

Project Development PhaseSprint I

Date	13 November 2022
Team ID	PNT2022TMID14352
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-1	Dynamic Speed Limit	USN-1	As a traveller , It is Essential form to know the speed limit	10	High	Pavithra Rohini Naresh Mallisri
Sprint-1	Priority Vehicle	USN-2	Simulating the circuits and experimenting	2	High	Pavithra Rohini Naresh Mallisri
Sprint-1	Weather Speed Limit	USN-3	As a user ,I should be aware of weather influence on speed limit for safer ride		Medium	Pavithra Rohini Naresh Mallisri

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

Wokwi Simulation Interface showing a project titled "final_iot.ino copy".

Sketch Code (sketch.ino):

```
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 ORGANITION 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:

The simulation shows a physical representation of the ESP8266 module connected to a DHT22 sensor. The output window displays the following data:

```
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
.....
```

The simulation is running at 01:47.514 with 98% battery.

IoT Device – IoT Platform

4571

Connected

alert-device

Device

Identity

Device Information

Recent Events

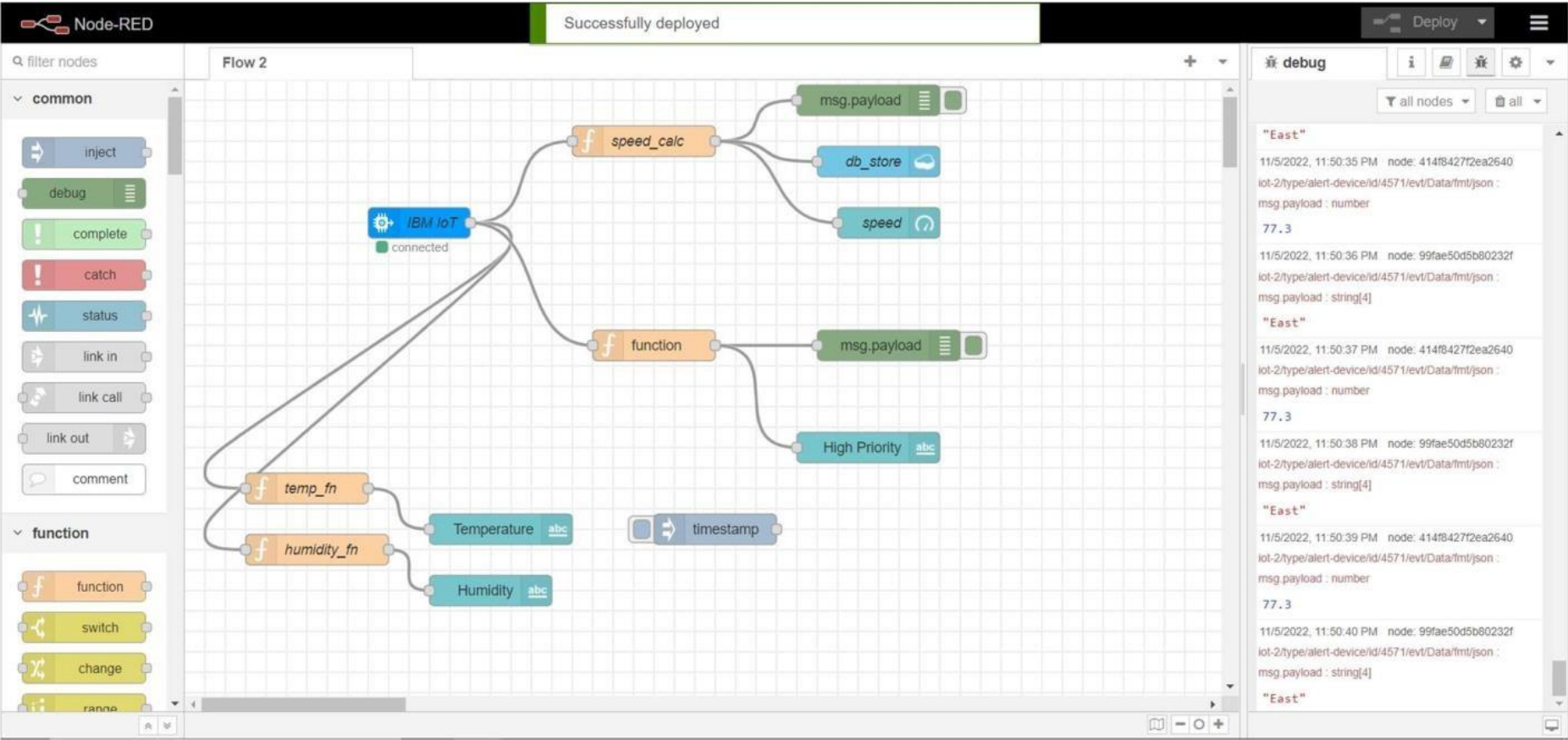
State

Logs

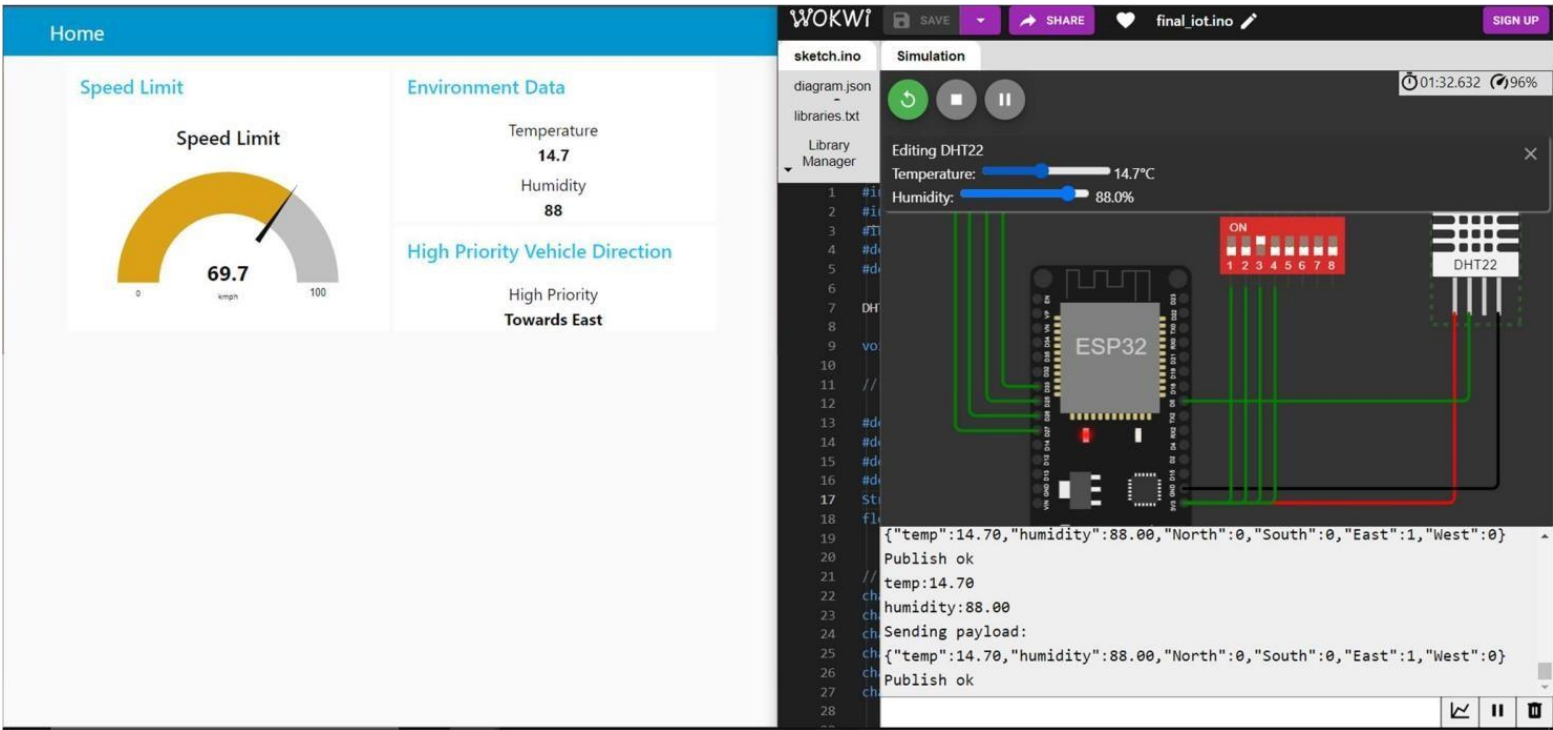
The recent events listed show the live stream of data that is coming and going from this device.

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

Speed Limit

70.5

0100

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

diagram.json

libraries.txt

Library Manager

02:23:068 91%

Editing DHT22

Temperature: 15.5°C

Humidity: 91.5%

ON

1 2 3 4 5 6 7 8

DHT22

ESP32

```
1 #include <DHT.h>
2 #include <WiFi.h>
3 #include <WebServer.h>
4 #define DHTPIN 4
5 #define DHTTYPE DHT22
6 DHT dht(DHTPIN, DHTTYPE);
7
8 void setup() {
9   pinMode(13, OUTPUT);
10  digitalWrite(13, HIGH);
11  //
12  //
13  #define JSON_PAYLOAD "{\"temp\":15.50,\"humidity\":91.50,\"North\":0,\"South\":1,\"East\":0,\"West\":0}"
14  #define JSON_TEMP "{\"temp\":15.50}"
15  #define JSON_HUMIDITY "{\"humidity\":91.50}"
16  #define JSON_PAYLOAD2 "{\"temp\":15.50,\"humidity\":91.50,\"North\":0,\"South\":1,\"East\":0,\"West\":0}"
17  Serial.begin(115200);
18  Serial.println("Start");
19
20  Publish ok
21  //
22  ch
23  humidity:91.50
24  ch
25  Sending payload:
26  ch
27  {"temp":15.50,"humidity":91.50,"North":0,"South":1,"East":0,"West":0}
28  Publish ok
```

Cloudant Database

data_iot

⋮

Document ID

Options

{ } JSON

📖

🔔

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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