

**Project Development Phase**  
**Sprint I**

Date	16 November 2022
Team ID	PNT2022TMID19266
Project Name	Signs with Smart Connectivity for better road safety

**SPRINT TARGETS:**

<b>Sprint</b>	<b>Functional Requirement (Epic)</b>	<b>User Story Number</b>	<b>User Story /Task</b>	<b>Story Points</b>	<b>Priority</b>	<b>Team Members</b>
Sprint-1	Dynamic Speed Limit	USN-1	Knowing the speed limit when travelling is crucial.	10	High	Kishor M Kishore S M Krishna M Naveen V
Sprint-1	Priority Vehicle	USN-2	Experimentation and circuit simulation.	2	High	Kishor M Kishore S M Krishna M Naveen V
Sprint-1	Weather Speed Limit	USN-3	I should be aware of how the weather affects the speed limit for a ride as an observer.		Medium	Kishor M Kishore S M Krishna M Naveen V

## WOKWI Simulation:

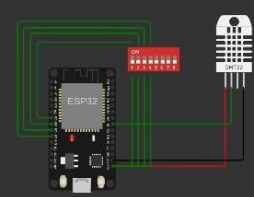
WOKWI SAVE SHARE final\_iot.ino copy Docs

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 type 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 ORGANIZATION 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
```

Simulation

01:47.514 98%



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  
.....

Type here to search

23°C Cloudy 08:23 13-11-2022

IoT Device – IoT Platform

4571

Connected

alert-device

Device

Identity

Device Information

Recent Events

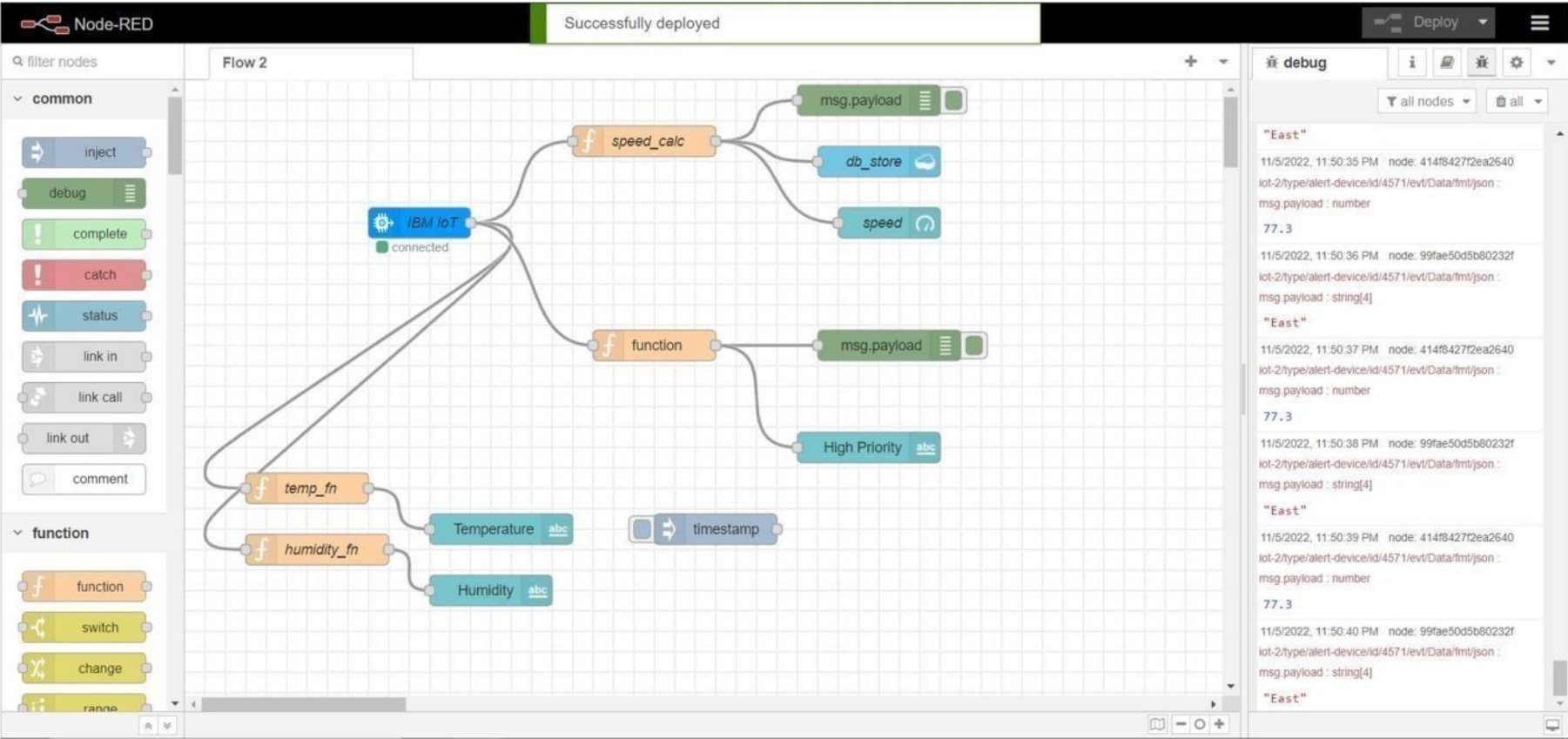
State

Logs

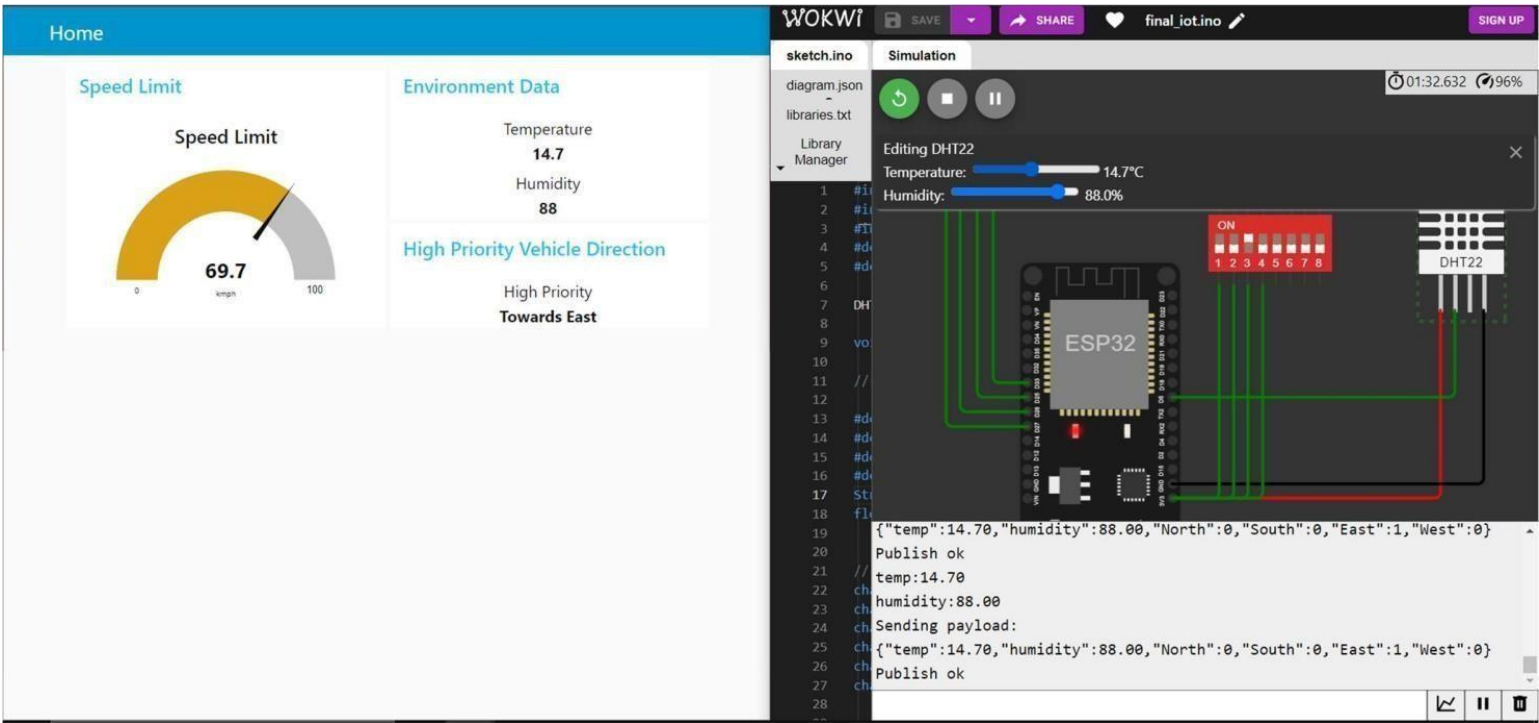
The recent events listed show the live stream of data that is coming and going from this device.

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




Node Red Web UI



Home

Speed Limit



70.5  
kmph

Environment Data

Temperature  
15.5

Humidity  
91.5

High Priority Vehicle Direction

High Priority  
Towards South

WOKWI

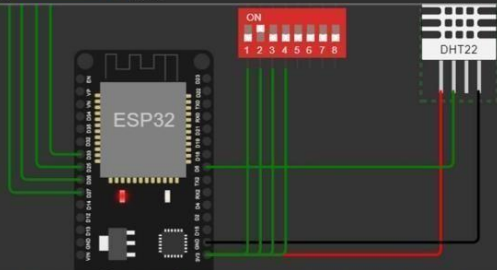
SAVE SHARE final\_iot.ino SIGN IN

sketch.ino Simulation 02:23.068 91%

diagram.json  
libraries.txt  
Library Manager

Editing DHT22

Temperature: 15.5°C  
Humidity: 91.5%



```
1 #include <Wire.h>
2 #include <DHT.h>
3 #define DHTPIN 5
4 #define DHTTYPE DHT22
5 DHT dht(DHTPIN, DHTTYPE);
6
7 void setup() {
8   Wire.begin();
9   dht.begin();
10 }
11
12 // Read temperature and humidity
13 void loop() {
14   float temp = dht.temperature();
15   float hum = dht.humidity();
16   // Send data to MQTT
17   String payload = "{\"temp\":15.50,\"humidity\":91.50,\"North\":0,\"South\":1,\"East\":0,\"West\":0}";
18   // Publish to MQTT
19   publish(payload);
20   // Delay
21   delay(1000);
22 }
23
24 // Send data to MQTT
25 void publish(String payload) {
26   // Send payload
27   // Publish ok
28 }
```

## Cloudant Database

data\_iot

⋮

Document ID

Options

JSON

Log Out

All Documents

+

Query

Permissions

Changes

Design Documents

+

Table

Metadata

JSON

Create Document

	_id	payload
<input type="checkbox"/>	060cc88d44faf11288e9cdfd7d8de45a	35
<input type="checkbox"/>	060cc88d44faf11288e9cdfd7d904e58	60
<input type="checkbox"/>	060cc88d44faf11288e9cdfd7d90c3f9	45.5
<input type="checkbox"/>	060cc88d44faf11288e9cdfd7d92a313	60
<input type="checkbox"/>	2314e7571ab5925365e082f191bb2c9c	52.5
<input type="checkbox"/>	26939bb99e5c84bed4f6a20342a22ab2	35
<input type="checkbox"/>	26939bb99e5c84bed4f6a20342a7ccd5	44
<input type="checkbox"/>	3ffa1240575d0cd0d7f848833802e389	55
<input type="checkbox"/>	48a3afbcf5f840466e09ed279d3c3451	53
<input type="checkbox"/>	48a3afbcf5f840466e09ed279d3c5b7c	53
<input type="checkbox"/>	48a3afbcf5f840466e09ed279d3c9545	53
<input type="checkbox"/>	52730057f2d5fde2d21dfaaaabc10dc8	55

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Show all columns.

Showing document 1 - 20.

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