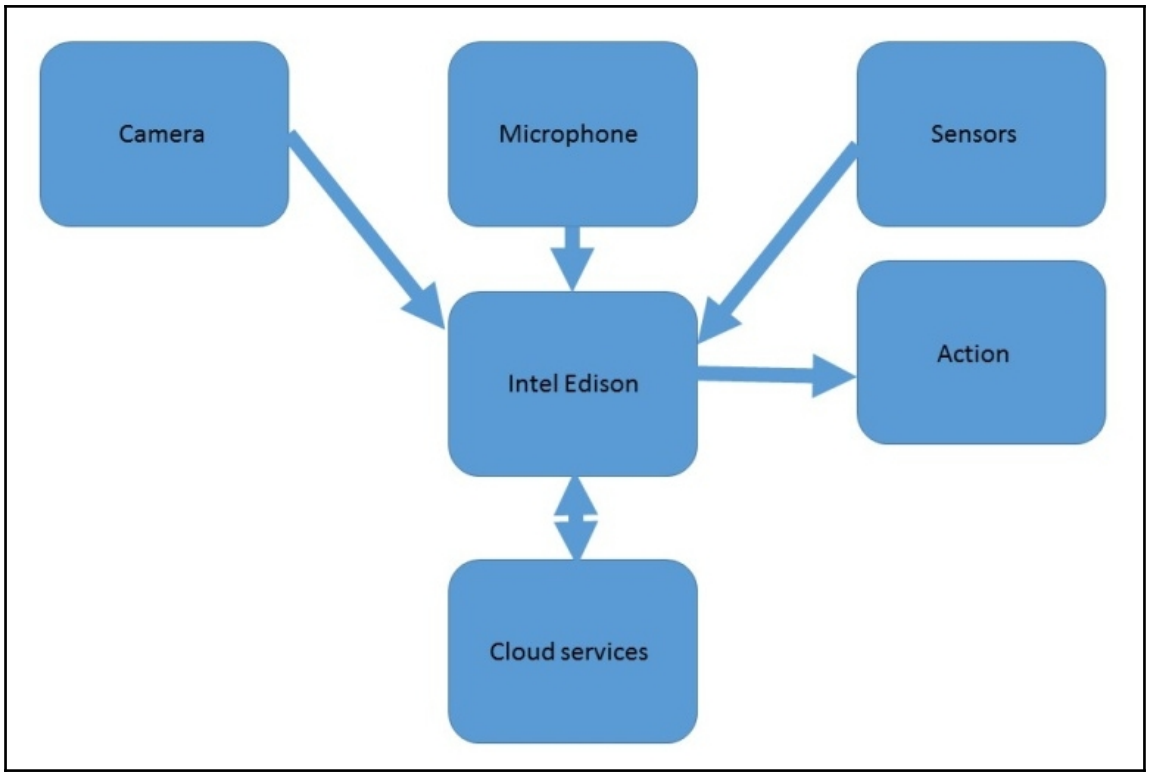
COM18 - PuTTY

```
root@edison:~# python
Python 2.7.3 (default, Jun  6 2016, 13:14:10)
[GCC 4.9.1] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy
>>> import cv2
>>>
```

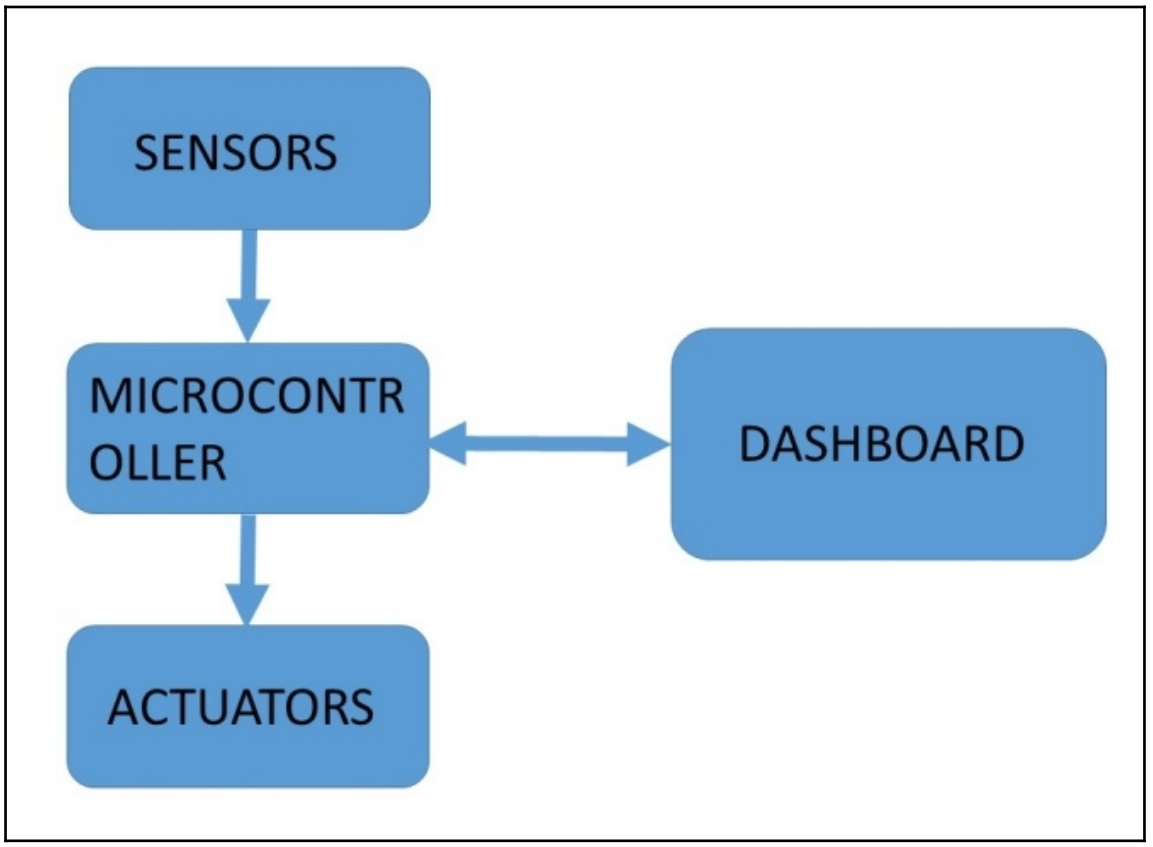


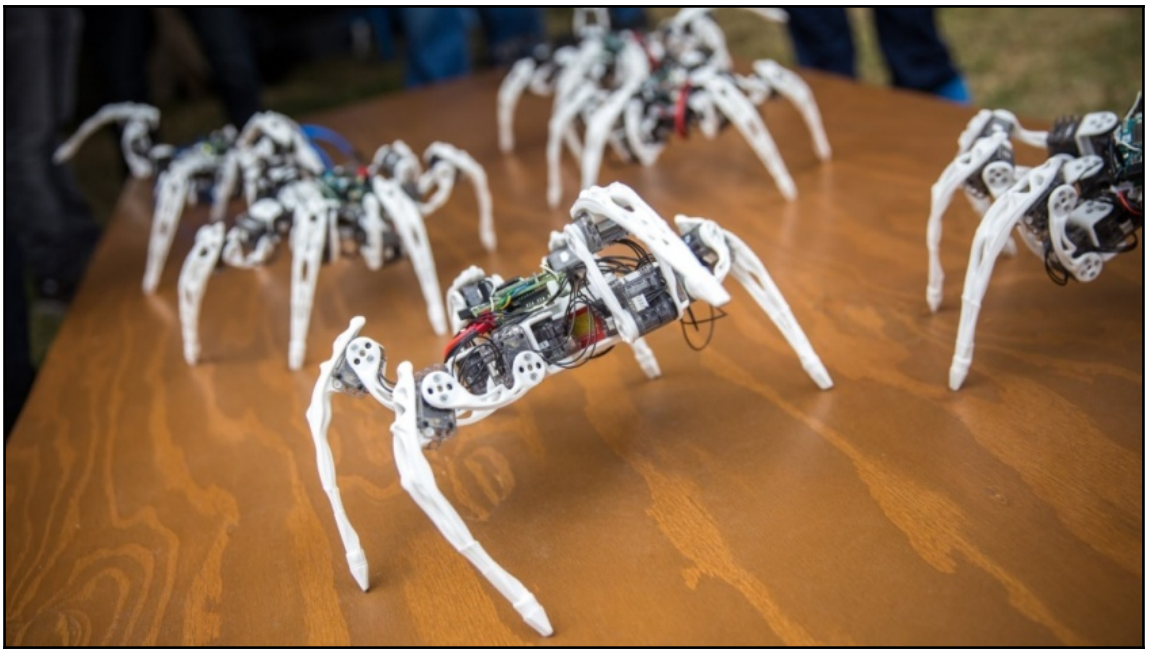

Video

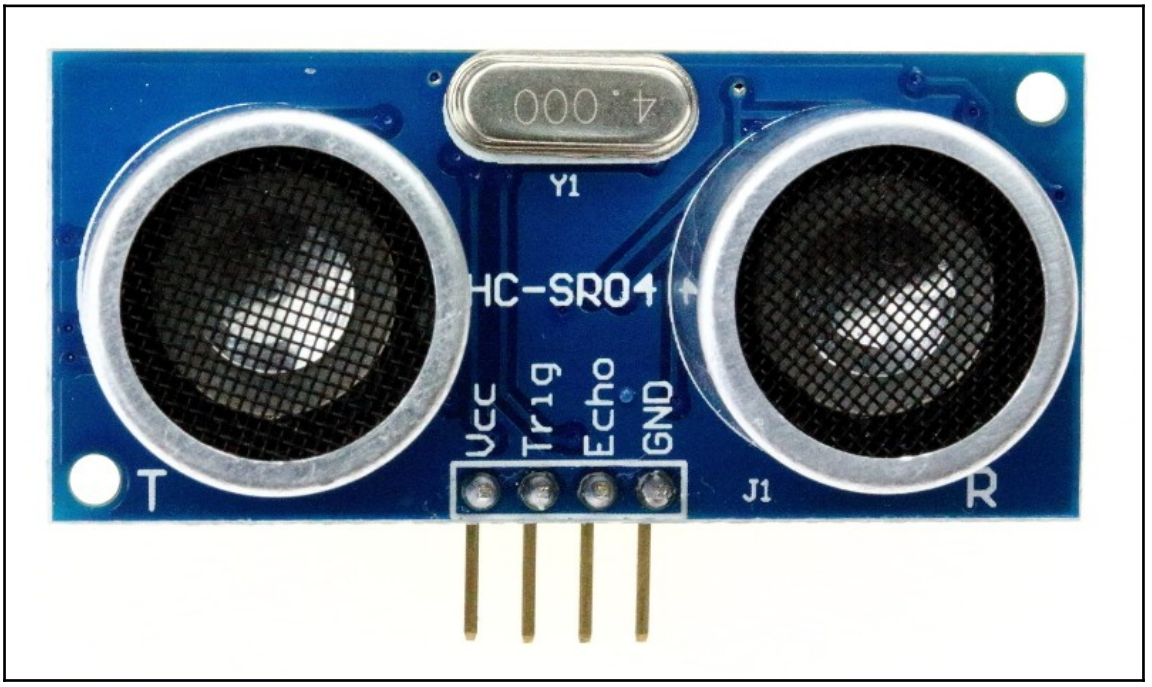

COM18 - PuTTY
ret, frame = video_capture.read()
KeyboardInterrupt
root@edison:~# python faceDetectionEdison.py
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected
Detected

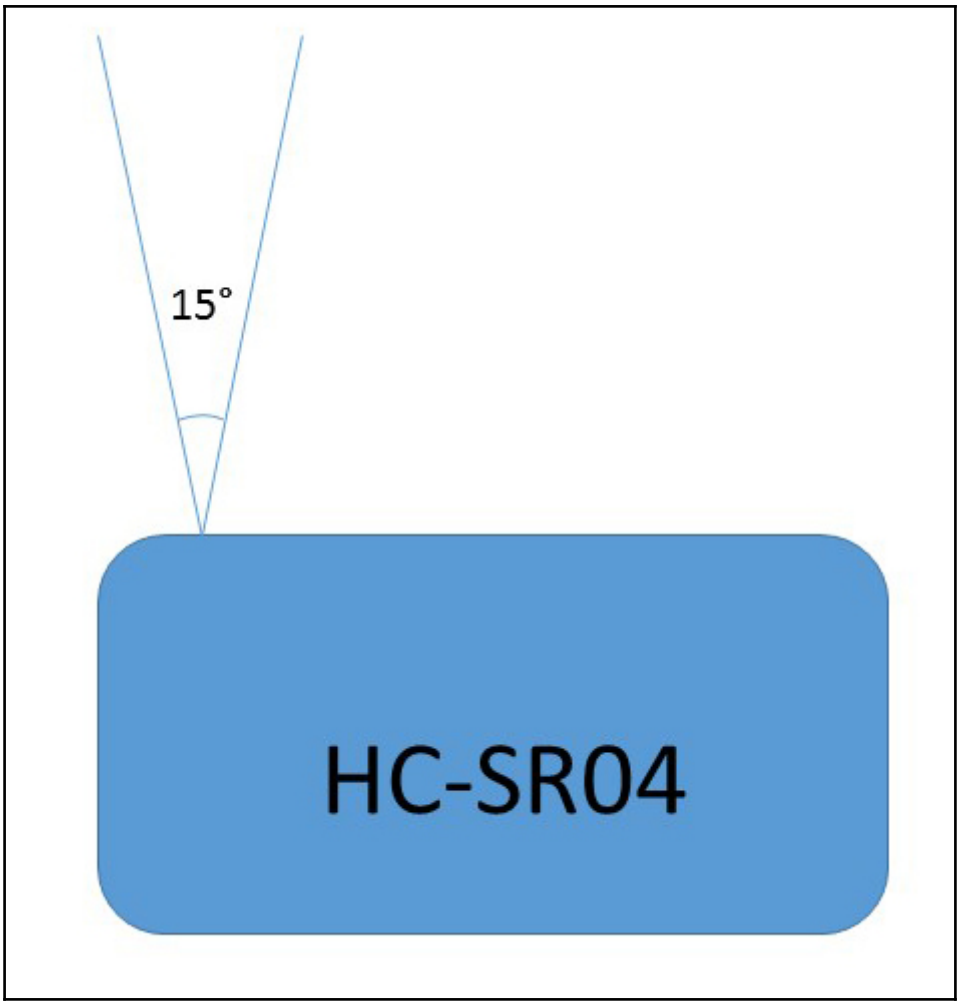

Camera
Microphone
Sensors
Intel Edison
Action
Cloud services

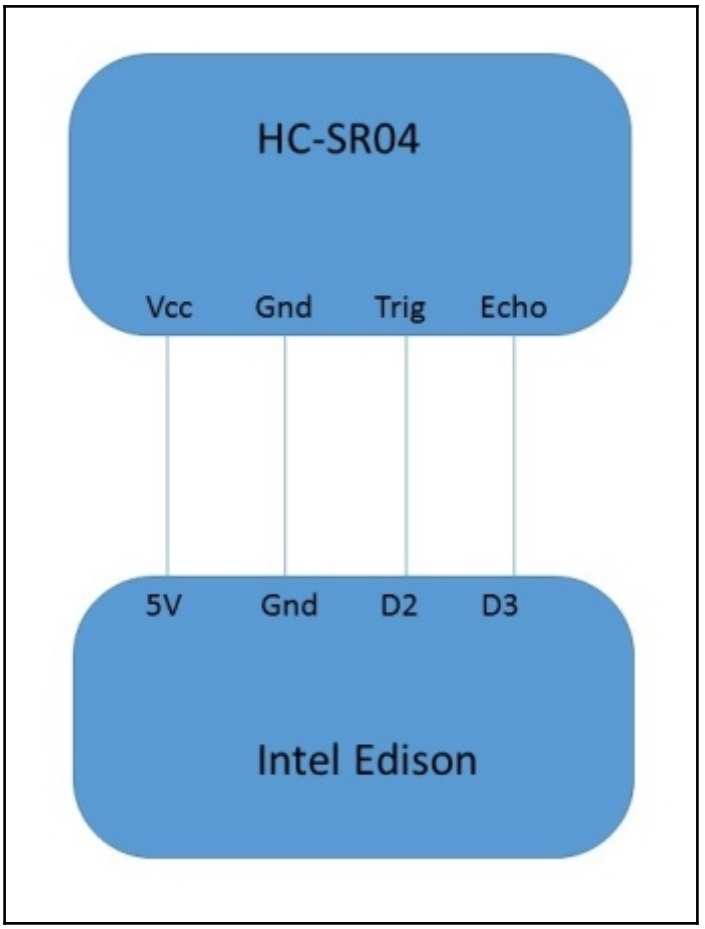
Chapter 5: Autonomous Robotics with Intel Edison

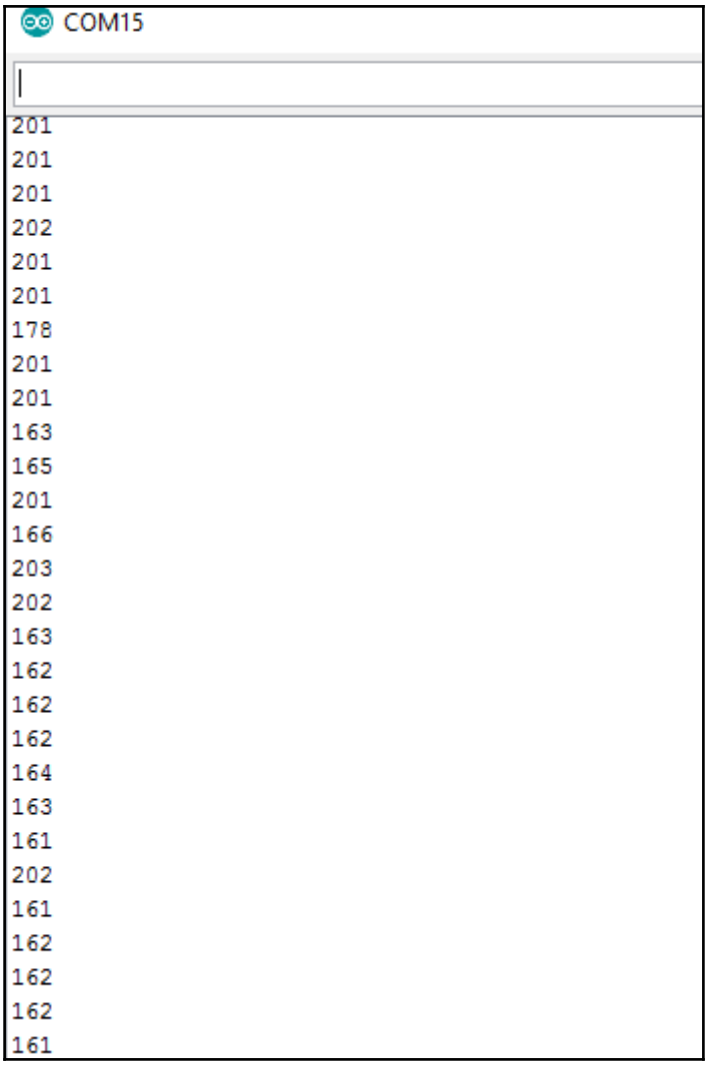


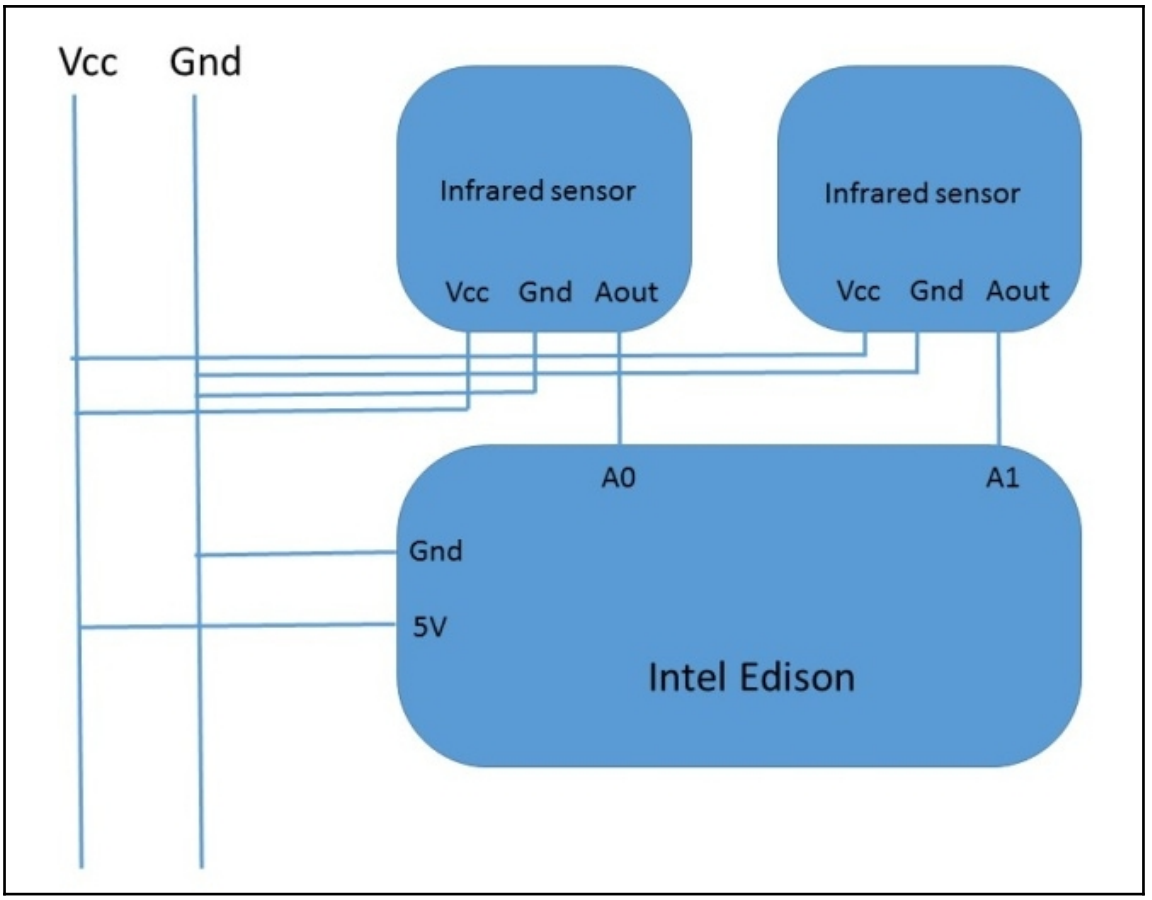


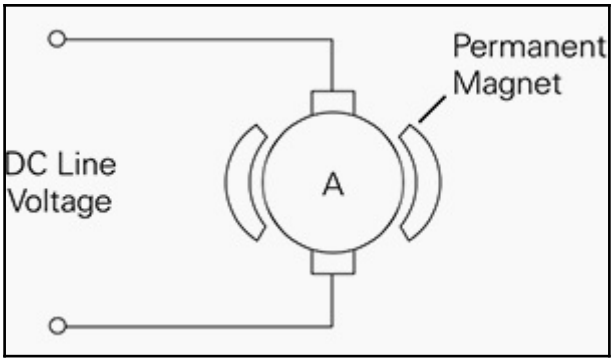

4.000
Y1
HC-SR04
Vcc
Trig
Echo
GND
T
R
J1

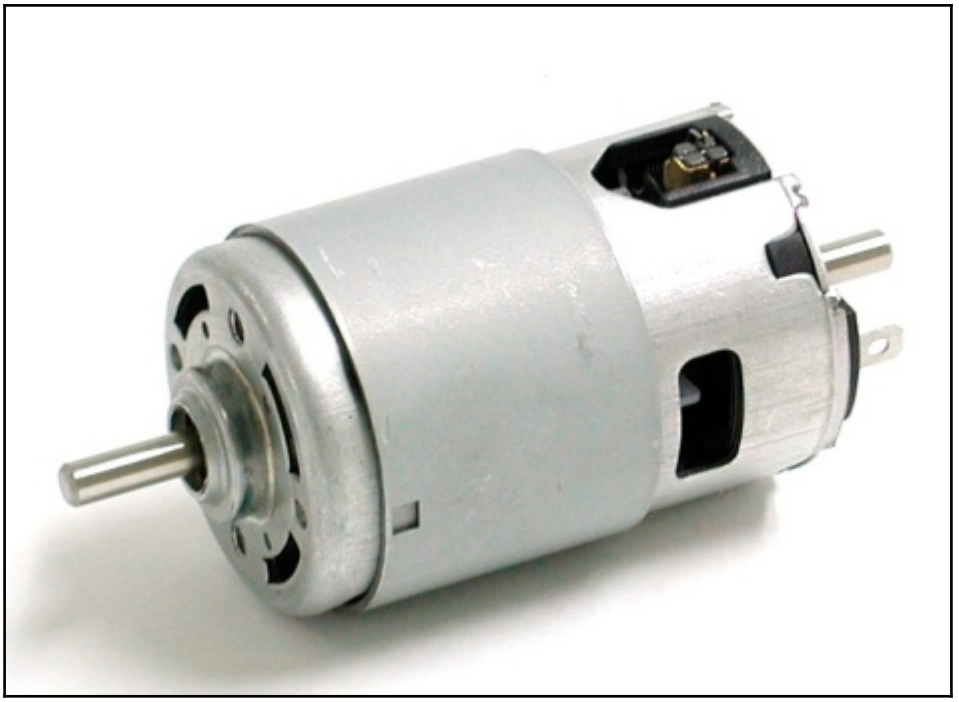

15°
HC-SR04

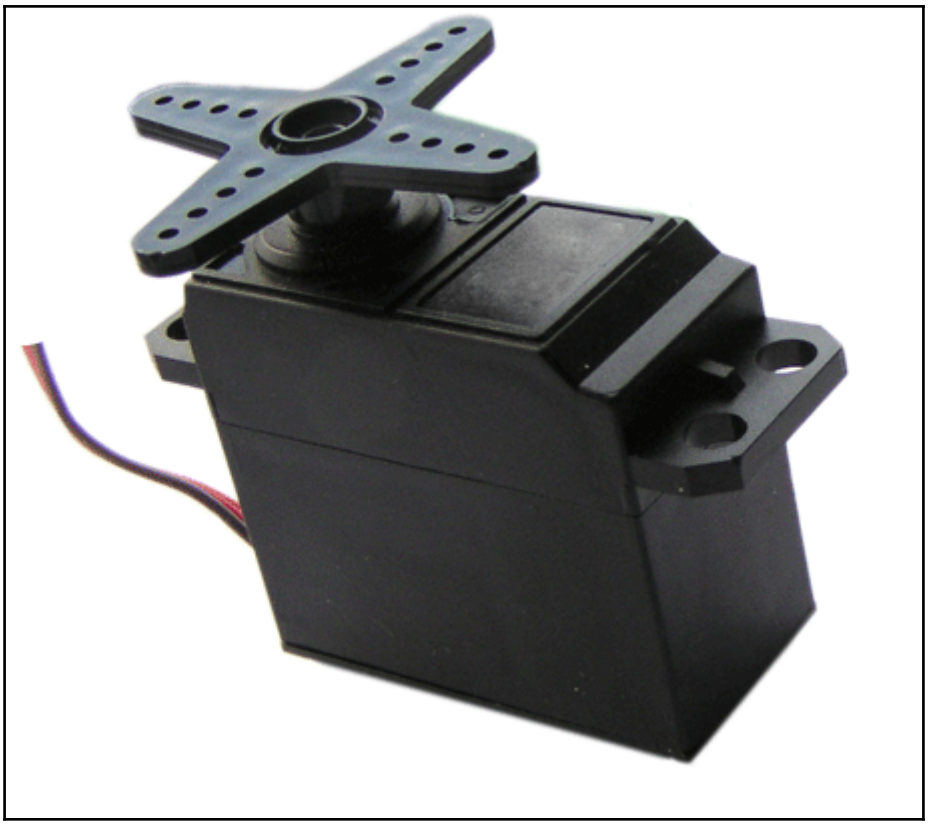

HC-SR04
Vcc
Gnd
Trig
Echo
5V
Gnd
D2
D3
Intel Edison

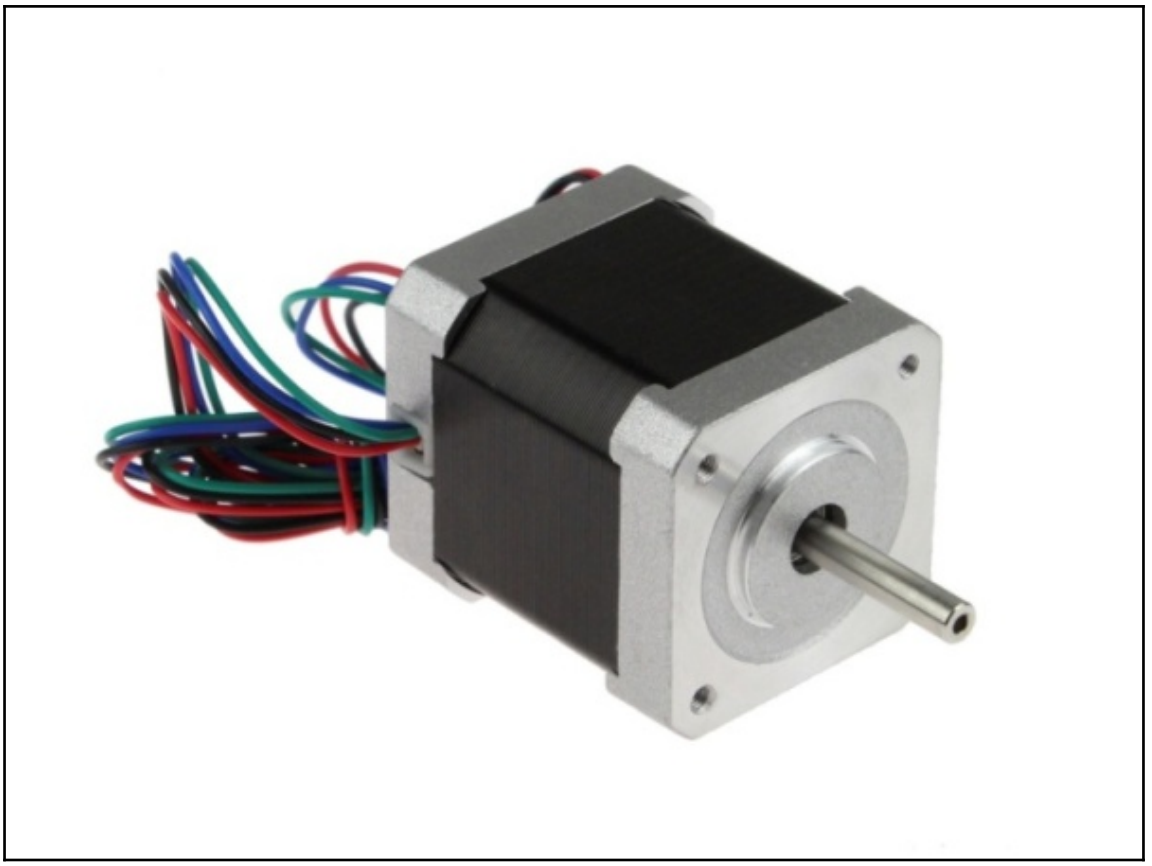

COM15
201
201
201
202
201
201
178
201
201
163
165
201
166
203
202
163
162
162
162
164
163
161
202
161
162
162
162
161

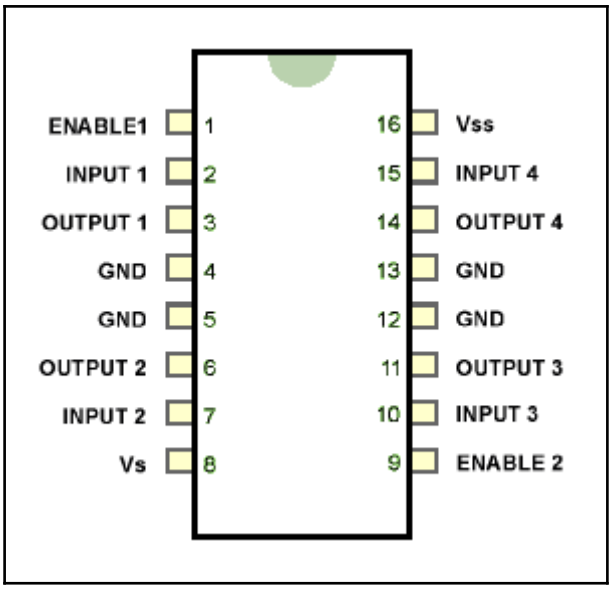

Vcc
Gnd
Infrared sensor
Vcc Gnd Aout
Infrared sensor
Vcc Gnd Aout
A0
A1
Gnd
5V
Intel Edison

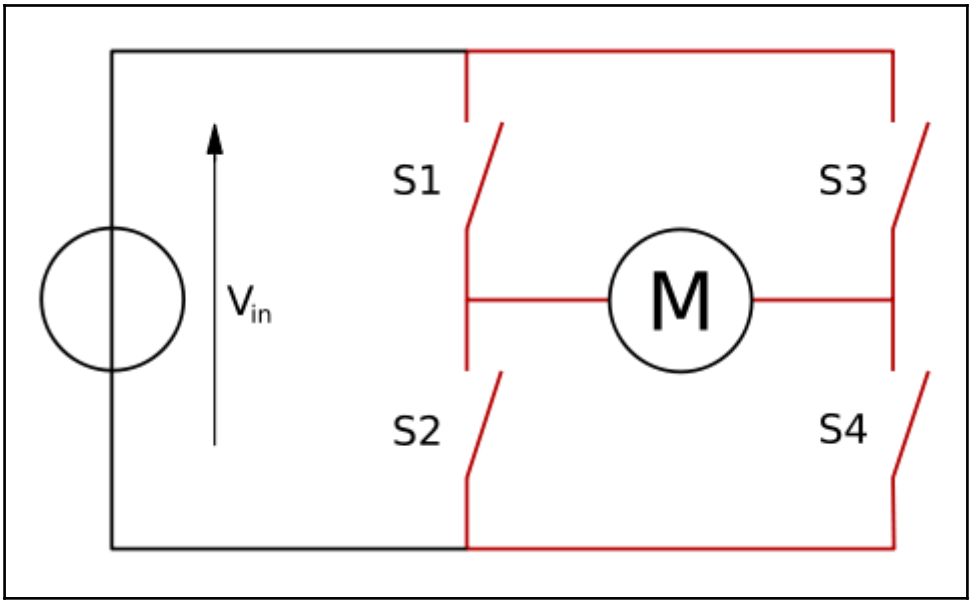

Permanent
Magnet
DC Line
Voltage
A

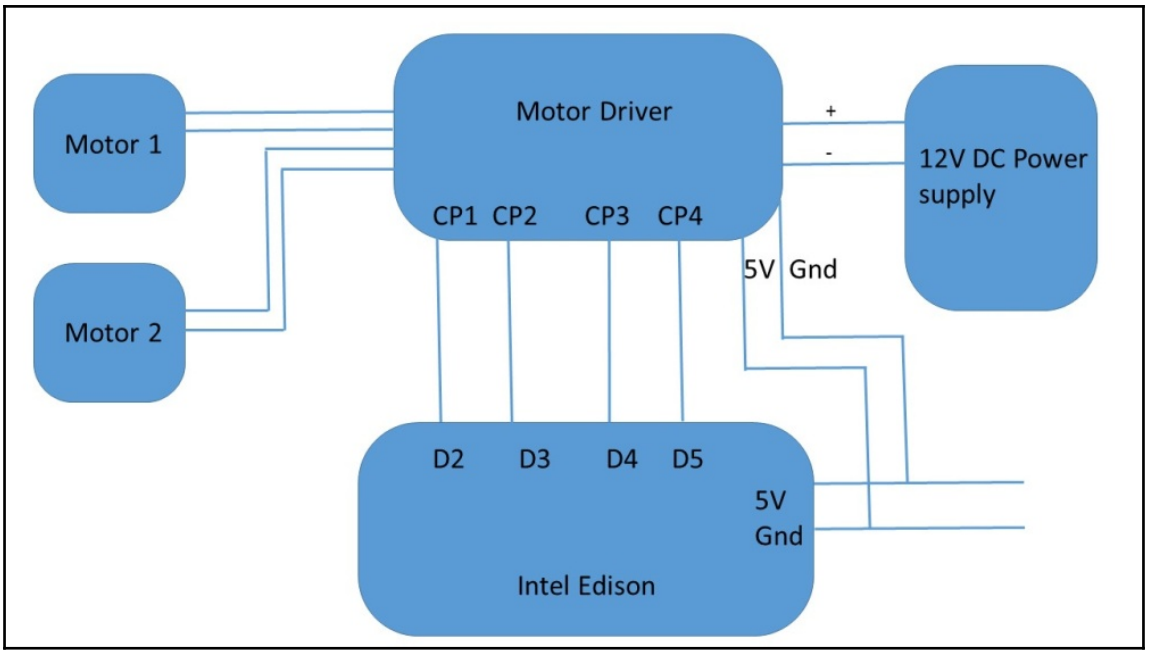


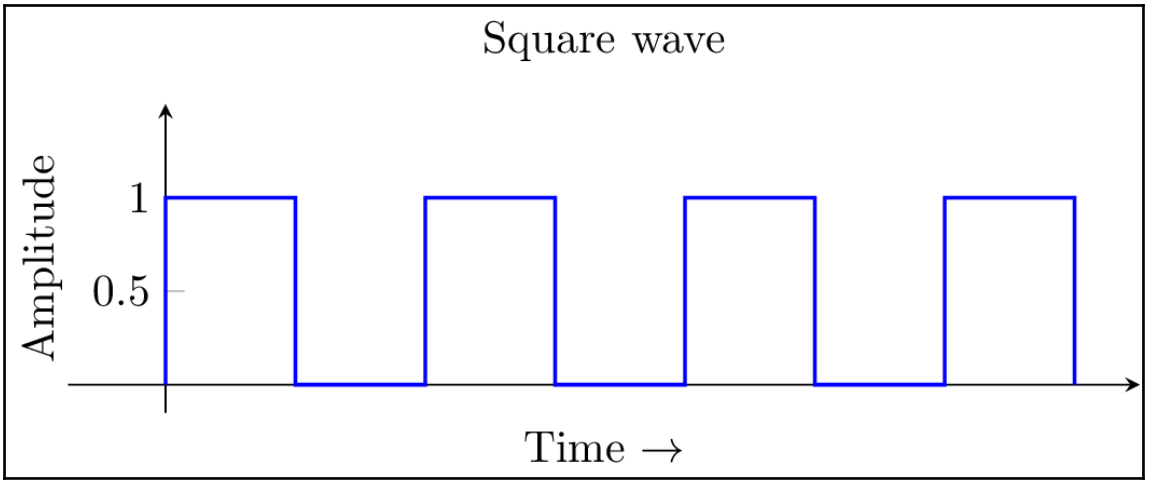


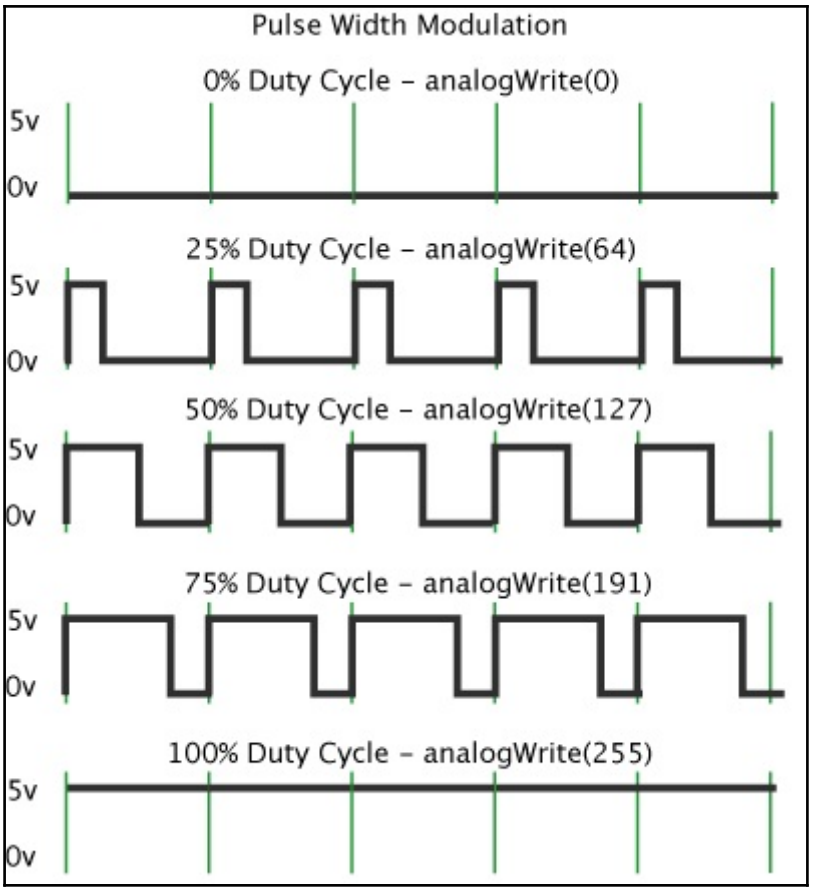


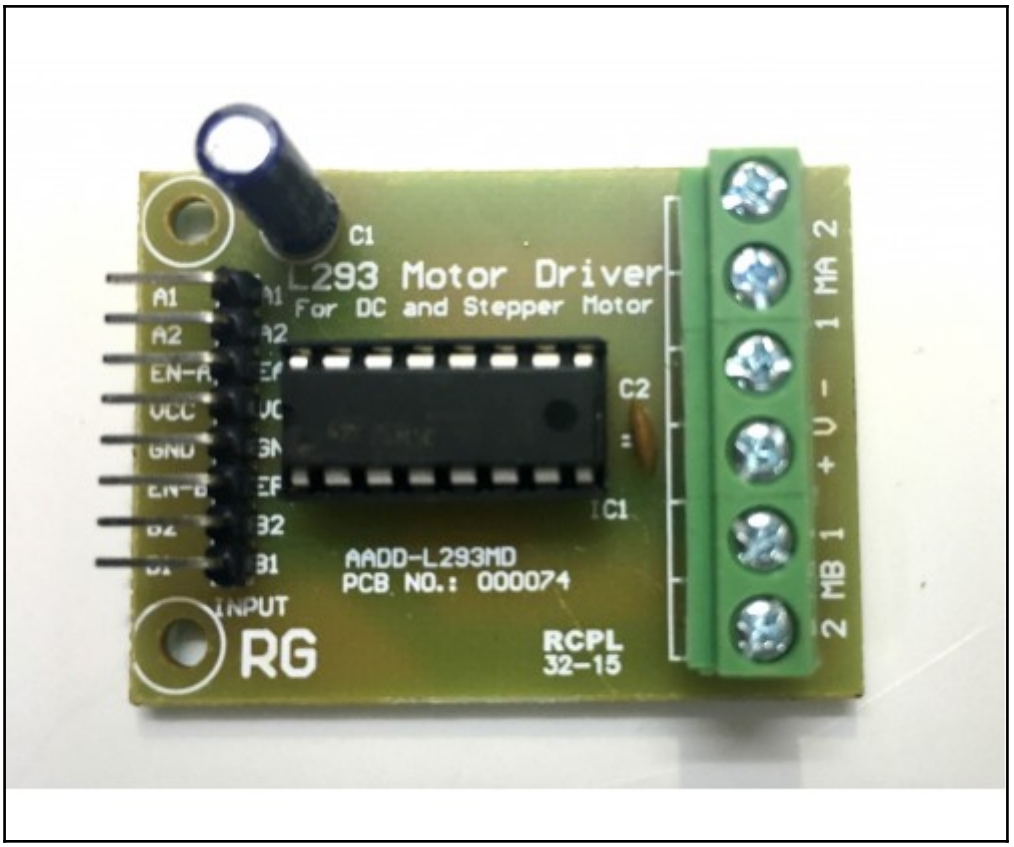

ENABLE1
1
INPUT 1
2
OUTPUT 1
3
GND
4
GND
5
OUTPUT 2
6
INPUT 2
7
Vs
8
16
Vss
15
INPUT 4
14
OUTPUT 4
13
GND
12
GND
11
OUTPUT 3
10
INPUT 3
9
ENABLE 2

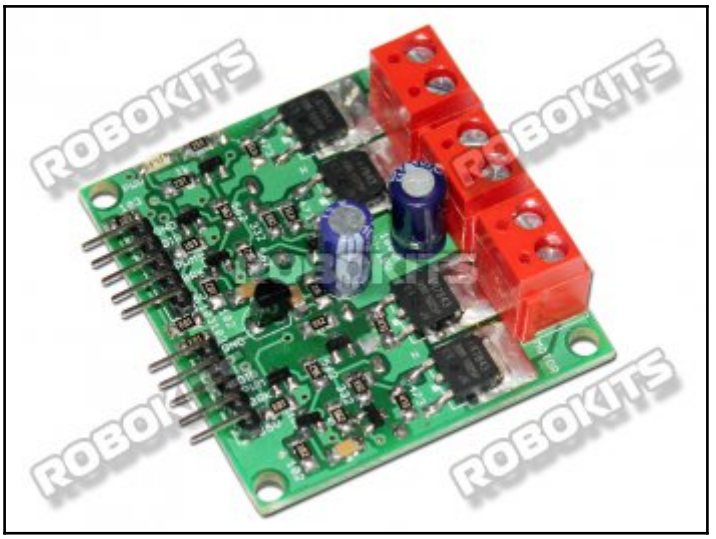

S1
S3
M
V_{in}
S2
S4

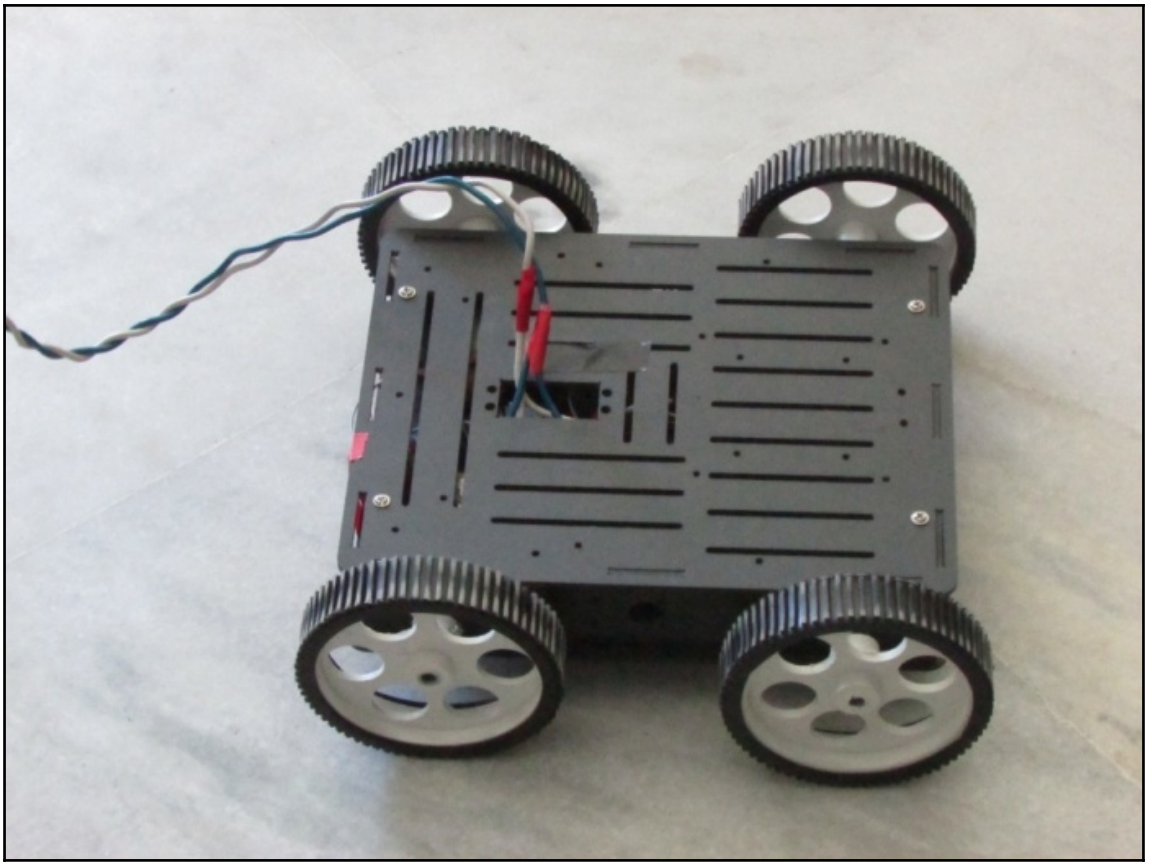

Motor 1
Motor 2
Motor Driver
CP1 CP2 CP3 CP4
+
-
12V DC Power supply
5V Gnd
D2 D3 D4 D5
5V
Gnd
Intel Edison

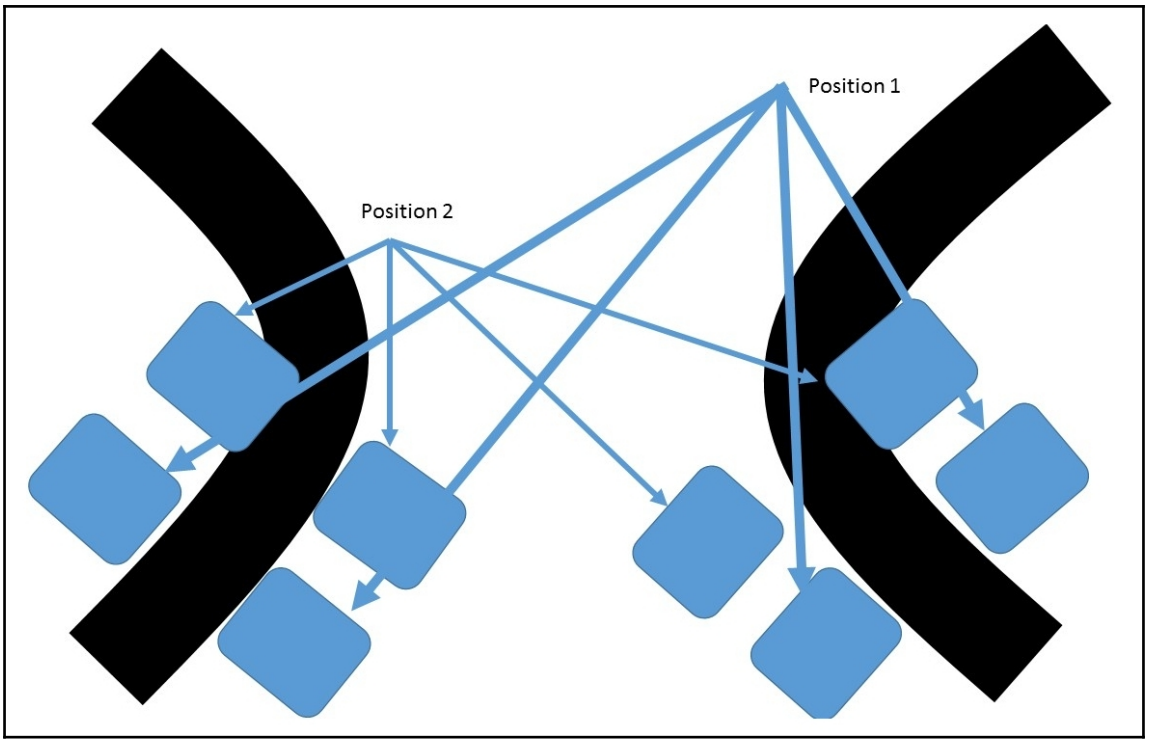

Square wave
Amplitude
1
0.5
Time →

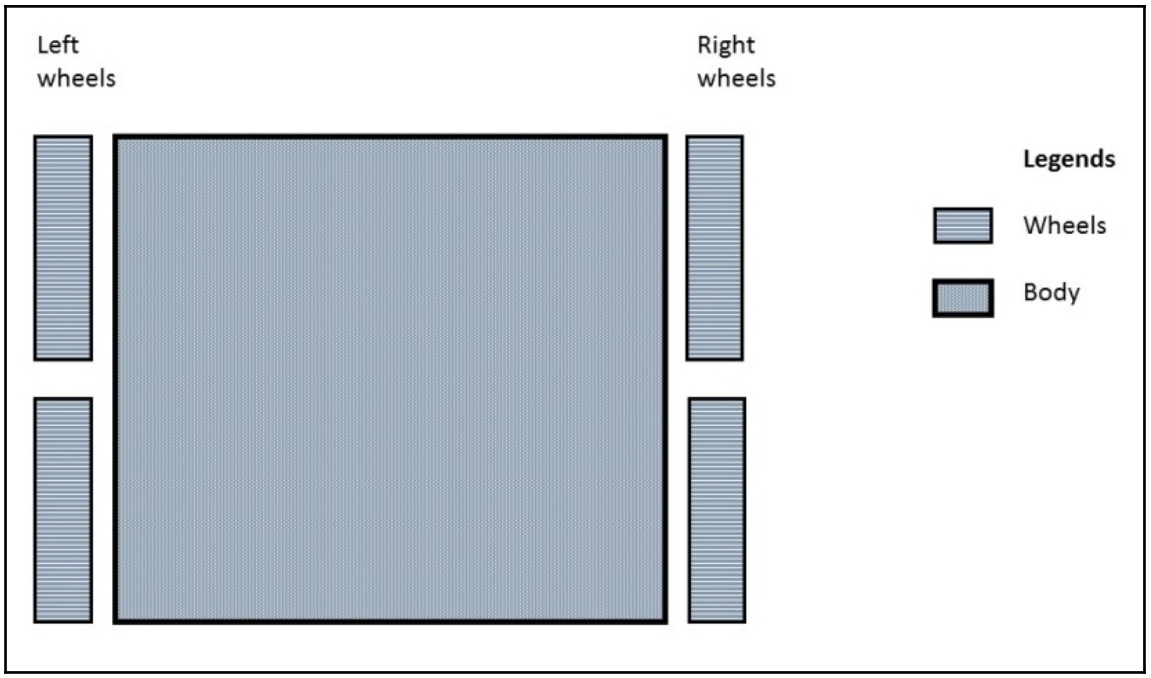

Pulse Width Modulation
0% Duty Cycle – analogWrite(0)
5v
0v
25% Duty Cycle – analogWrite(64)
5v
0v
50% Duty Cycle – analogWrite(127)
5v
0v
75% Duty Cycle – analogWrite(191)
5v
0v
100% Duty Cycle – analogWrite(255)
5v
0v

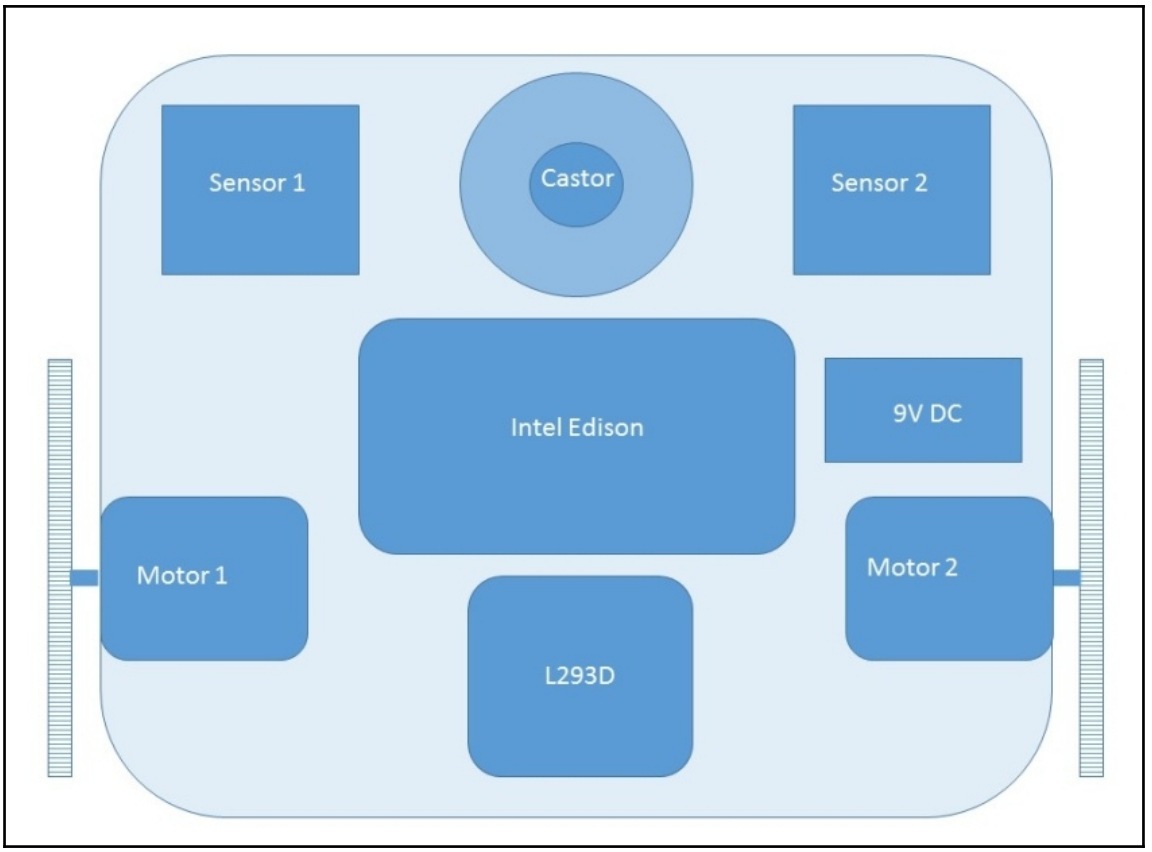

C1
L293 Motor Driver
For DC and Stepper Motor
A1
A2
EN-A
VCC
GND
B2
B1
INPUT
C2
IC1
AADD-L293MD
PCB NO.: 000074
RG
RCPL
32-15
2 MB 1 + U - 1 MA 2

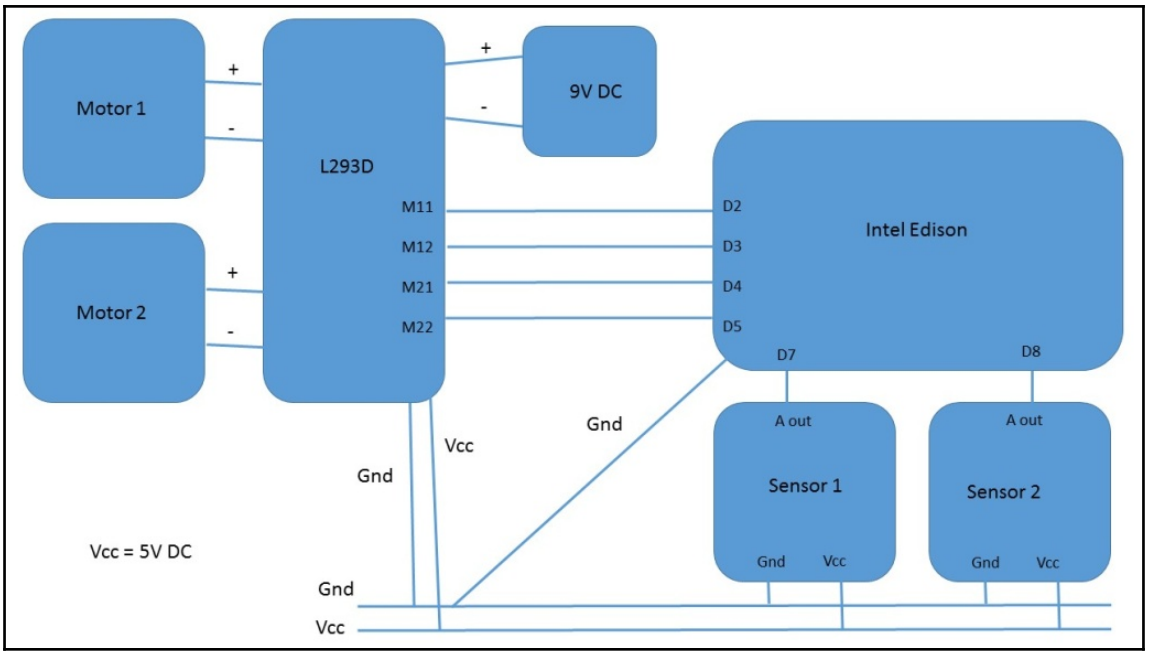

ROBOKITS
ROBOKITS
ROBOKITS
ROBOKITS

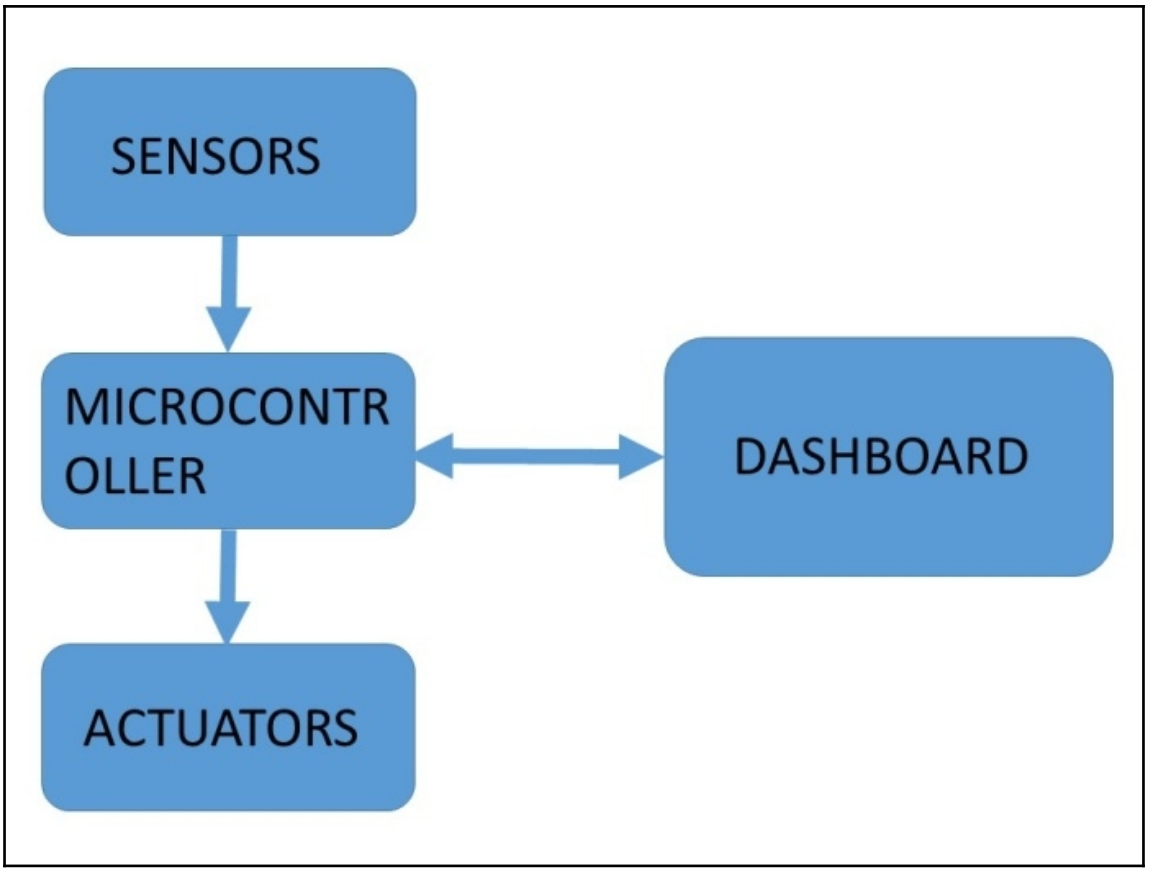


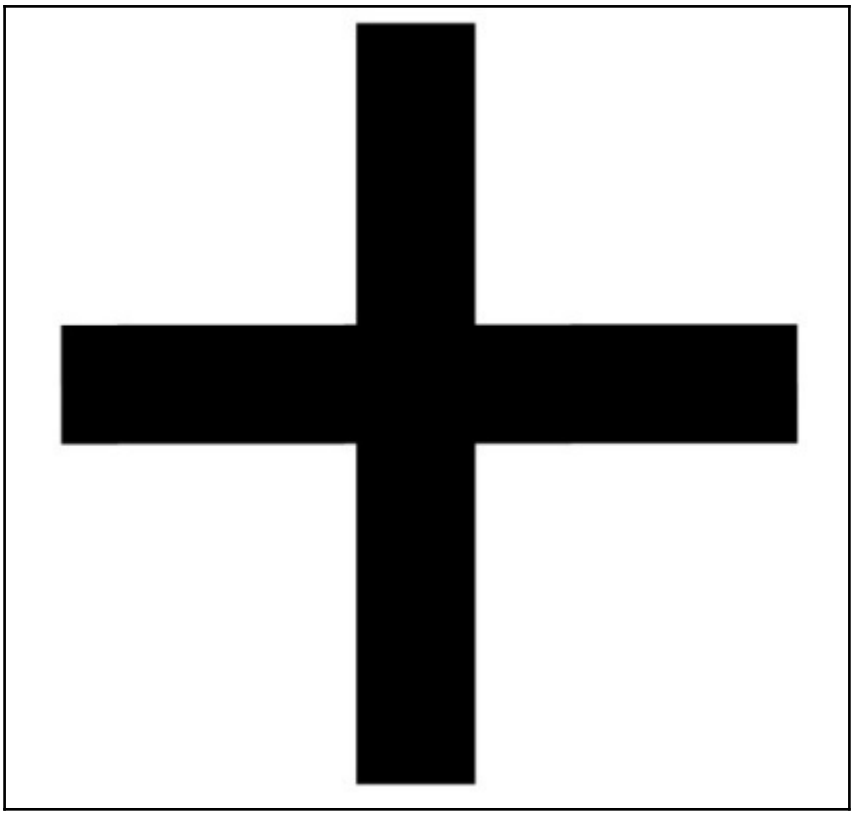

Position 1
Position 2

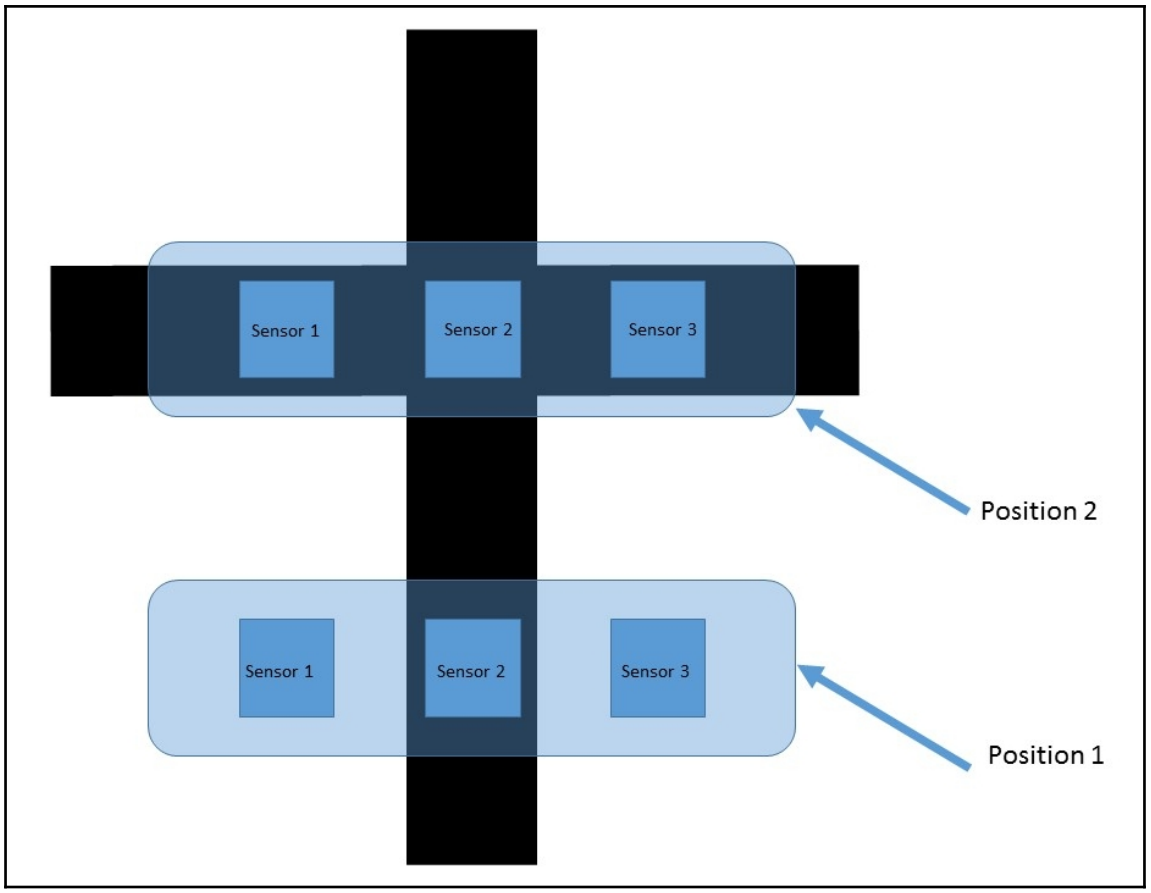

Left
wheels
Right
wheels
Legends
Wheels
Body

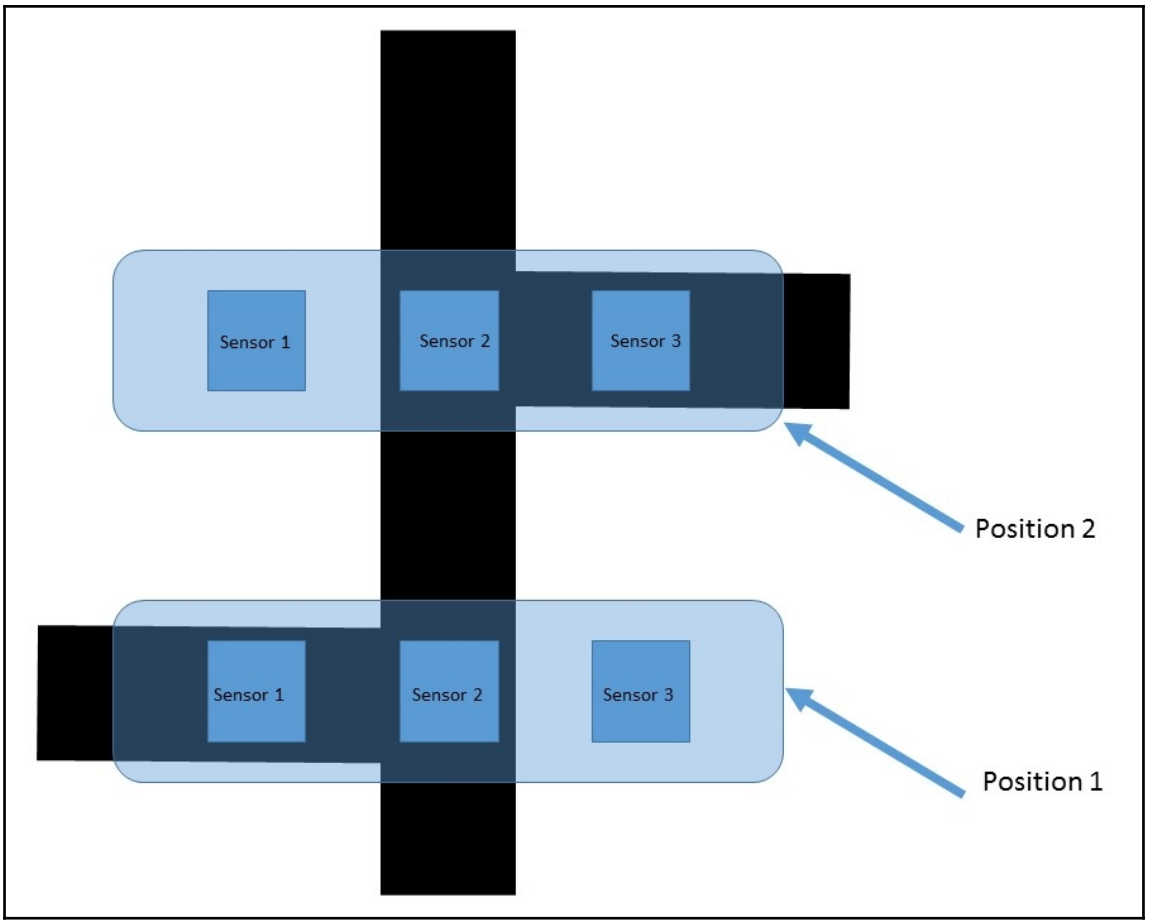

Sensor 1
Castor
Sensor 2
Intel Edison
9V DC
Motor 1
Motor 2
L293D

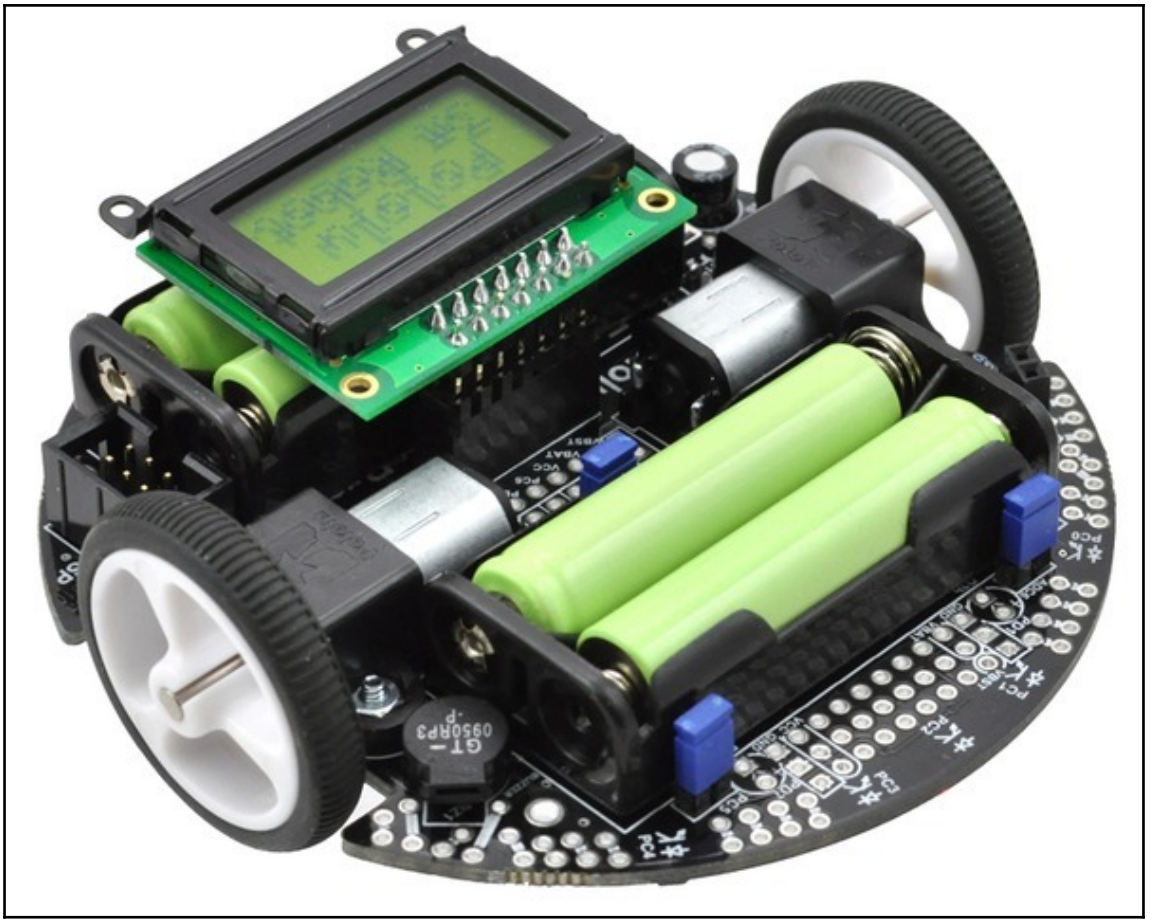

Motor 1
+
-
L293D
+
-
9V DC
Motor 2
+
-
M11
M12
M21
M22
D2
D3
D4
D5
Intel Edison
D7
D8
A out
Sensor 1
Gnd
Vcc
A out
Sensor 2
Gnd
Vcc
Gnd
Vcc
Gnd
Vcc = 5V DC
Gnd
Vcc


SENSORS
MICROCONTR
OLLER
DASHBOARD
ACTUATORS



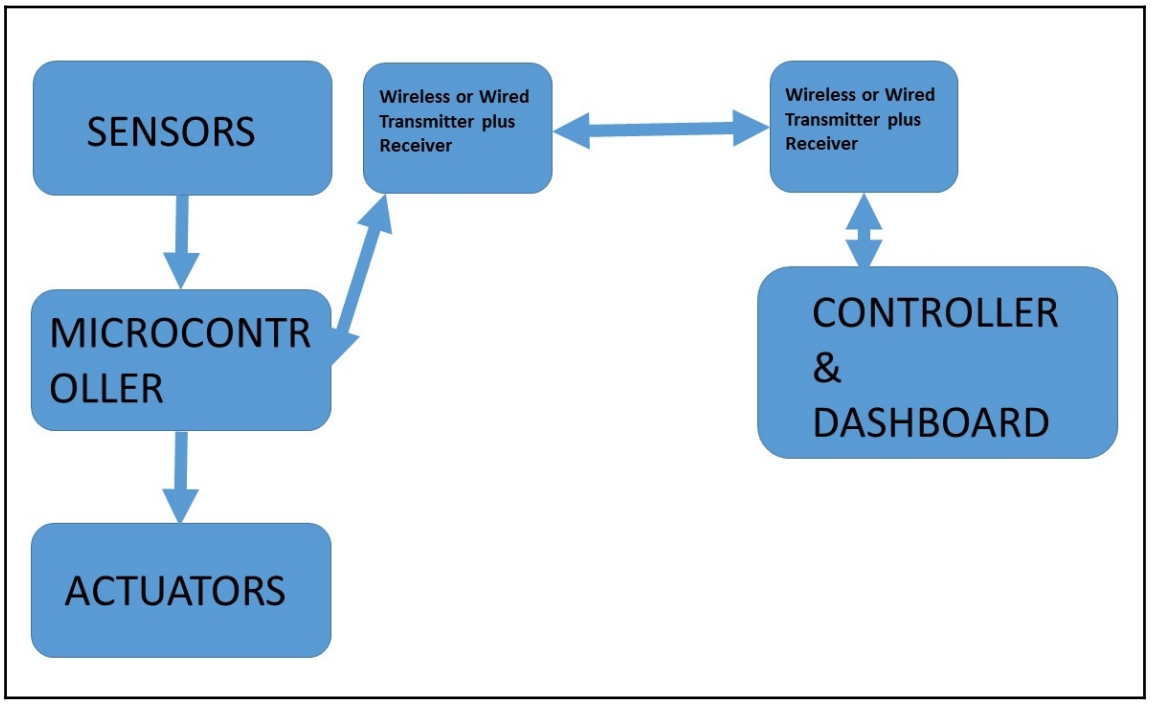

Sensor 1
Sensor 2
Sensor 3
Position 2
Sensor 1
Sensor 2
Sensor 3
Position 1

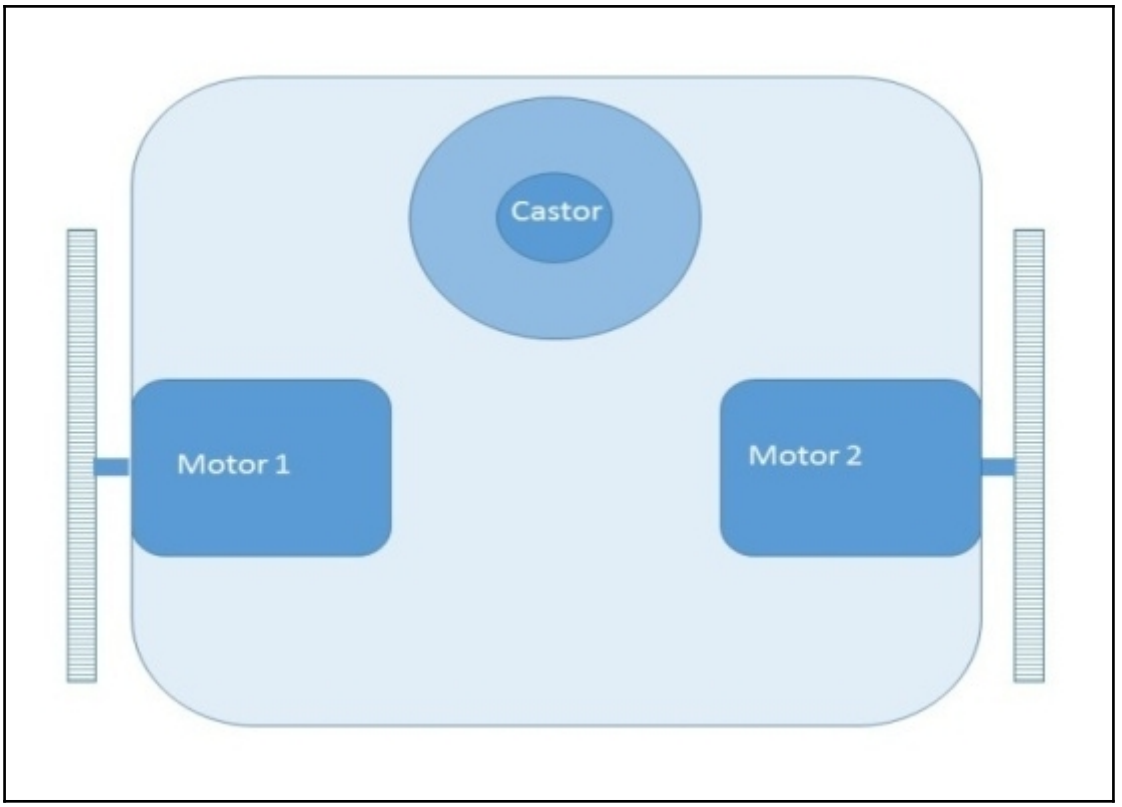

Sensor 1
Sensor 2
Sensor 3
Position 2
Sensor 1
Sensor 2
Sensor 3
Position 1

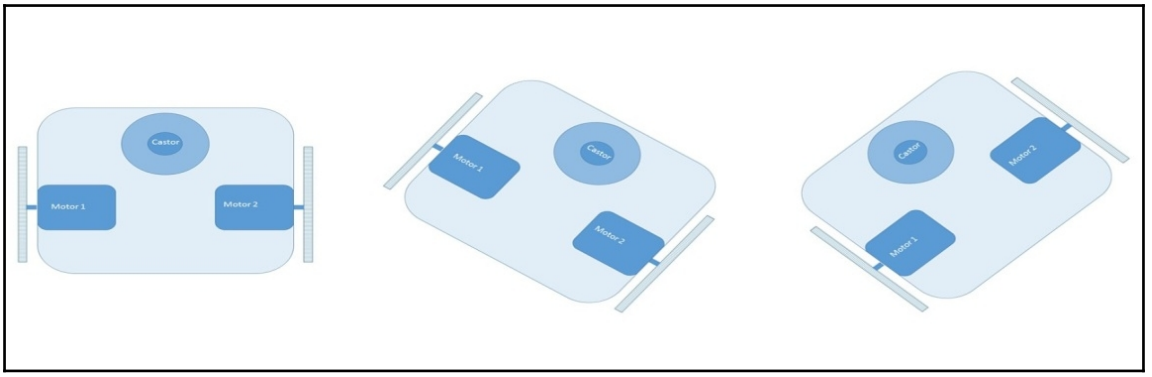


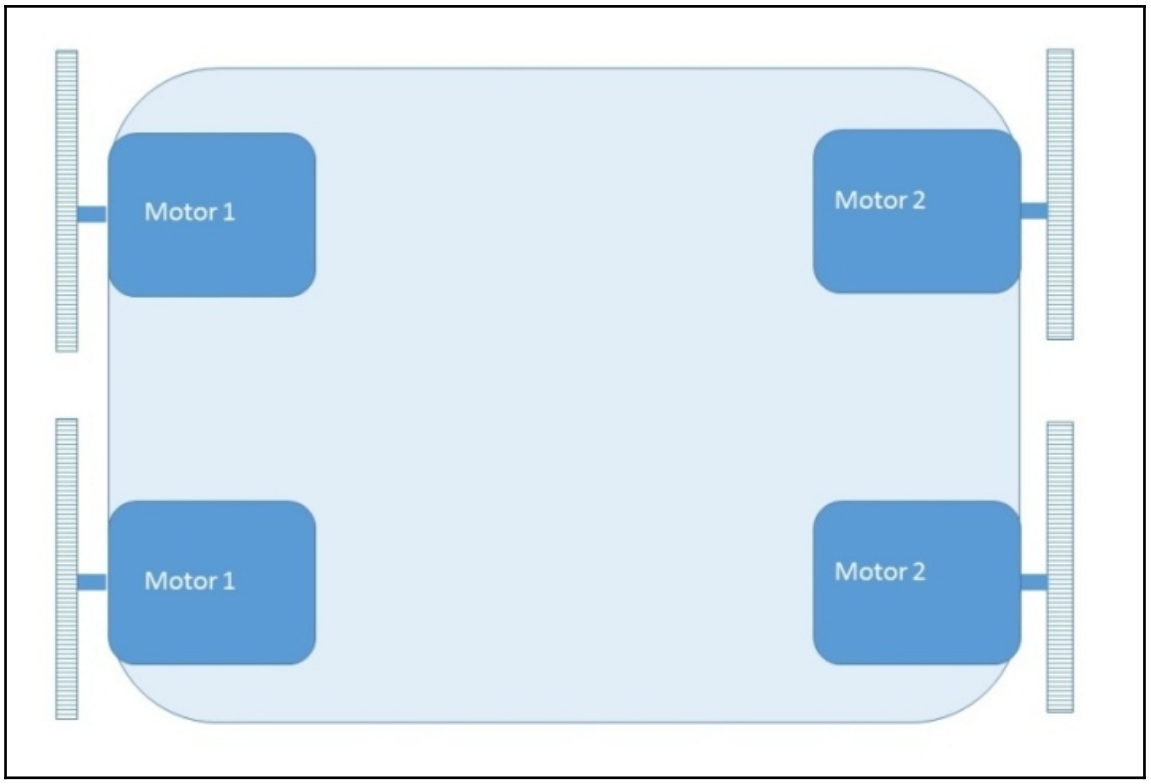
ROBOKITS.CO.IN
RKI-1032
ROBOKITS INDIA
SHORT JP1 IF INPUT IS 5VDC
KEEP JP1 OPEN IF INPUT
VOLTAGE IS MORE THEN 6VDC
FOR BEST RESULT
ADJUST POTENTIOMETER &
ADJUST HIGHT FROM SURFACE
LINE SENSOR ARRAY
ROBOKITS

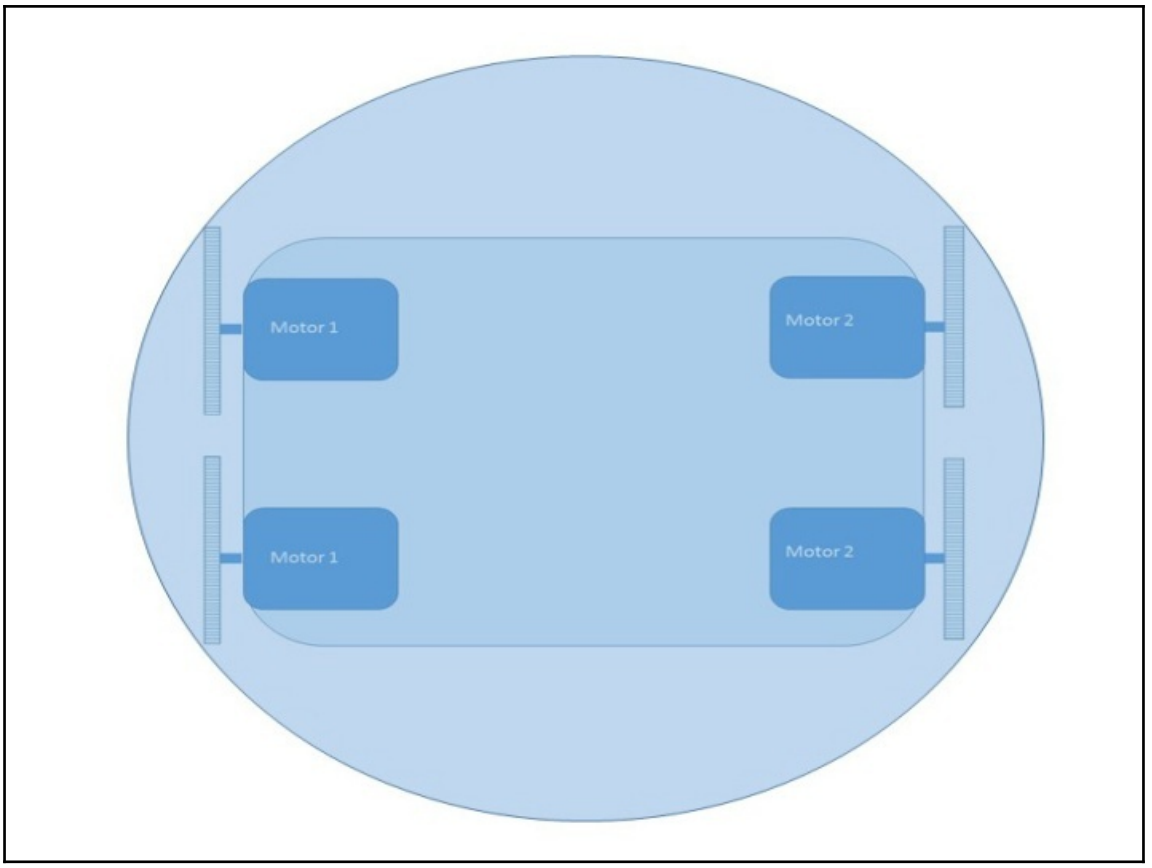
Chapter 6: Manual Robotics with Intel Edison

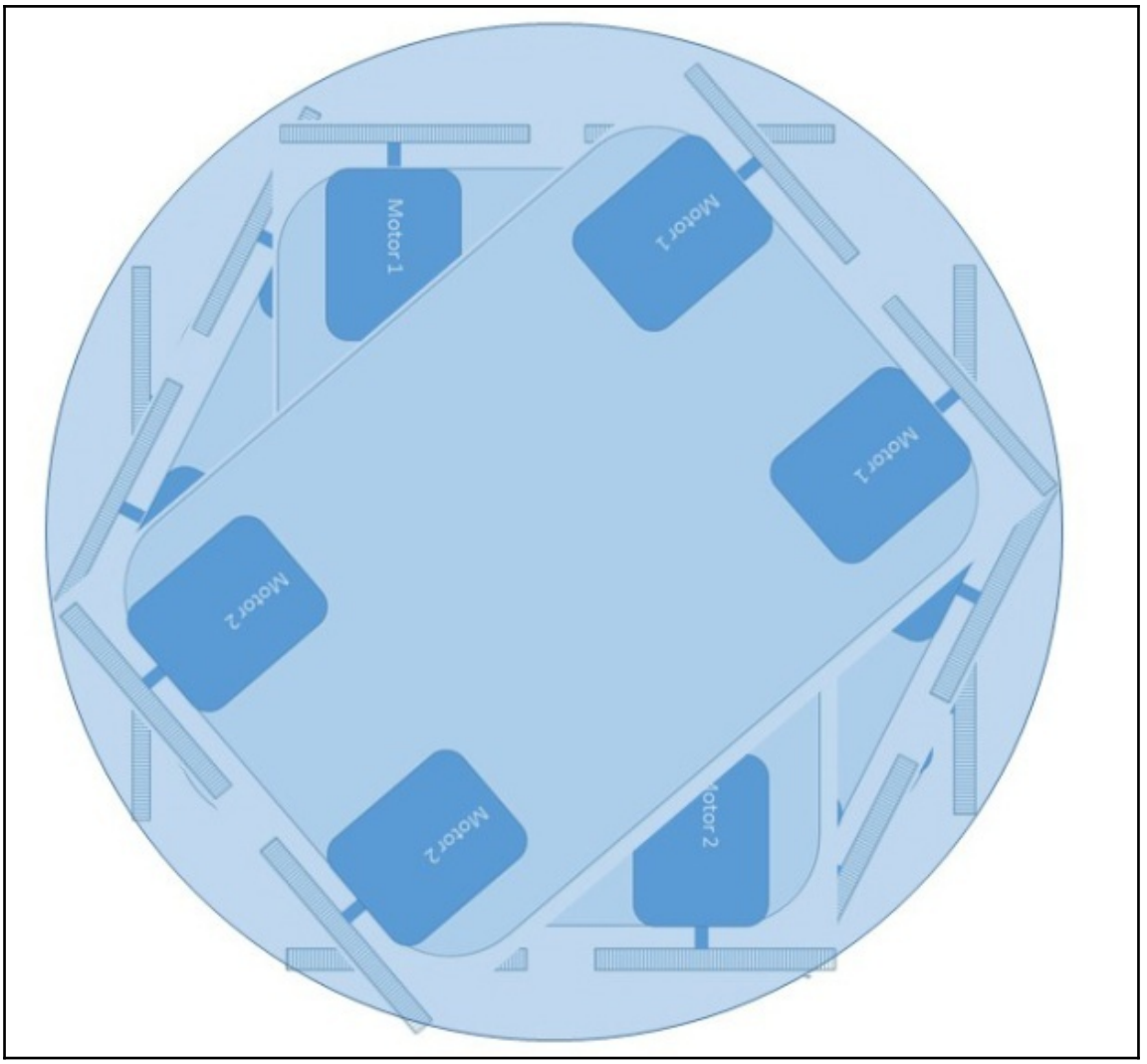


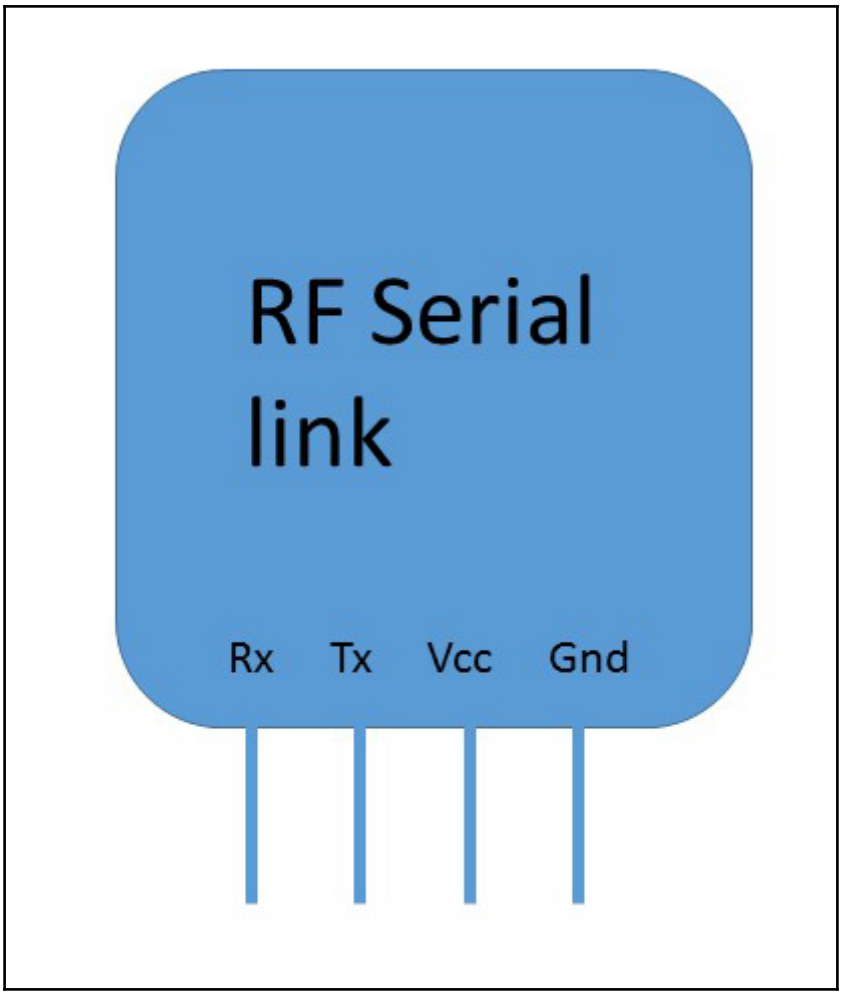

Castor
Motor 1
Motor 2


Castor
Motor 1
Motor 2
Castor
Motor 1
Motor 2
Castor
Motor 2
Motor 1

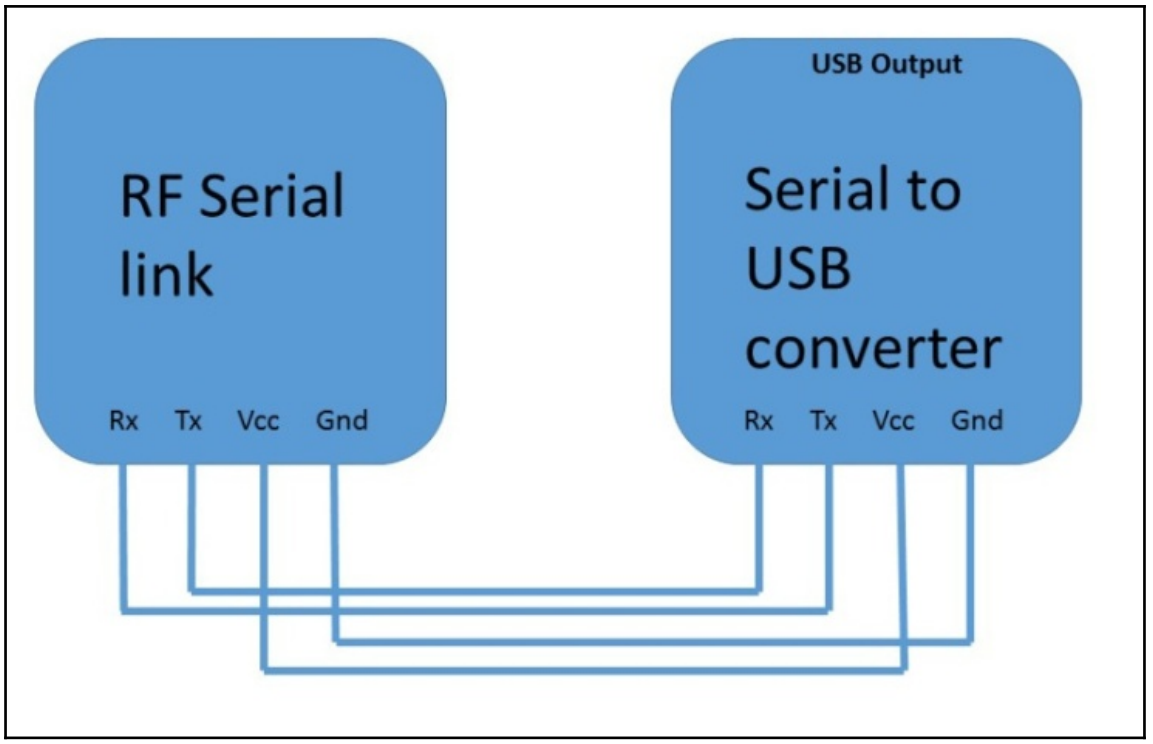

Motor 1
Motor 2
Motor 1
Motor 2

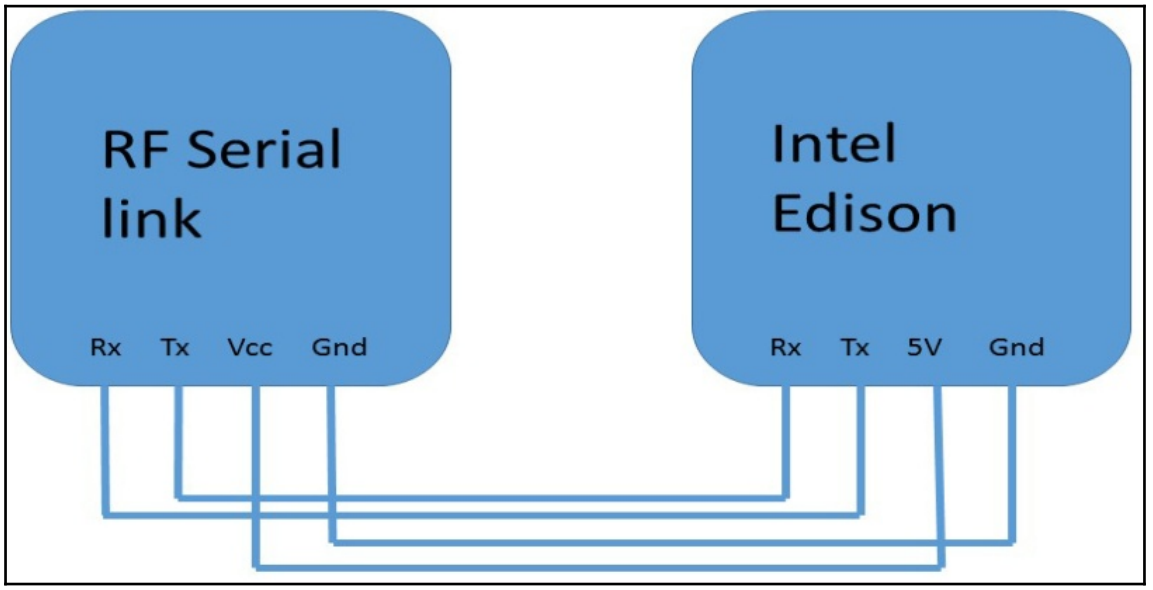

Motor 1
Motor 2
Motor 1
Motor 2

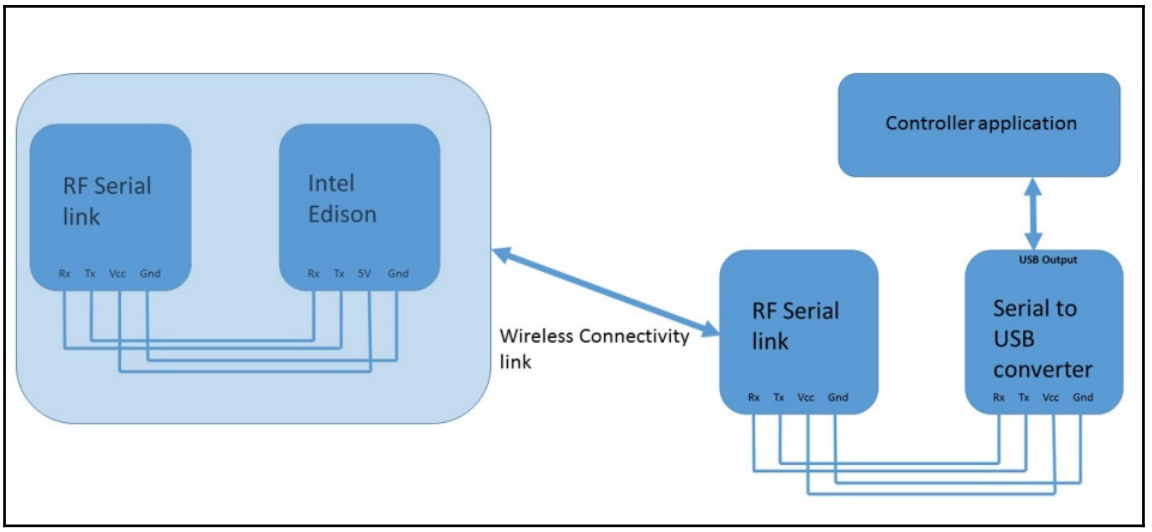

Motor 1
Motor 1
Motor 1
Motor 2
Motor 2
Motor 2

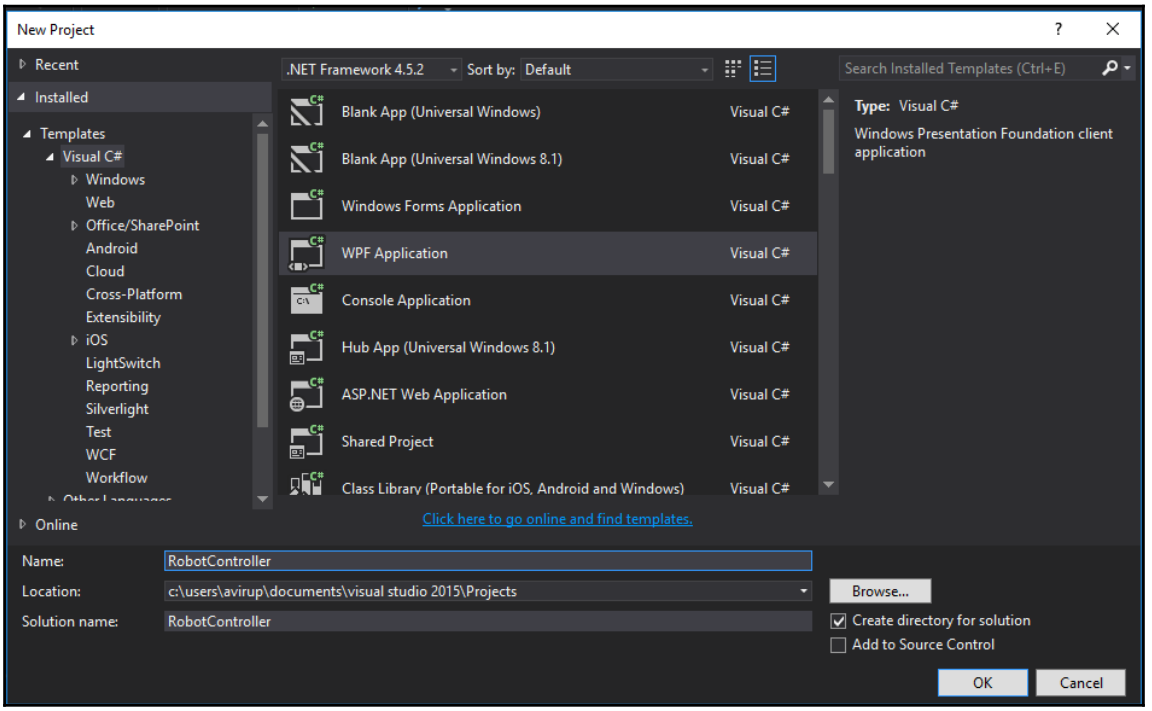

RF Serial
link
Rx
Tx
Vcc
Gnd

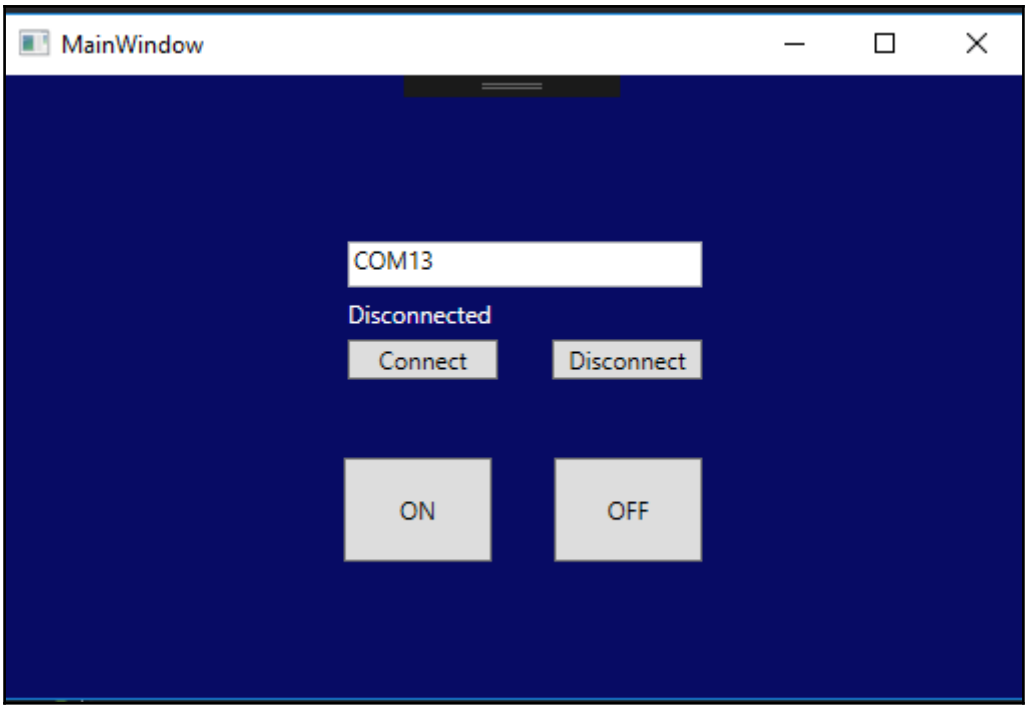
ROBOKITS.CO.IN
RX
TX
GND
VCC
16MHz
10uF
PKI-1197

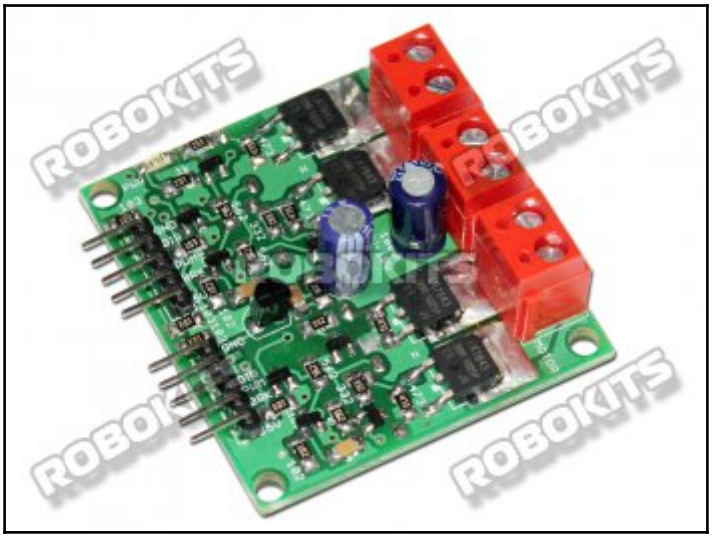

RF Serial link
Rx Tx Vcc Gnd
USB Output
Serial to USB converter
Rx Tx Vcc Gnd

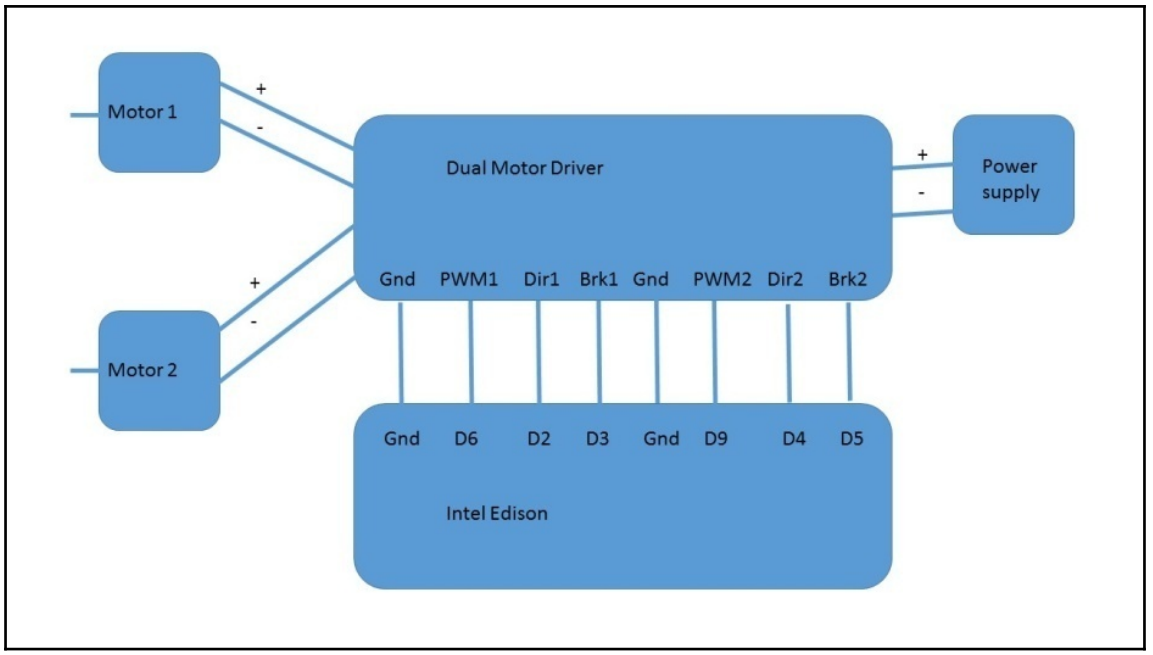

RF Serial link
Rx Tx Vcc Gnd
Intel Edison
Rx Tx 5V Gnd

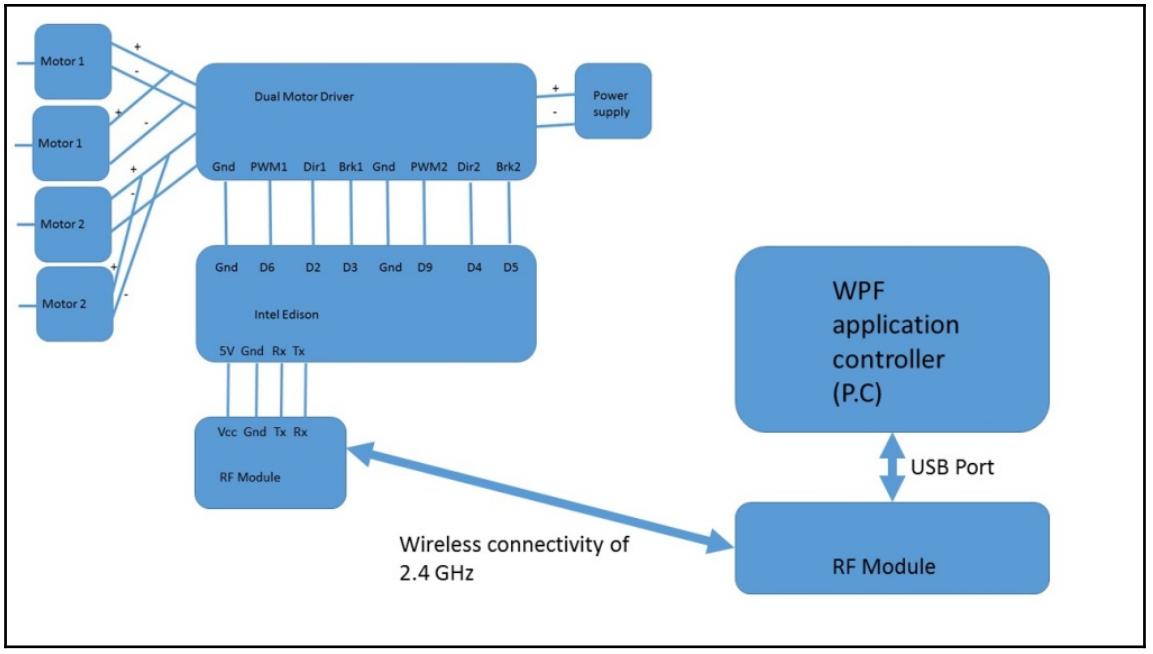

RF Serial link
Rx Tx Vcc Gnd
Intel Edison
Rx Tx 5V Gnd
Wireless Connectivity link
RF Serial link
Rx Tx Vcc Gnd
Controller application
USB Output
Serial to USB converter
Rx Tx Vcc Gnd

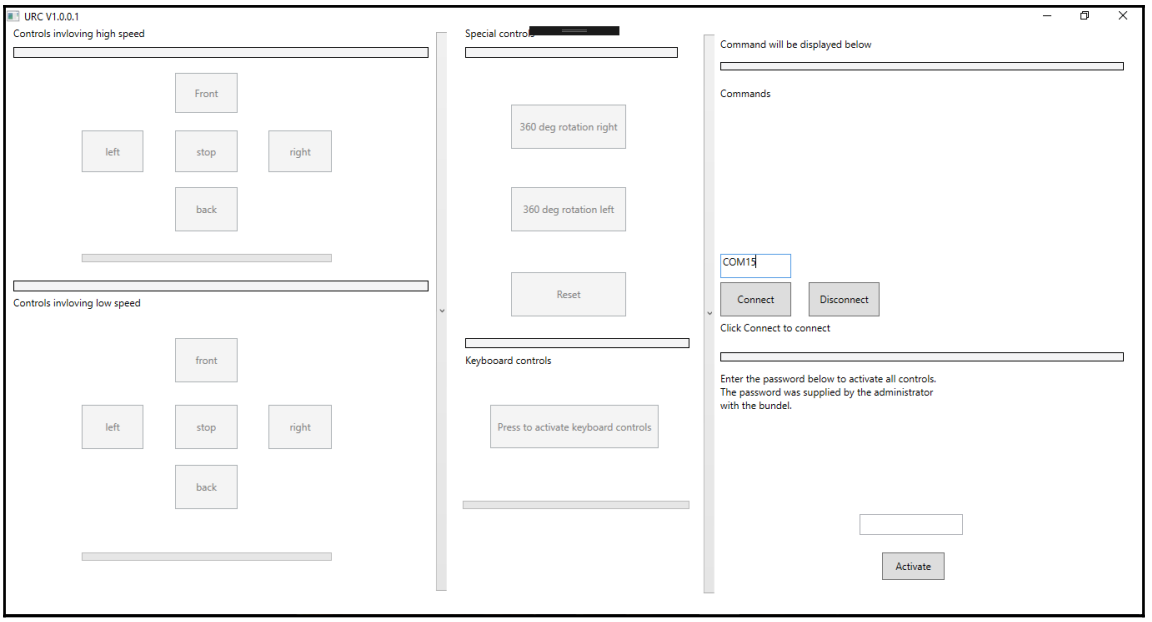

New Project
Recent
Installed
Templates
Visual C#
Windows
Web
Office/SharePoint
Android
Cloud
Cross-Platform
Extensibility
iOS
LightSwitch
Reporting
Silverlight
Test
WCF
Workflow
Online
.NET Framework 4.5.2
Sort by: Default
Search Installed Templates (Ctrl+E)
Blank App (Universal Windows) Visual C#
Blank App (Universal Windows 8.1) Visual C#
Windows Forms Application Visual C#
WPF Application Visual C#
Console Application Visual C#
Hub App (Universal Windows 8.1) Visual C#
ASP.NET Web Application Visual C#
Shared Project Visual C#
Class Library (Portable for iOS, Android and Windows) Visual C#
Type: Visual C#
Windows Presentation Foundation client application
Click here to go online and find templates.
Name: RobotController
Location: c:\users\avirup\documents\visual studio 2015\Projects
Solution name: RobotController
Browse...
Create directory for solution
Add to Source Control
OK
Cancel

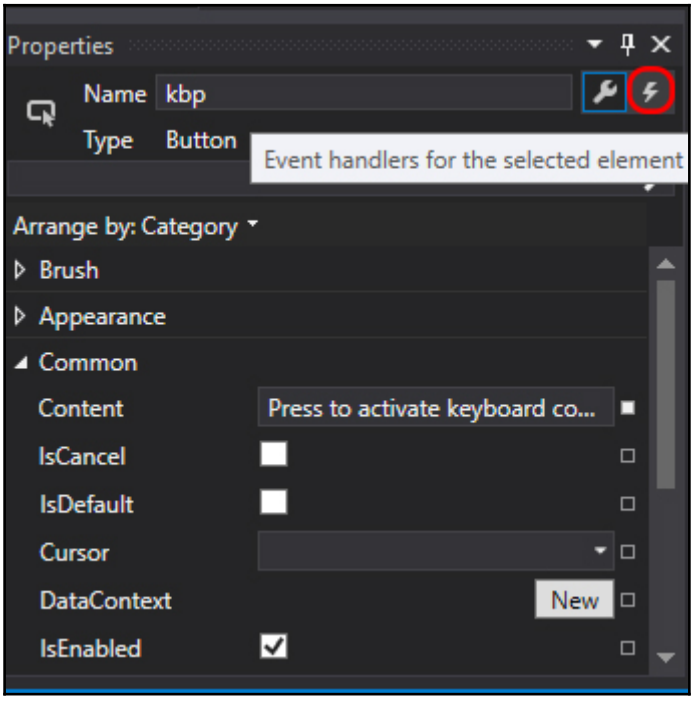

MainWindow
COM13
Disconnected
Connect
Disconnect
ON
OFF


ROBOKITS
ROBOKITS
ROBOKITS
ROBOKITS


Motor 1
+
-
Dual Motor Driver
+
-
Power supply
Gnd PWM1 Dir1 Brk1 Gnd PWM2 Dir2 Brk2
+
-
Motor 2
Gnd D6 D2 D3 Gnd D9 D4 D5
Intel Edison


Motor 1
Motor 1
Motor 2
Motor 2
Dual Motor Driver
Power supply
Gnd PWM1 Dir1 Brk1 Gnd PWM2 Dir2 Brk2
Gnd D6 D2 D3 Gnd D9 D4 D5
Intel Edison
5V Gnd Rx Tx
Vcc Gnd Tx Rx
RF Module
WPF application controller (P.C)
USB Port
Wireless connectivity of 2.4 GHz
RF Module


URC V1.0.0.1
Controls invloving high speed
Front
left
stop
right
back
Controls invloving low speed
front
left
stop
right
back
Special control
360 deg rotation right
360 deg rotation left
Reset
Keybooard controls
Press to activate keyboard controls
Command will be displayed below
Commands
COM15
Connect
Disconnect
Click Connect to connect
Enter the password below to activate all controls.
The password was supplied by the administrator
with the bundel.
Activate


Properties
Name kbp
Type Button
Event handlers for the selected element
Arrange by: Category
Brush
Appearance
Common
Content
Press to activate keyboard co...
IsCancel
IsDefault
Cursor
DataContext
New
IsEnabled