Develop A Python Script To Publish And Subscribe To IBM IoT Platform

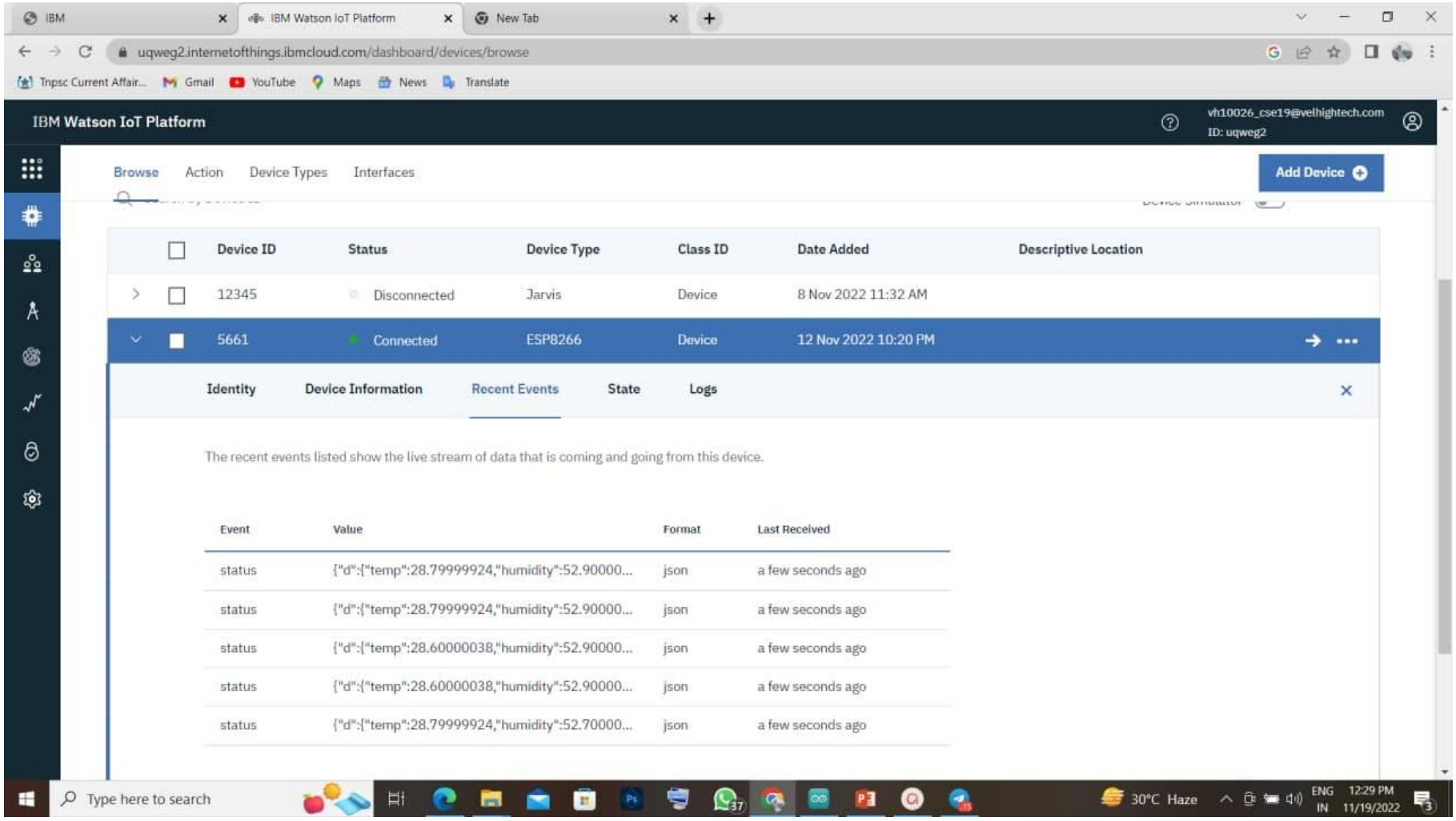
Project Title	SmartFarmer – IoT Enabled Smart Farming Application
Team ID	PNT2022TMID22052
Content	Python Script

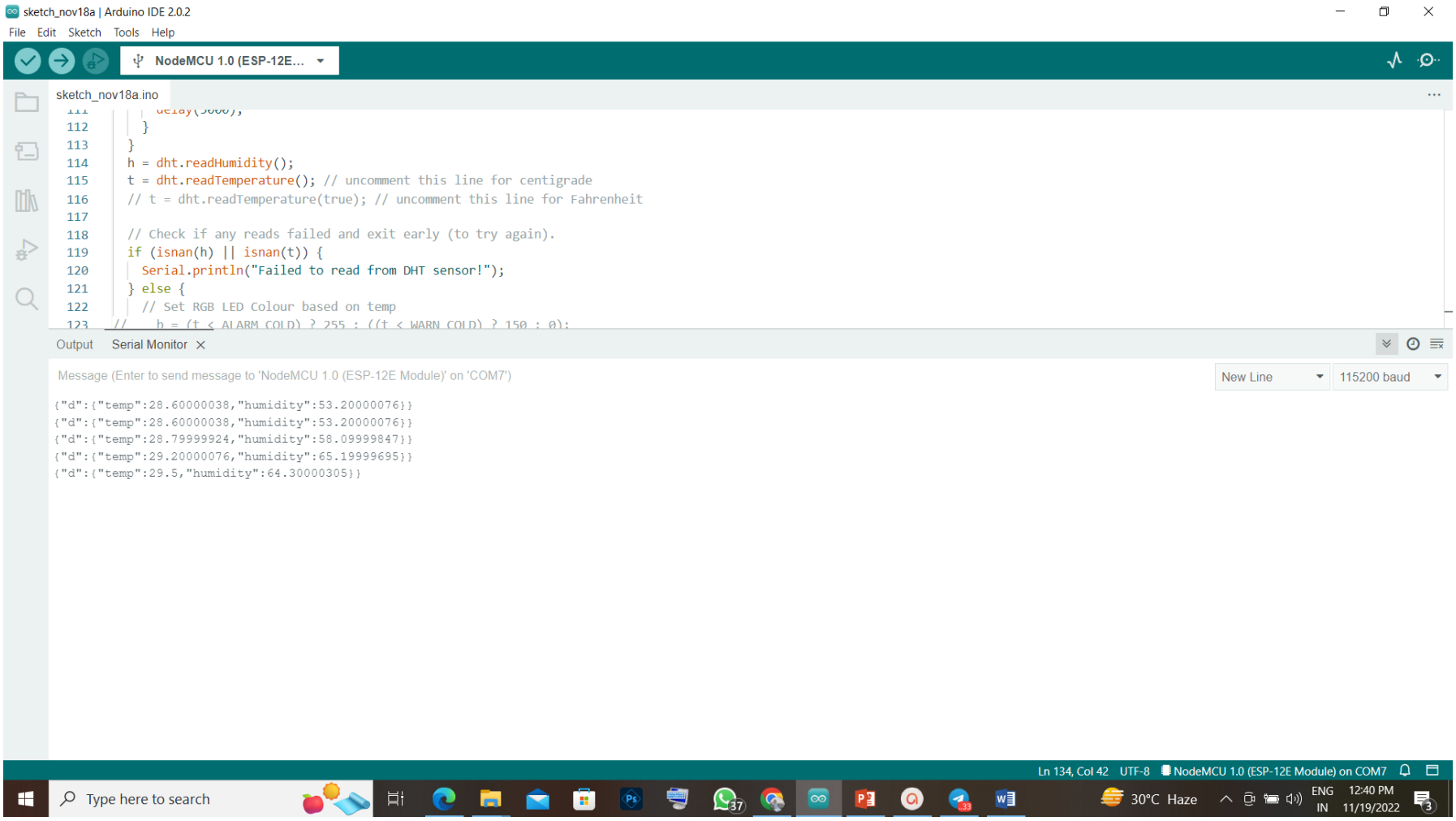
Python Code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "x0fxss" #replace the ORG ID
deviceType = "Testing"#replace the Device type wi
deviceId = "Testdevice1"#replace Device ID
authMethod = "token"
authToken = "123456789" #Replace the authtoken
# Initialize GPIO

#Receives Command from Node-red
def myCommandCallback(cmd):
    print ("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="motoron":
        print ("motor is on")
    elif status == "motoroff" :
        print ("motor is off")
    elif status == "motor30" :
        print ("motor is on for 30 minutes")

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token":
authToken}
    deviceCli = ibmiotf.device.Client(deviceOptions)
```

```
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11

        temp=random.randint(0,100)
        Humid=random.randint(0,100)
        soilmoisture=random.randint(0,100)

        data = { 'temp' : temp, 'Humid': Humid, 'soilmoisture': soilmoisture }
        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid, "soilmoisture = %s %%"
%soilmoisture, "to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoTF")
        time.sleep(5)

        deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

OUTPUT :


IBM
IBM Watson IoT Platform
New Tab
uqweg2.internetofthings.ibmcloud.com/dashboard/devices/browse
Tnpsc Current Affair...
Gmail
YouTube
Maps
News
Translate
IBM Watson IoT Platform
vh10026_cse19@velhightech.com
ID: uqweg2
Browse
Action
Device Types
Interfaces
Add Device
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
12345
Disconnected
Jarvis
Device
8 Nov 2022 11:32 AM
5661
Connected
ESP8266
Device
12 Nov 2022 10:20 PM
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
status
{"d":{"temp":28.79999924,"humidity":52.90000...
json
a few seconds ago
status
{"d":{"temp":28.79999924,"humidity":52.90000...
json
a few seconds ago
status
{"d":{"temp":28.60000038,"humidity":52.90000...
json
a few seconds ago
status
{"d":{"temp":28.60000038,"humidity":52.90000...
json
a few seconds ago
status
{"d":{"temp":28.79999924,"humidity":52.70000...
json
a few seconds ago
Type here to search
30°C Haze
ENG
IN
12:29 PM
11/19/2022


sketch_nov18a | Arduino IDE 2.0.2
File Edit Sketch Tools Help
NodeMCU 1.0 (ESP-12E...
sketch_nov18a.ino
}
}
h = dht.readHumidity();
t = dht.readTemperature(); // uncomment this line for centigrade
// t = dht.readTemperature(true); // uncomment this line for Fahrenheit
// Check if any reads failed and exit early (to try again).
if (isnan(h) || isnan(t)) {
Serial.println("Failed to read from DHT sensor!");
} else {
// Set RGB LED Colour based on temp
Output Serial Monitor
Message (Enter to send message to 'NodeMCU 1.0 (ESP-12E Module)' on 'COM7')
New Line
115200 baud
{"d":{"temp":28.60000038,"humidity":53.20000076}}
{"d":{"temp":28.60000038,"humidity":53.20000076}}
{"d":{"temp":28.79999924,"humidity":58.09999847}}
{"d":{"temp":29.20000076,"humidity":65.19999695}}
{"d":{"temp":29.5,"humidity":64.30000305}}
Ln 134, Col 42 UTF-8 NodeMCU 1.0 (ESP-12E Module) on COM7
Type here to search
30°C Haze
ENG
IN
12:40 PM
11/19/2022