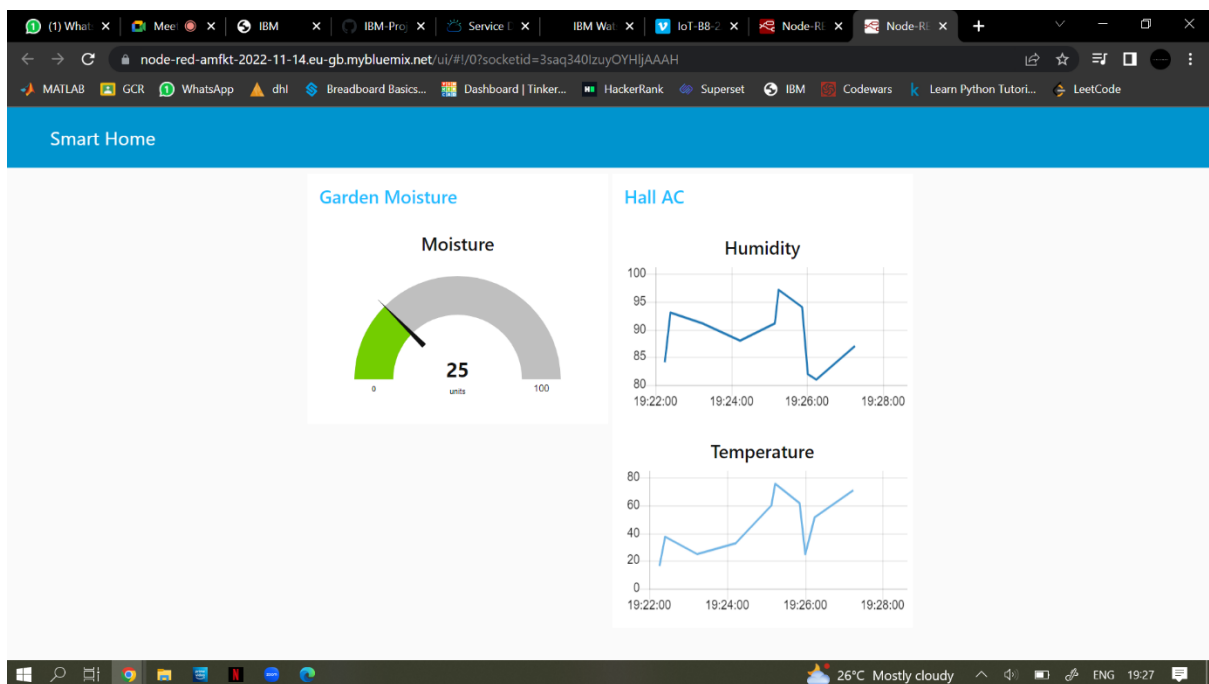
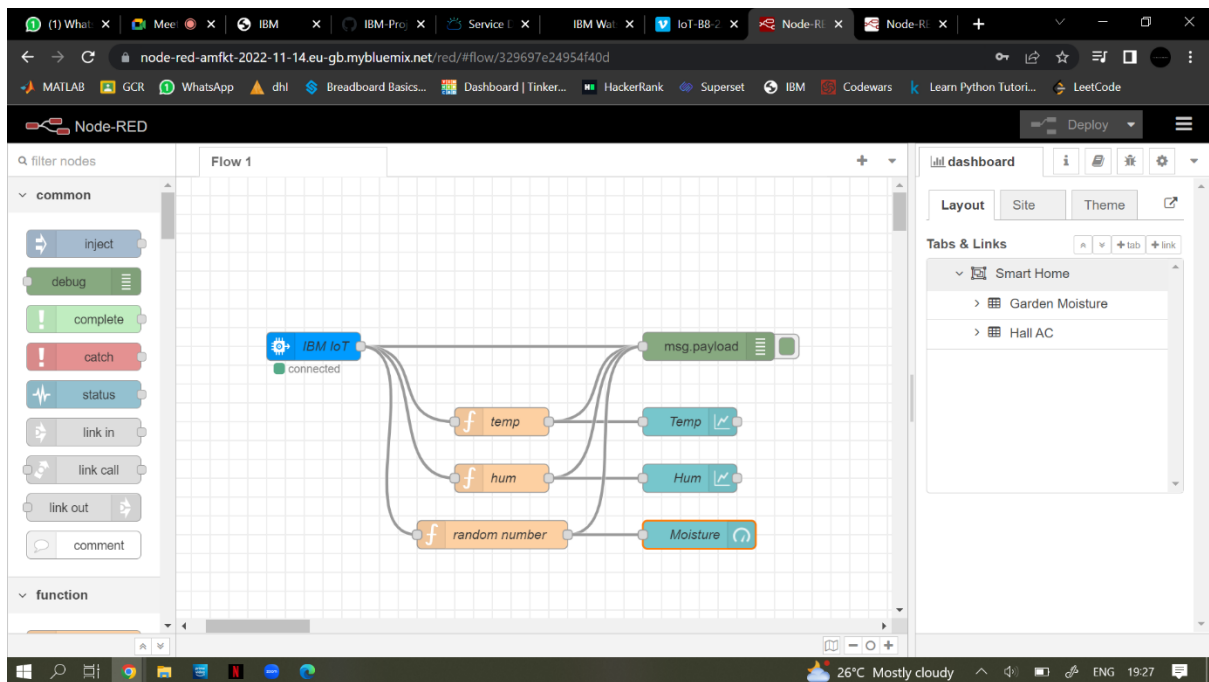
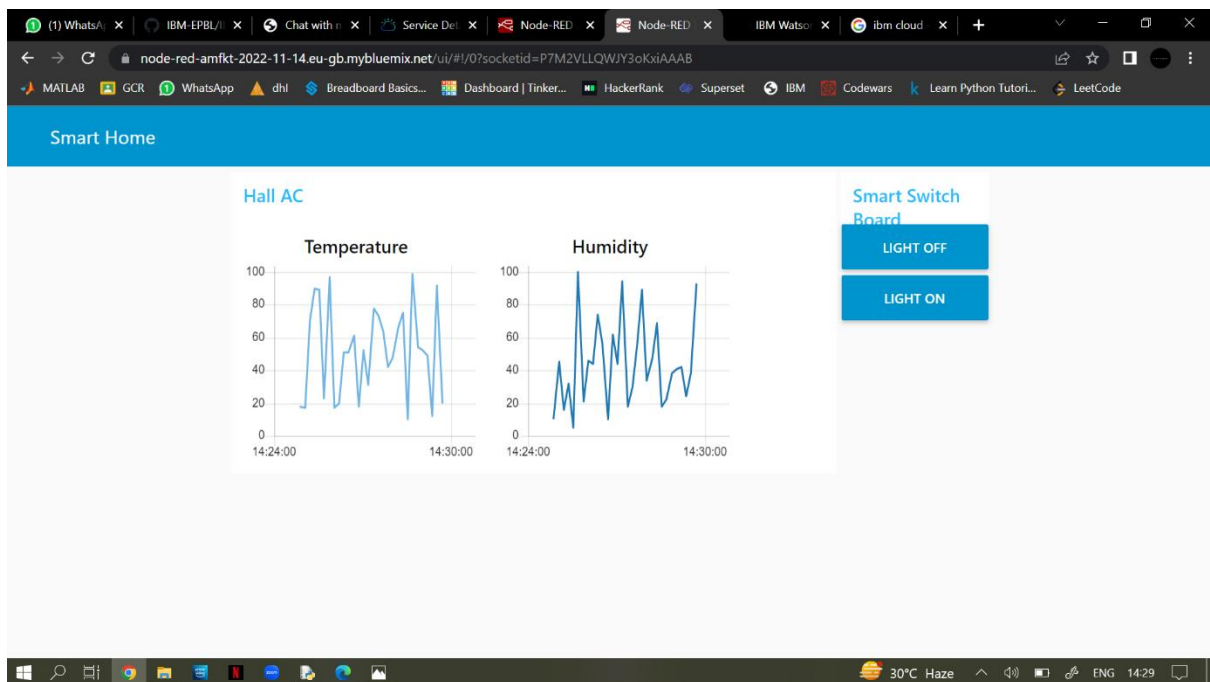
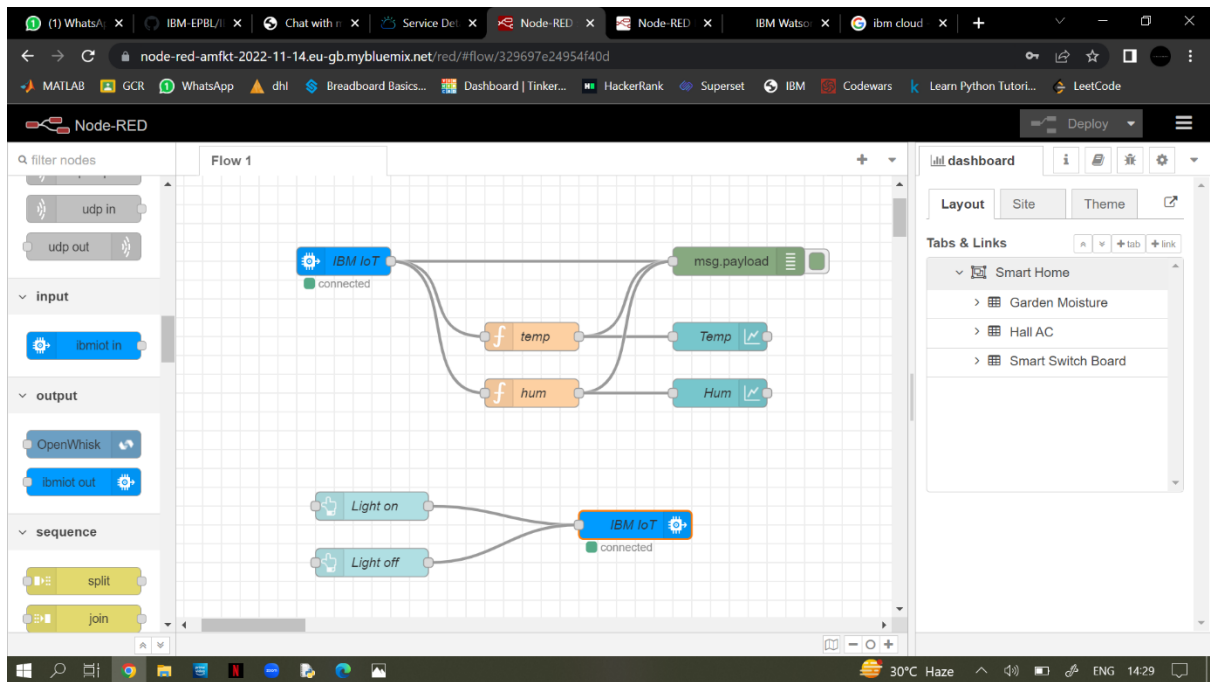


WEB APP USING NODE-RED

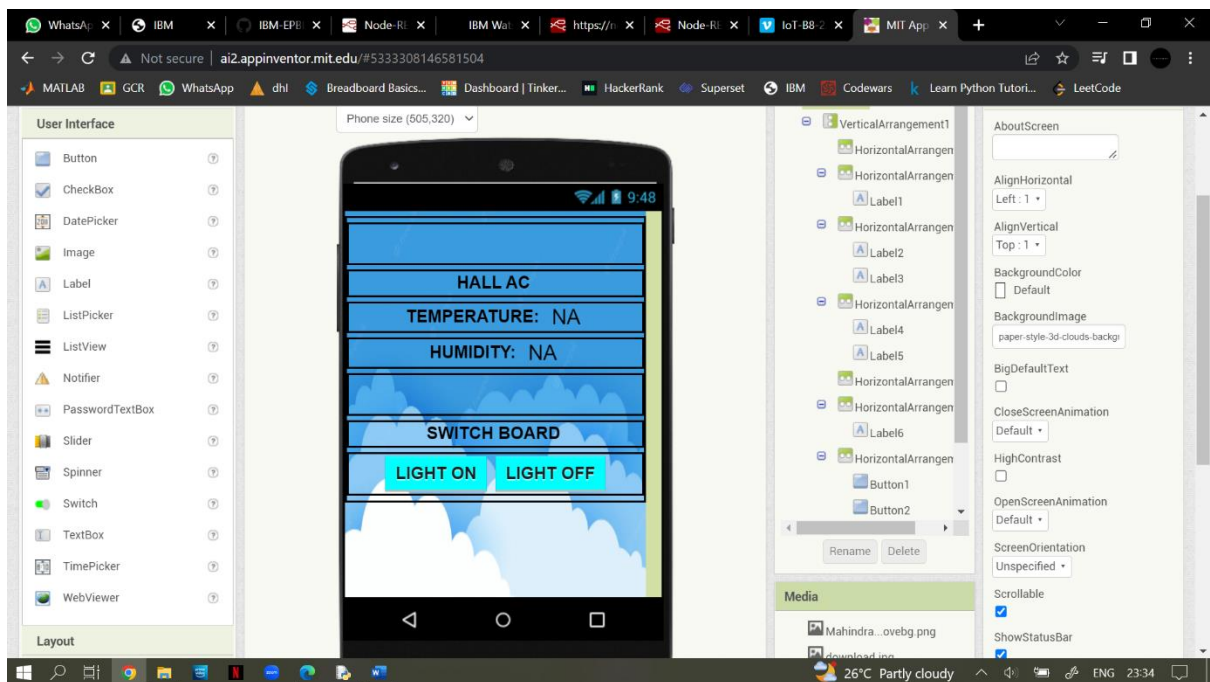
Develop the Web Application using Node-RED

Team ID	PNT2022TMID54322
Project Name	Signs with Smart Connectivity for Better Road Safety





```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Published temperature=93 C humidity=91 % to IBM Watson
Published temperature=77 C humidity=0 % to IBM Watson
Published temperature=72 C humidity=71 % to IBM Watson
Published temperature=19 C humidity=36 % to IBM Watson
Published temperature=61 C humidity=54 % to IBM Watson
Published temperature=49 C humidity=24 % to IBM Watson
Published temperature=78 C humidity=54 % to IBM Watson
Published temperature=74 C humidity=85 % to IBM Watson
Published temperature=73 C humidity=66 % to IBM Watson
Published temperature=60 C humidity=95 % to IBM Watson
Published temperature=27 C humidity=6 % to IBM Watson
Published temperature=51 C humidity=82 % to IBM Watson
Published temperature=30 C humidity=12 % to IBM Watson
Published temperature=65 C humidity=58 % to IBM Watson
Published temperature=93 C humidity=11 % to IBM Watson
Published temperature=0 C humidity=7 % to IBM Watson
Published temperature=1 C humidity=59 % to IBM Watson
Published temperature=3 C humidity=71 % to IBM Watson
Published temperature=96 C humidity=54 % to IBM Watson
Published temperature=60 C humidity=45 % to IBM Watson
Published temperature=82 C humidity=38 % to IBM Watson
Published temperature=15 C humidity=45 % to IBM Watson
Published temperature=95 C humidity=4 % to IBM Watson
Published temperature=7 C humidity=34 % to IBM Watson
Published temperature=87 C humidity=69 % to IBM Watson
Published temperature=53 C humidity=38 % to IBM Watson
Published temperature=77 C humidity=90 % to IBM Watson
Published temperature=18 C humidity=20 % to IBM Watson
Published temperature=41 C humidity=77 % to IBM Watson
Published temperature=85 C humidity=5 % to IBM Watson
Published temperature=64 C humidity=54 % to IBM Watson
Published temperature=81 C humidity=31 % to IBM Watson
Published temperature=25 C humidity=20 % to IBM Watson
Published temperature=74 C humidity=7 % to IBM Watson
Published temperature=28 C humidity=40 % to IBM Watson
Published temperature=82 C humidity=33 % to IBM Watson
Published temperature=59 C humidity=54 % to IBM Watson
Published temperature=34 C humidity=67 % to IBM Watson
Published temperature=47 C humidity=63 % to IBM Watson
Published temperature=24 C humidity=36 % to IBM Watson
Published temperature=51 C humidity=20 % to IBM Watson
Published temperature=95 C humidity=49 % to IBM Watson
```



Node-RED interface showing a flow for IoT data processing and control.

Flow 1:

- Input:** `ibmiot in` node.
- Processing:**
 - `temp` and `humid` function nodes.
 - `Light on` and `Light off` nodes.
 - `mit app` node.
 - `[get]/sensor` node.
 - `mit` function node.
- Output:**
 - `Temp` and `Humid` display nodes.
 - `IBM IoT` node (connected).
 - `msg.payload` node.
 - `http` nodes.

Debug Console:

```

11/16/2022, 11:26:21 PM node: 109732efa39804f
msg.payload: number
59

11/16/2022, 11:26:21 PM node: 109732efa39804f
msg.payload: Object
{ command: "lightoff" }

11/16/2022, 11:26:21 PM node: IBM IoT
msg: string[51]
"[ApplicationClient:publish] Client is not connected"

11/16/2022, 11:26:28 PM node: aae441cee855d253
iot-2/type/rasberryid/123/ev/ItoTSensor/fmt/json :
msg.payload: Object
{ temperature: 56, humidity: 44 }

11/16/2022, 11:26:29 PM node: aae441cee855d253
iot-2/type/rasberryid/123/ev/ItoTSensor/fmt/json :

```

WOKWI interface showing a sketch for ESP32 IoT connectivity.

Sketch Code:

```

8 DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and ty
9
10 void callback(char* subscribetopic, byte* payload, unsigned int payload
11
12 //-----credentials of IBM Accounts-----
13
14 #define ORG "efr0if" //IBM ORGANITION ID
15 #define DEVICE_TYPE "rasberrypi" //Device type mentioned in ibm watson IO
16 #define DEVICE_ID "123" //Device ID mentioned in ibm watson IOT Platform
17 #define TOKEN "12345678" //Token
18 String data3;
19 float h, t;
20
21
22 //----- Customise the above values -----
23 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server
24 char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type o
25 char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT
26 char authMethod[] = "use-token-auth"; // authentication method
27 char token[] = TOKEN;
28 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
29
30
31 //-----
32 WiFiClient wifiClient; // creating the instance for wificlient
33 PubSubClient client(server, 1883, callback, wifiClient); //calling the p
34

```

Simulation:

ESP32 board connected to a sensor module.

Output Log:

```

Publish ok
temp:47.40
Humid:92.00
Sending payload: {"temp":47.40,"Humid":92.00}
Publish ok
temp:47.40
Humid:92.00

```