

SPRINT DELIVERY – 4

Team ID	PNT2022TMID46489
Project Name	IoT Enabled Smart Farming Application
Date	15 November 2022

5.5 Receiving commands from IBM cloud using Python program

```
import  
time  
import  
sys  
import  
ibmiotf.applicatio  
n import  
ibmiotf.device  
import random
```

`#Provide your IBM Watson Device`

`Credentialsorganization =`

`"157uf3" deviceType = "abcd"`

`deviceId = "7654321"authMethod`

`= "token" authToken =`

`"87654321"`

`# Initialize GPIO`

`def myCommandCallback(cmd): print("Command received: %s" % cmd.data)`

`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 anevent 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 IoT")
    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

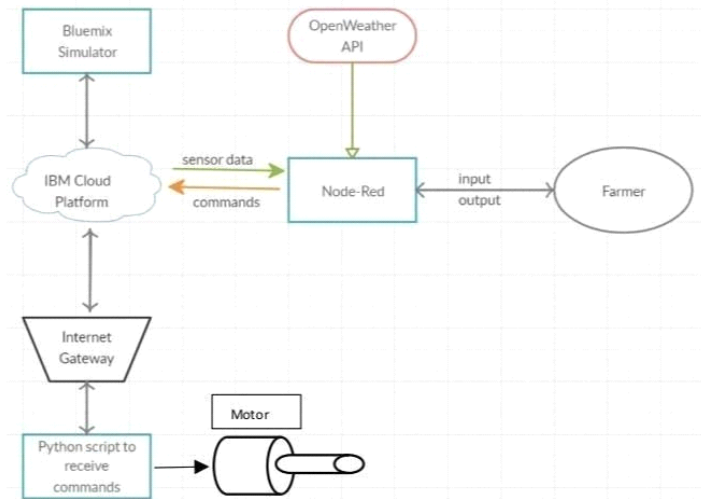
#Provide your IBM Watson Device Credentials
organization = "157uf3"
deviceType = "abcd"
deviceId = "7654321"
authMethod = "token"
authToken = "87654321"

# 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)
#.....

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
```

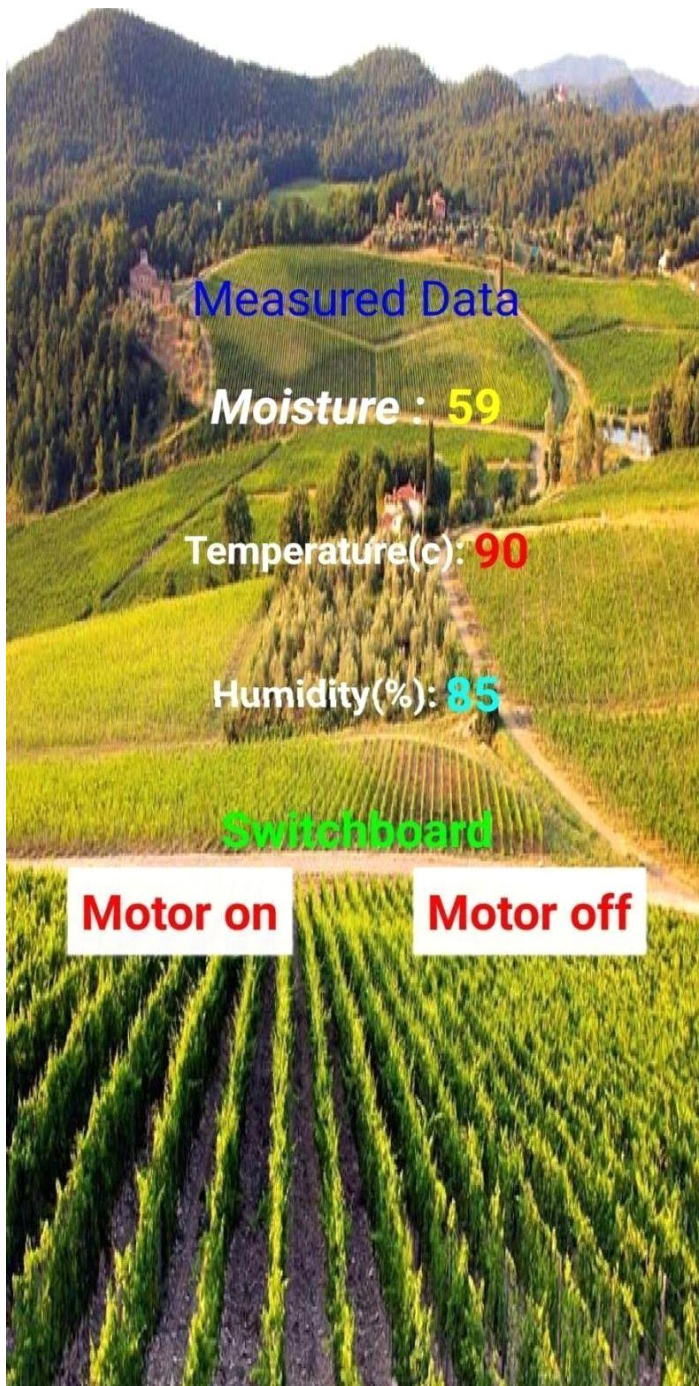


Flow Chart

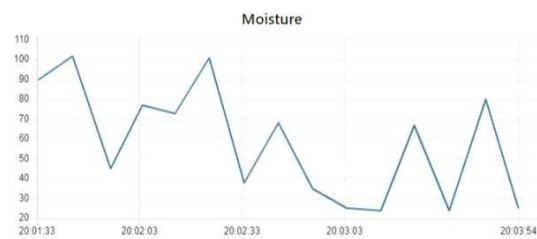
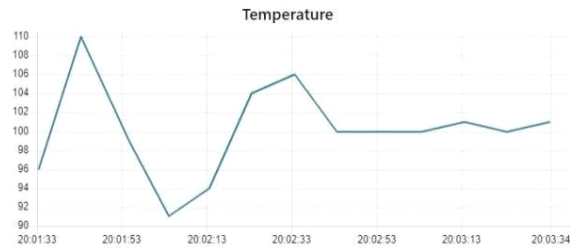
• Observations & Results

```

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motor is off
Published Moisture = 101 deg C Temperature = 104 C Humidity = 87 % to IBM Watson
  
```



Farming Measure Data



Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

- **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.