SPRINT DELIVERY – 4

Team ID	PNT2022TMID15129
Project Name	IoT-Enabled Smart Farming Application

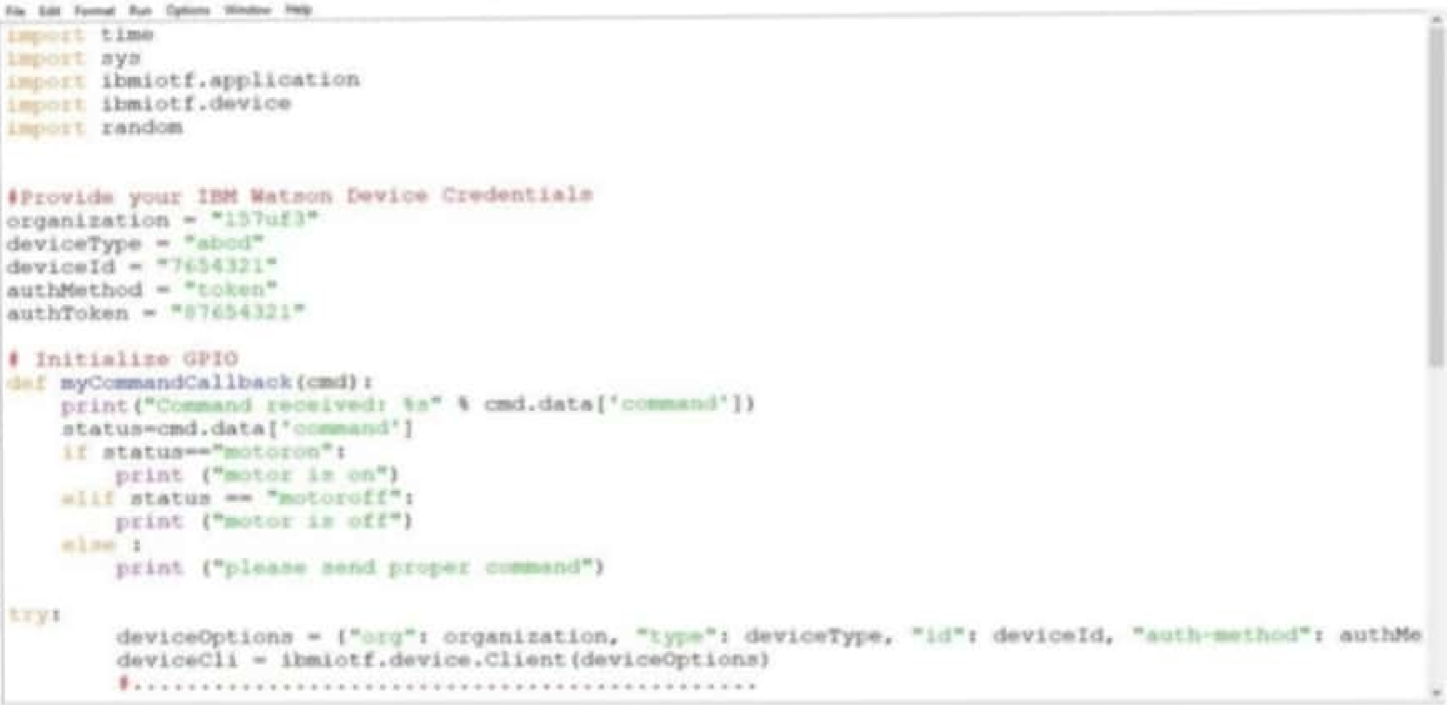
Receiving commands from IBM cloud using Python program

```
import time import sys

import ibmiotf.application

import ibmiotf.device import

random
```

```
#Provide your IBM Watson Device Credentials

deviceType = "abcd"

deviceId = "7654321"

authMethod = "token" auth

Token = "87654321"
```

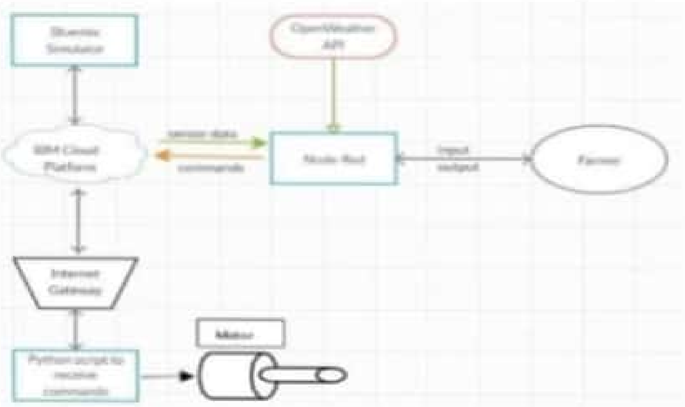
```
# Initialize GPIO
def myCommandCallback(cmd):     print("Command
received: %s" % cmd.data['command'])
status=cmd.data['command']     if status=="motoron":
print ("motor is on")     elif status == "motoroff":        print
("motor is off")     else :
      print ("please send proper command")

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(90,110)
```

```
Humid=random.randint(60,100)

Mois=random. Randint(20,120)     data

= { 'temp' : temp, 'Humid': Humid ,

‘   Mois’   : Mois}

     #print data        def

myOnPublishCallback():

        print ("Published Temperature = %s C" % temp, "Humidity
= %s %%" % Humid, “   Moisture =%s deg c”    % Mois “   to IBM Watson")
success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)        if not success:
print("Not connected to IoTF")

time.sleep(10)

     deviceCli.commandCallback = myCommandCallback #

Disconnect the device and application from the cloud

deviceCli.disconnect()
```

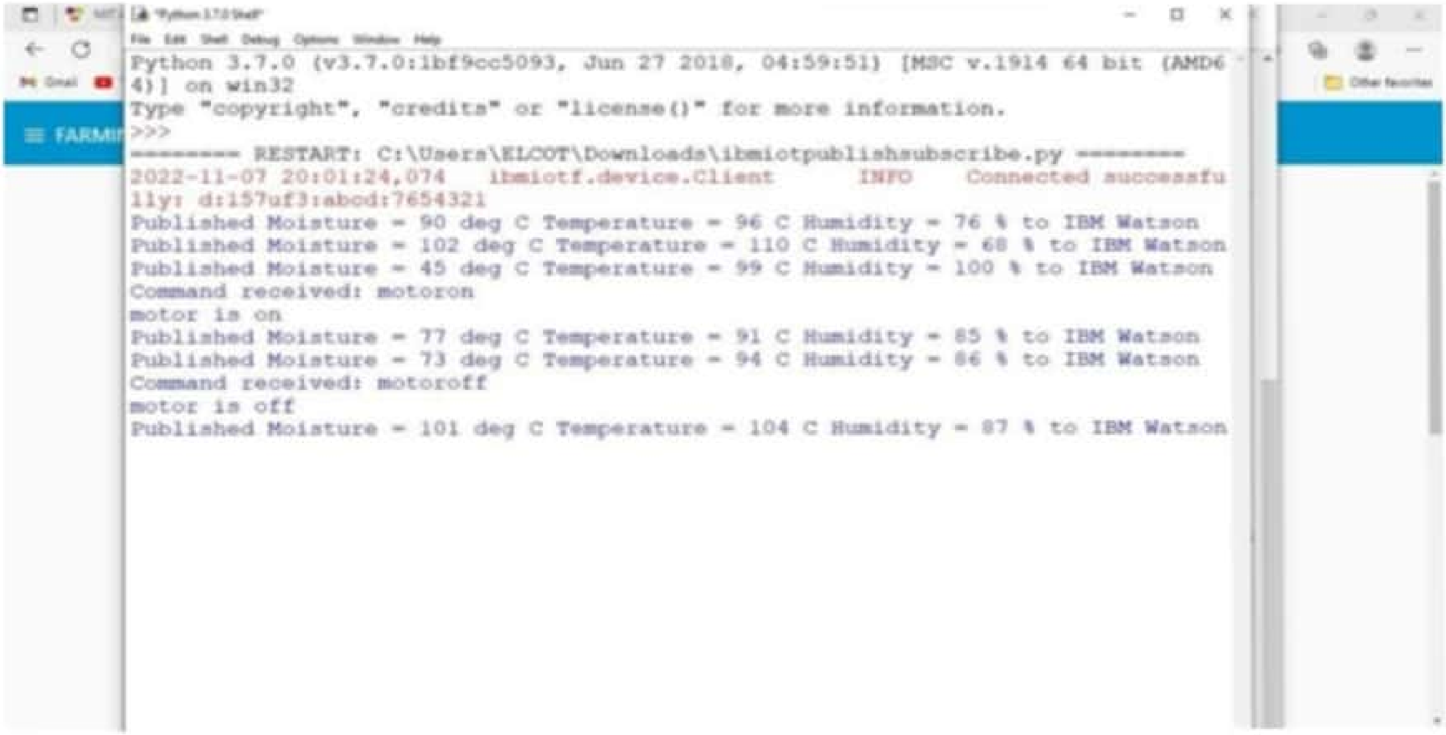


```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "157uf3"
deviceType = "abcd"
deviceId = "7654321"
authMethod = "token"
authToken = "87654321"

# Initialize GPIO
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")
    else :
        print ("please send proper command")

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

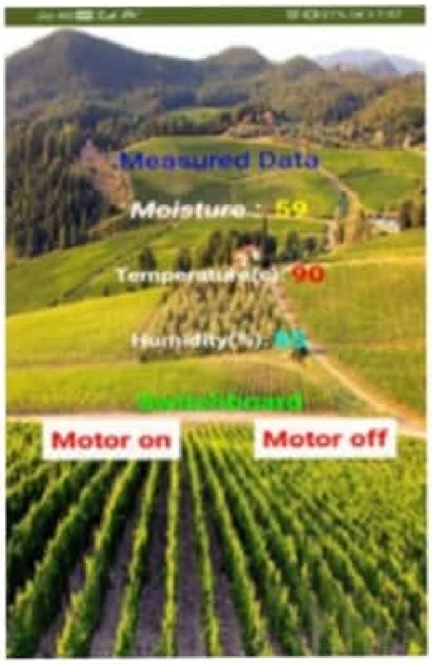
Flow Chart



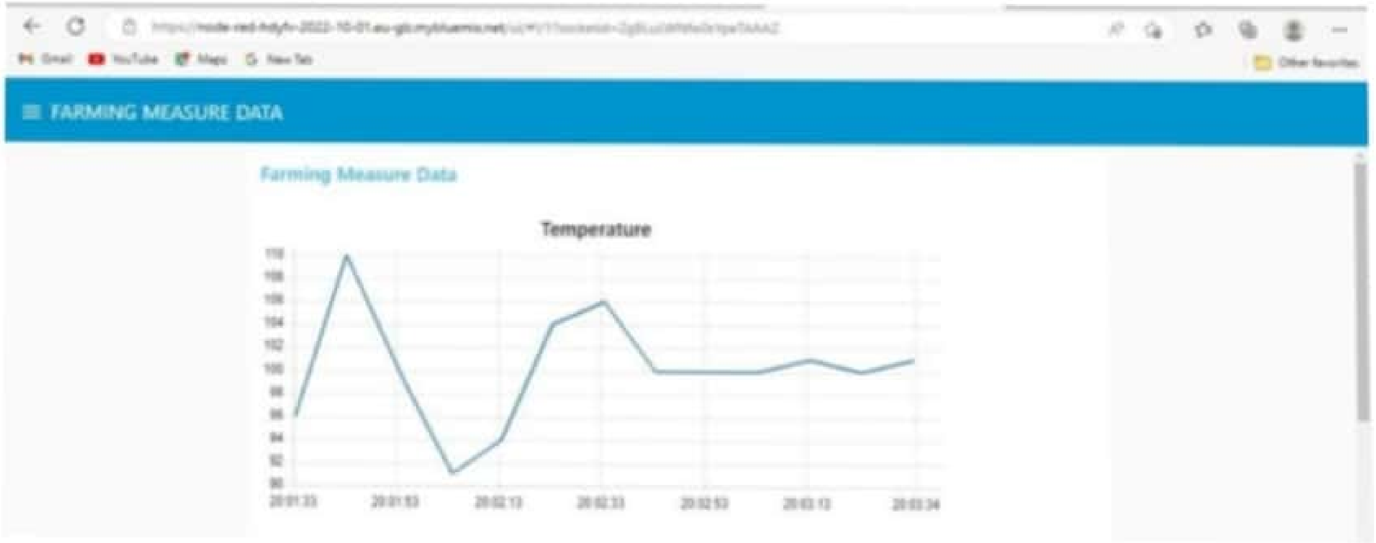
Observations & Results



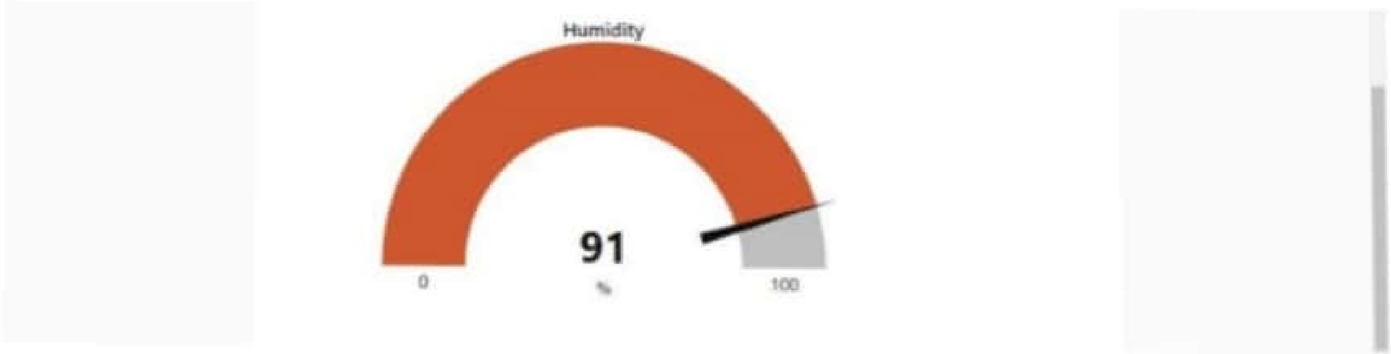
```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py ========
2022-11-07 20:01:24,074   ibmiotf.device.Client      INFO    Connected successfu
lly: d:157uf3:abcd:7654321
Published Moisture = 90 deg C Temperature = 96 C Humidity = 76 % to IBM Watson
Published Moisture = 102 deg C Temperature = 110 C Humidity = 68 % to IBM Watson
Published Moisture = 45 deg C Temperature = 99 C Humidity = 100 % to IBM Watson
Command received: motoron
motor is on
Published Moisture = 77 deg C Temperature = 91 C Humidity = 85 % to IBM Watson
Published Moisture = 73 deg C Temperature = 94 C Humidity = 86 % to IBM Watson
Command received: motoroff
motor is off
Published Moisture = 101 deg C Temperature = 104 C Humidity = 87 % to IBM Watson
```



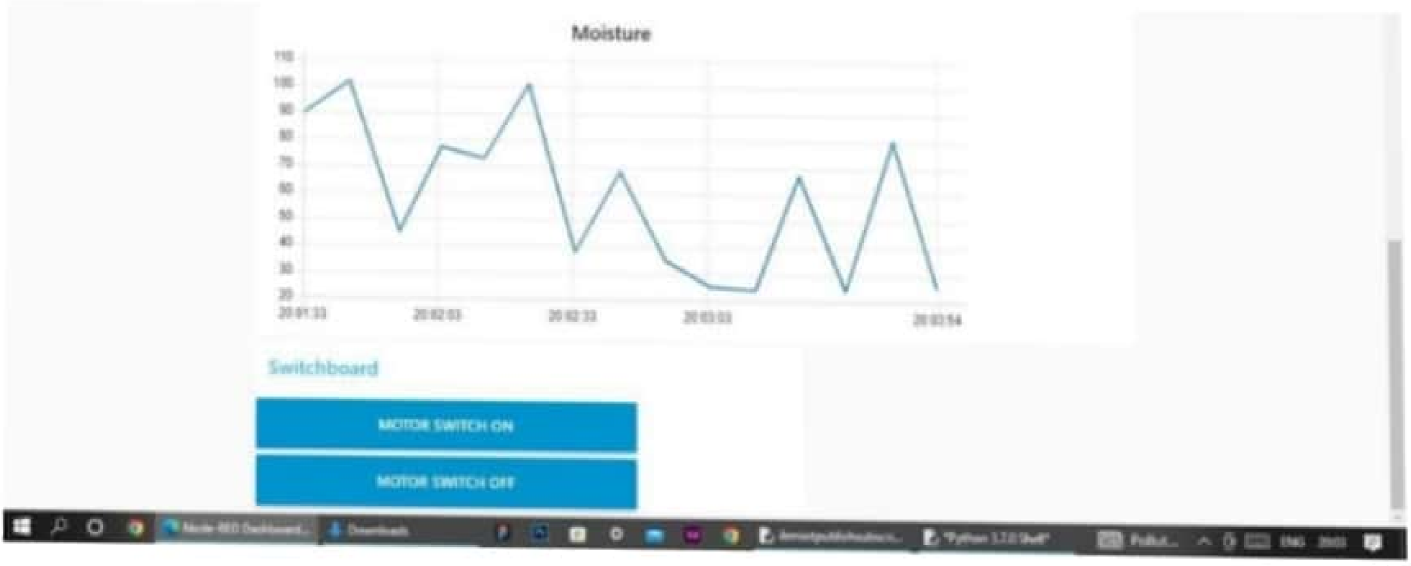
TEMPERATURE:



HUMIDITY:



MOISTURE:



Conclusion:

So to implement an IoT system in order to help farmers to control and monitor their farms has been implemented successfully.