Project Development Phase

Sprint -1

Date	12 November 2022
Team ID	PNT2022TMID34928
Project Name	IOT BASED SMART CROP PROTECTION SYSTEM

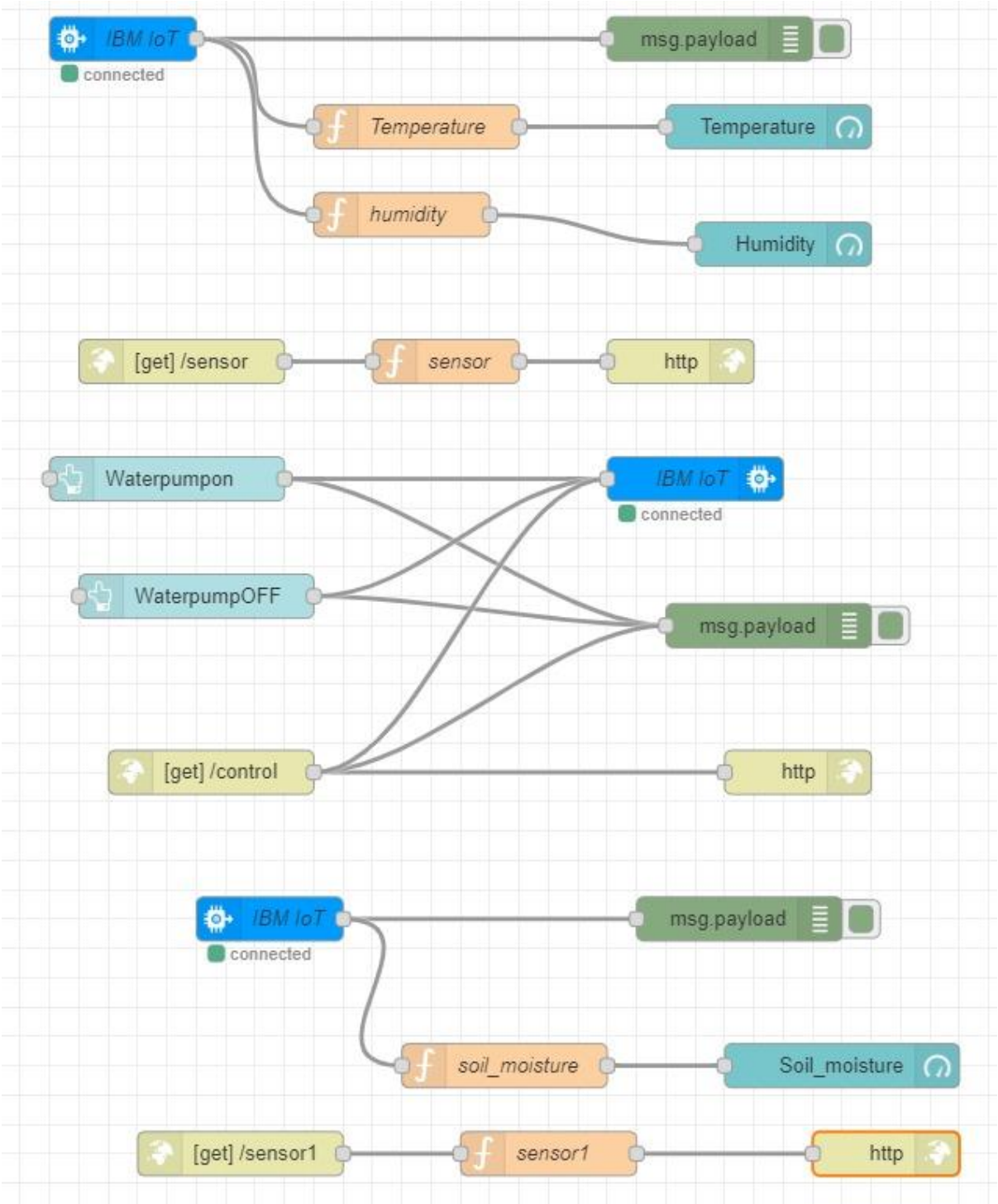
Python Code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
#Provide your IBM Watson Device Credentials
organization = "2ldaf5"
deviceType1 = "Sensor"
deviceId1 = "DHT"
authMethod = "token"
authToken1 = "NeVIAy2K16H)d9sXvz"

deviceType2 = "Sensor1"
deviceId2 = "Soil_moisture"
authToken2= "zwr247qk1Xca0w?QEs"

deviceType3 = "Actuator"
deviceId3 = "Water_pump"
authToken3= "Pze?D!@FjZeAtfMB4q"
```

```
# Initialize GPIO
def myCommandCallback(cmd):
   print("Command received: %s \n" % cmd.data['command'])
   status=cmd.data['command']
   if status=="Waterpump_on":
      print ("Water Pump is Turned ON \n")
   else :
      print ("Water Pump is Turned OFF \n")
try:
        deviceOptions1 = {"org": organization, "type": deviceType1, "id": deviceId1, "auth-method": authMethod, "auth-token": authToken1}
        deviceCli1 = ibmiotf.device.Client(deviceOptions1)
        #.....................................................
        deviceOptions2 = {"org": organization, "type": deviceType2, "id": deviceId2, "auth-method": authMethod, "auth-token": authToken2}
        deviceCli2 = ibmiotf.device.Client(deviceOptions2)
        #.....................................................
        deviceOptions3 = {"org": organization, "type": deviceType3, "id": deviceId3, "auth-method": authMethod, "auth-token": authToken3}
        deviceCli3 = ibmiotf.device.Client(deviceOptions3)
        #.....................................................
except Exception as e:
        print("Caught exception connecting device: %s" % str(e))
        sys.exit()
deviceCli1.connect()
deviceCli2.connect()
deviceCli3.connect()

while (True):
```

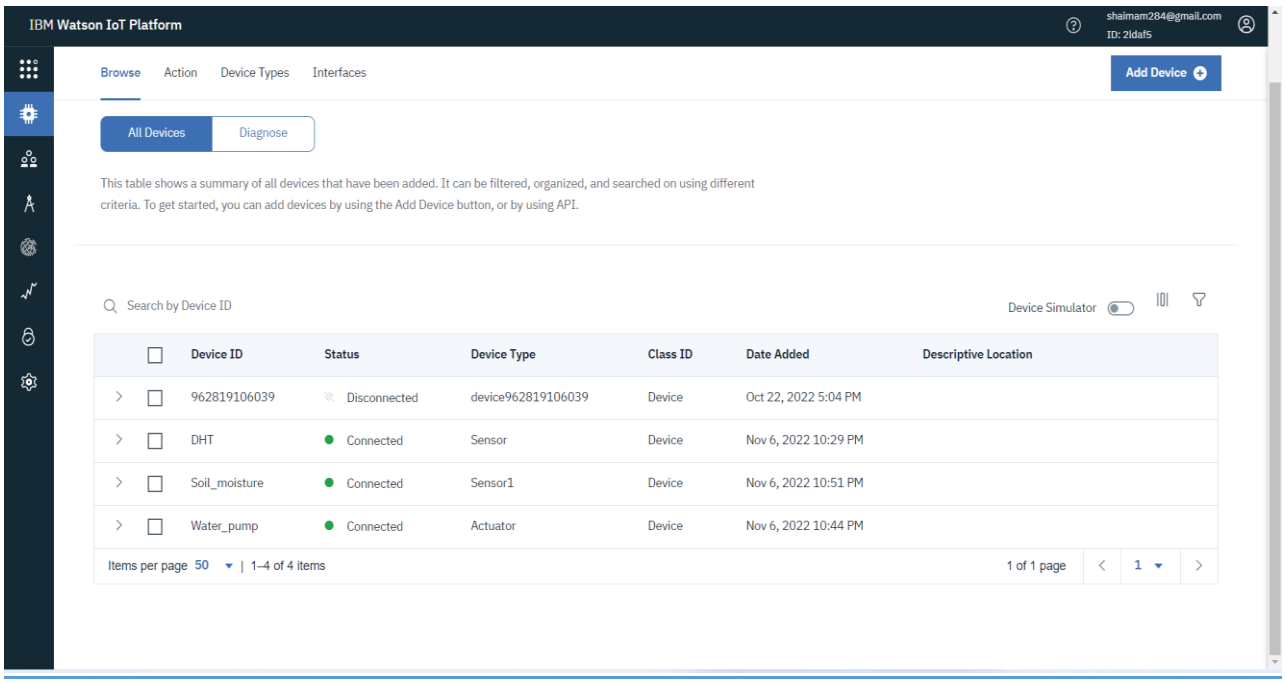
```
        #Get Sensor Data from DHT11
        temp=random.randint(0,45)
        Humid=random.randint(0,100)
        data1 = { 'Temperature' : temp , 'Humidity': Humid}
        def myOnPublishCallback1():
            print ("Published Temperature  =  %s C" % temp, "Humidity  =  %s %%" % Humid,
"to IBM Watson \n")
        success1 = deviceCli1.publishEvent("DHT Sensor", "json", data1, qos=0,
on_publish=myOnPublishCallback1)
        if not success1:
            print("Not connected to IoTF\n")
        time.sleep(1)
       #Get Sensor Data from SOIL Moisture
       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()
```

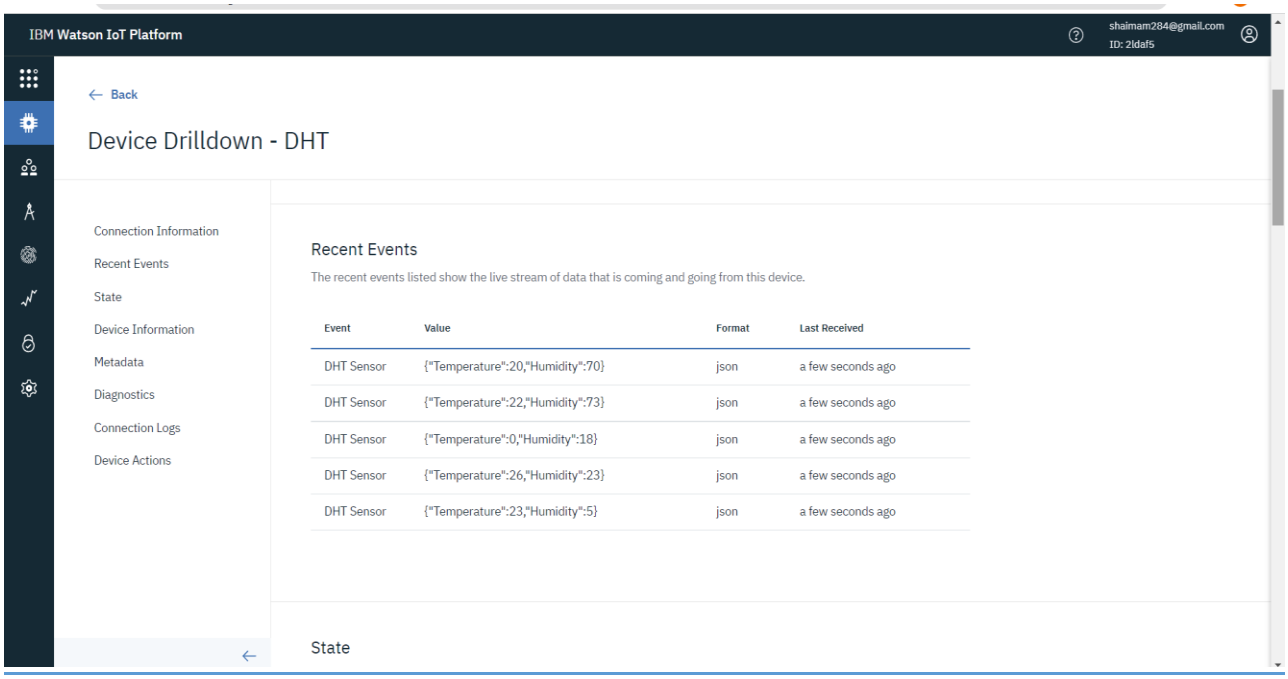
Node Red Flow :

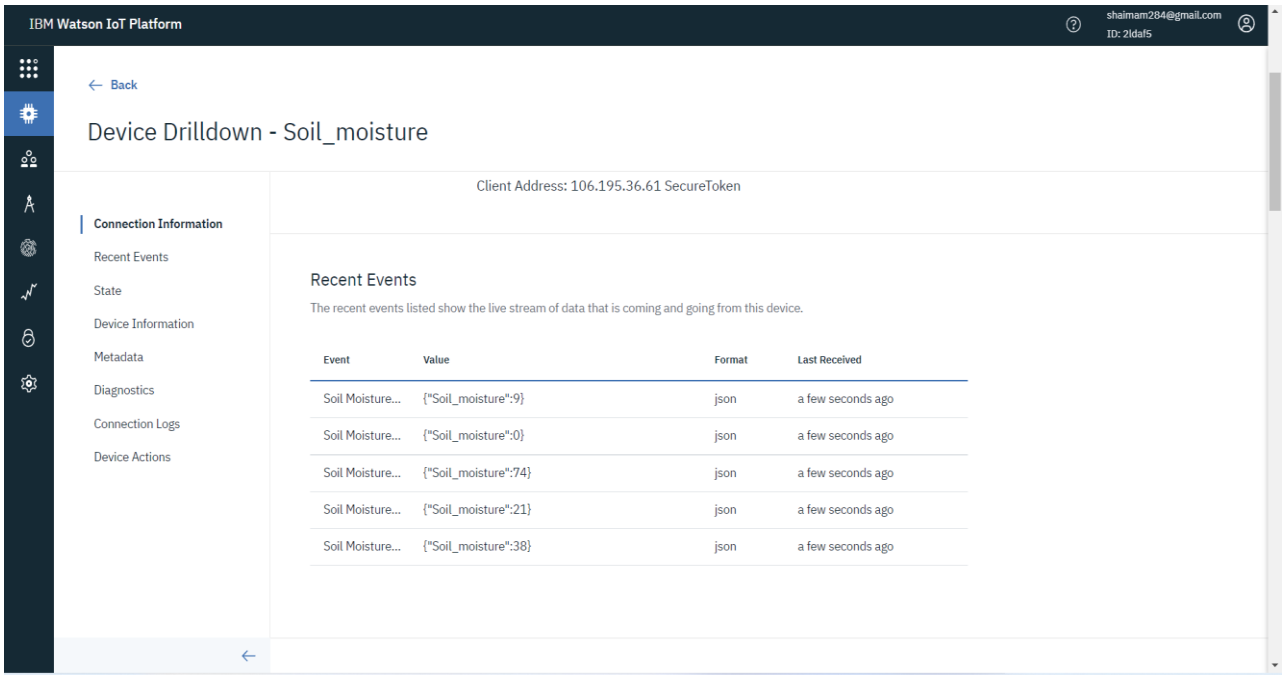


Python Output :

IBM Watson Screen Shots :




IBM Watson IoT Platform
shaimam284@gmail.com
ID: 2ldaf5
Back
Device Drilldown - DHT
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Recent Events
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
DHT Sensor
{"Temperature":20,"Humidity":70}
json
a few seconds ago
DHT Sensor
{"Temperature":22,"Humidity":73}
json
a few seconds ago
DHT Sensor
{"Temperature":0,"Humidity":18}
json
a few seconds ago
DHT Sensor
{"Temperature":26,"Humidity":23}
json
a few seconds ago
DHT Sensor
{"Temperature":23,"Humidity":5}
json
a few seconds ago
State


IBM Watson IoT Platform
shaimam284@gmail.com
ID: 2ldaf5
Back
Device Drilldown - Soil_moisture
Client Address: 106.195.36.61 SecureToken
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Recent Events
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":9}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":0}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":74}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":21}
json
a few seconds ago
Soil Moisture...
{"Soil_moisture":38}
json
a few seconds ago