SPRINT-1

Date	29 October 2022
Team ID	**PNT2022TMID46939**
Project Name	IoT Based Smart Crop Protection System For Agriculture
Maximum Marks	20 Marks

Python Code

```
import sys

import ibmiotf.application

import ibmiotf.device

import random



#Provide your IBM Watson Device Credentials

authMethod = "token"

organization = "yet4pm"

authToken = "12345678910"


deviceType1 = "Sensor"

deviceId1 = "DHT"



deviceType3 = "Actuator"

deviceId3 = "Water_pump"


deviceType2 = "Sensor1"
```

```
deviceId2 = "soil_moisture"


# Initialize GPIO



def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="Waterpump_on":
        print ("Water Pump is Turned ON \n")
    else :
        print ("Water pump is off")

    #print(cmd)




try:
        deviceOptions1 = {"org": organization, "type": deviceType1, "id": deviceId1, "auth-method": authMethod, "auth-token":…
try:
        deviceOptions1 = {"org": organization, "type": deviceType1, "id": deviceId1, "auth-method": authMethod, "auth-token": authToken}
        deviceCli1 = ibmiotf.device.Client(deviceOptions1)
```

```
        deviceOptions2 = {"org": organization, "type": deviceType2, "id": deviceId2, "auth-method": authMethod, "auth-token": authToken}
        deviceCli2 = ibmiotf.device.Client(deviceOptions2)

        deviceOptions3 = {"org": organization, "type": deviceType3, "id": deviceId3, "auth-method": authMethod, "auth-token": authToken}
        deviceCli3 = ibmiotf.device.Client(deviceOptions3)

        #.....

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
deviceCli1.connect()
deviceCli2.connect()
deviceCli3.connect()

while True:
    #Get Sensor Data from esp32

    temp=random.randint(0,45)
```

```
        Humid=random.randint(0,100)


        data1 = { 'Temperature' : temp , 'Humidity': Humid}
        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid,"to IBM Watson \n")


        success1 = deviceCli1.publishEvent("DHT Sensor", "json", data1, qos=0, on_publish=myOnPublishCallback)
        if not success1:
            print("Not connected to IoTF\n")
        time.sleep(1)


        Soil_moisture=random.randint(0,100)
        data2 = { 'Soil_moisture' : Soil_moisture}


        def myOnPublishCallback2():
            print ("Published Soil_moisture = %s %%" % temp, "to IBM Watson")
        success2 = deviceCli2.publishEvent("Soil Moisture Sensor", "json", data2, qos=0, on_publish=myOnPublishCallback2)


        if not success2:
            print("Not connected to IoTF")
        time.sleep(1)
```

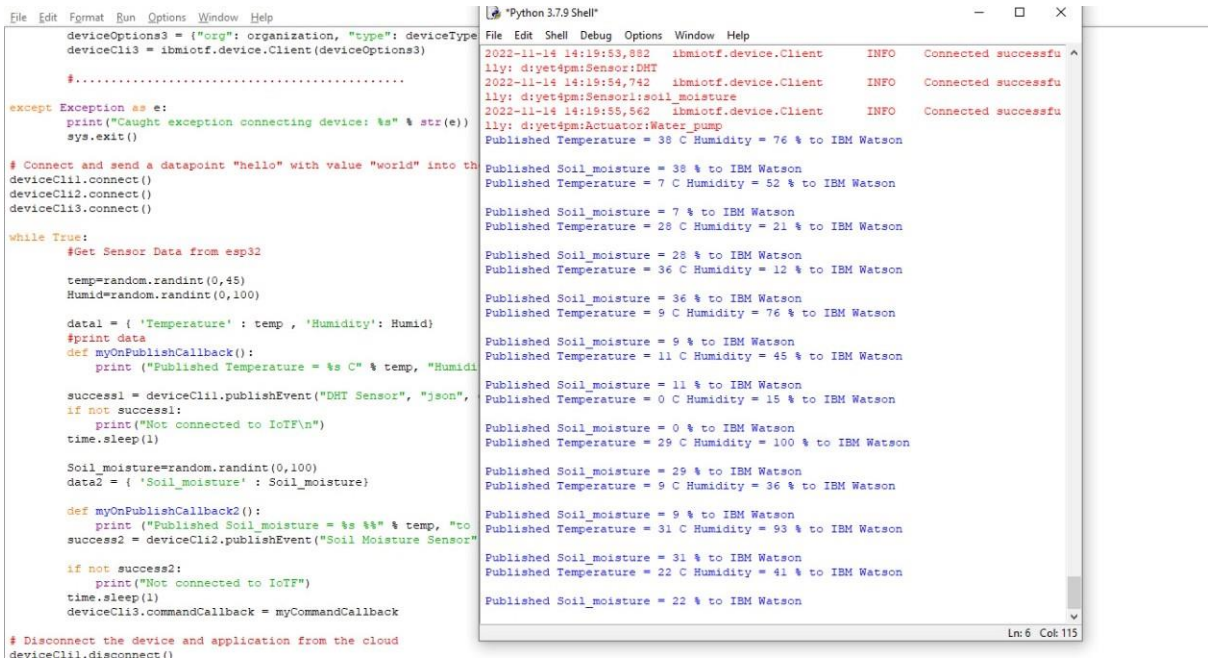
deviceCli3.commandCallback = myCommandCallback

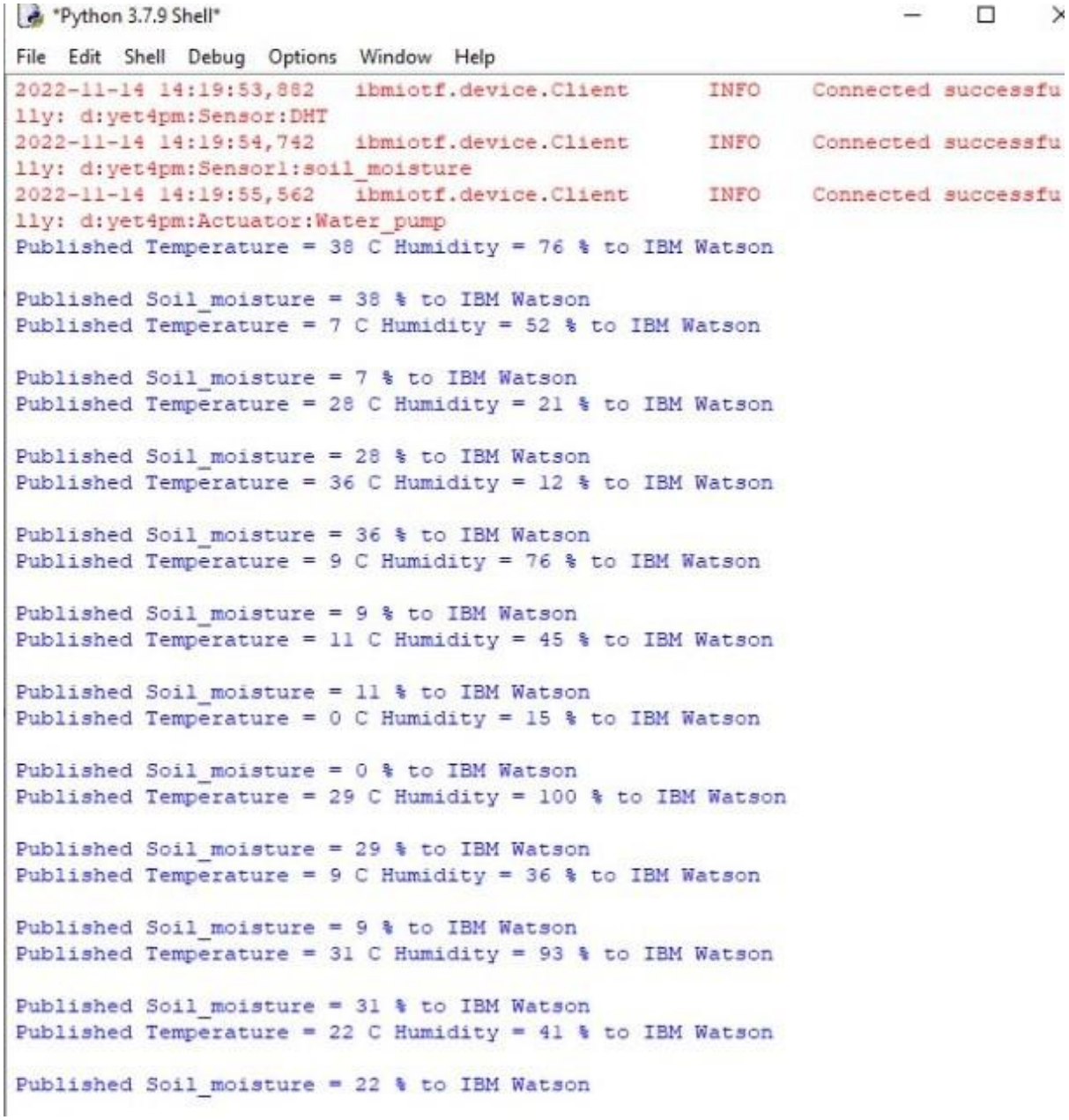
Disconnect the device and application from the cloud

deviceCli1.disconnect()

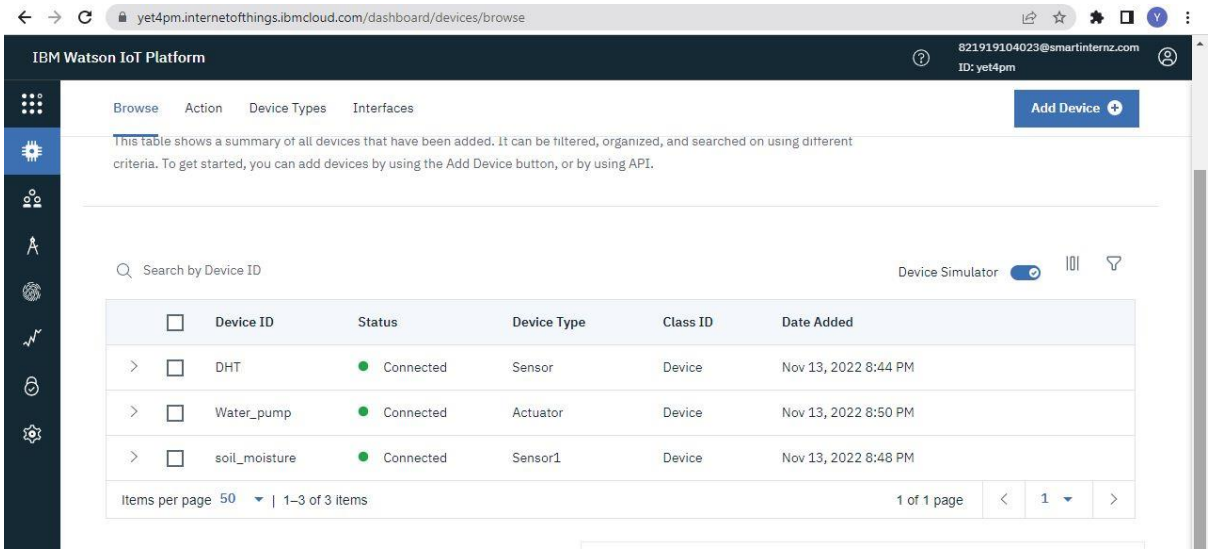
deviceCli2.disconnect()

Output

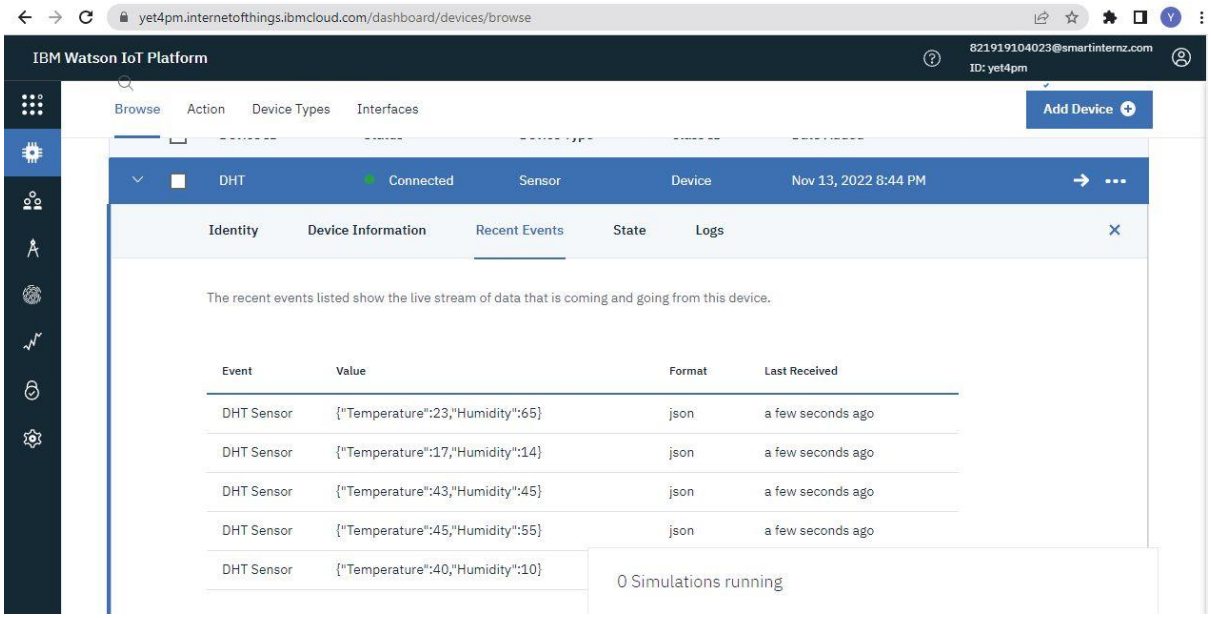


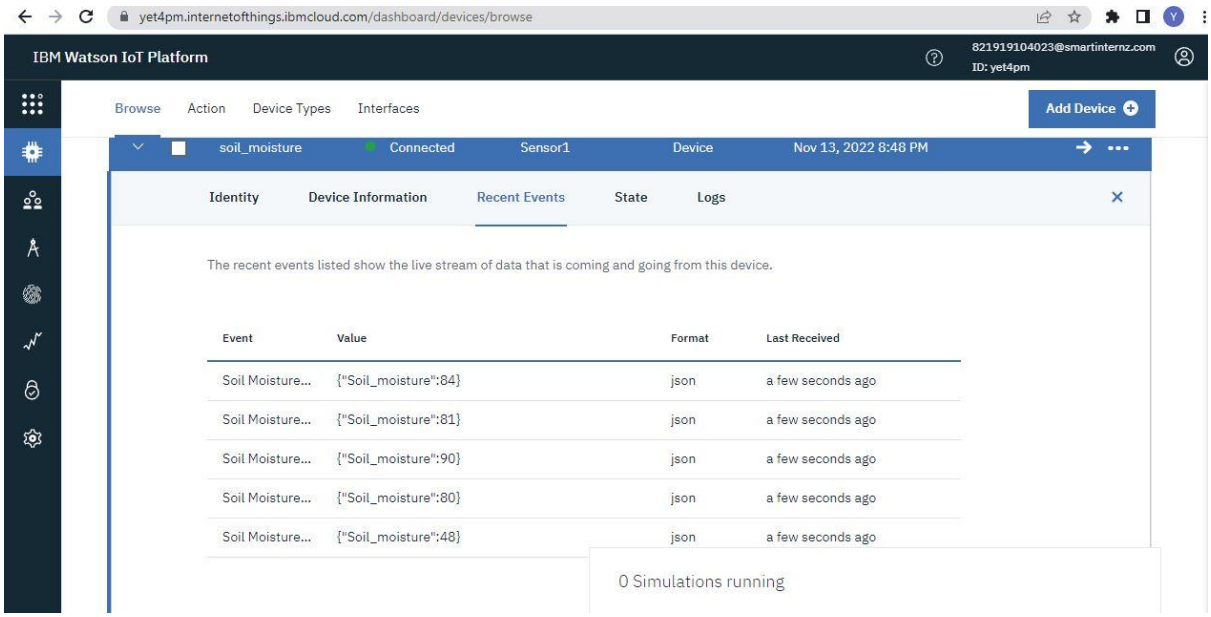


IBM WATSON SCREENSHOTS



DEVICE OUTPUT




yet4pm.internetofthings.ibmcloud.com/dashboard/devices/browse
IBM Watson IoT Platform
821919104023@smartinternz.com
ID: yet4pm
Browse
Action
Device Types
Interfaces
Add Device
soil_moisture
Connected
Sensor1
Device
Nov 13, 2022 8:48 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
Soil Moisture...
{"Soil_moisture":84}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":81}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":90}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":80}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":48}
json
a few seconds ago
0 Simulations running