

## Project Development Phase Sprint I

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-1	Dynamic Speed Limit	USN-1	As a traveller, It is Essential form to know the speed limit	10	High	Ajai Balaji P Dheepak Kumaar A S Vamsi Krishna D Gowshik Ram S
Sprint-1	Priority Vehicle	USN-2	Simulating the circuits and experimenting	2	High	Ajai Balaji P Dheepak Kumaar A S Vamsi Krishna D Gowshik Ram S
Sprint-1	Weather Speed Limit	USN-3	As a user, I should be aware of weather influence on speed limit for safer ride		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

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SAVE

SHARE

final\_iot.ino

Docs

sketch.ino

diagram.json

libraries.txt

Library Manager

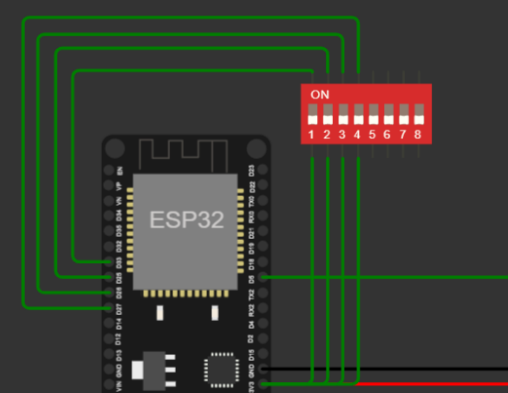
```
1 #include <WiFi.h> //library for wifi
2 #include <PubSubClient.h> //library for MQTT
3 #include "DHT.h" // Library for dht11
4 #define DHTPIN 5 // what pin we're connected to
5 #define DHTTYPE DHT22 // define type of sensor DHT 11
6
7 DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing 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 //-----
31 WiFiClient wificlient; // creating the instance for wificlient
32 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client id by passing paramet
33
34
35 void setup() // configureing the ESP32
```

Simulation

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⋮



Connecting to ....

WiFi connected

IP address:

10.10.0.2

Reconnecting client to

c3wgx1.messaging.internetofthings.ibmcloud.com

25°C Cloudy

Search

18

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

IBM Application Details - IBM Cloud Node-RED : node-red-eamxw Cloudant Dashboard - \_all\_dbs IBM Watson IoT Platform smart signs for better road safety

node-red-eamxw-2022-11-19.eu-gb.mybluemix.net/red/#flow/3d332511b3a42ef4

Node-RED Deploy

filter nodes

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change
- range

IBM IoT connected

speed\_calc

msg.payload

speed

function

msg.payload

High Priority abc

temp

temperature abc

humidity

humidity abc

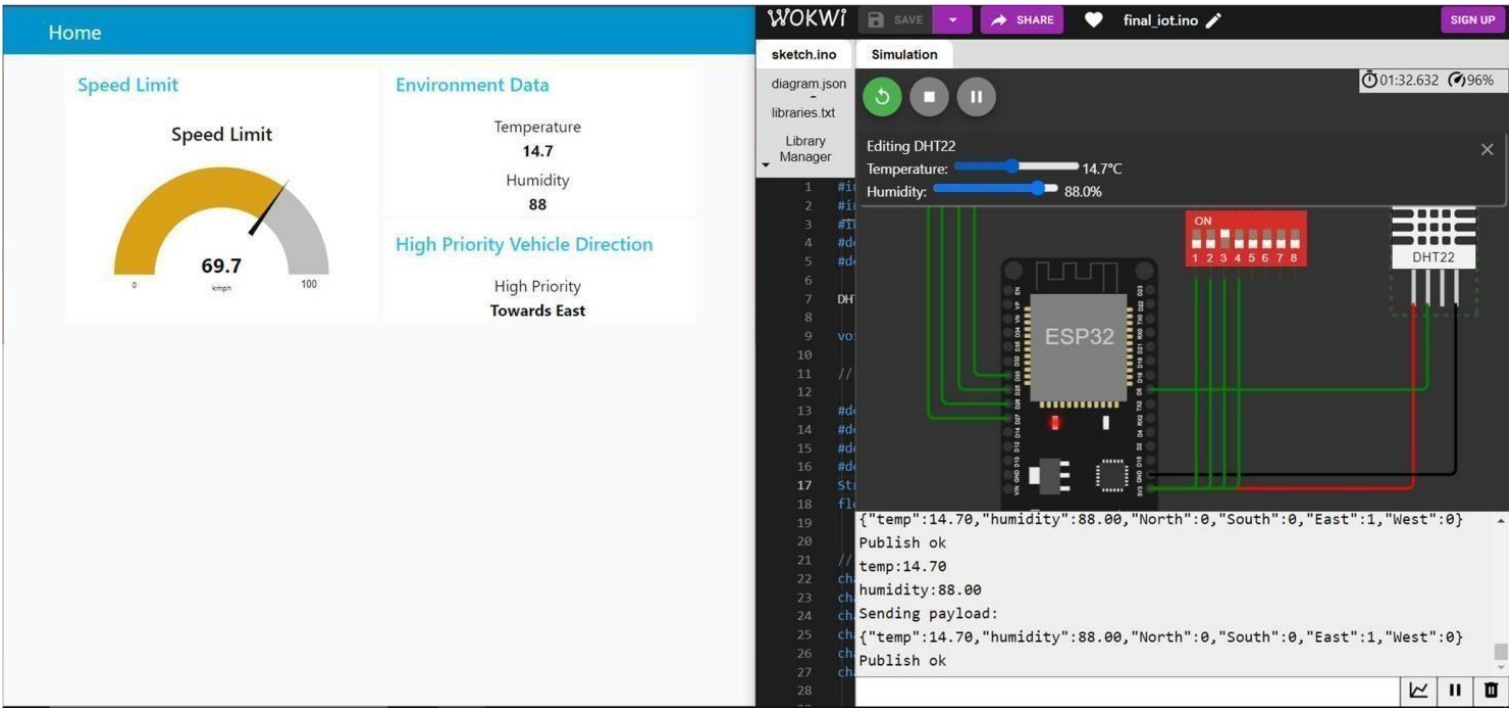
26°C Cloudy

Search

ENG IN

20:40 20-11-2022

Node Red Web UI



Home

Speed Limit

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%

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 WiFiServer server(80);
8 WebServer server(80);
9 void setup() {
10   // Initialize serial communication
11   // Serial.begin(115200);
12   // Initialize DHT sensor
13   dht.begin();
14   // Initialize web server
15   server.begin();
16   // Initialize status LED
17   pinMode(2, OUTPUT);
18   digitalWrite(2, LOW);
19   // Publish data
20   Publish ok
21   // Read temperature and humidity
22   temp = dht.temperature();
23   humidity = dht.humidity();
24   // Sending payload
25   ch { "temp":15.50,"humidity":91.50,"North":0,"South":1,"East":0,"West":0}
26   Publish ok
27   ch
28 }
```

Cloudant Database

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data\_iot

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📊

All Documents

+

🔍

Query

🔑

Permissions

🔄

Changes

📄

Design Documents

+

👤

Log Out

Document ID

Options

JSON

📖

🔔

☐

Table

Metadata

{ } JSON

📄

Create Document

	_id	payload
<input type="checkbox"/>	060cc88d44faf11288e9cdf7d8de45a	35
<input type="checkbox"/>	060cc88d44faf11288e9cdf7d904e58	60
<input type="checkbox"/>	060cc88d44faf11288e9cdf7d90c3f9	45.5
<input type="checkbox"/>	060cc88d44faf11288e9cdf7d92a313	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

Showing 2 of 3 columns. ☐ Show all columns.

Showing document 1 - 20. Documents per page: 20

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