

## **SPRINT DELIVERY – 4**

<b>Team ID</b>	PNT2022TMID34341
<b>Project Name</b>	IoT Enabled Smart Farming Application
<b>Date</b>	11 November 2022

## 5.5 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** 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": 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()
```

```
ibmiotpublishsubscribe.py - C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py (3.7.0)
File Edit Format Run Options Window Help

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

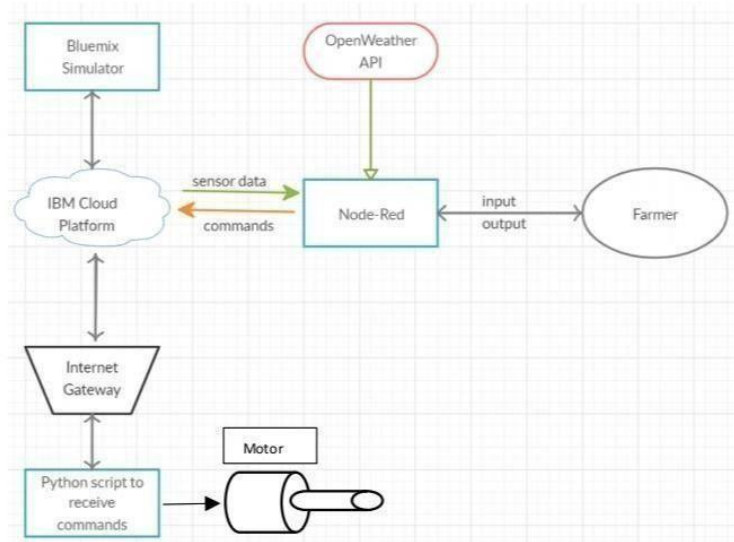
#Provide your IBM Watson Device Credentials
organization = "157uf3"
deviceType = "abcd"
deviceId = "7654321"
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def myCommandCallback(cmd):
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try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMe
    deviceCli = ibmiotf.device.Client(deviceOptions)
    # .....
Ln: 22 Col: 21
```

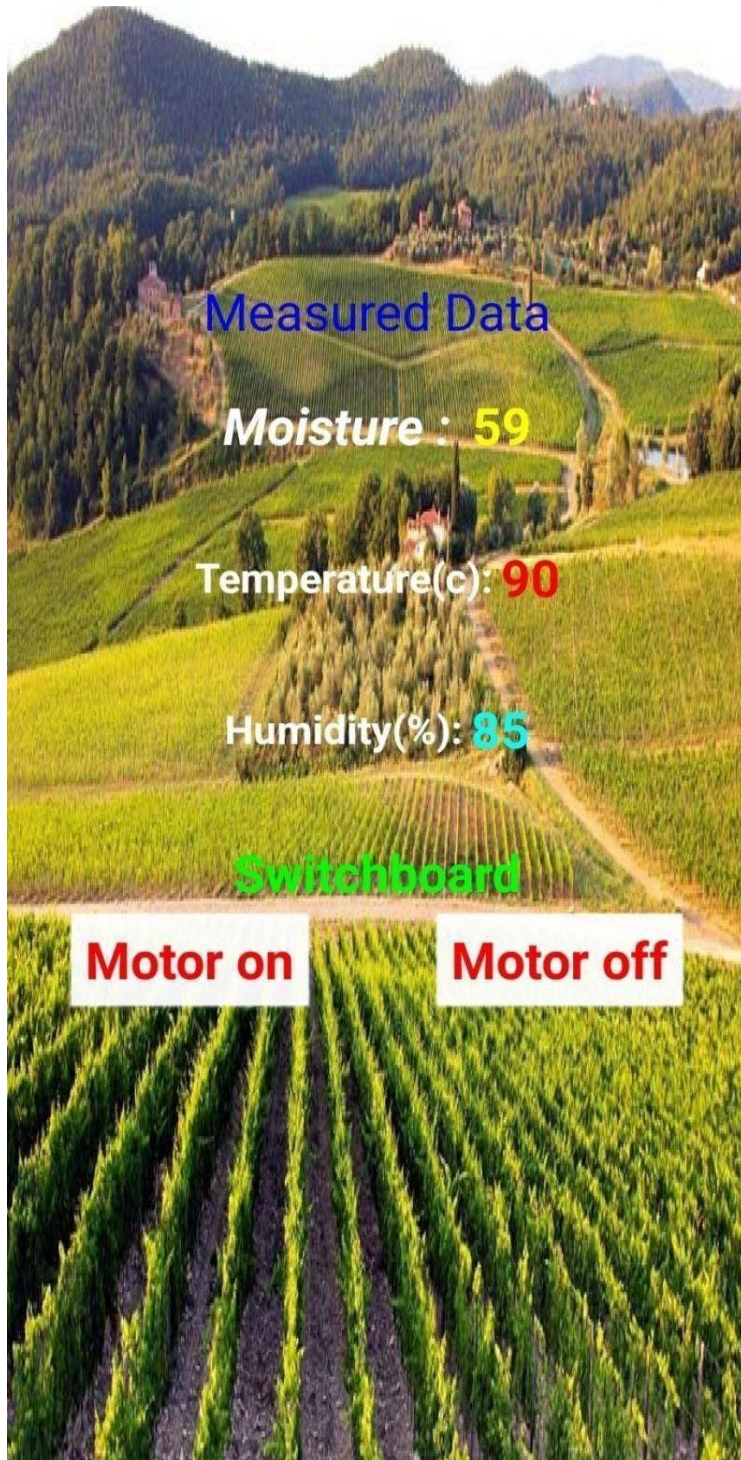
```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py =====
2022-11-07 20:01:24,074 ibmiotf.device.Client INFO Connected successfully: 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
```

## 6. Flow Chart



## 7. Observations & Results

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
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Command received: motoroff
motor is off
Published Moisture = 101 deg C Temperature = 104 C Humidity = 87 % to IBM Watson
```



## Measured Data

Moisture : 59

Temperature(c): 90

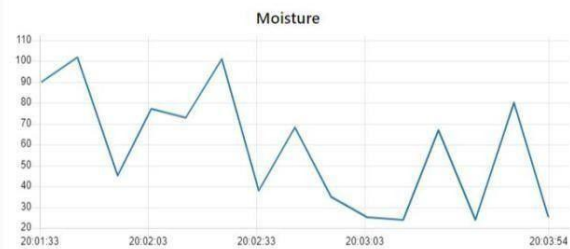
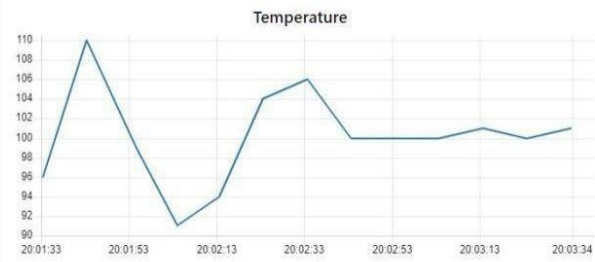
Humidity(%): 85

## Switchboard

Motor on

Motor off

### Farming Measure Data



### Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF



## 8. Advantages & Disadvantages Advantages:

- Farms can be monitored and controlled remotely.
- Increase in convenience to farmers.
- Less labor cost.
- Better standards of living.

## Disadvantages:

- Lack of internet/connectivity issues.
- Added cost of internet and internet gateway infrastructure.
- Farmers wanted to adapt the use of Mobile App.

## 9. Conclusion

Thus the objective of the project to implement an IOT system in order to help farmers to control and monitor their farms has been implemented successfully.