

TEAM ID PNT2022TMID34190

**IOT ENABLED SMART FARMING
APPLICATION
SPRINT DELIVERY – 4**

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 = "Ohzydu"
```

```
deviceType = "NodeMCU"
```

```
deviceId = "12345"
```

```
authMethod = "token"
```

```
authToken = "12345678"
```

```
# 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
```

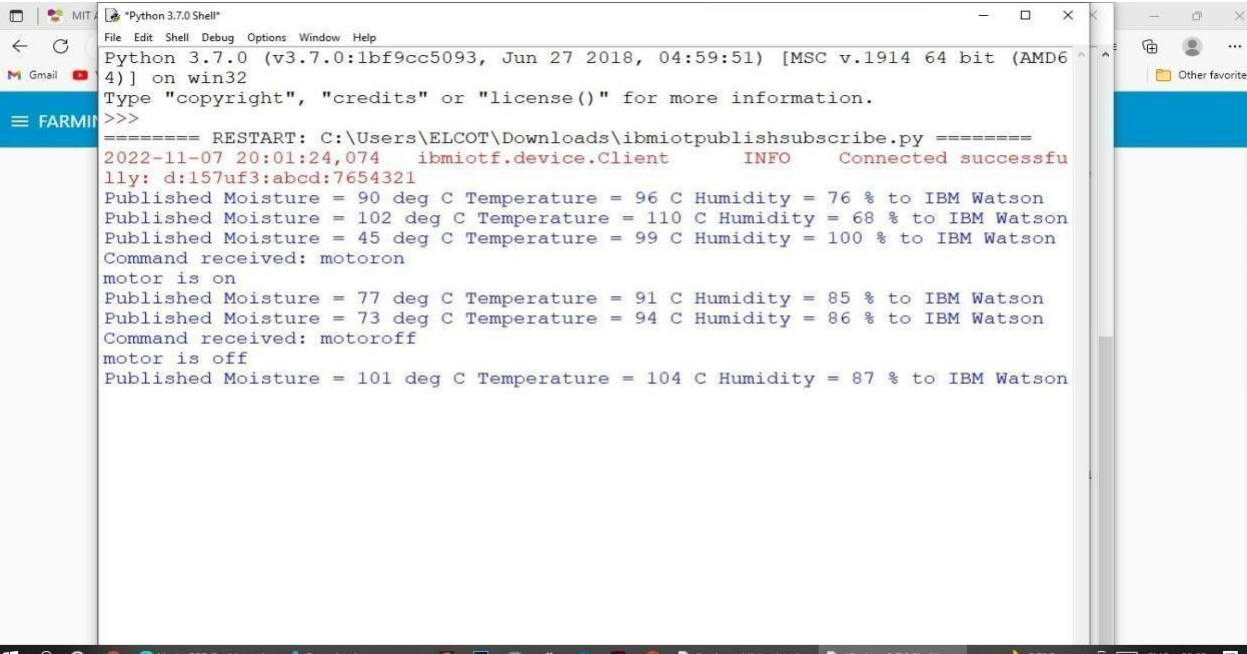
```
    def myOnPublishCallback():
```

```
        print ("Published Temperature = %s C" % temp, "Humidity = %s %" %  
Humid, "Moisture =%s deg c" % Mois "to IBM Watson")
```

```
        uccess = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,  
on_publish=myOnPublishCallback)
```

```
        if not success:
```

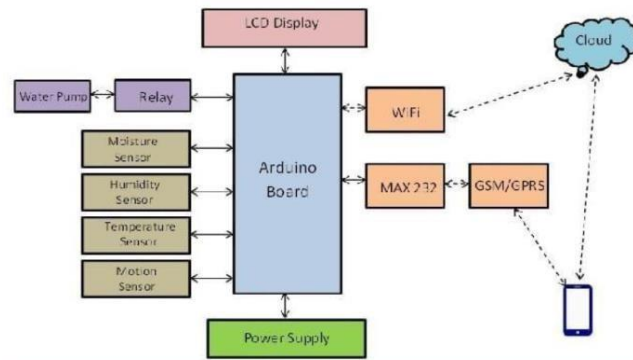
```
            print("Not connected to IoT")         time.sleep(10)
```



The screenshot shows a Windows desktop with two windows open. The primary window is a "Python 3.7.0 Shell" window, which displays the output of a script. The script's output includes a restart message, a connection status, and several lines of sensor data (Moisture, Temperature, Humidity) reported to IBM Watson. The secondary window, partially visible on the left, is a "Node-RED Dashboard" window. The taskbar at the bottom shows various application icons, including Node-RED, Downloads, and the Python Shell.

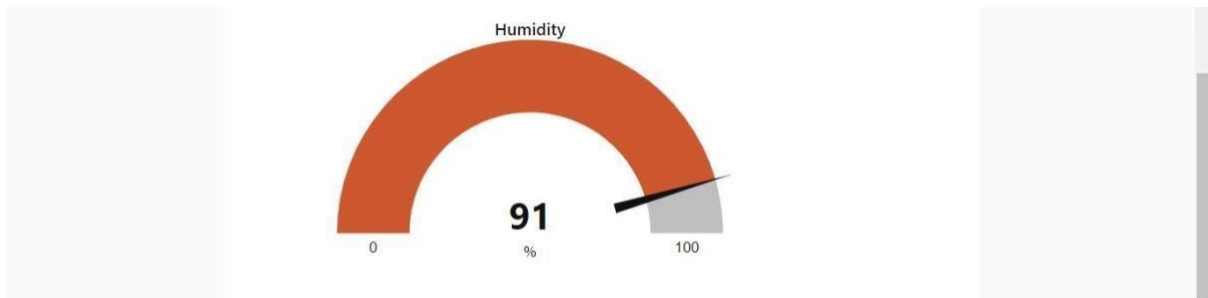
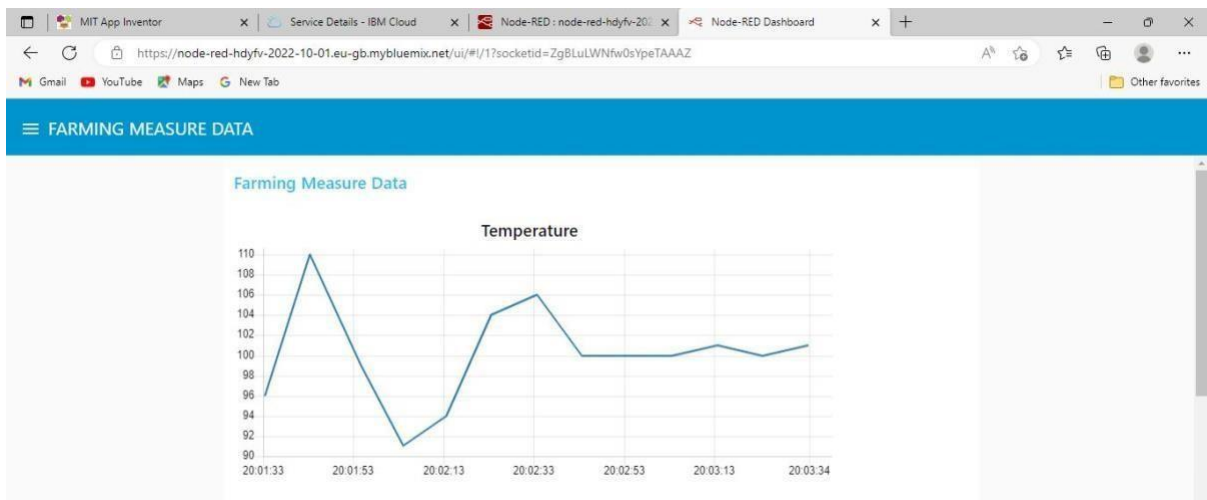
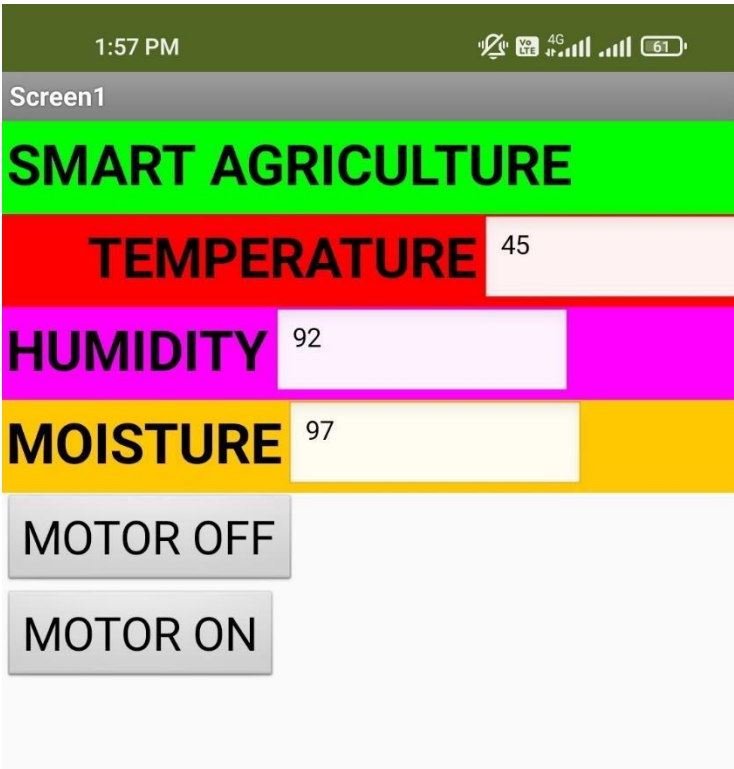
```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py =====
2022-11-07 20:01:24,074 ibmiotf.device.Client INFO Connected successfully: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

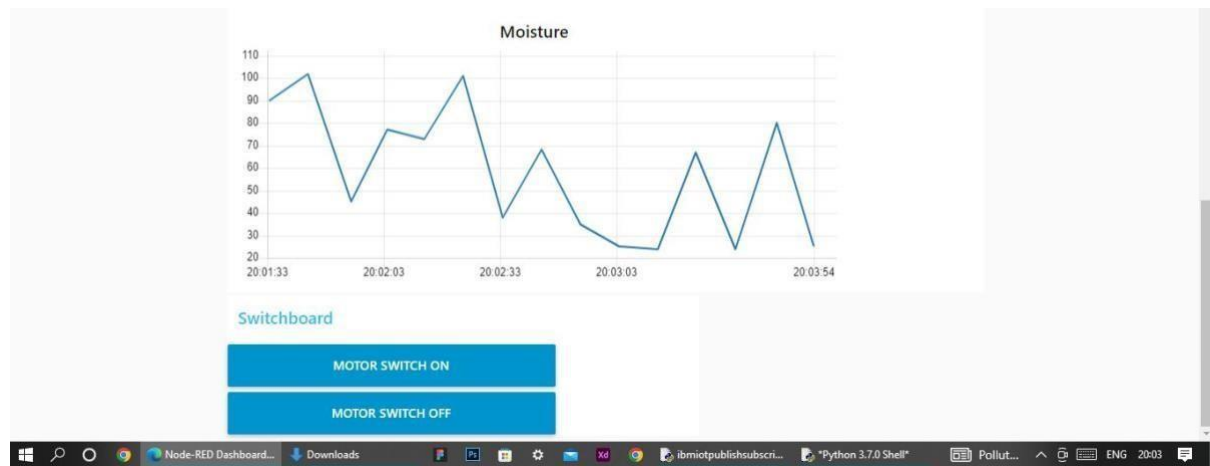
Flow Chart



Observations & Results

```
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
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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.