Python Script

Project Title	SmartFarmer – IoT Enabled Smart Farming Application
Team ID	PNT2022TMID31438

Code:

```python
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}
```

```python
        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()
```
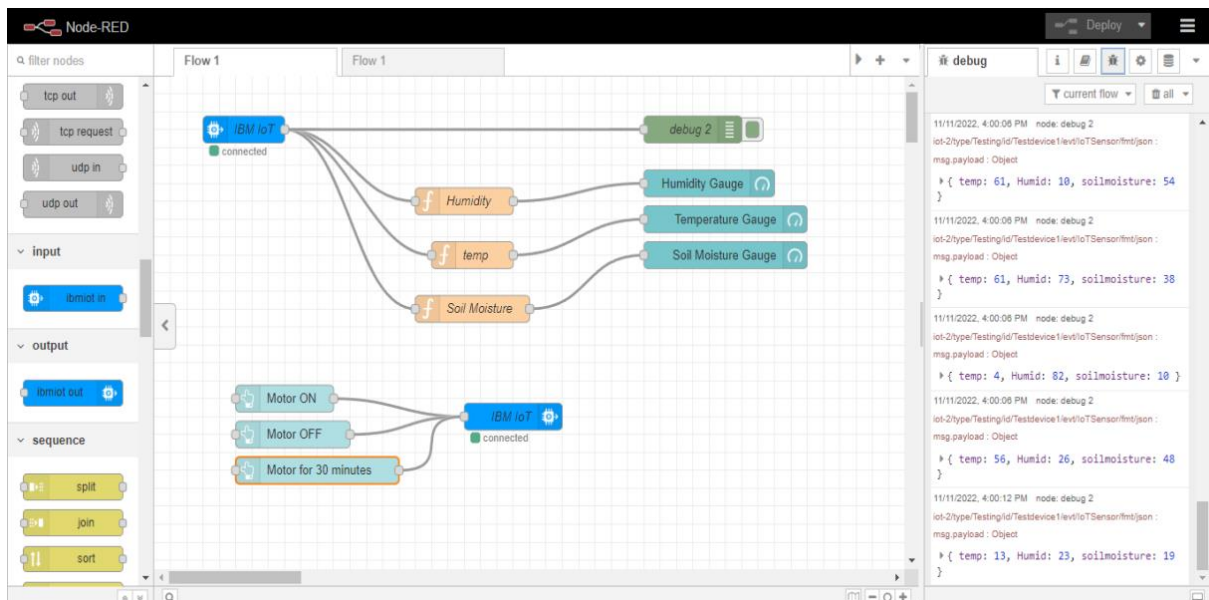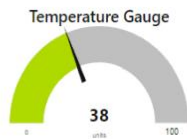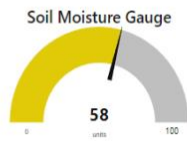
```
Published Temperature = 25 C Humidity = 32 % soilmoisture = 86 % to IBM Watson
Published Temperature = 27 C Humidity = 16 % soilmoisture = 26 % to IBM Watson
Command received: motoron
motor is on
Command received: motoron
motor is on
Published Temperature = 10 C Humidity = 69 % soilmoisture = 82 % to IBM Watson
Published Temperature = 75 C Humidity = 37 % soilmoisture = 2 % to IBM Watson
Published Temperature = 63 C Humidity = 59 % soilmoisture = 11 % to IBM Watson
Published Temperature = 31 C Humidity = 20 % soilmoisture = 43 % to IBM Watson
Published Temperature = 47 C Humidity = 38 % soilmoisture = 95 % to IBM Watson
Published Temperature = 62 C Humidity = 5 % soilmoisture = 93 % to IBM Watson
Command received: motoroff
motor is off
Command received: motor30
motor is on for 30 minutes
Published Temperature = 19 C Humidity = 99 % soilmoisture = 96 % to IBM Watson
Published Temperature = 6 C Humidity = 56 % soilmoisture = 85 % to IBM Watson
```