Delivery of Sprint - 3

Team ID	PNT2022TMID05622
Project Name	Smart Waste Management for Metropolitan Cities

Created an IOT device to sense the level of bins and do code for the device and send to Node-Red using the API keys from the IBM Watson platform.

```
#include <cstdlib>
#include <time.h>
#include <WiFi.h>
#include <PubSubClient.h>

#define ORG "zuhtbq"
#define DEVICE_TYPE "Rasp"
#define DEVICE_ID "12345"
#define TOKEN "12345678"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/data/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, wifiClient);
int weight = 0;

String location = "Coimbatore";
String status = "";
```

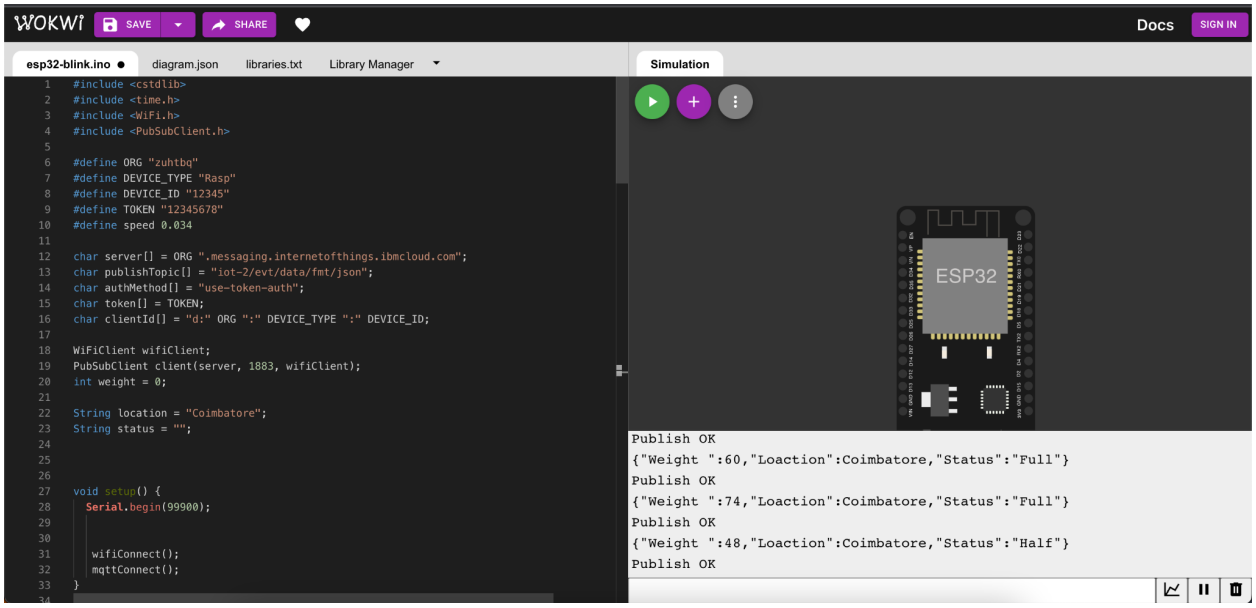
```
void setup() {
  Serial.begin(99900);


  wifiConnect();
  mqttConnect();
}

void loop() {

  srand(time(0));

    //initial variable
    int p;

    weight = random(0,80);
    if(weight > 0  && weight < 25){
        p = 0;
    }
    else if(weight > 25  && weight < 50){
        p = 1;
    }
    else{
      p = 2;
    }
```

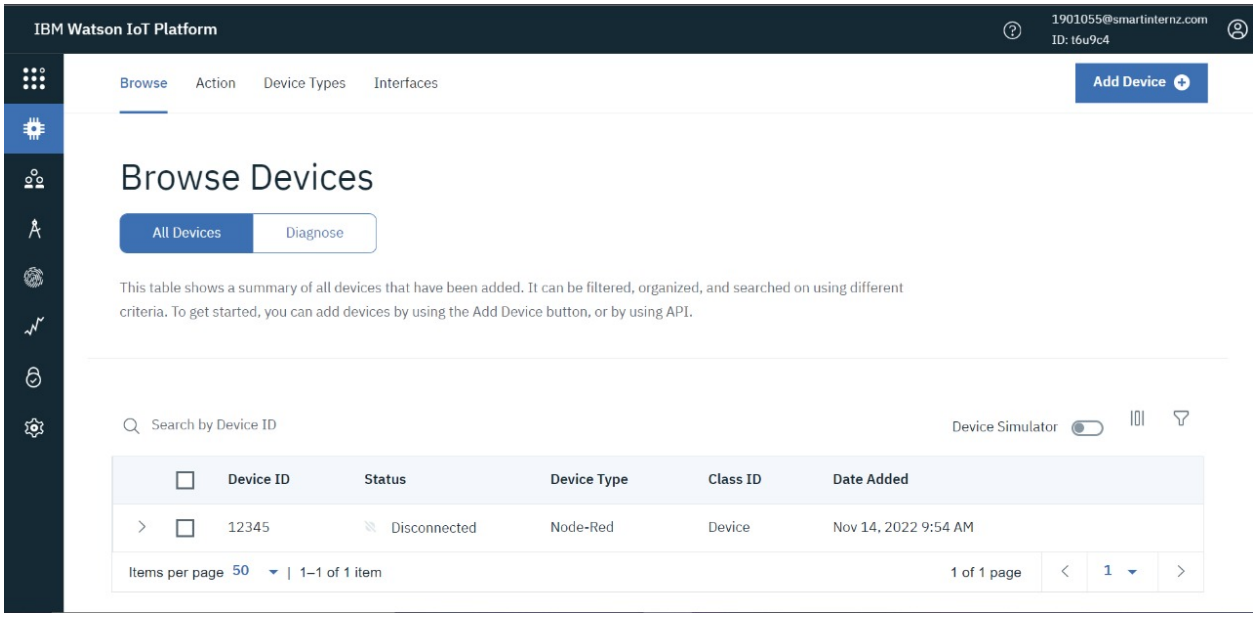
```
  //set a quality status

  switch (p) {
  case 0:
      status = "Low";
      break;
  case 1:
      status = "Half";
      break;
  case 2:
      status = "Full";
      break;
  }

//Obivously the output.
//It is like json format 'cause it will help us
//for future sprints
  String payload = "{";
  payload+="\"Weight \":";
  payload+=weight;
  payload+=",";
  payload+="\"Loaction\":";
  payload+="Coimbatore";
  payload+=",";
  payload+="\"Status\":\""+status+"\"}";
  Serial.println(payload);
```

```
  if(client.publish(publishTopic, (char*) payload.c_
  {
    Serial.println("Publish OK");
  }
  else{
    Serial.println("Publish failed");
  }
  delay(1000);


  if (!client.loop())
  {
    mqttConnect();
  }



}


void wifiConnect()
{
  Serial.print("Connecting to ");
  Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: ");
  Serial.println(WiFi.localIP());
```

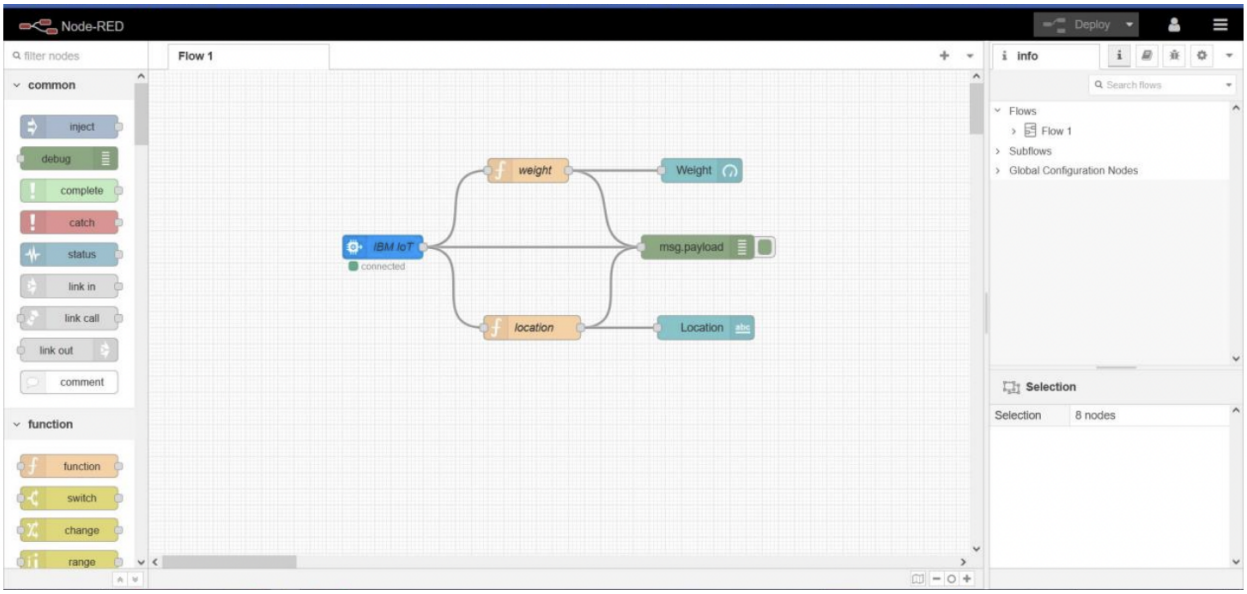
```
 }


 void mqttConnect()
 {
   if (!client.connected())
   {
     Serial.print("Reconnecting MQTT client to ");
     Serial.println(server);
     while (!client.connect(clientId, authMethod, token))
     {
       Serial.print(".");
       delay(500);
     }

     Serial.println();
   }
 }
```

Watson IOT Platform:





Node-RED Connections :


Node-RED
Deploy
filter nodes
Flow 1
info
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
function
switch
change
range
weight
Weight
IBM IoT
connected
msg.payload
location
Location
Search flows
Flows
Flow 1
Subflows
Global Configuration Nodes
Selection
Selection
8 nodes

Web UI :


Smart Waste Management System For Metropolitan Cities
Smart Garbage System
Location
Coimbatore
Weight
49
0
10