

# SPRINT 1

Date	14 November 2022
Team ID	PNT2022TMID20032
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.ino' file is open, showing the following code:

```
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* 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 //----- Customise the above values -----
21
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
```

On the right, the 'Simulation' window shows a visual representation of the ESP32 microcontroller and the DHT22 sensor. The sensor is connected to the microcontroller via a breadboard. The simulation results pane at the bottom right shows the following 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
```

The bottom of the screen shows a Windows taskbar with various application icons and a system tray indicating the time as 18:05 on 13-11-2022.

IoT Device – IoT Platform

4571

Connected

alert-device

Device

Identity

Device Information

Recent Events

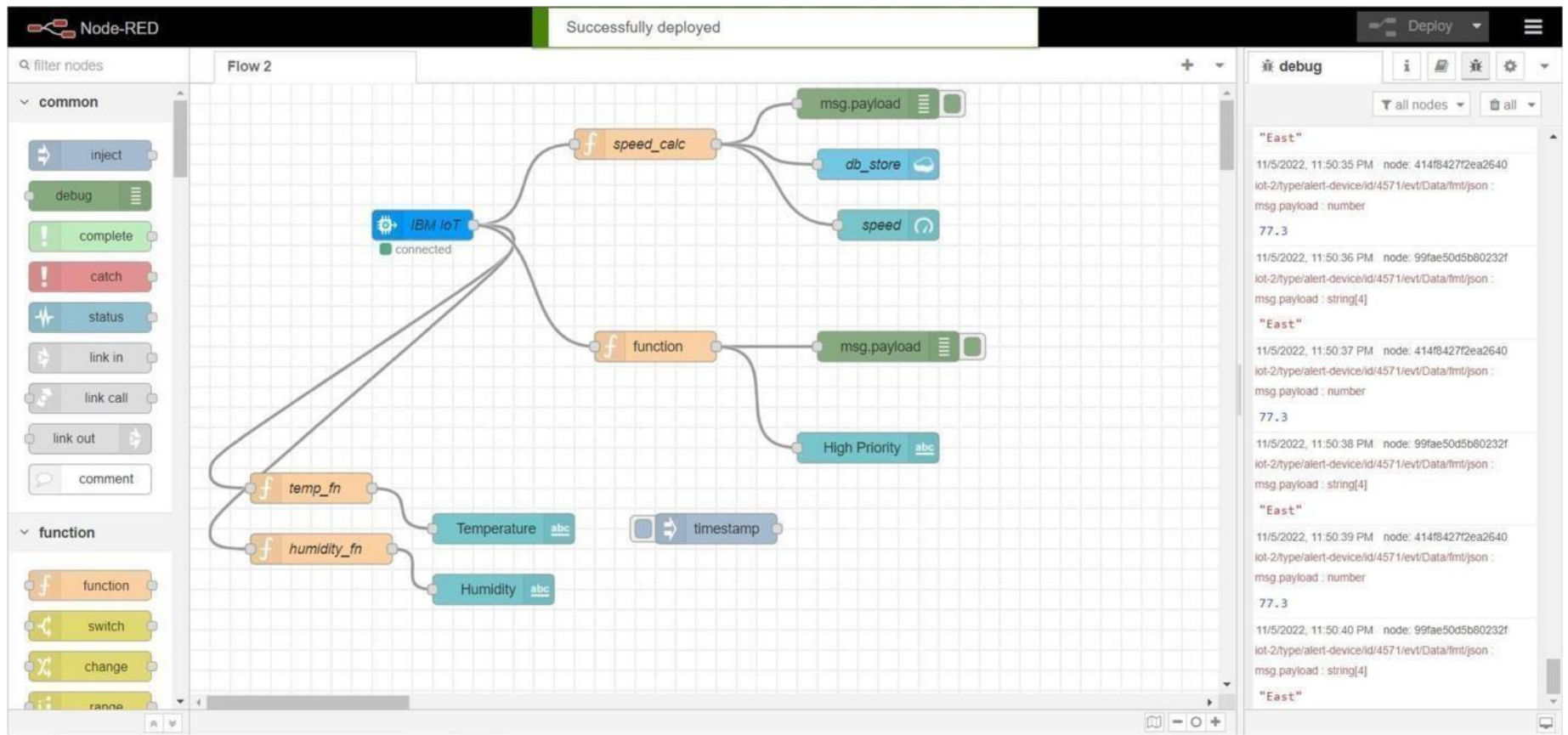
State

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

Speed Limit

69.7

kmph

Environment Data

Temperature

14.7

Humidity

88

High Priority Vehicle Direction

High Priority

Towards East

WOKWI

SAVE

SHARE

final\_iotino

SIGN UP

sketch.ino

Simulation

diagram.json

libraries.txt

Library Manager

01:32.632 96%

Editing DHT22

Temperature: 14.7°C

Humidity: 88.0%

ON

1 2 3 4 5 6 7 8

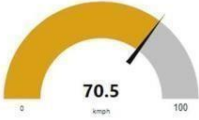
DHT22

ESP32

```
1 #i
2 #i
3 #T
4 #d
5 #d
6
7 DH
8
9 vo
10
11 //
12
13 #d
14 #d
15 #d
16 #d
17 St
18 fl
19
20 {"temp":14.70,"humidity":88.00,"North":0,"South":0,"East":1,"West":0}
21 Publish ok
22 //
23 ch
24 humidity:88.00
25 Sending payload:
26 {"temp":14.70,"humidity":88.00,"North":0,"South":0,"East":1,"West":0}
27 ch
28 Publish ok
```

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 diagram.json libraries.txt Library Manager

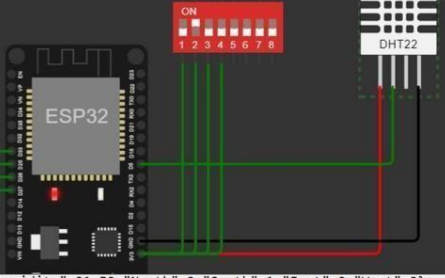
Simulation

02:23.068 91%

Editing DHT22

Temperature: 15.5°C

Humidity: 91.5%



```
1 #include <DHT.h>
2 #include <WiFi.h>
3 #include <ESP8266WebServer.h>
4 #define DHTPIN 4
5 #define DHTTYPE DHT22
6 DHT dht(DHTPIN, DHTTYPE);
7 WiFiServer server(80);
8
9 void setup() {
10   server.begin();
11   // Serial.begin(115200);
12   // Serial.println("Setup complete");
13   #define LED_PIN 2
14   pinMode(LED_PIN, OUTPUT);
15   digitalWrite(LED_PIN, LOW);
16   #define STrobePin 13
17   pinMode(STrobePin, OUTPUT);
18   digitalWrite(STrobePin, LOW);
19 }
20
21 // Publish data to Cloudant Database
22 void publishData() {
23   ch("temp":15.50,"humidity":91.50,"North":0,"South":1,"East":0,"West":0)
24   Sending payload:
25   {"temp":15.50,"humidity":91.50,"North":0,"South":1,"East":0,"West":0}
26   Publish ok
27 }
28
```

Cloudant Database

data\_iot

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