

SPRINT 1

Date	7 november 2022
Team ID	PNT2022TMID09351
Project Name	Project – Signs with Smart Connectivity for Better Road Safety

Wokwi Simulation: [Adhifinal_iot.ino - Wokwi Arduino and ESP32 Simulator](#)

The screenshot displays the Wokwi simulation environment. On the left, the sketch code is visible, which includes headers for WiFi, MQTT, and DHT11, and defines constants for the DHT22 sensor. The code sets up an ESP32 to connect to the IBM Watson IoT Platform using a specific device ID and token, and publishes data to a designated topic. On the right, the simulation window shows an ESP32 microcontroller connected to a DHT22 temperature and humidity sensor. The sensor's output is displayed in a text box, showing a temperature of 37.40 and humidity of 86.00. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 18:05 on 13-11-2022.

```
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 connect
8
9 void callback(char* subscribeticop, 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 subscribeticop[] = "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
```

Simulation window output:

```
{"temp":37.40,"humidity":86.00,"North":0,"South":0,"East":0,"West":0}
Publish ok
temp:37.40
humidity:86.00
Sending payload:
{"temp":37.40,"humidity":86.00,"North":0,"South":0,"East":0,"West":0}
Publish ok
```

IoT Device – IoT Platform

4571

Connected

alert-device

Device

Identity

Device Information

Recent Events

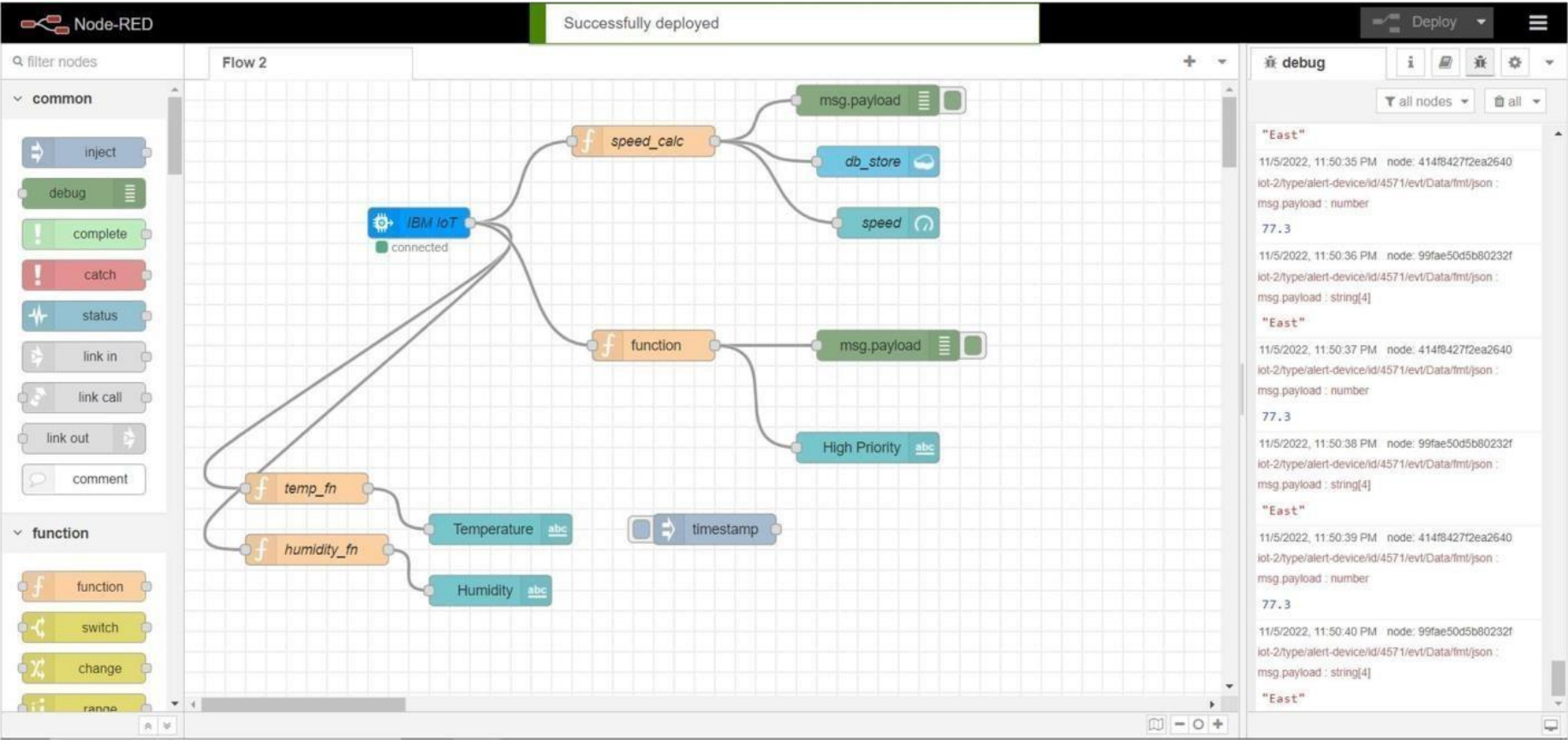
State

Logs

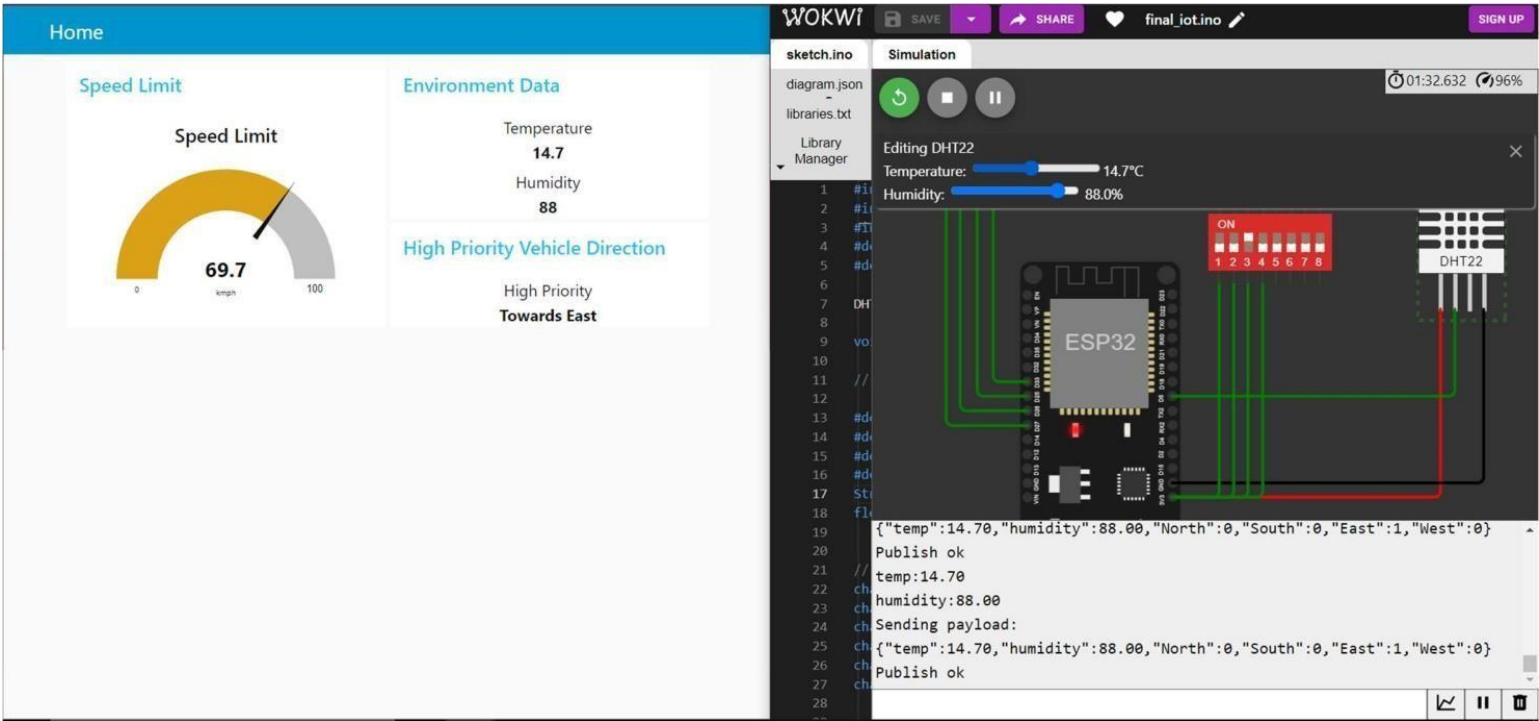
The recent events listed show the live stream of data that is coming and going from this device.

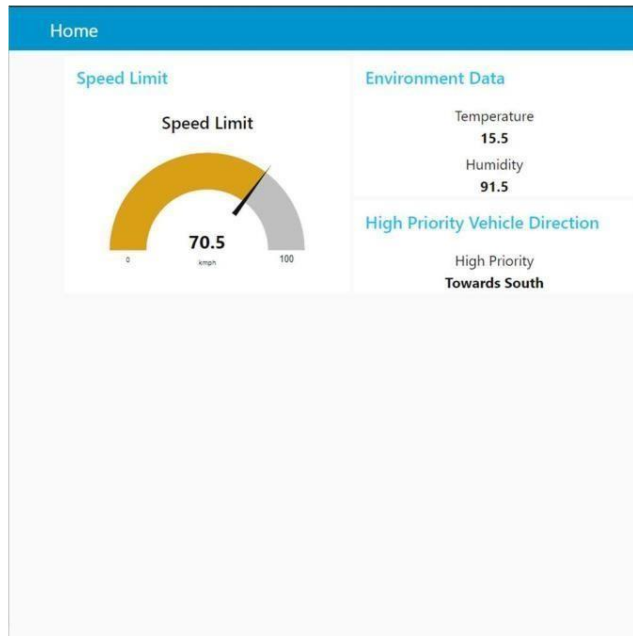
Event	Value	Format	Last Received
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago
Data	{"temp":23.4,"humidity":63,"North":1,"South":0,...	json	a few seconds ago

Node Red



Node Red Web UI





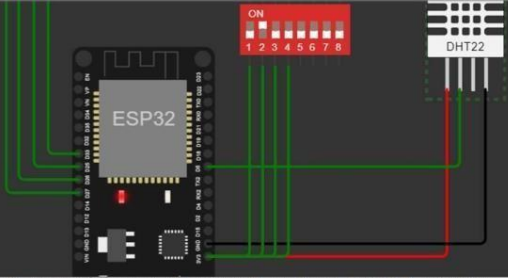
WOKWI

SAVE SHARE final_iotino 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 //  
2 //  
3 #include <DHT.h>  
4 #define DHTPIN 4  
5 #define DHTTYPE DHT22  
6 DHT dht(DHTPIN, DHTTYPE);  
7 void setup() {  
8   Serial.begin(115200);  
9   //  
10  //  
11  //  
12  //  
13  #define NORTH 0  
14  #define SOUTH 1  
15  #define EAST 0  
16  #define WEST 0  
17  #define HIGH_PRIORITY 1  
18  #define LOW_PRIORITY 0  
19  #define FILE_PATH "data.json"  
20  //  
21  //  
22  //  
23  //  
24  //  
25  //  
26  //  
27  //  
28  //
```

```
{ "temp": 15.50, "humidity": 91.50, "North": 0, "South": 1, "East": 0, "West": 0 }  
Publish ok  
temp: 15.50  
humidity: 91.50  
Sending payload:  
{ "temp": 15.50, "humidity": 91.50, "North": 0, "South": 1, "East": 0, "West": 0 }  
Publish ok
```

Cloudant Database

data_iot

All Documents

Query

Permissions

Changes

Design Documents

Document ID

Options

{ } JSON

Create Document

Table

Metadata

{ } JSON

_id	payload
060cc88d44faf11288e9cdfd7d8de45a	35
060cc88d44faf11288e9cdfd7d904e58	60
060cc88d44faf11288e9cdfd7d90c3f9	45.5
060cc88d44faf11288e9cdfd7d92a313	60
2314e7571ab5925365e082f191bb2c9c	52.5
26939bb99e5c84bed4f6a20342a22ab2	35
26939bb99e5c84bed4f6a20342a7ccd5	44
3ffa1240575d0cd0d7f848833802e389	55
48a3afbcf5f840466e09ed279d3c3451	53
48a3afbcf5f840466e09ed279d3c5b7c	53
48a3afbcf5f840466e09ed279d3c9545	53
52730057f2d5fde2d21dfaaaabc10dc8	55

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