



SPRINT 4

TEAM ID	PNT2022TMID30551
Project Name	IOT - BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE
Maximum mark	20 marks

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CODE:

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include "DHT.h"
```

```
const char* ssid = "SMART-G";
const char* password = "10112019";
```

```
#define DHTPIN D6
#define G D0
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
```

```
#define ID "ryup3j"
#define DEVICE_TYPE "ESP8266"
#define DEVICE_ID "TEST"
#define TOKEN "TEST-12345"
```

```
char server[] = ID ".messaging.internetofthings.ibmcloud.com";
char publish_Topic1[] = "iot-2/evt/Data1/fmt/json";
char publish_Topic2[] = "iot-2/evt/Data2/fmt/json";
char publish_Topic3[] = "iot-2/evt/Data2/fmt/json";
char publish_Topic4[] = "iot-2/evt/Data2/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ID ":" DEVICE_TYPE ":" DEVICE_ID;
```

```
WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);
```

```
void setup() {
  pinMode(D0,OUTPUT);
  digitalWrite(D0,HIGH);
  Serial.begin(115200);
  dht.begin();
  Serial.println();
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println(WiFi.localIP());

  if (!client.connected()) {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      delay(500);
    }
    Serial.println("Connected TO IBM IoT cloud!");
  }
}
```

```
long previous_message = 0;
void loop() {
  client.loop();
  long current = millis();
  if (current - previous_message > 3000) {
    previous_message = current;
```

```

float hum = dht.readHumidity();
float temp = dht.readTemperature();
float MOI = map(analogRead(A0), 0, 1023, 100, 0);
float bi = map(digitalRead(D1), 0, 1, 100, 0 );
if (isnan(hum) || isnan(temp) ){
Serial.println(F("Failed to read from DHT sensor!"));
return;
}

```

```

Serial.print("Temperature: ");
Serial.print(temp);
Serial.print("°C");
Serial.print(" Humidity: ");
Serial.print(hum);
Serial.print("%");
Serial.print("SOIL MOITURE: ");
Serial.print(MOI);
Serial.print("ANIMAL AND BIRD: ");
Serial.print(bi);
if(MOI<=10)
{
digitalWrite(D0,LOW);
delay(100);
digitalWrite(D0,HIGH);
}
else
{
digitalWrite(D0,HIGH);
}

```

```

String payload = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
payload += ",\"Temperature\":";
payload += temp;
payload += "\"}"}";

```

```

Serial.print("Sending payload: ");
Serial.println(payload);

```

```

if (client.publish(publish_Topic1, (char*) payload.c_str())) {
Serial.println("Published successfully");
} else {
Serial.println("Failed");
}

```

```
String payload1 = "{\"d\":{\"Name\":\"\" DEVICE_ID \"\"";  
    payload1 += "\",\"Humidity\"";  
    payload1 += hum;  
    payload1 += "}}";  
    Serial.print("Sending payload: ");  
    Serial.println(payload1);  
    Serial.println('\n');
```

```
if (client.publish(publish_Topic2, (char*) payload1.c_str())) {  
    Serial.println("Published successfully");  
} else {  
    Serial.println("Failed");  
}
```

```
String payload3 = "{\"d\":{\"Name\":\"\" DEVICE_ID \"\"";  
    payload3 += "\",\"Moiture\"";  
    payload3 += MOI;  
    payload3 += "}}";
```

```
Serial.print("Sending payload: ");  
Serial.println(payload3);
```

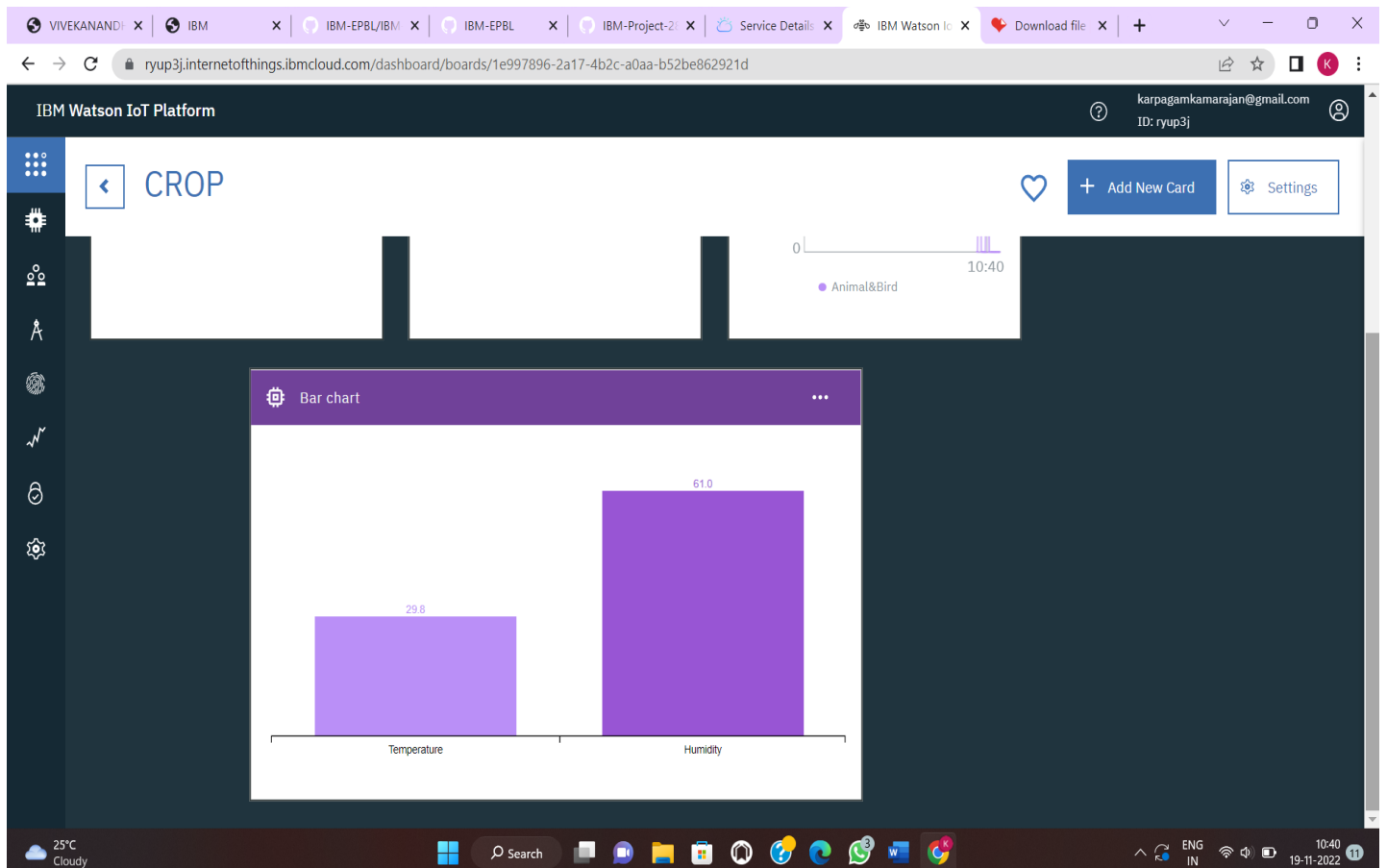
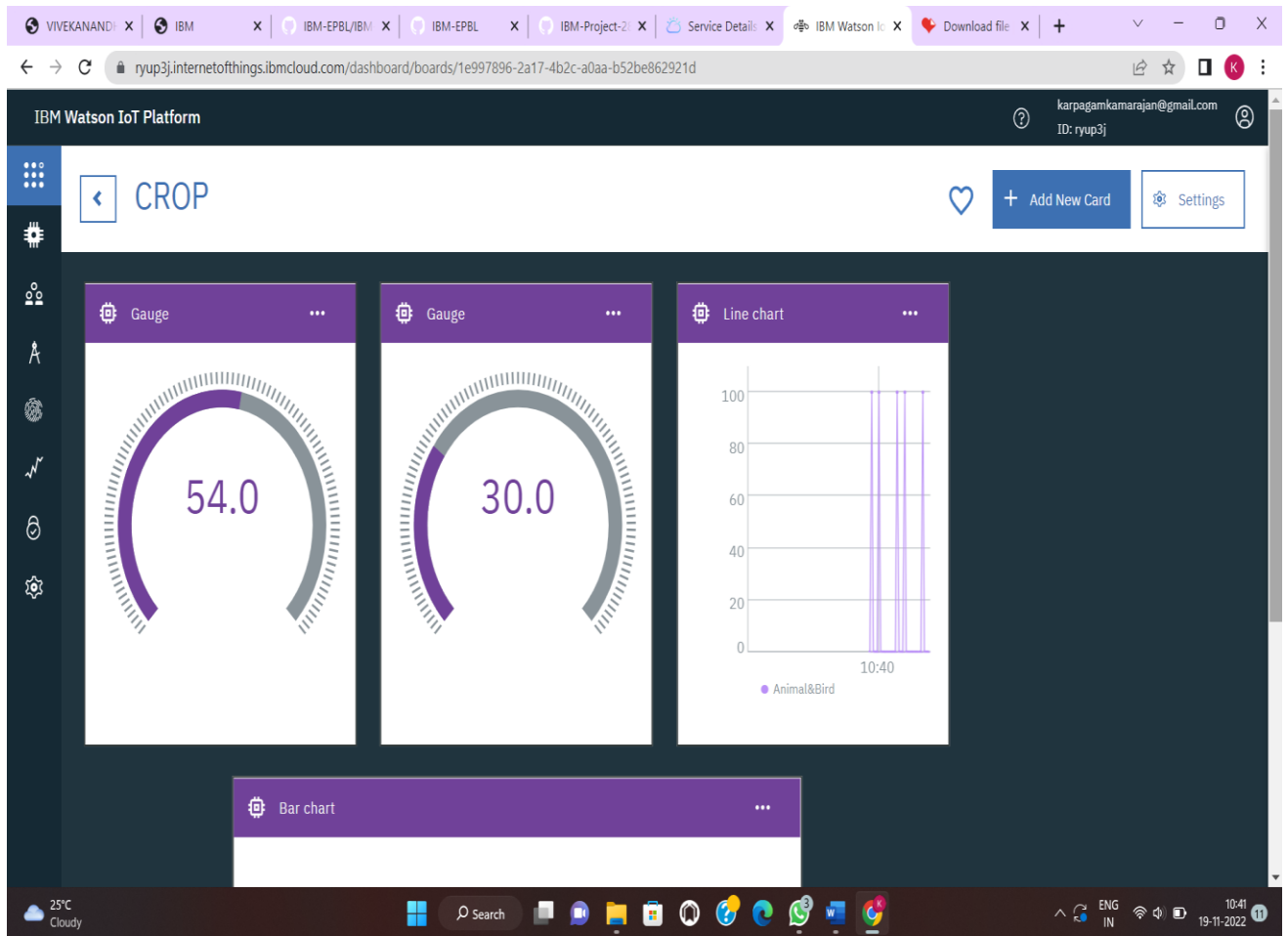
```
if (client.publish(publish_Topic3, (char*) payload3.c_str())) {  
    Serial.println("Published successfully");  
} else {  
    Serial.println("Failed");  
}
```

```
String payload4 = "{\"d\":{\"Name\":\"\" DEVICE_ID \"\"";  
    payload4 += "\",\"Animal&Bird\"";  
    payload4 += bi;  
    payload4 += "}}";
```

```
Serial.print("Sending payload: ");  
Serial.println(payload4);
```

```
if (client.publish(publish_Topic4, (char*) payload4.c_str())) {  
    Serial.println("Published successfully");  
} else {  
    Serial.println("Failed");  
}
```

}
}



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ryup3j.internetofthings.ibmcloud.com/dashboard/devices/browse

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BrowseActionDevice TypesInterfaces

Add Device

12345DisconnectedarduinoDeviceNov 3, 2022 11:46 AM

TESTConnectedESP8266DeviceNov 13, 2022 1:07 PM

IdentityDevice InformationRecent EventsStateLogs

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

Event	Value	Format	Last Received
Data2	{"d":{"Name":"TEST","Animal&Bird":100}}	json	a few seconds ago
Data2	{"d":{"Name":"TEST","Moiture":55}}	json	a few seconds ago
Data2	{"d":{"Name":"TEST","Humidity":62}}	json	a few seconds ago
Data1	{"d":{"Name":"TEST","Temperature":29.8}}	json	a few seconds ago
Data2	{"d":{"Name":"TEST","Animal&Bird":0}}	json	a few seconds ago

25°C Cloudy

Search

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10:39 19-11-2022