

**Project Development Phase**  
**Sprint-3: MIT App Design and Testing**

Date	16/11/2022
Team ID	PNT2022TMID29476
Project Name	Project – Signs with Smart Connectivity for Better Road Safety
Maximum Marks	8 Marks

## Wokwi Simulation:

sketch.ino   diagram.json   libraries.txt   Library Manager

```
1 #include <Wifi.h>//library for wifi
2 #include <PubSubClient.h>//library for MQTT
3 #include "DHT.h"// Library for dht11
4 #define DHTPIN 5    // what pin we're connected to
5 #define DHTTYPE DHT22 // define type of sensor DHT 11
6
7 DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht connect
8
9 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
10
11 //-----credentials of IBM Accounts-----
12
13 #define ORG "psh4py"//IBM ORGANITION ID
14 #define DEVICE_TYPE "alert-device"//Device type mentioned in ibm watson IOT Platform
15 #define DEVICE_ID "4571"//Device ID mentioned in ibm watson IOT Platform
16 #define TOKEN "12345678" //Token
17 String data3;
18 float h, t;
19
20
21 //----- Customise the above values -----
22 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
23 char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform a
24 char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command type AND
25 char authMethod[] = "use-token-auth";// authentication method
26 char token[] = TOKEN;
27 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id
28
29
30 //-----
31 WiFiClient wificlient; // creating the instance for wificlient
32 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client
33
34
35 void setup()// configuring the ESP32
```

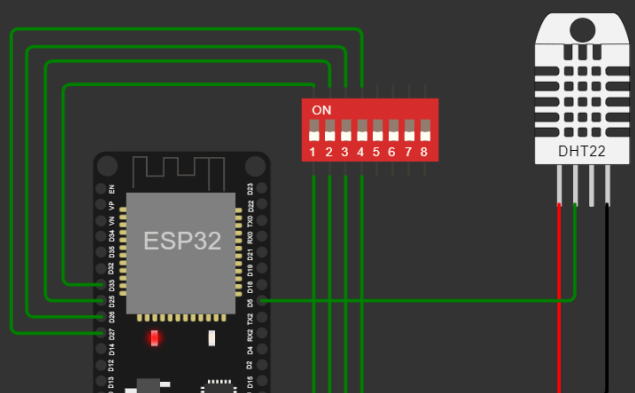
Simulation

00:49.005 93%

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```
{ "temp":37.40,"humidity":86.00,"North":0,"South":0,"East":0,"West":0}
Publish ok
temp:37.40
humidity:86.00
Sending payload:
{"temp":37.40,"humidity":86.00,"North":0,"South":0,"East":0,"West":0}
```

meet.google.com is sharing your screen.   Stop sharing   Hide

📐

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🗑

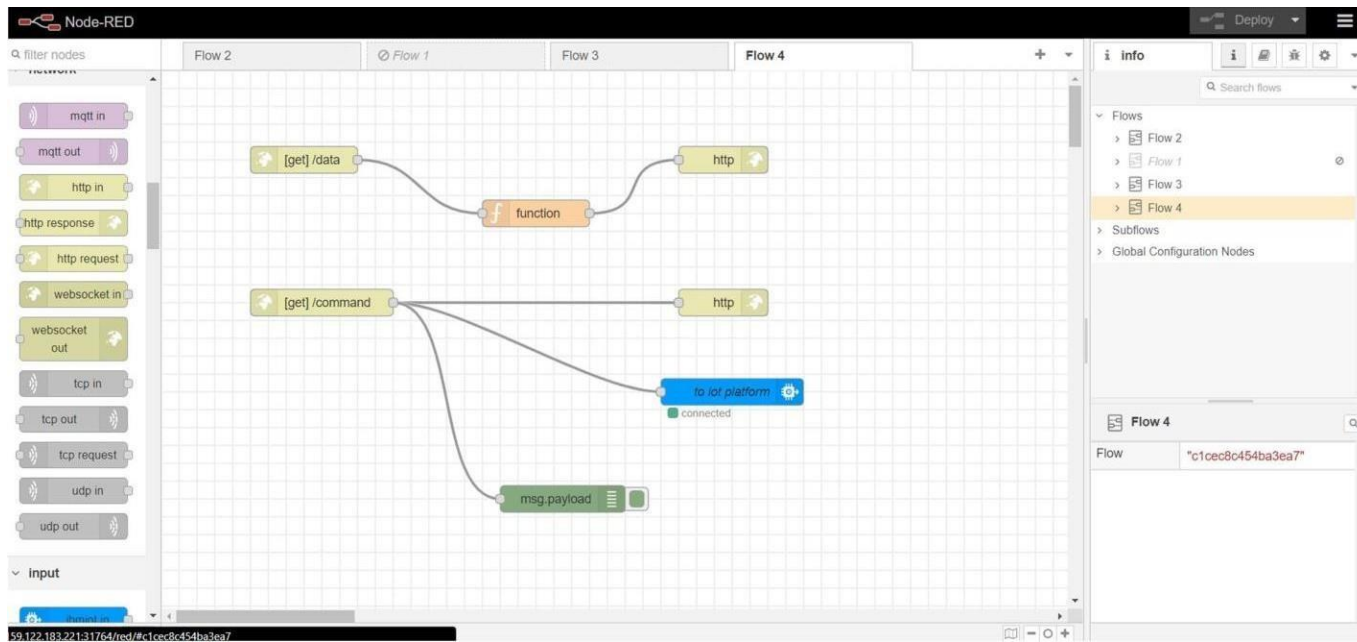
## IoT Device – IoT Platform

The screenshot displays the 'Recent Events' tab for a device with ID 0001. The interface includes a top navigation bar with 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons. The main content area shows a table of recent events, each represented as a JSON object with lane data. A status bar at the bottom right indicates '1 Simulation running'.

Event	Value	Format	Last Received
rnd_number	{"Lane_1":5,"Lane_2":83,"Lane_3":30,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":59,"Lane_2":59,"Lane_3":94,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":93,"Lane_2":88,"Lane_3":49,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":2,"Lane_2":61,"Lane_3":21,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":70,"Lane_2":11,"Lane_3":69,"Lane_4":...	json	a few seconds ago

1 Simulation running

## Node Red – Connect with MIT AppInventor



## Edit function node

Delete

Cancel

☐ Properties



'g' Name

Name



☐ Setup

On Start

On Message

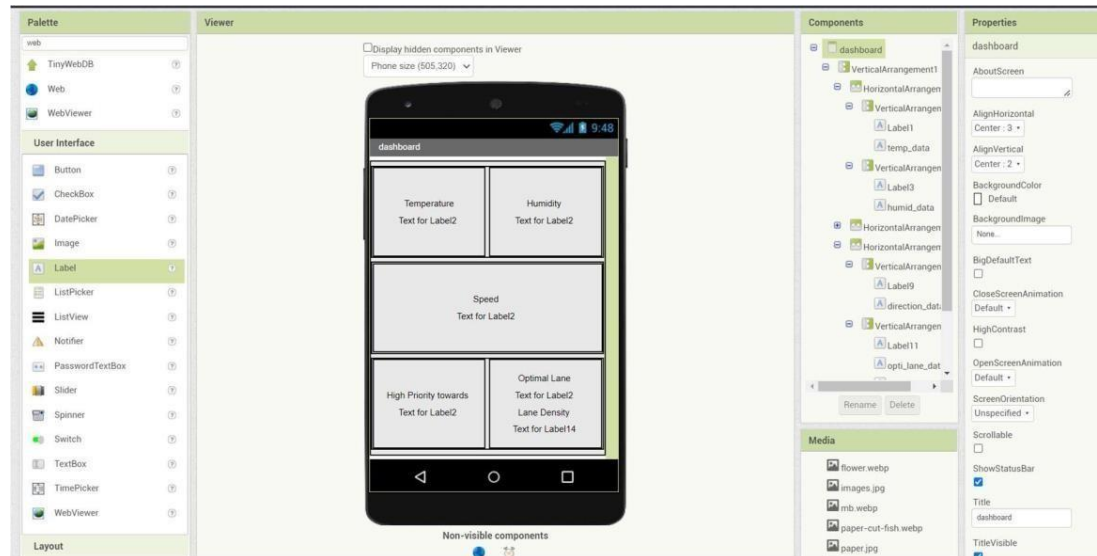
On Stop

```
• msg.payload = {
2   "temp":global.get("temp"),
3   "humid":global.get("humid"),
p  "speed":global.get("speed"),
s   "n":global.get("n"),
6   "s":global.get("s"),
7   "e":global.get("e"),
8   "w":global.get("w"),
g   "res":global.get("res"),
16  "11":global.get("11"),
tt  "12":global.get("12"),
12  "13":global.get("13"),
13  "14":global.get("14"),
t4  "optimal lane":global.get("optinal Jane")
15
16' };
17
ig  return msg;
```

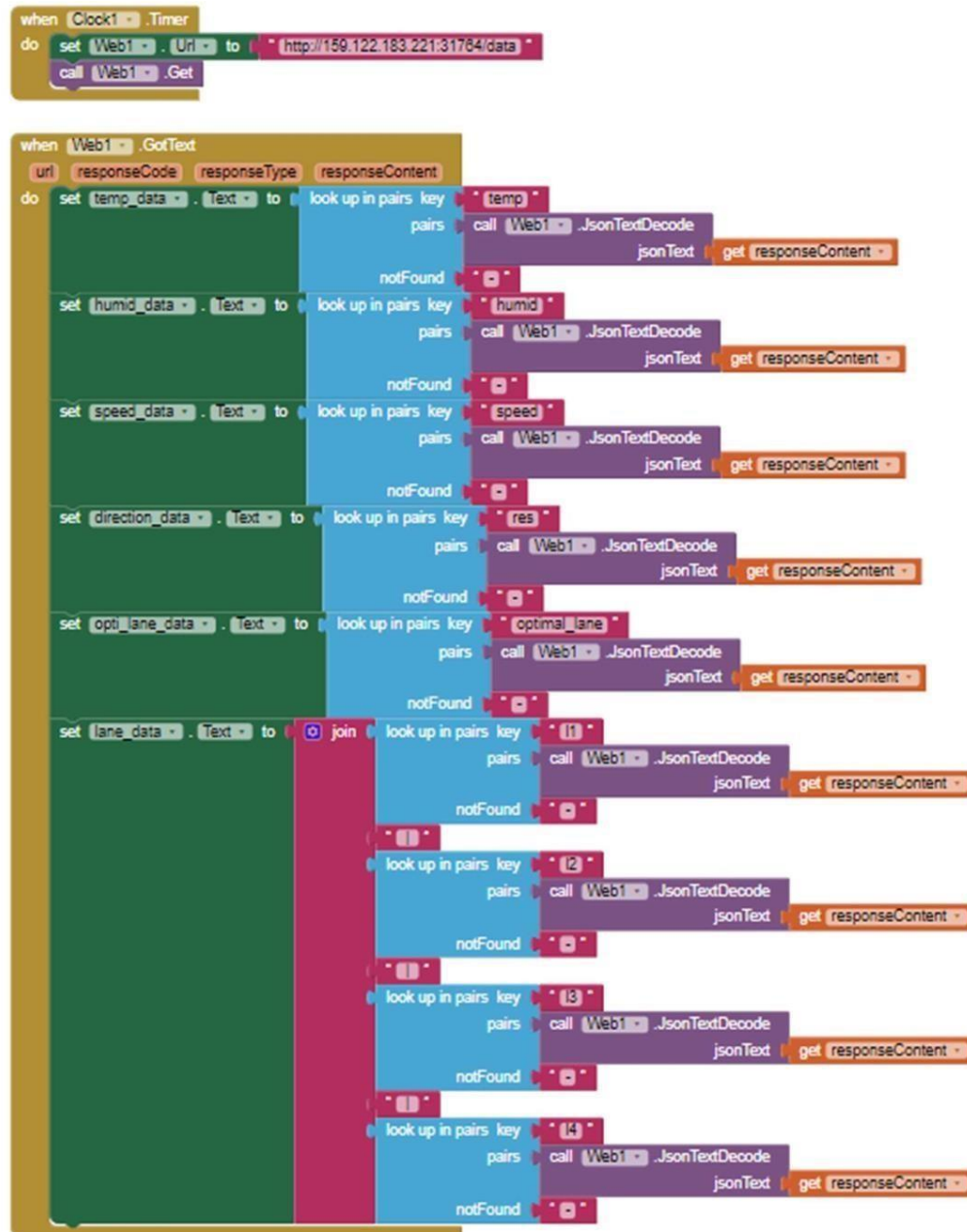
## Output from Node red:

```
← → ↻ Not secure | 159.122.183.221:31764/data  
Google YouTube MATLAB Document... LaTeX Base | Online... ECE Notes Seniors' Download - Know... see eSim Sanskrit Word List...  
{ "temp":14.9,"humid":86,"speed":80,"n":0,"s":0,"e":0,"w":1,"res":"West","11":69,"12":99,"13":19,"14":40,"optimal_lane":"Lane 3" }
```

## MIT App Inventor UI design:



## MIT App Inventor Backend design:



**Sprint 3 delivery:**

**(OUTPUT) Display from MIT App:**

