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techies meetup

nodeMCU-MQTT-Example

https://github.com/kuviyam/IoT-projects

Programming language: **lua**

Createdby: **Chandrasekar Perumal**

Architecture

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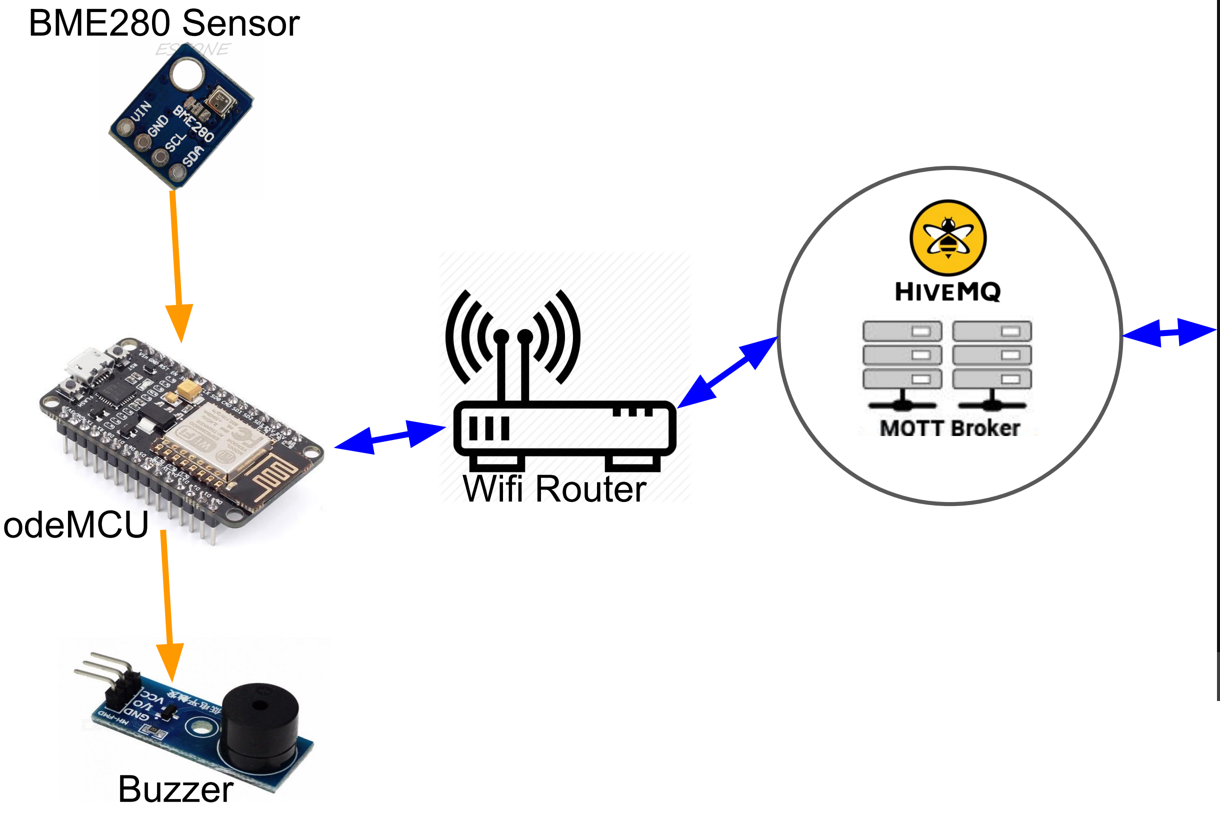

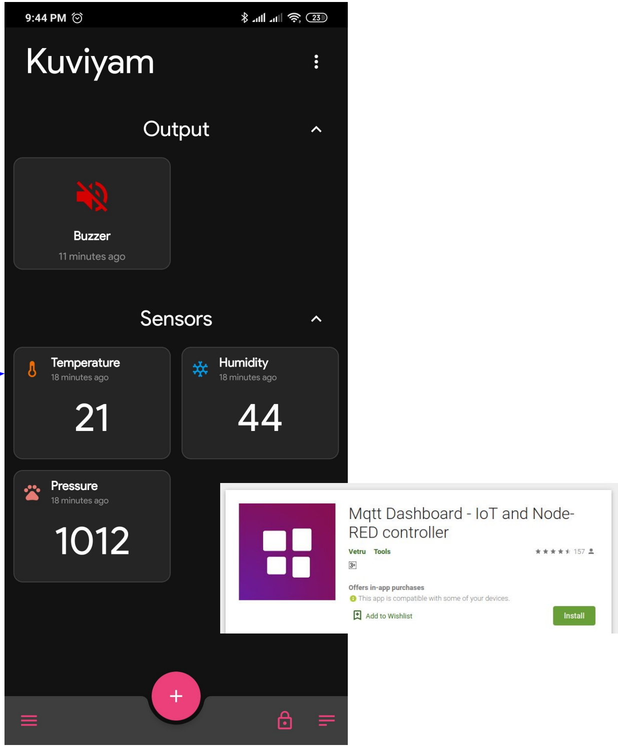

9:44 PM

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Output

Buzzer
11 minutes ago

Sensors

Temperature
18 minutes ago
21

Humidity
18 minutes ago
44

Pressure
18 minutes ago
1012

Mqtt Dashboard - IoT and Node-RED controller

Vetru Tools

157

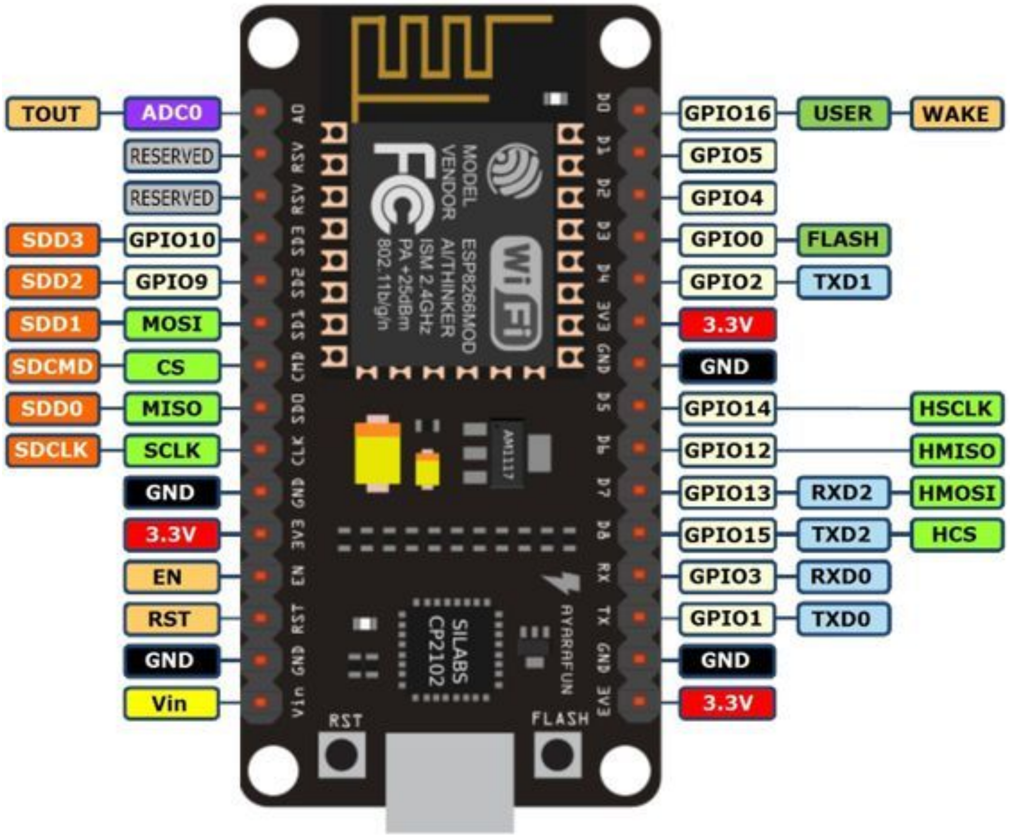
Offers in-app purchases

This app is compatible with some of your devices.

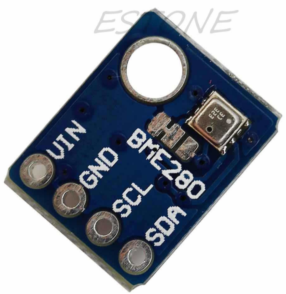
Add to Wishlist

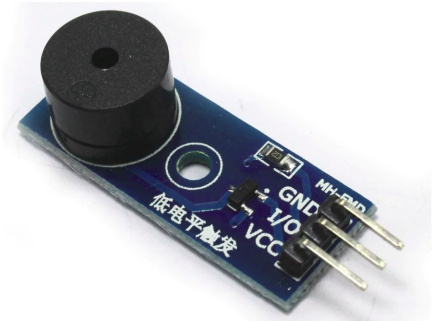
Install

Step1: Hardware Connections



BME 280	nodeMCU	Buzzer
VIN	3.3v	VIN
GND	GND	GND
SCL	D1	
SDA	D2	
	D3	Signal



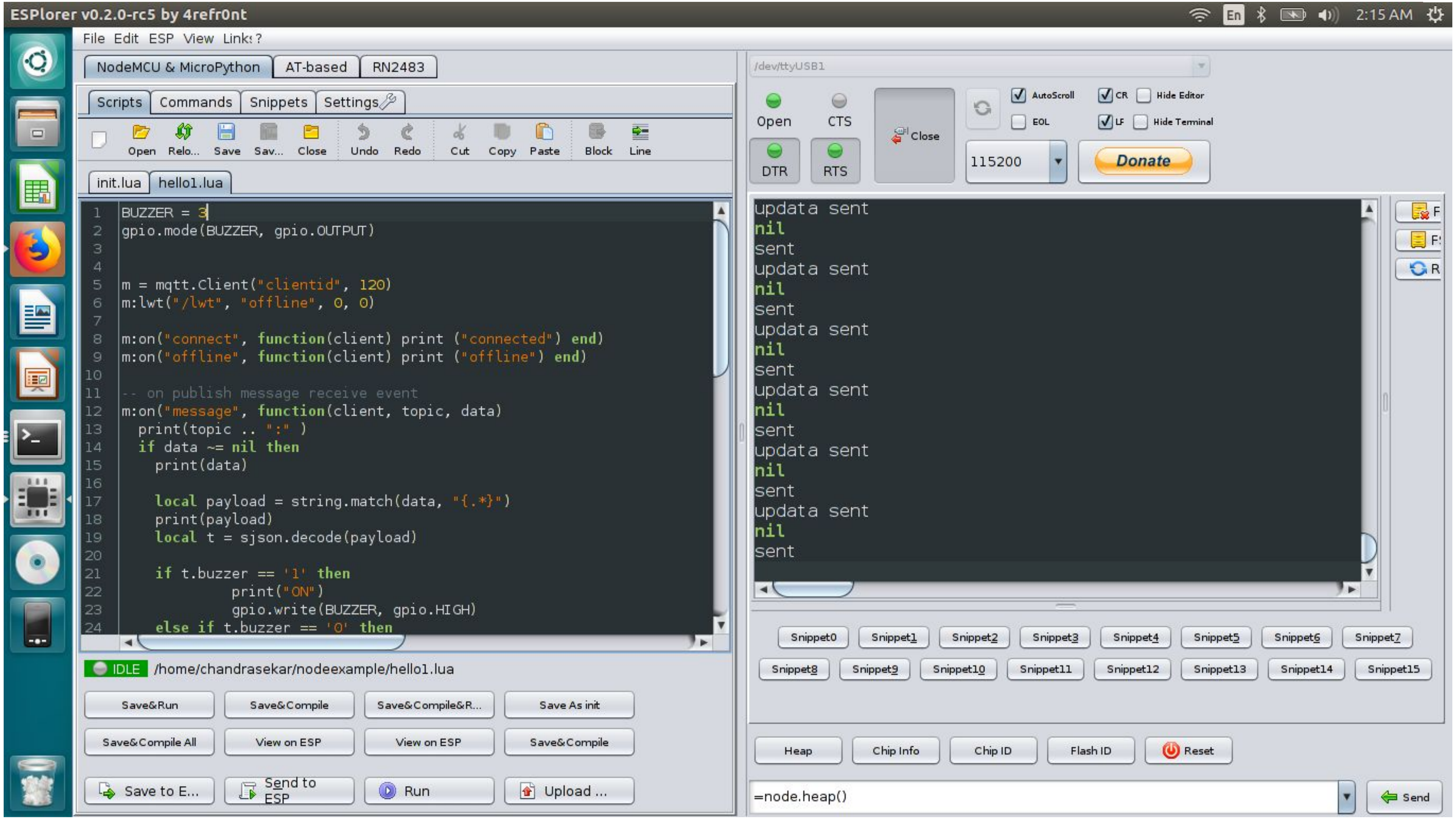


Step2: Flashing firmware

1. Connect nodeMCU through USB
2. Download and use esptool.py or ESP8266Flasher.exe to flash the firmware “nodeMCU-MQTT-Example/firmware/nodemcu-master-14-modules-2018-10-13-15-02-45-float-firmware.bin” [https://github.com/espressif/esptool, https://github.com/nodemcu/nodemcu-flasher]

Step3: Upload init.lua and main.lua to nodeMCU

1. Download ESPlorer from https://esp8266.ru/esplorer/
2. Open ESPlorer (Linux sudo java -jar ESPlorer.jar)
3. Browse init.lua and main.lua (do the necessary changes - modify ssid, password)
4. Select proper baud rate, port and click connect.
5. Save init.lua and main.lua by clicking “Save to ESP button”
6. Click Reset button.



```
BUZZER = 3
gpio.mode(BUZZER, gpio.OUTPUT)


m = mqtt.Client("clientid", 120)
m:lwt("/lwt", "offline", 0, 0)

m:on("connect", function(client) print ("connected") end)
m:on("offline", function(client) print ("offline") end)

-- on publish message receive event
m:on("message", function(client, topic, data)
  print(topic .. ":" )
  if data ~= nil then
    print(data)

    local payload = string.match(data, "{.*}")
    print(payload)
    local t = sjson.decode(payload)

    if t.buzzer == '1' then
            print("ON")
            gpio.write(BUZZER, gpio.HIGH)
    else if t.buzzer == '0' then
```

IDLE /home/chandrasekar/nodeexample/hello1.lua

/dev/ttyUSB1

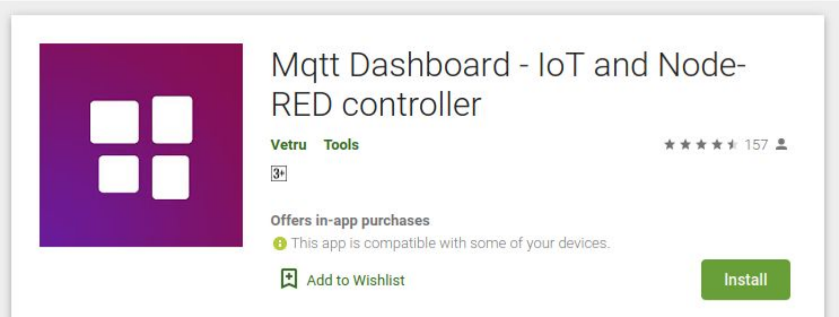
☑ AutoScroll ☑ CR □ Hide Editor
□ EOL ☑ LF □ Hide Terminal

115200

```
updata sent
nil
sent
updata sent
nil
sent
updata sent
nil
sent
updata sent
nil
sent
updata sent
nil
sent
updata sent
nil
sent
```

=node.heap()

Step4: Download Mobile app



Mqtt Dashboard - IoT and Node-RED controller

Vetru Tools

★★★★★ 157

3+

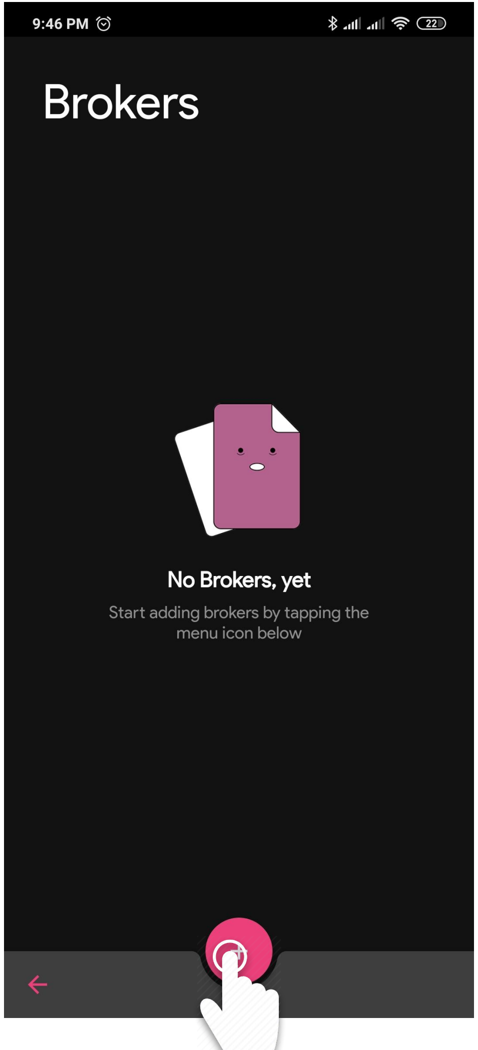
Offers in-app purchases

This app is compatible with some of your devices.

Download Link

android

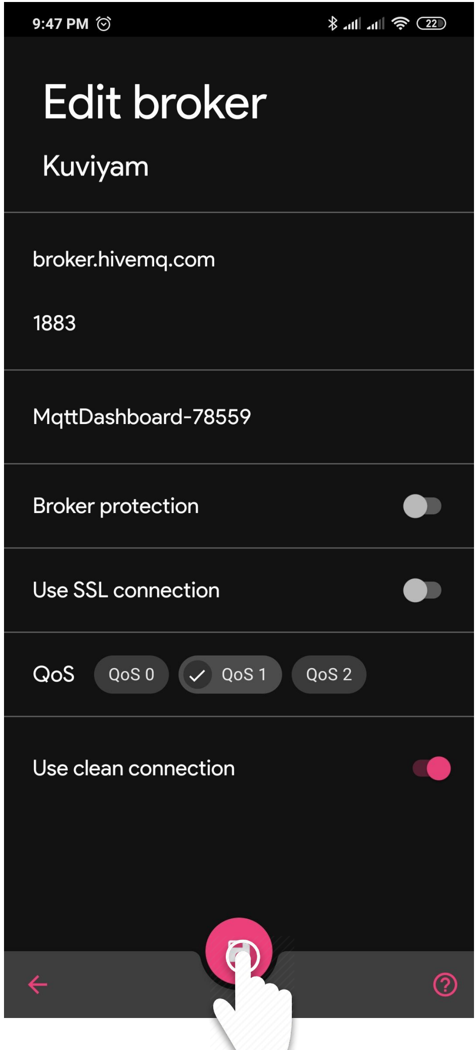
Follow the steps given in following slides to create a IoT Dashboard in Android mobile.



Brokers

No Brokers, yet

Start adding brokers by tapping the menu icon below



Edit broker

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broker.hivemq.com

1883

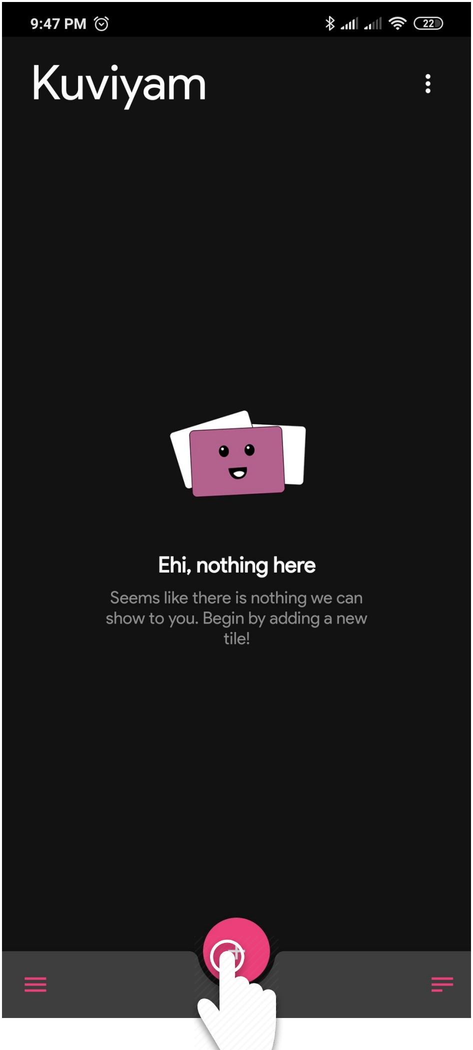
MqttDashboard-78559

Broker protection ○

Use SSL connection ○

QoS QoS 0 [✓ QoS 1] QoS 2

Use clean connection ●



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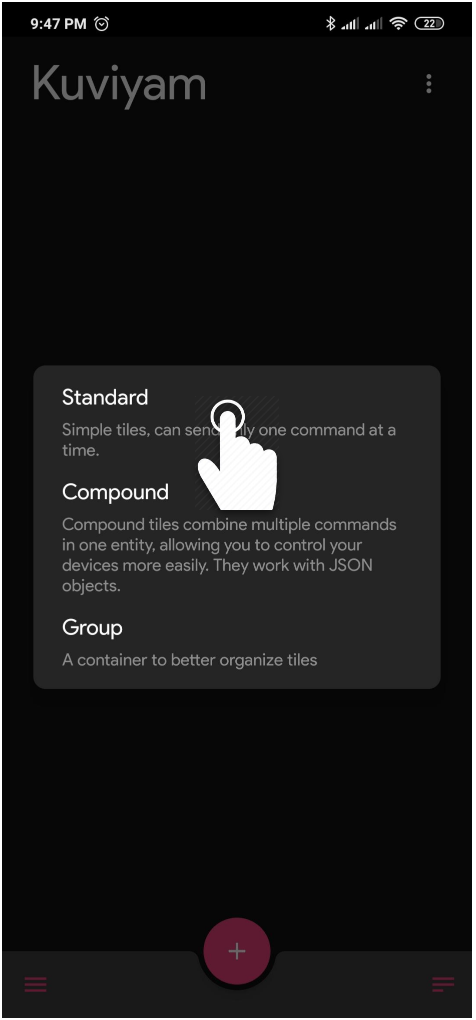
Ehi, nothing here

Seems like there is nothing we can show to you. Begin by adding a new tile!



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Standard

Simple tiles, can send only one command at a time.

Compound

Compound tiles combine multiple commands in one entity, allowing you to control your devices more easily. They work with JSON objects.

Group

A container to better organize tiles

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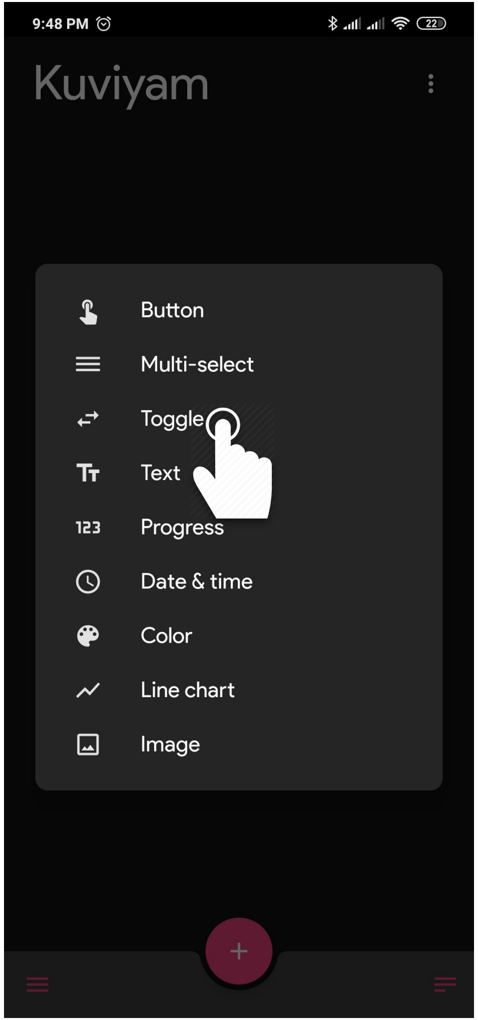
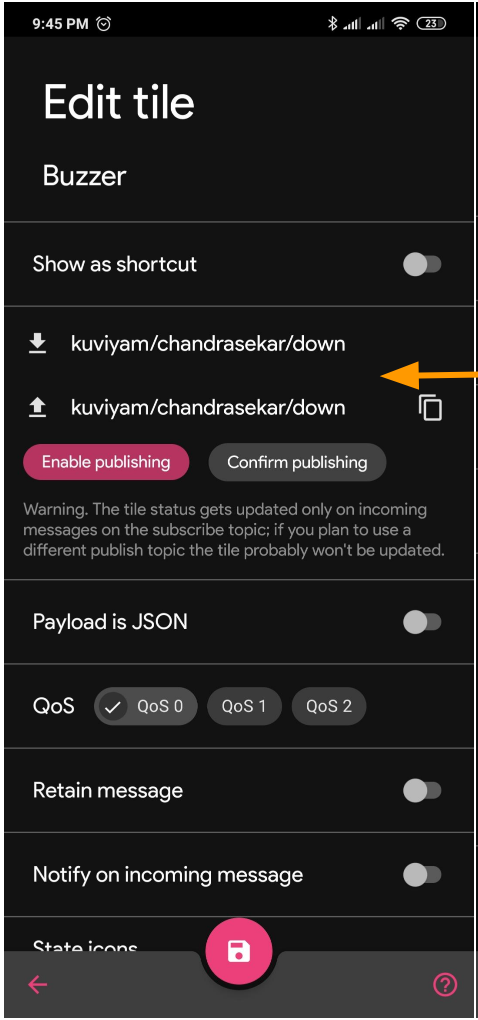


9:48 PM

Kuviyam

- Button
- Multi-select
- Toggle
- Text
- Progress
- Date & time
- Color
- Line chart
- Image



9:45 PM

Edit tile

Buzzer

Show as shortcut

kuviyam/chandrasekar/down

kuviyam/chandrasekar/down

Enable publishing | Confirm publishing

Warning. The tile status gets updated only on incoming messages on the subscribe topic; if you plan to use a different publish topic the tile probably won't be updated.

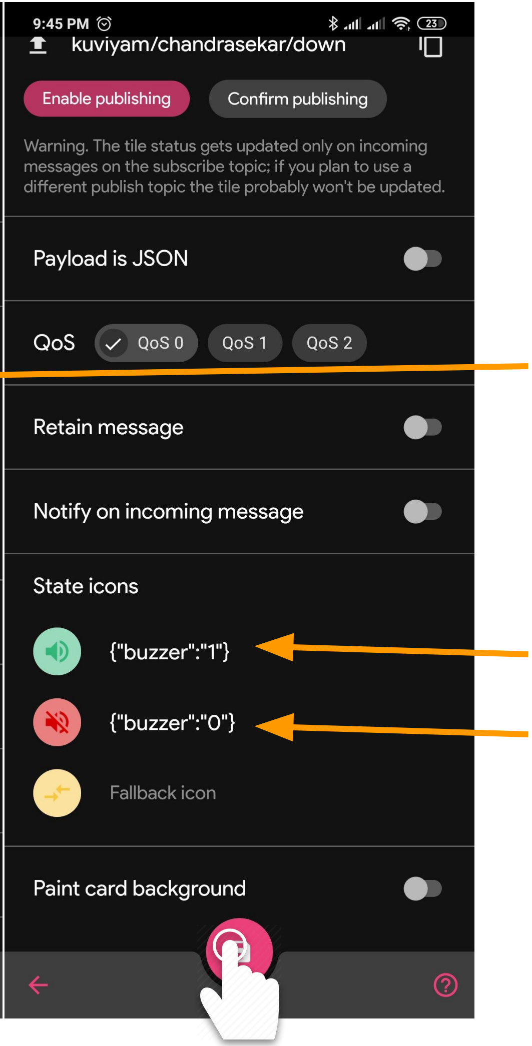
Payload is JSON

QoS ✓ QoS 0 | QoS 1 | QoS 2

Retain message

Notify on incoming message

State icons



9:45 PM

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Payload is JSON

QoS ✓ QoS 0 | QoS 1 | QoS 2

Retain message

Notify on incoming message

State icons

{"buzzer":"1"}

{"buzzer":"0"}

Fallback icon

Paint card background

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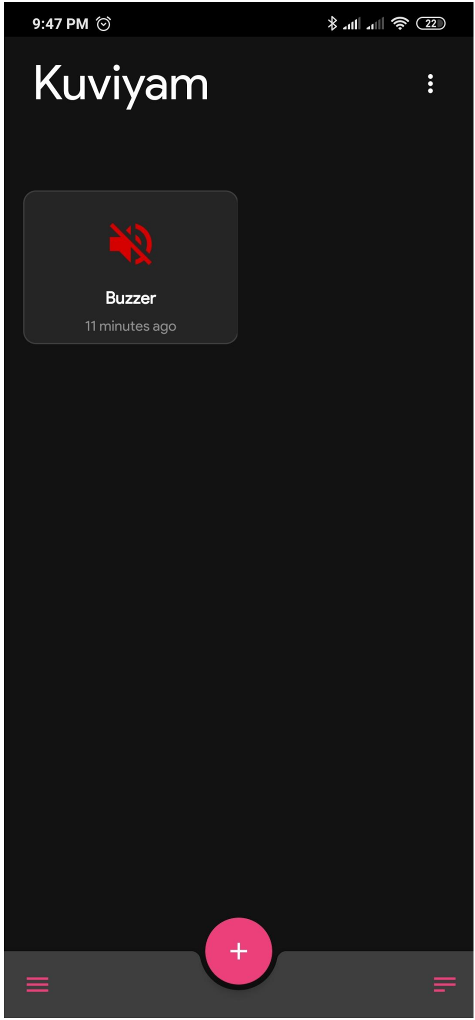
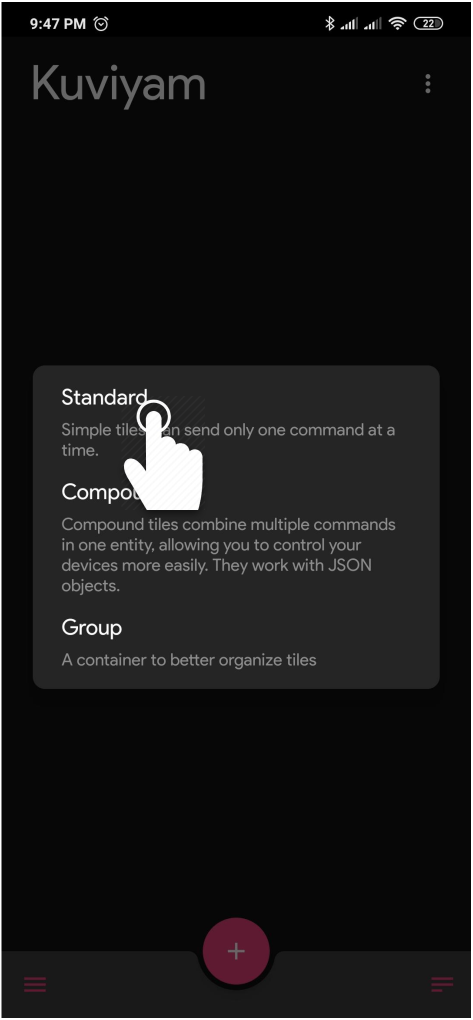
{“buzzer” : “1”}

{“buzzer” : “0”}





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Compo

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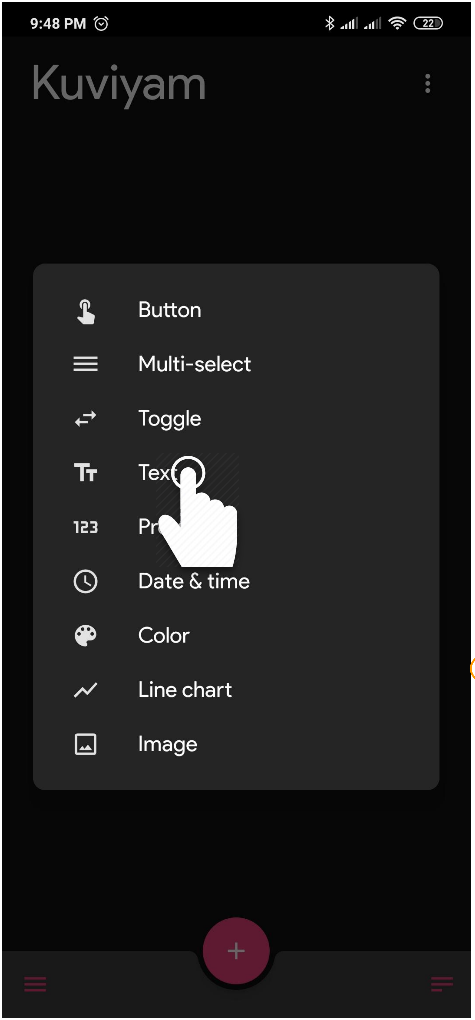
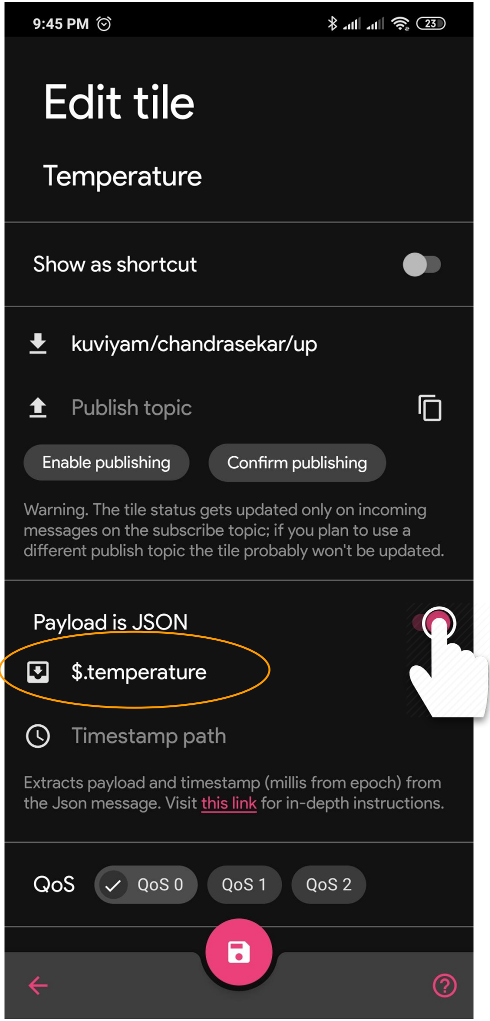
A container to better organize tiles





Temperature

Show as shortcut

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Publish topic

Warning. The tile status gets updated only on incoming messages on the subscribe topic; if you plan to use a different publish topic the tile probably won't be updated.

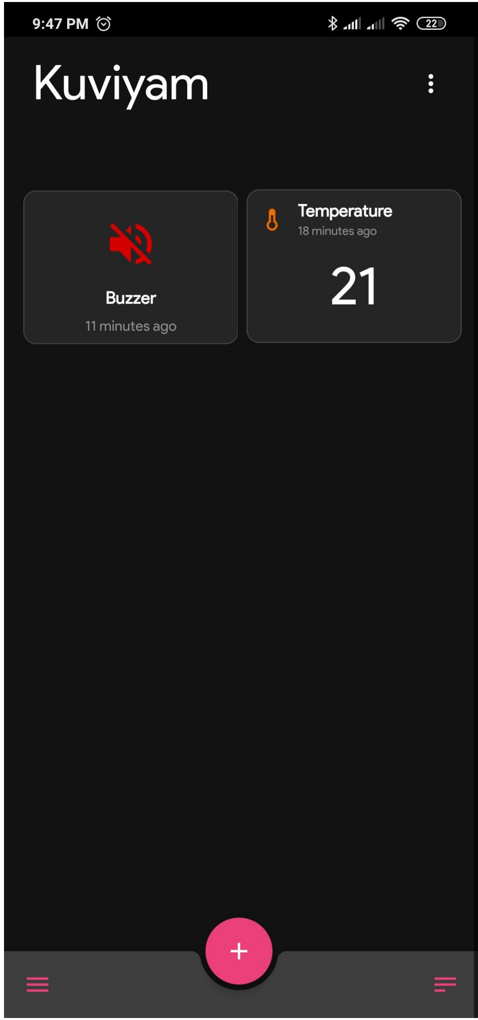
Payload is JSON

$.temperature

Timestamp path

Extracts payload and timestamp (millis from epoch) from the Json message. Visit this link for in-depth instructions.

QoS ✓ QoS 0 QoS 1 QoS 2



9:47 PM

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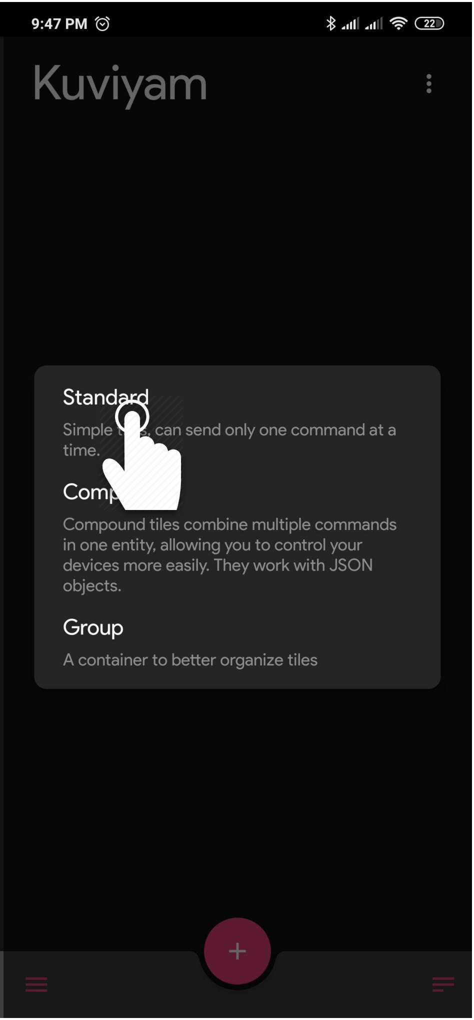
Buzzer

11 minutes ago

Temperature

18 minutes ago

21



9:47 PM

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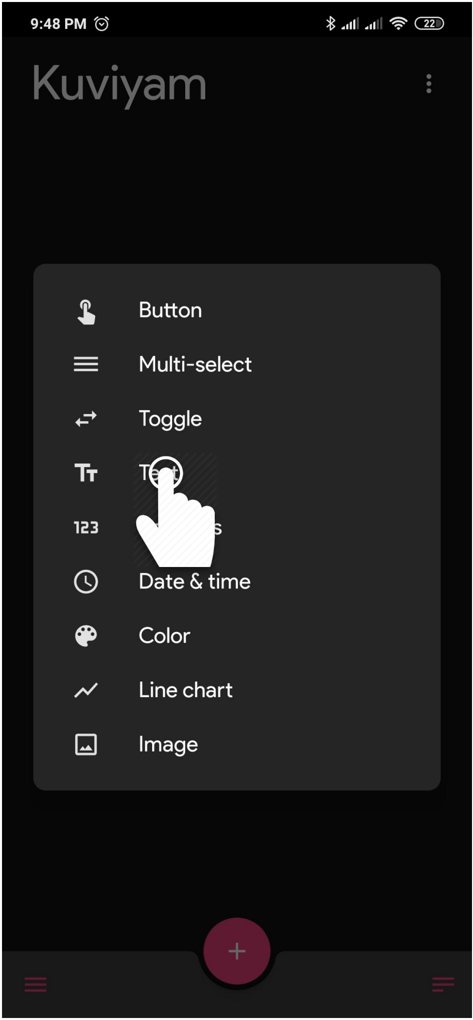

9:48 PM

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Button

Multi-select

Toggle

Te[illegible]t

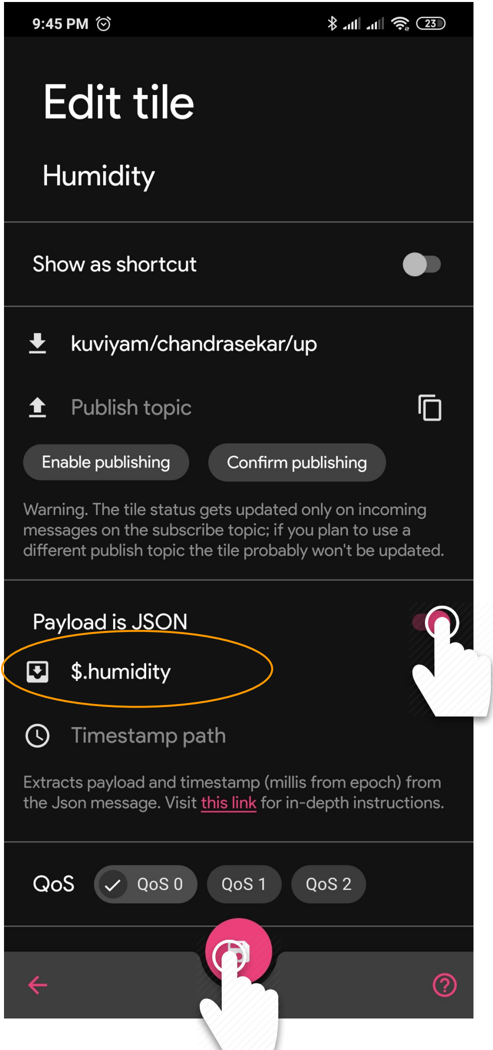
[illegible]s

Date & time

Color

Line chart

Image



9:45 PM

Edit tile

Humidity

Show as shortcut

kuviyam/chandrasekar/up

Publish topic

Enable publishing

Confirm publishing

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Payload is JSON

$.humidity

Timestamp path

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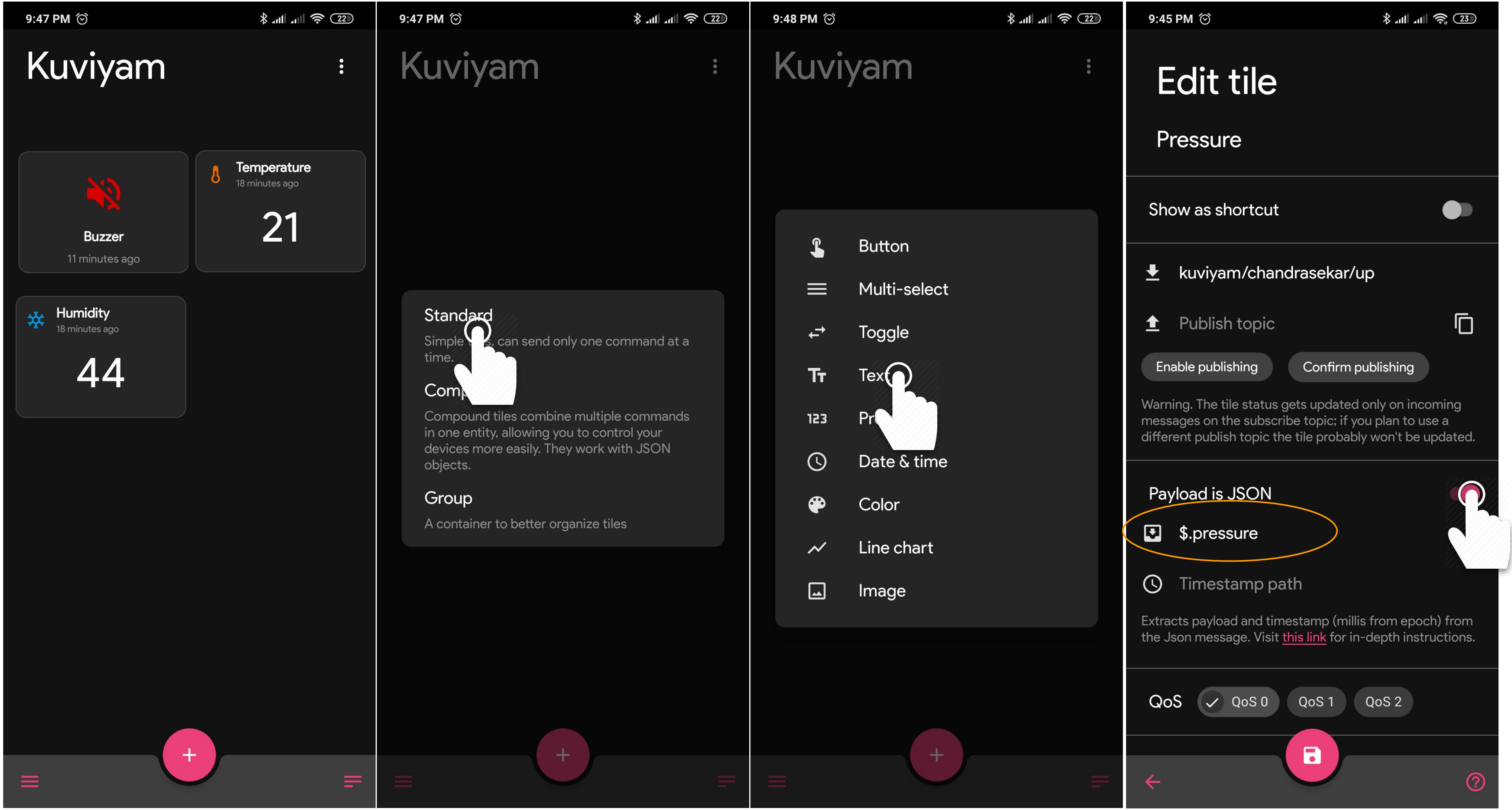
QoS [✓ QoS 0] QoS 1 QoS 2



Standard

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Group

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Edit tile

Pressure

Show as shortcut

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Publish topic

Warning. The tile status gets updated only on incoming messages on the subscribe topic; if you plan to use a different publish topic the tile probably won't be updated.

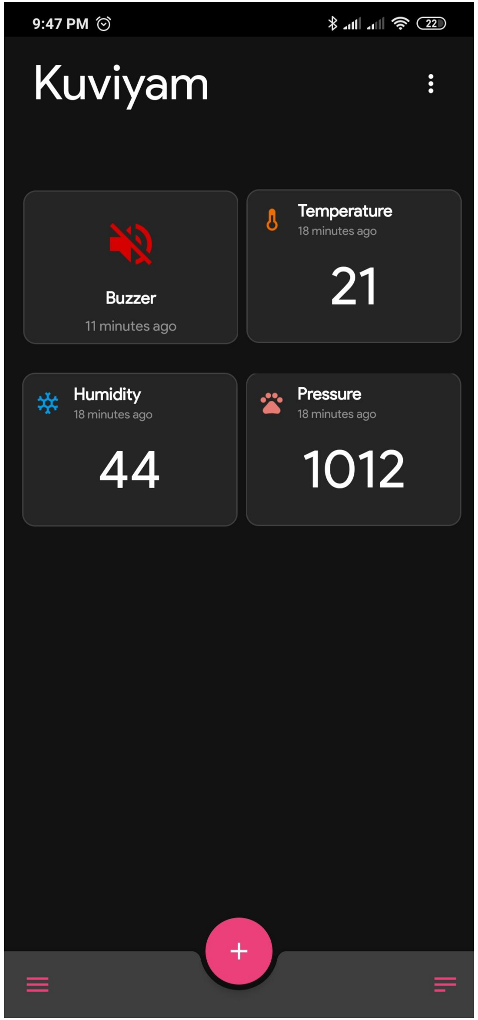
Payload is JSON

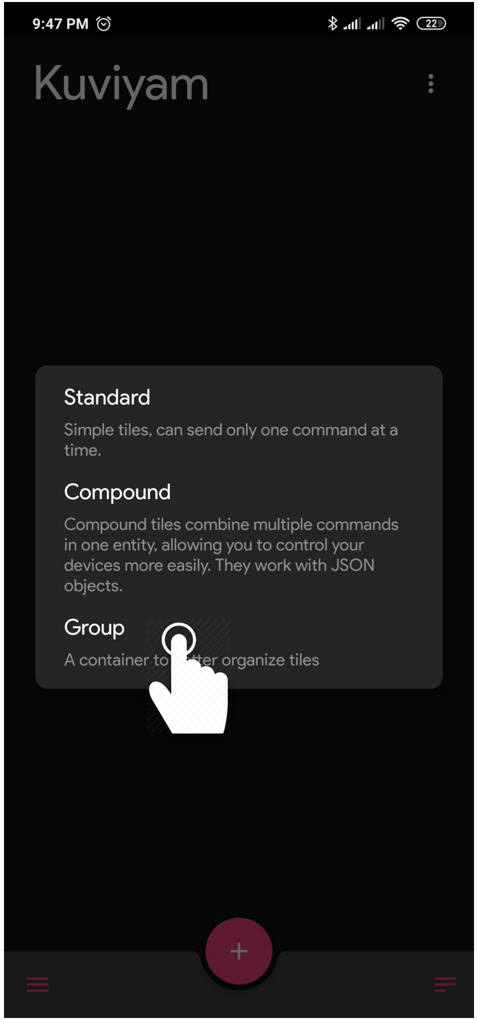
$.pressure

Timestamp path

Extracts payload and timestamp (millis from epoch) from the Json message. Visit this link for in-depth instructions.

QoS: ✓ QoS 0





Standard

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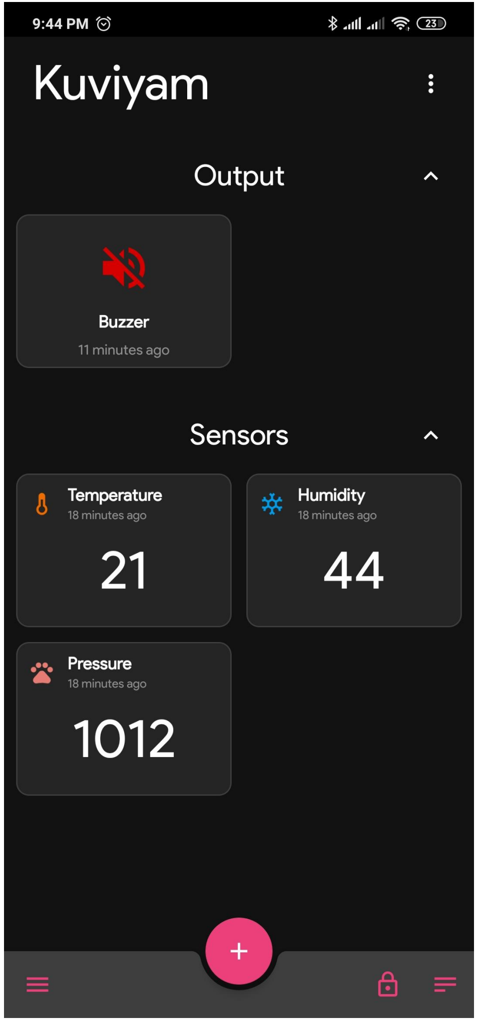
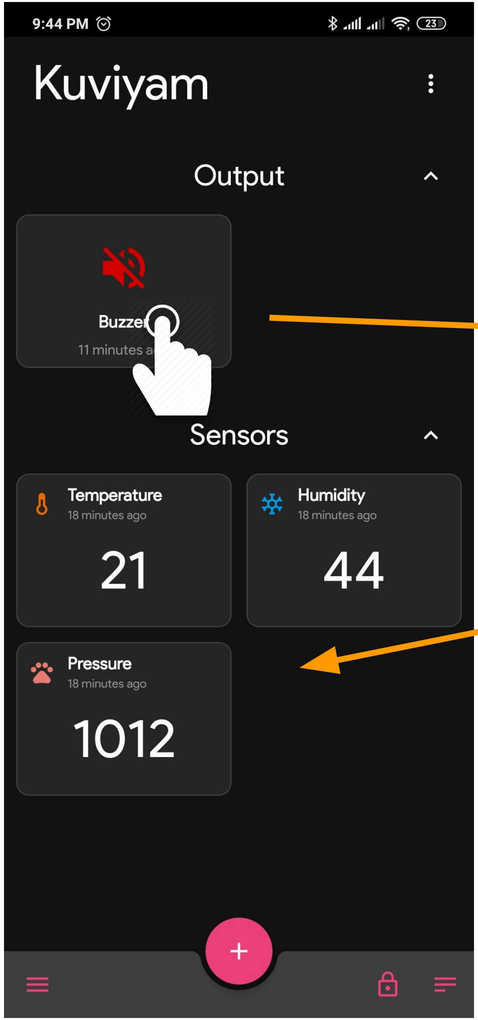
Group

A container to tter organize tiles

Create group “Output” and select “buzzer”

Create group “Sensors” and select “Temperature”, “Humidity” and “Pressure”





Output

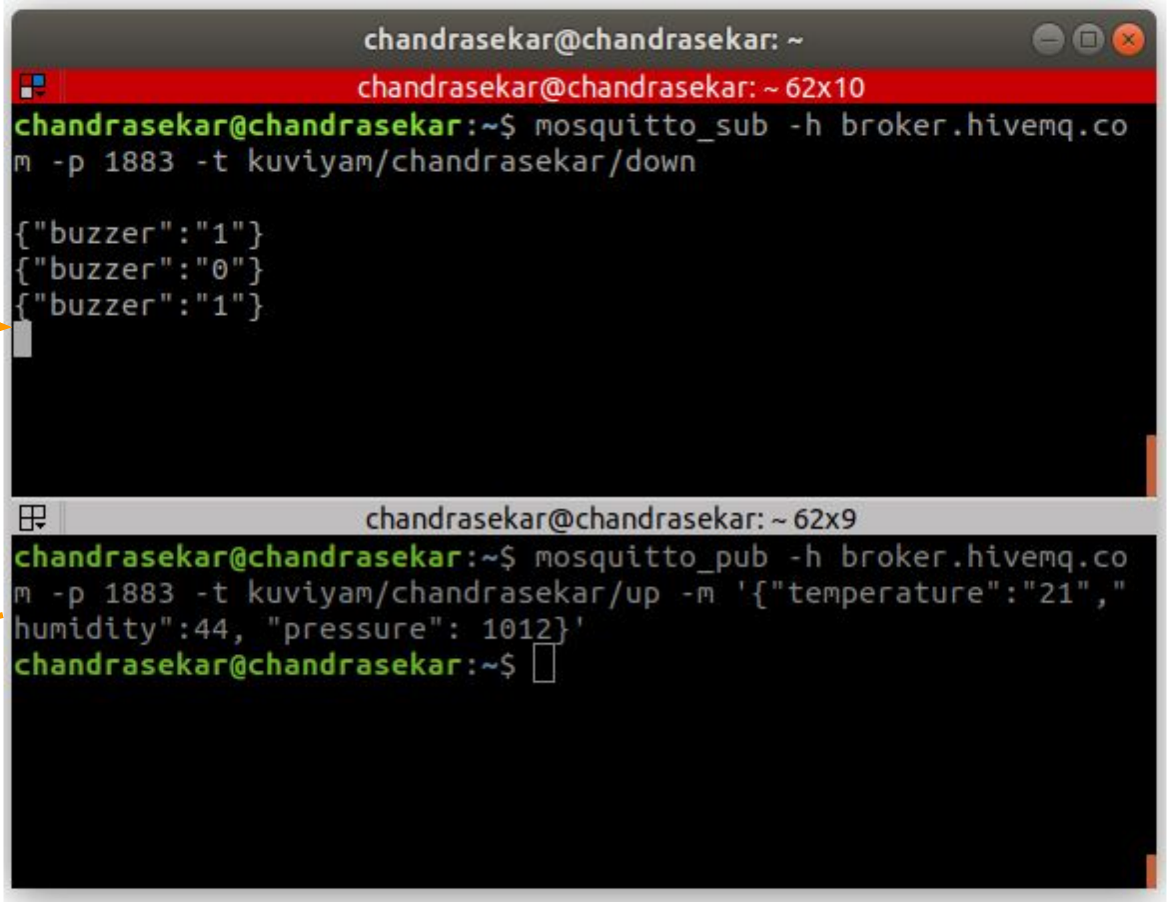
Buzzer
11 minutes a

Sensors

Temperature
18 minutes ago
21

Humidity
18 minutes ago
44

Pressure
18 minutes ago
1012



chandrasekar@chandrasekar: ~
chandrasekar@chandrasekar: ~ 62x10

```
chandrasekar@chandrasekar:~$ mosquitto_sub -h broker.hivemq.co
m -p 1883 -t kuviyam/chandrasekar/down

{"buzzer":"1"}
{"buzzer":"0"}
{"buzzer":"1"}
```

chandrasekar@chandrasekar: ~ 62x9

```
chandrasekar@chandrasekar:~$ mosquitto_pub -h broker.hivemq.co
m -p 1883 -t kuviyam/chandrasekar/up -m '{"temperature":"21","
humidity":44, "pressure": 1012}'
chandrasekar@chandrasekar:~$
```

- Power on the hardware to see the output in mobile app. Just play around by clicking Buzzer button to hear sound.
- Use Linux terminal to simulate and view results by using mosquitto clients as shown..

Happy Learning !!!