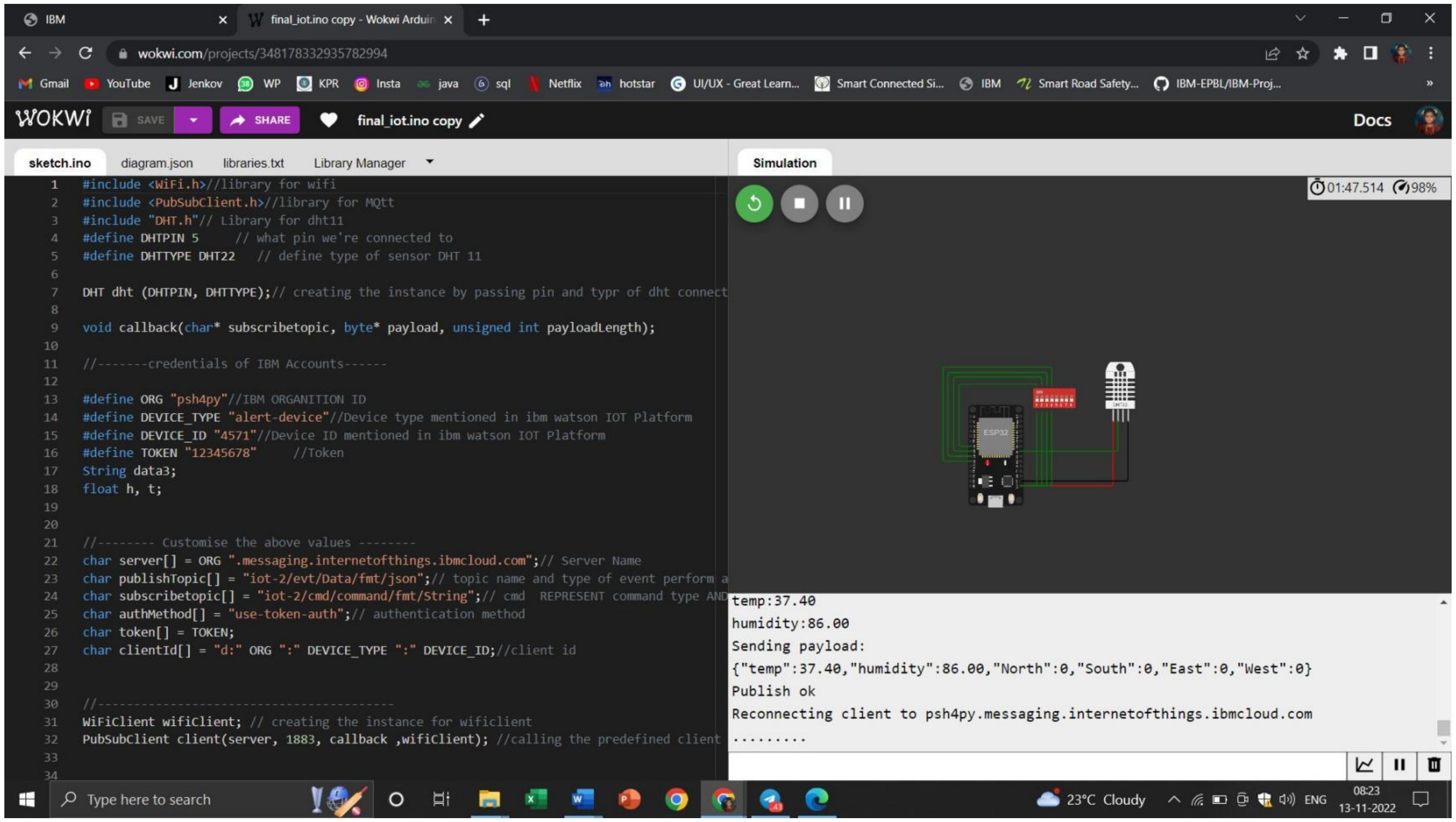
Project Development PhaseSprint III

Date	13 November 2022
Team ID	PNT2022TMID07843
Project Name	Signs with Smart Connectivity for better road safety

Sprint Targets :

Sprint	Functional Requirement (Epic)	UserStory 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	Sneha Nivetha Jeyashri Pawana Prudhvi Naveen
Sprint-3	Dashboard	USN-6SSS	As an admin , I should be able to monitor and add sign nodes	13	Medium	Sneha Nivetha Jeyashri Pawana Prudhvi Naveen

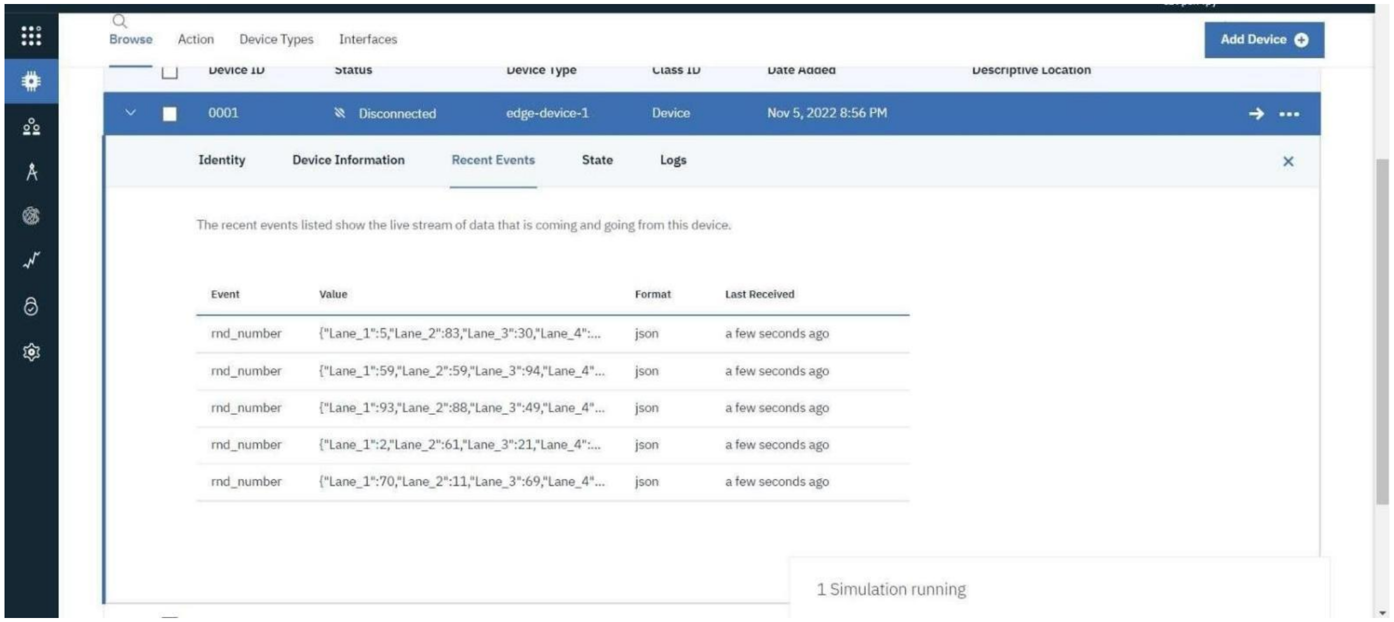
Wokwi Simulation: https://wokwi.com/projects/348178332935782994



```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include "DHT.h"// Library for dht11
#define DHTPIN 5     // what pin we're connected to
#define DHTTYPE DHT22   // define type of sensor DHT 11

DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht connect

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);

//-------credentials of IBM Accounts------

#define ORG "psh4py"//IBM ORGANITION ID
#define DEVICE_TYPE "alert-device"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "4571"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678"     //Token
String data3;
float h, t;


//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform a
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESENT command type AND
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id


//-----------------------------------------
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined client
```

```
temp:37.40
humidity:86.00
Sending payload:
{"temp":37.40,"humidity":86.00,"North":0,"South":0,"East":0,"West":0}
Publish ok
Reconnecting client to psh4py.messaging.internetofthings.ibmcloud.com
.........
```

IoT Device – IoT Platform



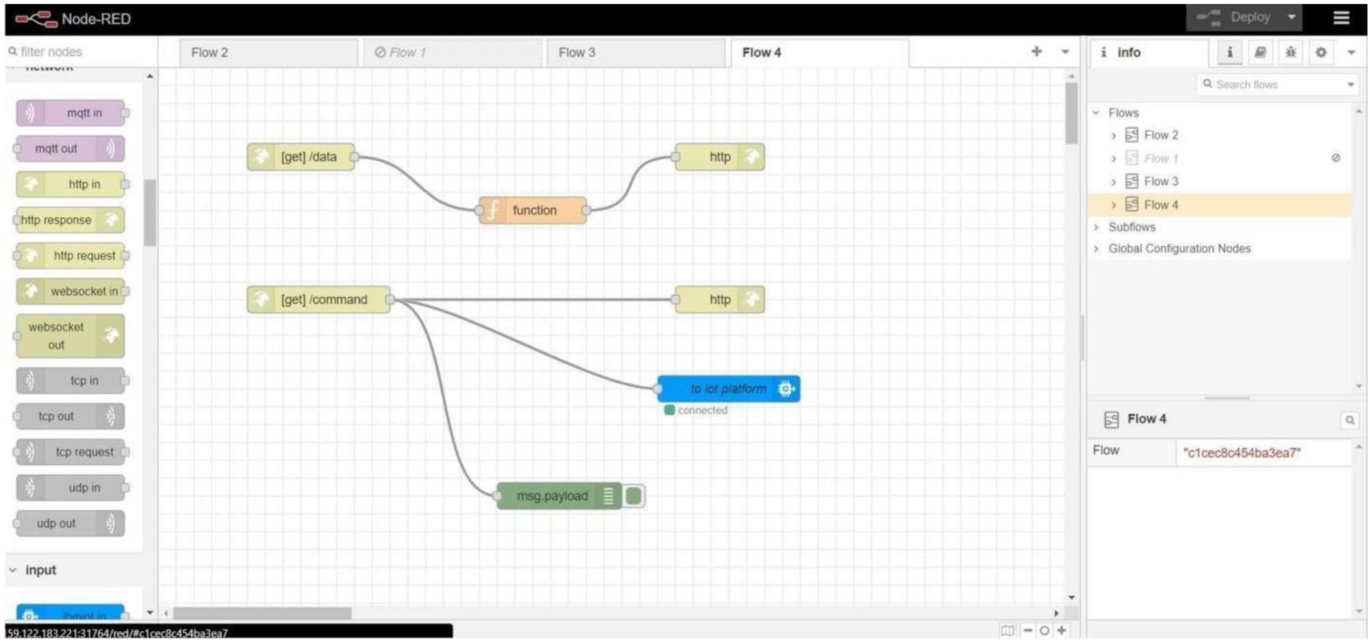
Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
0001	Disconnected	edge-device-1	Device	Nov 5, 2022 8:56 PM	

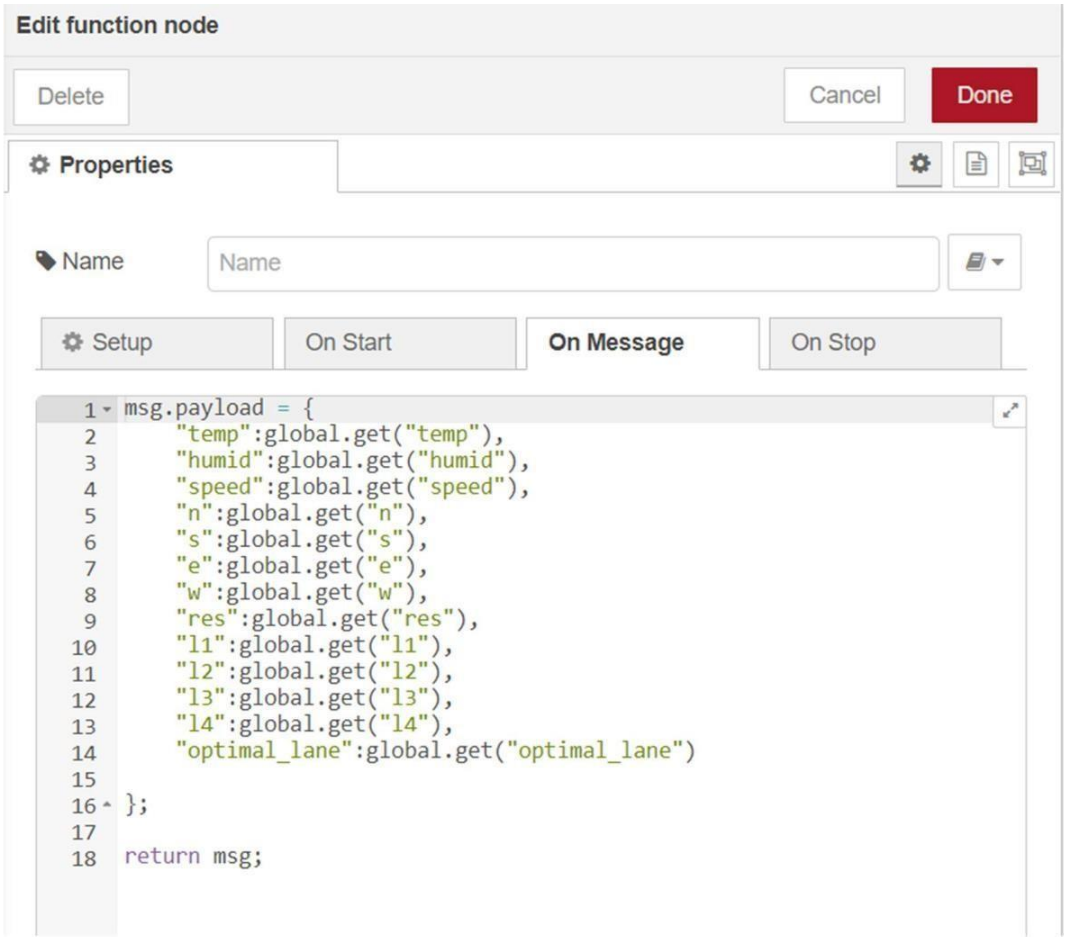
The recent events listed show the live stream of data that is coming and going from this device.

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

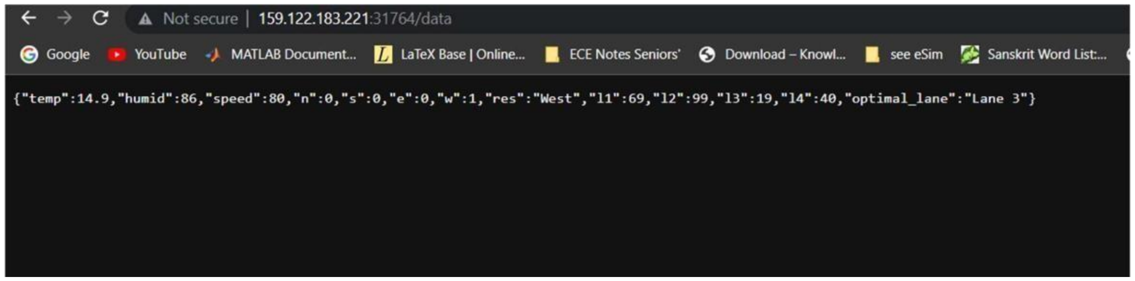
Node Red – Connect with MIT AppInventor





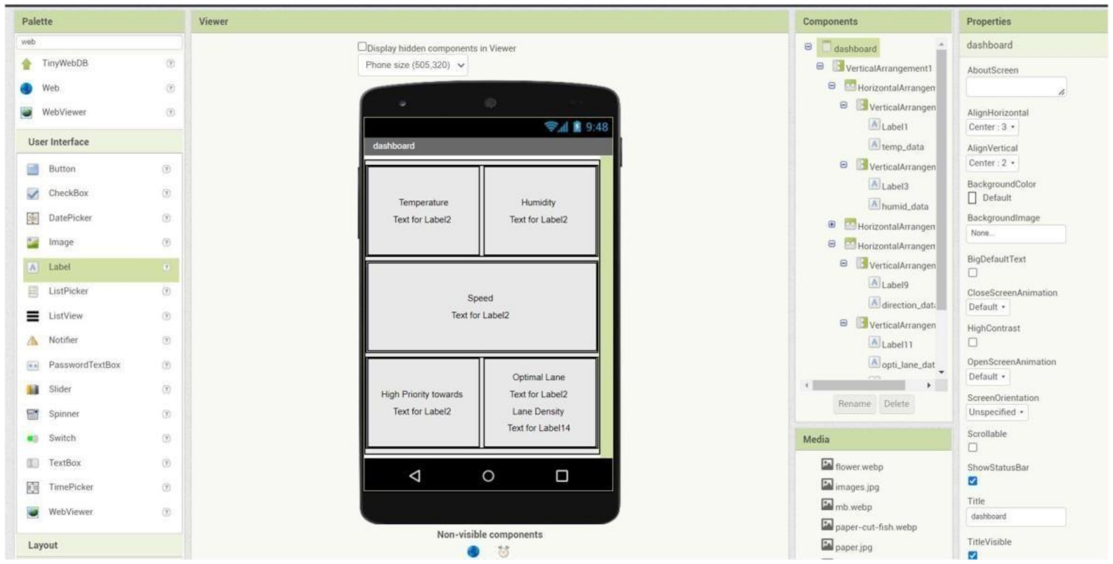
```
msg.payload = {
    "temp":global.get("temp"),
    "humid":global.get("humid"),
    "speed":global.get("speed"),
    "n":global.get("n"),
    "s":global.get("s"),
    "e":global.get("e"),
    "w":global.get("w"),
    "res":global.get("res"),
    "l1":global.get("l1"),
    "l2":global.get("l2"),
    "l3":global.get("l3"),
    "l4":global.get("l4"),
    "optimal_lane":global.get("optimal_lane")

};

return msg;
```

Output from Node red:

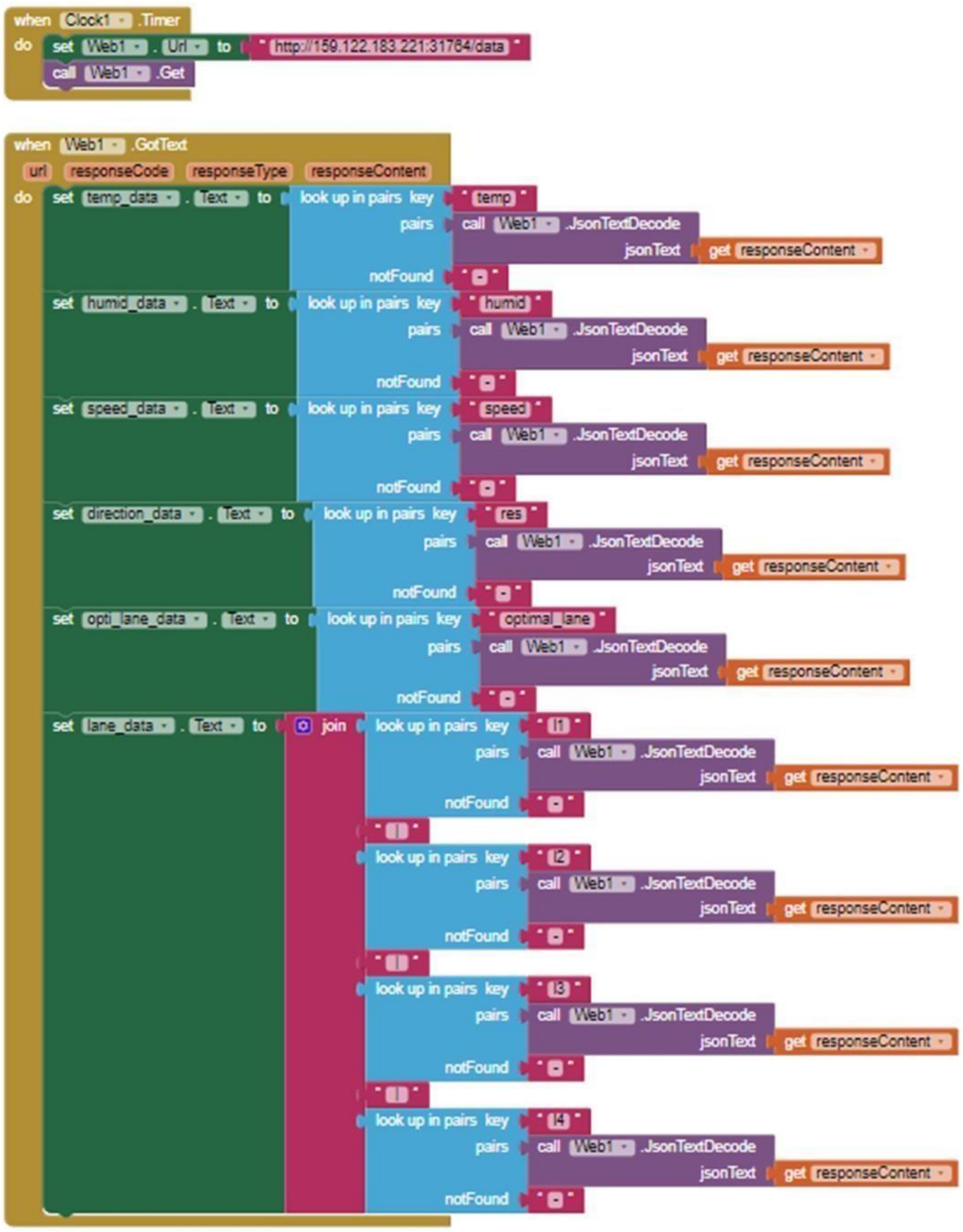


```
{"temp":14.9,"humid":86,"speed":80,"n":0,"s":0,"e":0,"w":1,"res":"West","l1":69,"l2":99,"l3":19,"l4":40,"optimal_lane":"Lane 3"}
```

MIT App Inventor UI design:



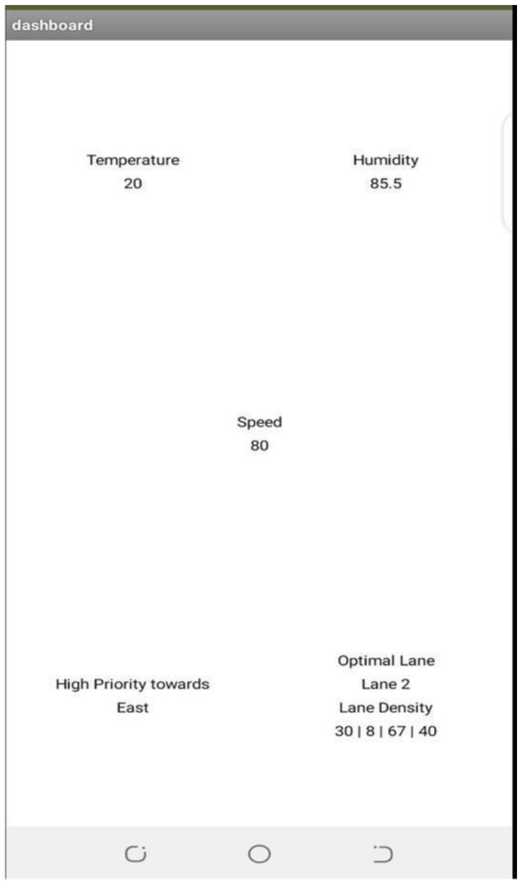
MIT App Inventor Backend design:



```
when Clock1 .Timer
do  set Web1 . Url to " http://159.122.183.221:31764/data "
    call Web1 .Get

when Web1 .GotText
 url  responseCode  responseType  responseContent
do  set temp_data . Text to  look up in pairs  key " temp "
                                               pairs  call Web1 .JsonTextDecode
                                                                jsonText  get responseContent
                                               notFound " - "
    set humid_data . Text to  look up in pairs  key " humid "
                                                pairs  call Web1 .JsonTextDecode
                                                                 jsonText  get responseContent
                                                notFound " - "
    set speed_data . Text to  look up in pairs  key " speed "
                                                pairs  call Web1 .JsonTextDecode
                                                                 jsonText  get responseContent
                                                notFound " - "
    set direction_data . Text to  look up in pairs  key " res "
                                                    pairs  call Web1 .JsonTextDecode
                                                                     jsonText  get responseContent
                                                    notFound " - "
    set opti_lane_data . Text to  look up in pairs  key " optimal_lane "
                                                    pairs  call Web1 .JsonTextDecode
                                                                     jsonText  get responseContent
                                                    notFound " - "
    set lane_data . Text to  join  look up in pairs  key " l1 "
                                                     pairs  call Web1 .JsonTextDecode
                                                                      jsonText  get responseContent
                                                     notFound " - "
                                   " | "
                                   look up in pairs  key " l2 "
                                                     pairs  call Web1 .JsonTextDecode
                                                                      jsonText  get responseContent
                                                     notFound " - "
                                   " | "
                                   look up in pairs  key " l3 "
                                                     pairs  call Web1 .JsonTextDecode
                                                                      jsonText  get responseContent
                                                     notFound " - "
                                   " | "
                                   look up in pairs  key " l4 "
                                                     pairs  call Web1 .JsonTextDecode
                                                                      jsonText  get responseContent
                                                     notFound " - "
```

Sprint 3 delivery:

(OUTPUT) Display from MIT App:



dashboard

Temperature
20

Humidity
85.5

Speed
80

High Priority towards
East

Optimal Lane
Lane 2
Lane Density
30 | 8 | 67 | 40