

### Project Development Phase Sprint III

Date	13 November 2022
Team ID	PNT2022TMID14814
Project Name	Signs with Smart Connectivity for better road safety

#### Sprint Targets:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Login	USN-5	As an administrator, I should have an account of the website	7	Low	Ajai Balaji P Dheepak Kumaar A S Vamsi Krishna D Gowshik Ram S
Sprint-3	Dashboard	USN-6	As an admin, I should be able to monitor and add sign nodes	13	Medium	Ajai Balaji P Dheepak Kumaar A S Vamsi Krishna D Gowshik Ram S

IBMApplication Details - IBM CloudNode-RED : node-red-eamxw-20Cloudant Dashboard - database/IBM Watson IoT Platformsmart signs for better road

wokwi.com/projects/348833597626516052

WOKWI

SAVE

SHARE

final\_iot.ino

Docs

sketch.ino

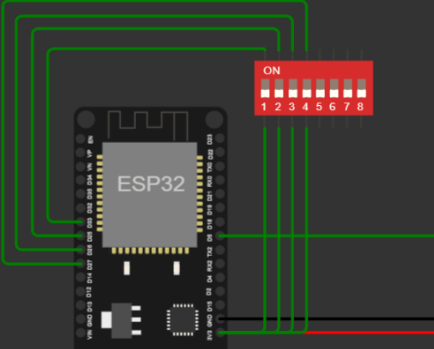
diagram.json

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 connected
8
9 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
10
11 //-----credentials of IBM Accounts-----
12
13 #define ORG "c3wgx1"//IBM ORGANISATION ID
14 #define DEVICE_TYPE "ajai"//Device type mentioned in ibm watson IOT Platform
15 #define DEVICE_ID "12345"//Device ID mentioned in ibm watson IOT Platform
16 #define TOKEN "123456789" //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 and format in which data
24 char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command type AND COMMAND IS TEST OF F
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 WiFiClient wificlient; // creating the instance for wificlient
31 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client id by passing paramet
32
33
34
35 void setup()// configureing the ESP32
```

Simulation



Connecting to ....

WiFi connected

IP address:

10.10.0.2

Reconnecting client to

c3wgx1.messaging.internetofthings.ibmcloud.com

25°C

Cloudy

Search

ENG

IN

22:35

20-11-2022

IoT Device – IoT Platform

12345

Connected

ajal

Device

Identity

Device Information

Recent Events

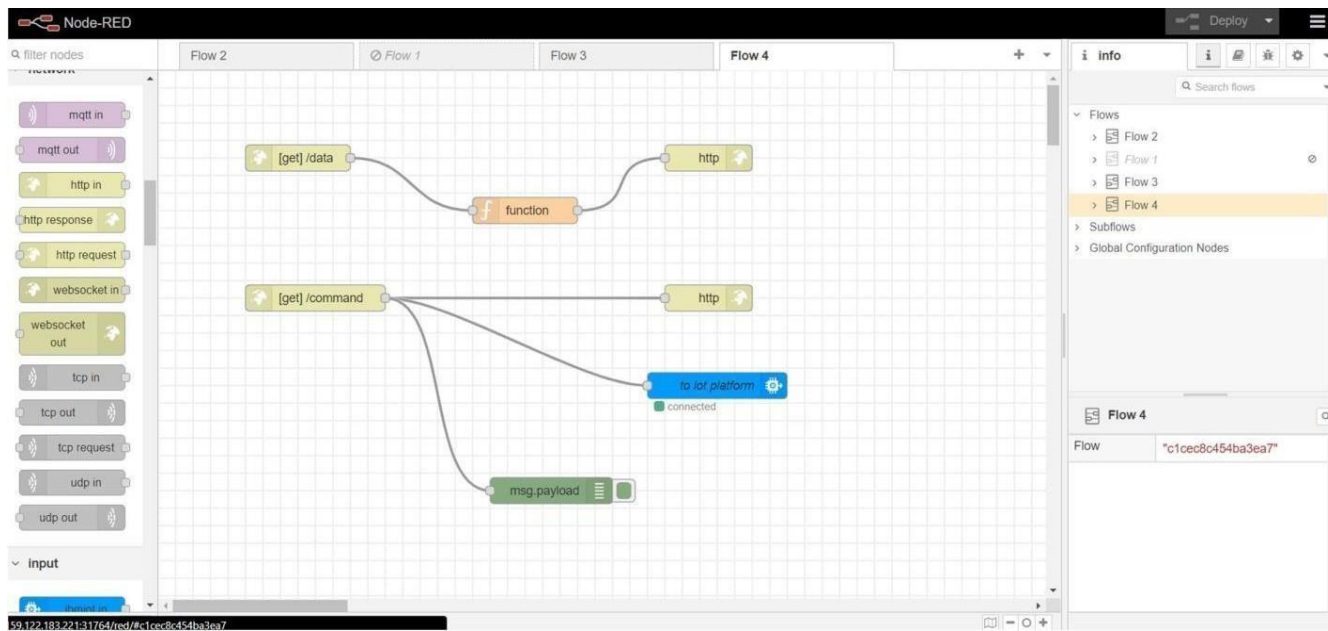
State

Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago

## Node Red – Connect with MIT App Inventor



## Edit function node

Delete

Cancel

Done

### Properties

Name

Name

Setup

On Start

On Message

On Stop

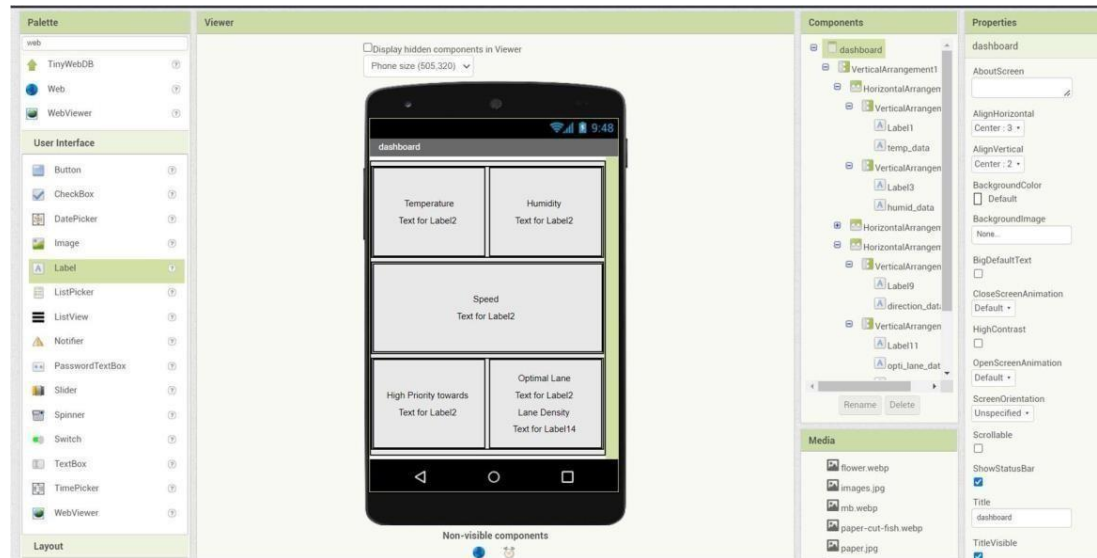
```
1 msg.payload = {  
2   "temp":global.get("temp"),  
3   "humid":global.get("humid"),  
4   "speed":global.get("speed"),  
5   "n":global.get("n"),  
6   "s":global.get("s"),  
7   "e":global.get("e"),  
8   "w":global.get("w"),  
9   "res":global.get("res"),  
10  "l1":global.get("l1"),  
11  "l2":global.get("l2"),  
12  "l3":global.get("l3"),  
13  "l4":global.get("l4"),  
14  "optimal_lane":global.get("optimal_lane")  
15  
16 };  
17  
18 return msg;
```

## Output from Node red:

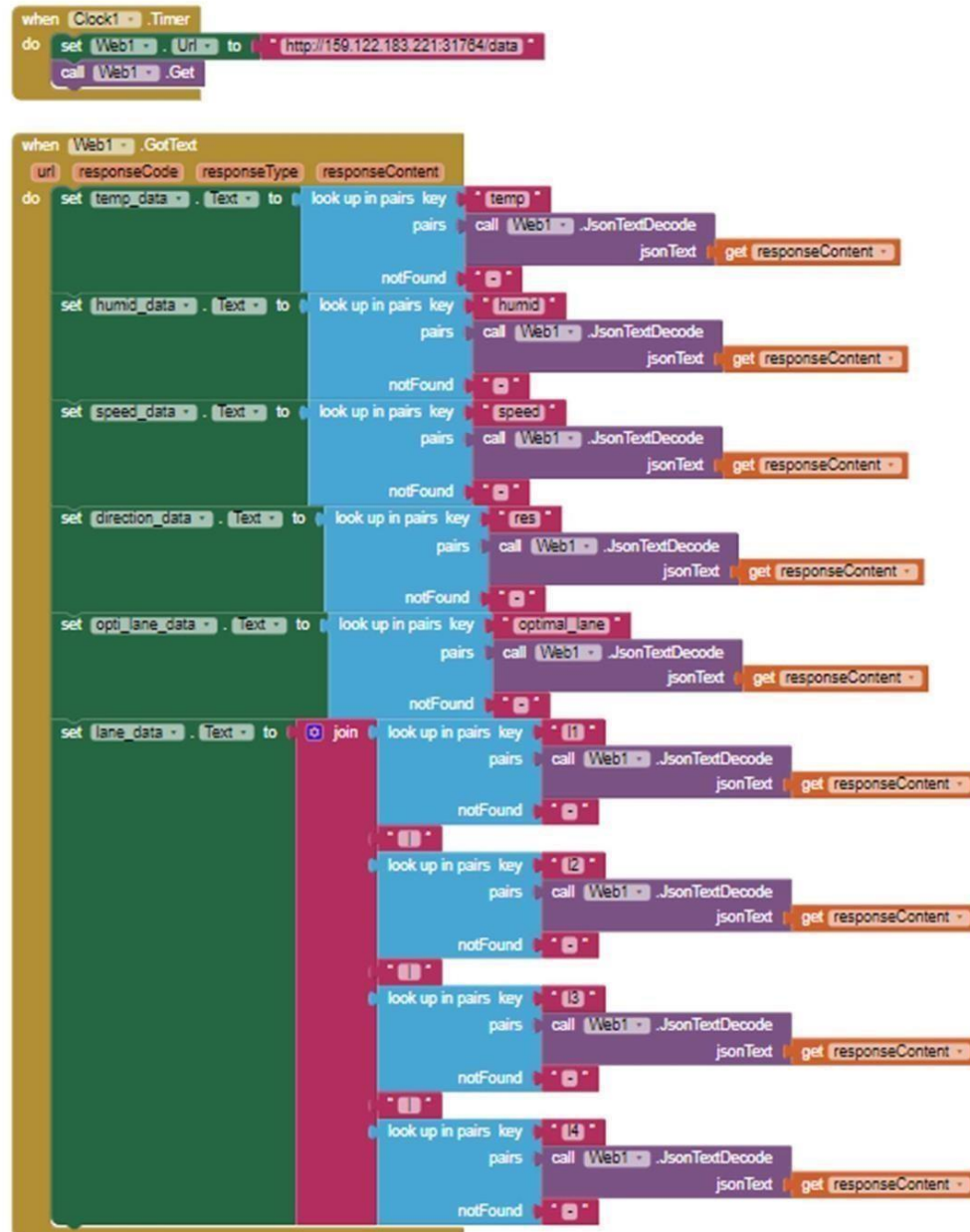
The screenshot shows a web browser window with the following details:

- Address Bar:** Not secure | 159.122.183.221:31764/data
- Page Content:** A JSON object: `{"temp":37.4,"humid":86,"speed":80,"n":0,"s":0,"e":0,"w":0,"res":"-","l1":17,"l2":84,"l3":79,"l4":92,"optimal_lane":"Lane 1"}`
- Browser Tabs:** IBM, Application Details - IBM C, Node-RED: node-red-eam, Cloudant Dashboard - data, IBM Watson IoT Platform, smart signs for better road, 159.122.183.221:31764/
- Windows Taskbar:** Shows the Start button, Search bar, and various application icons including File Explorer, Edge, and Word. The system tray on the right displays the date and time: 20-11-2022, 23:21.

## MIT App Inventor UI design:



## MIT App Inventor Backend design:





**Sprint 3 delivery:**

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

