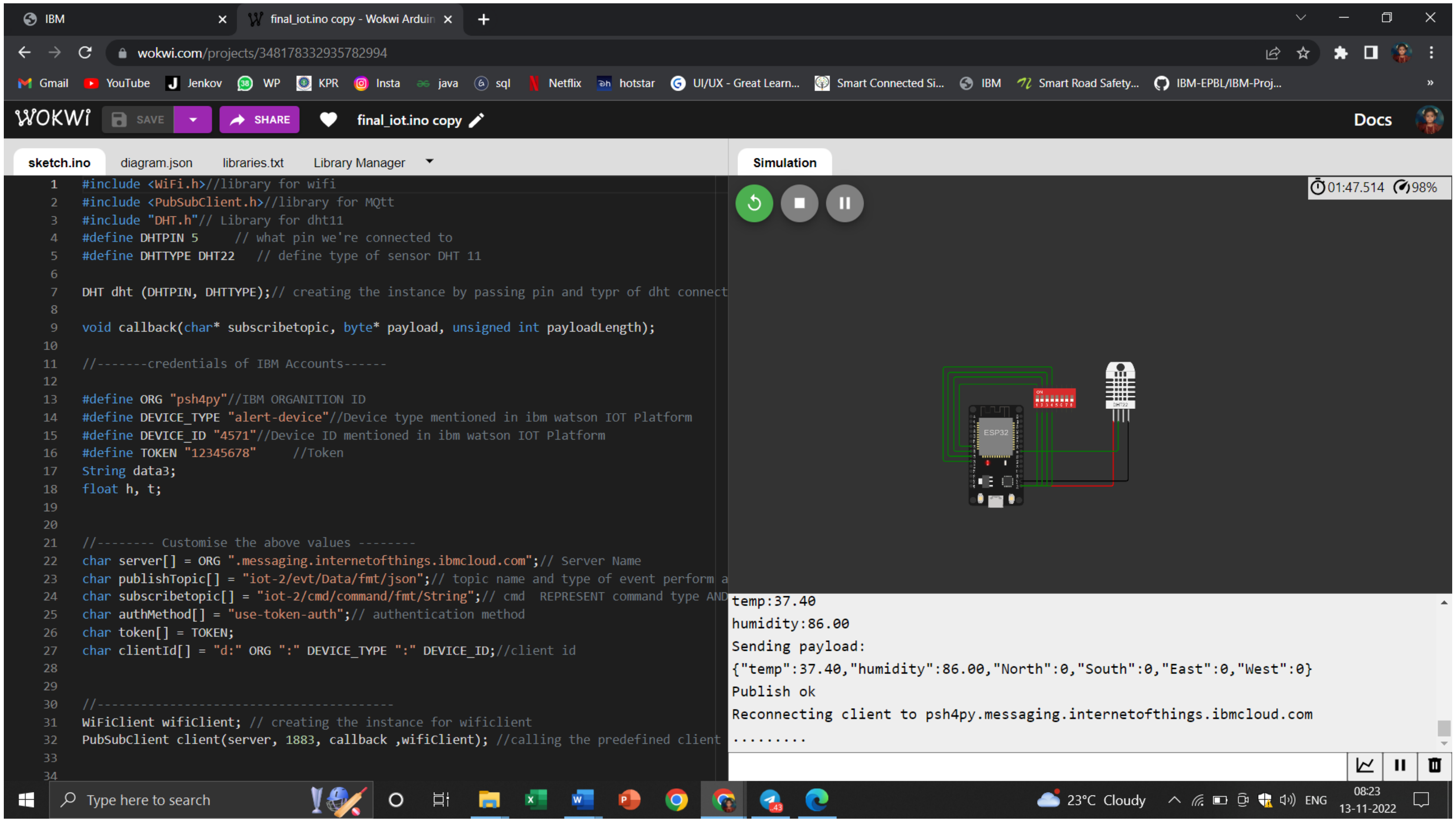
Project Development PhaseSprint II

Date	13 November 2022
Team ID	PNT2022TMID14352
Project Name	Signs with Smart Connectivity for better road safety

SPRINT TARGETS:

Sprint	Functional Requirement (Epic)	UserStory Number	UserStory / Task	Story Points	Priority	Team Members
Sprint-2	Safe Ride	USN-4	As a traveler , I should have a hustie free journey	20	Medium	Pavithra Rohini Naresh Mallisri

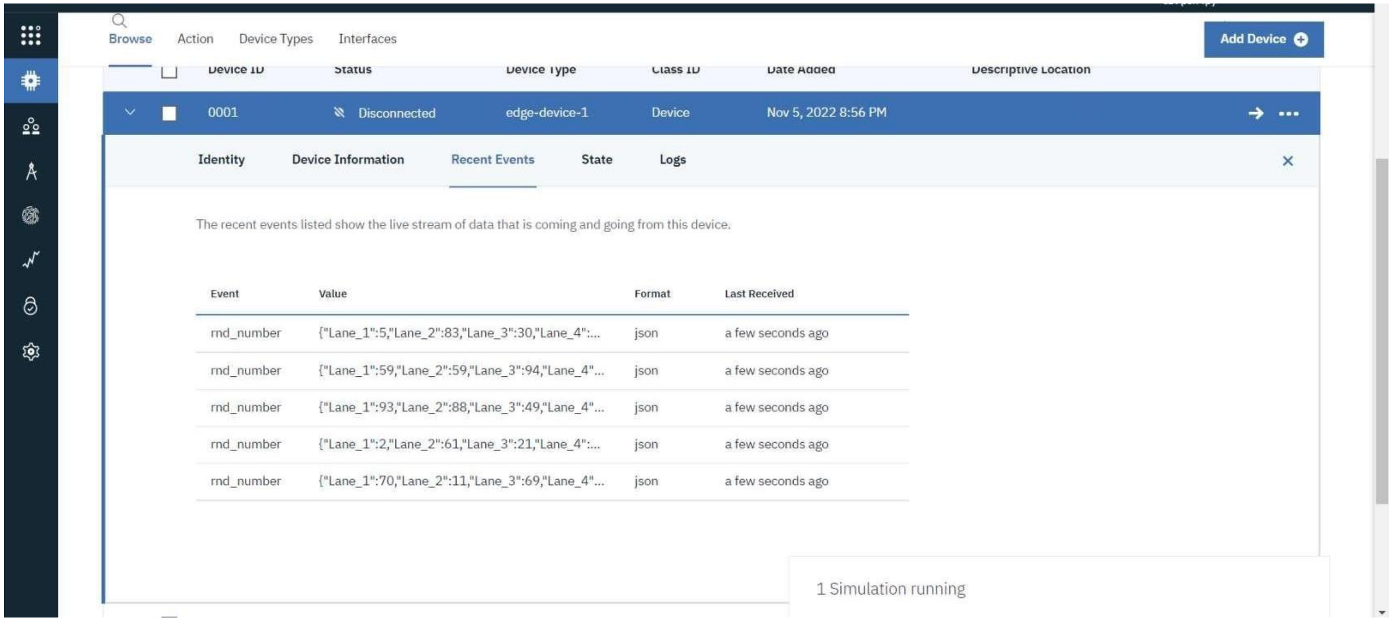
Wokwi Simulation: https://wokwi.com/projects/348178332935782994



```
#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



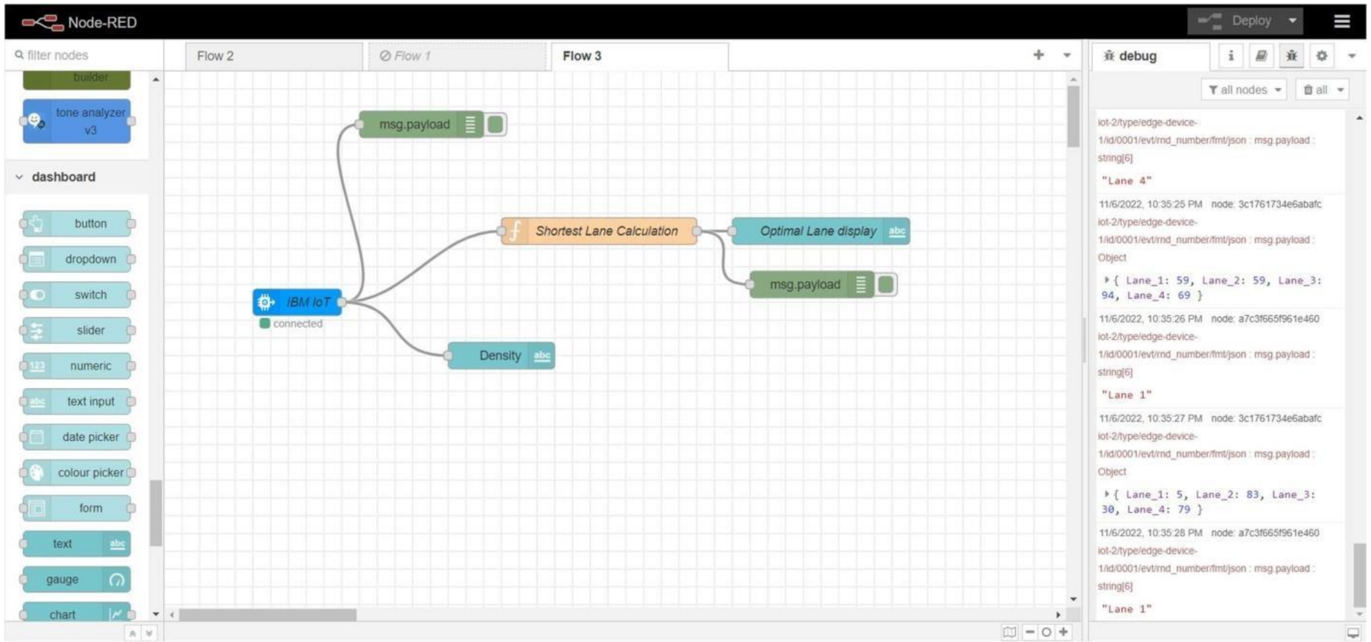
Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
0001	Disconnected	edge-device-1	Device	Nov 5, 2022 8:56 PM	

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

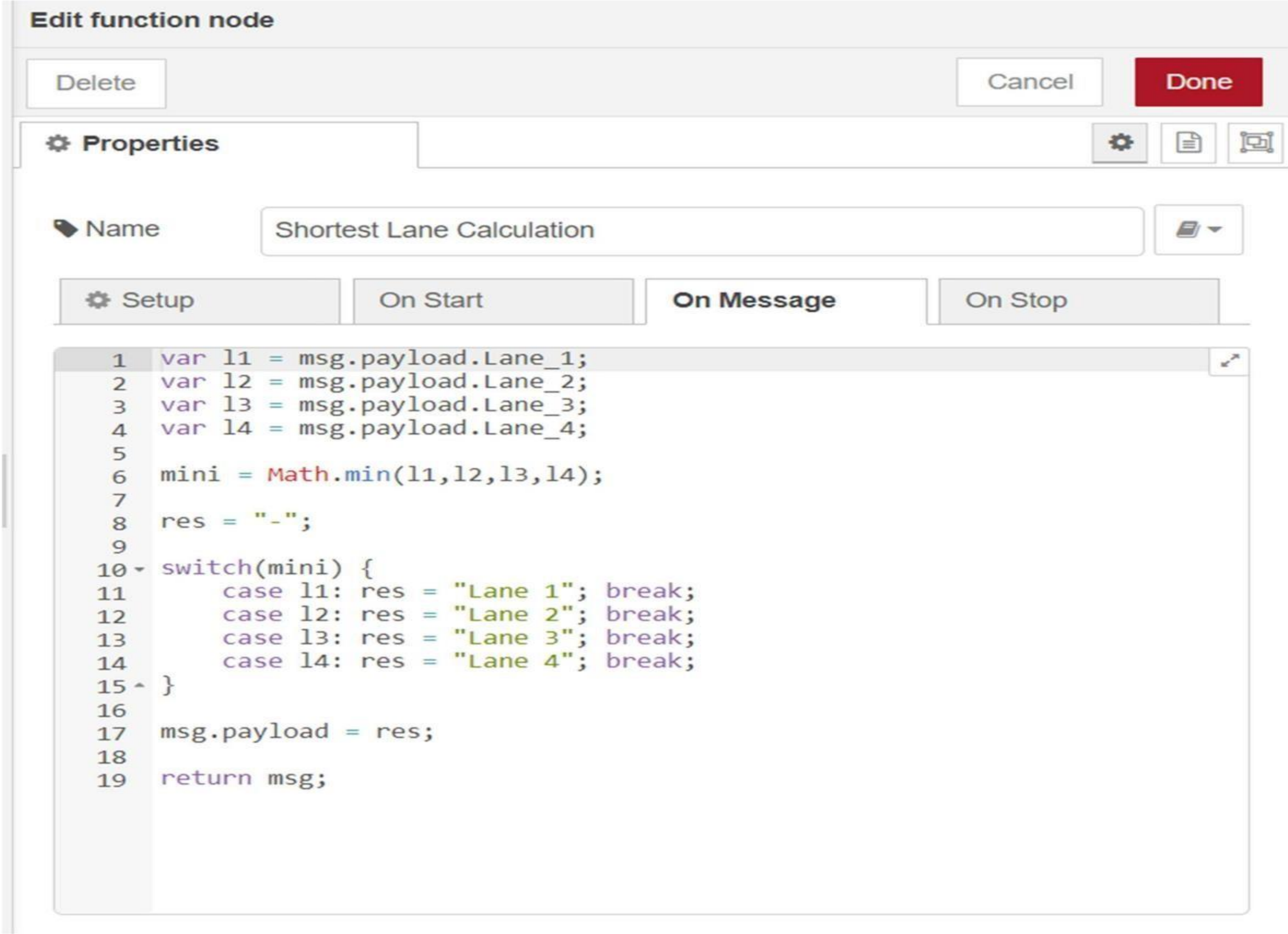
Event	Value	Format	Last Received
rnd_number	{"Lane_1":5,"Lane_2":83,"Lane_3":30,"Lane_4":...	json	a few seconds ago
rnd_number	{"Lane_1":59,"Lane_2":59,"Lane_3":94,"Lane_4"...	json	a few seconds ago
rnd_number	{"Lane_1":93,"Lane_2":88,"Lane_3":49,"Lane_4"...	json	a few seconds ago
rnd_number	{"Lane_1":2,"Lane_2":61,"Lane_3":21,"Lane_4":...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



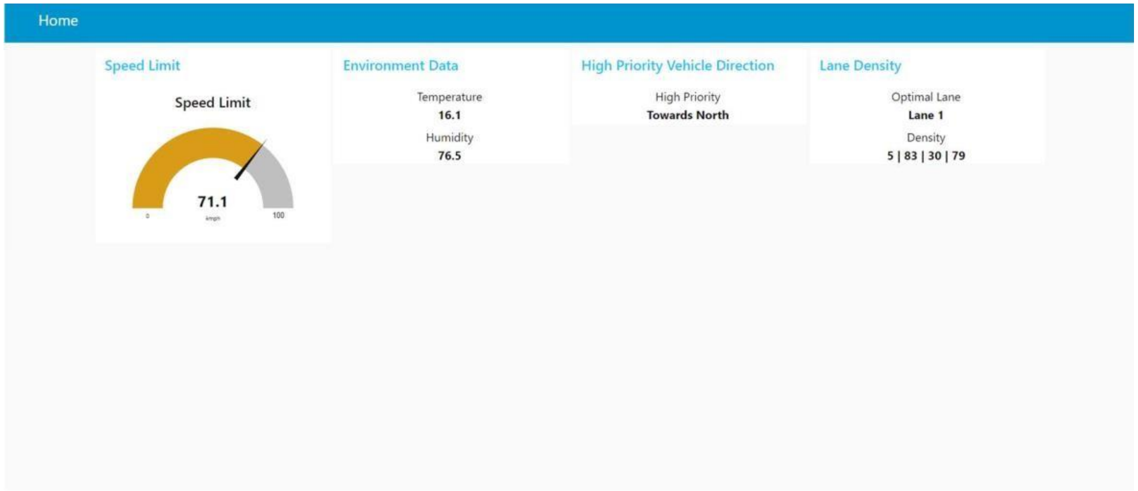
```
iot-2/type/edge-device-
1/id/0001/evt/rnd_number/fmt/json : msg.payload :
string[6]
"Lane 4"
11/6/2022, 10:35:25 PM   node: 3c1761734e6abafc
iot-2/type/edge-device-
1/id/0001/evt/rnd_number/fmt/json : msg.payload :
Object
▸{ Lane_1: 59, Lane_2: 59, Lane_3:
94, Lane_4: 69 }
11/6/2022, 10:35:26 PM   node: a7c3f665f961e460
iot-2/type/edge-device-
1/id/0001/evt/rnd_number/fmt/json : msg.payload :
string[6]
"Lane 1"
11/6/2022, 10:35:27 PM   node: 3c1761734e6abafc
iot-2/type/edge-device-
1/id/0001/evt/rnd_number/fmt/json : msg.payload :
Object
▸{ Lane_1: 5, Lane_2: 83, Lane_3:
30, Lane_4: 79 }
11/6/2022, 10:35:28 PM   node: a7c3f665f961e460
iot-2/type/edge-device-
1/id/0001/evt/rnd_number/fmt/json : msg.payload :
string[6]
"Lane 1"
```



Name: Shortest Lane Calculation

```
var l1 = msg.payload.Lane_1;
var l2 = msg.payload.Lane_2;
var l3 = msg.payload.Lane_3;
var l4 = msg.payload.Lane_4;

mini = Math.min(l1,l2,l3,l4);

res = "-";

switch(mini) {
    case l1: res = "Lane 1"; break;
    case l2: res = "Lane 2"; break;
    case l3: res = "Lane 3"; break;
    case l4: res = "Lane 4"; break;
}

msg.payload = res;

return msg;
```

Node Red Web UI



Speed Limit

Speed Limit

71.1

Environment Data

Temperature
16.1

Humidity
76.5

High Priority Vehicle Direction

High Priority
Towards North

Lane Density

Optimal Lane
Lane 1

Density
5 | 83 | 30 | 79