# IOT ENABLED SMART FARMINGAPPLICATION

## SPRINT DELIVERY – 4

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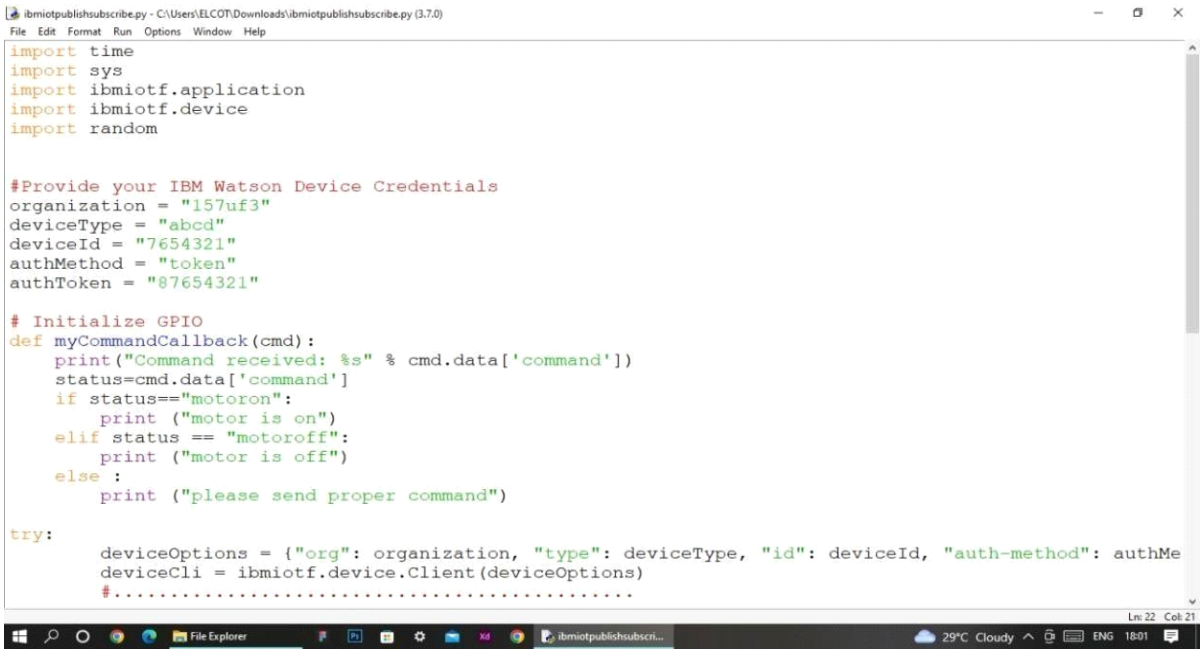
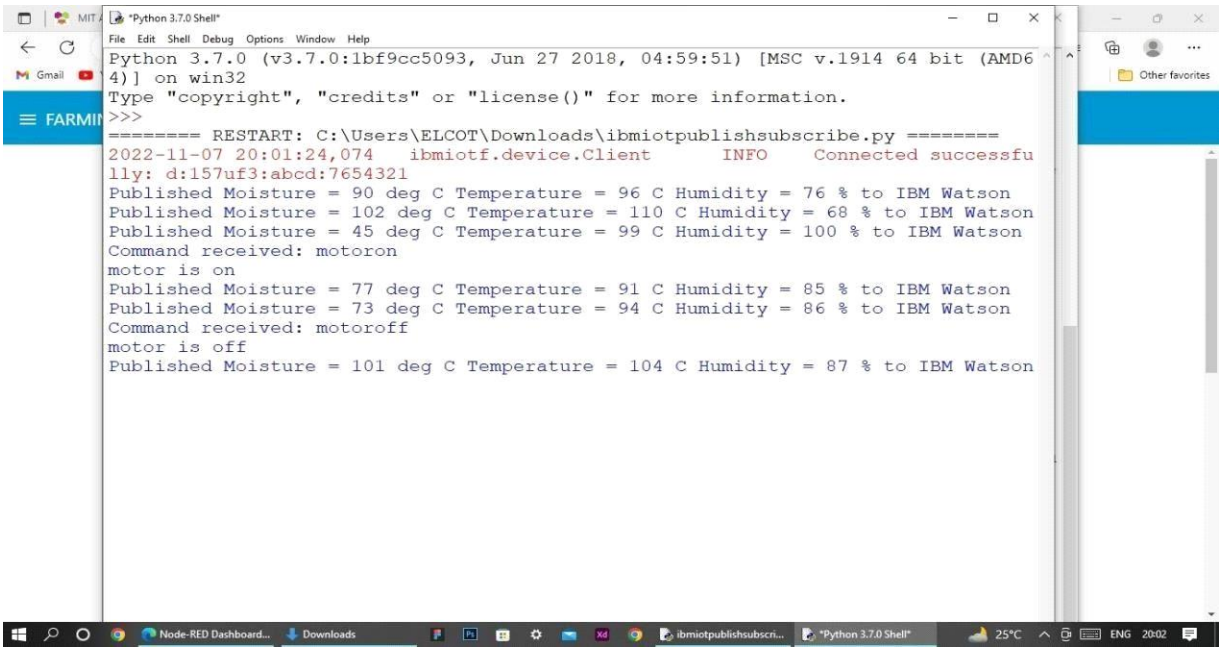
### 5.5 Receiving commands from IBM cloud using Python program

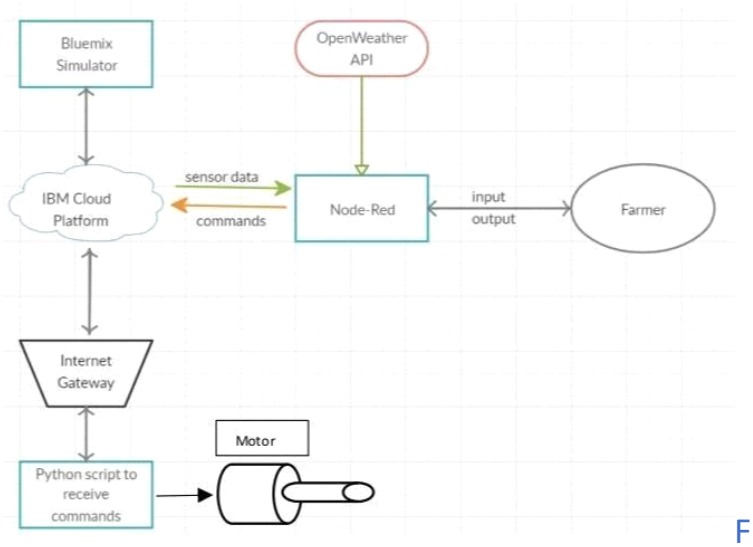
```
import time
importsys
import
ibmiotf.application
import ibmiotf.device
importrandom
```

```
#Provide your IBM Watson Device Credentials
organization = "cpeq2u"

deviceType = "TestDevice"

 deviceId = "802001" authMethod =

"token"authToken =

"8))+idxmB_q2PM@uvP"


# Initialize GPIO
def    myCommandCallback(cmd):                              print("Command received: %s" % cmd.da
       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(90,11
0)
Humid=random.randint(60,1
00) Mois=random.
Randint(20,120)
   data = { 'temp' : temp, 'Humid':
Humid ,‘Mois’: Mois}
      #print data        defmyOnPublishCallback():
         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()
```

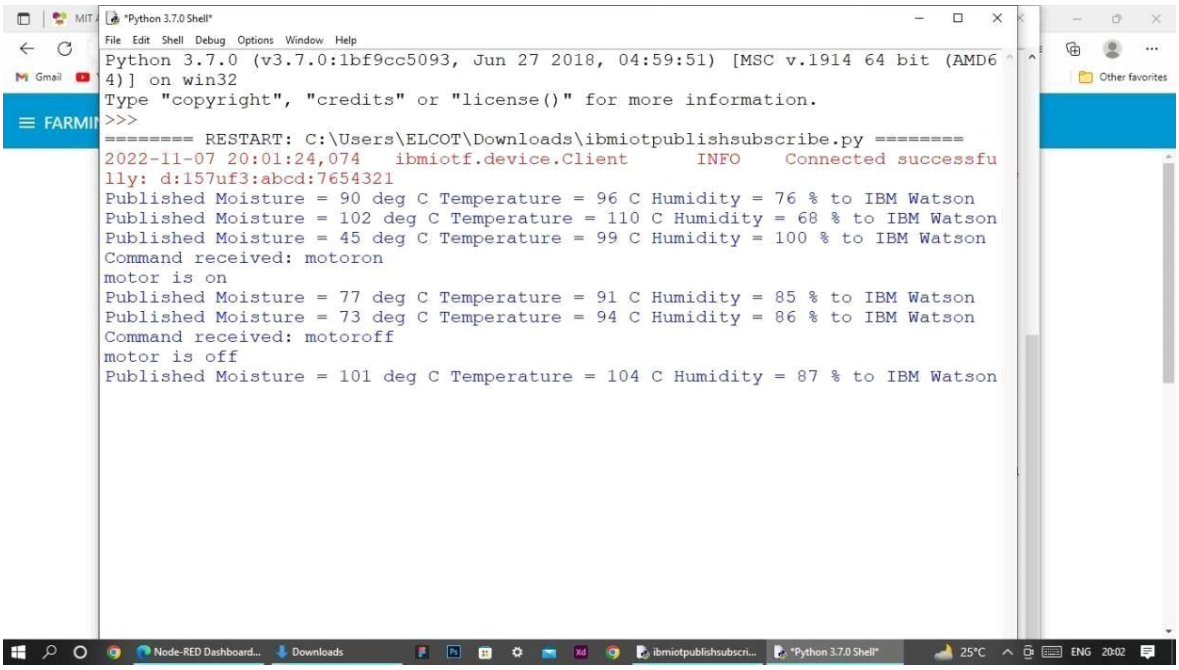

ibmiotpublishsubscribe.py - C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py (3.7.0)
File Edit Format Run Options Window Help
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
#Provide your IBM Watson Device Credentials
organization = "157uf3"
deviceType = "abcd"
deviceId = "7654321"
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
File Explorer
ibmiotpublishsubscri...
29°C Cloudy
ENG 18:01

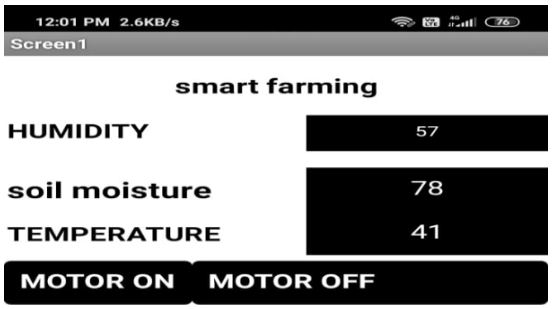

*Python 3.7.0 Shell*
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py ========
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
Gmail
Other favorites
Node-RED Dashboard...
Downloads
ibmiotpublishsubscri...
*Python 3.7.0 Shell*
25°C
ENG 20:02

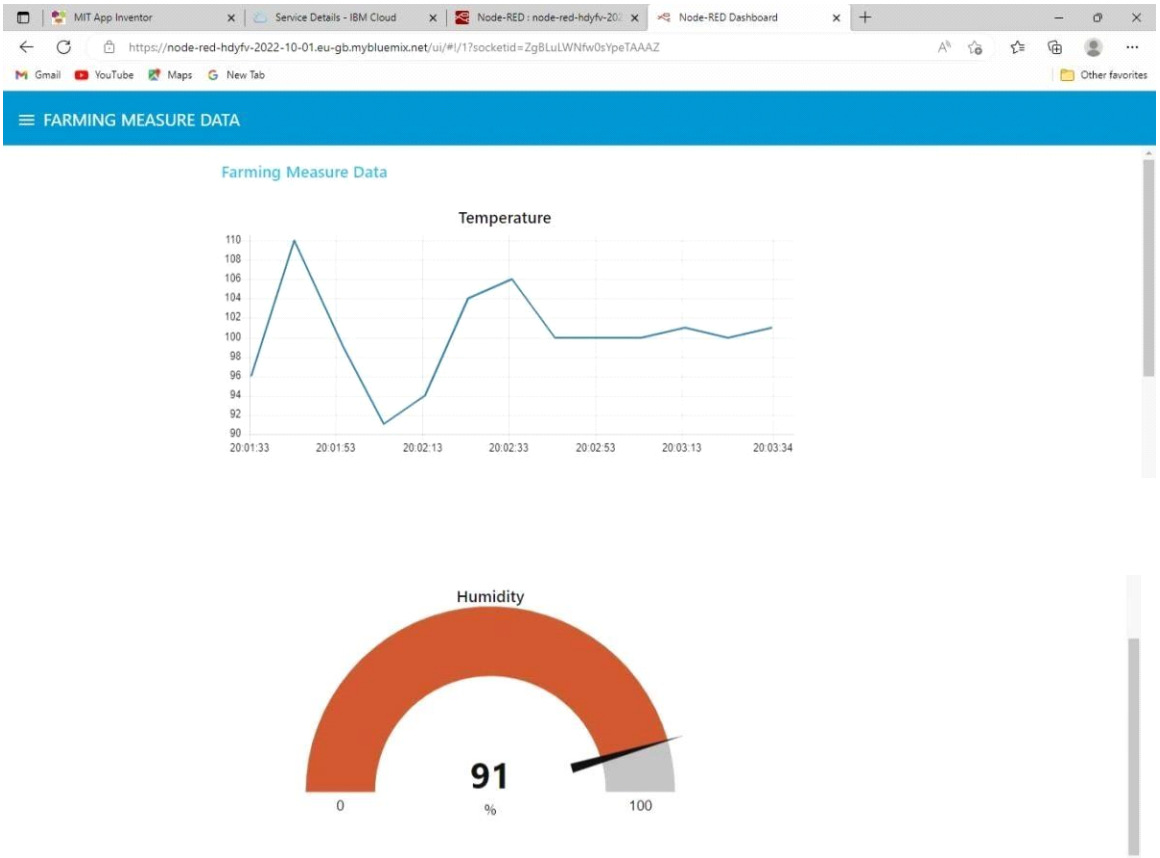
- 

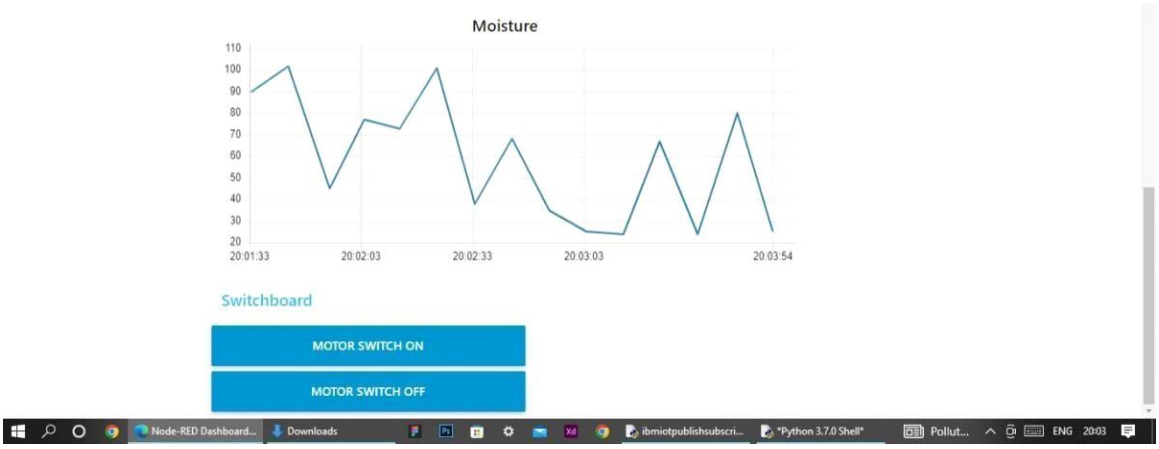
Flow Chart

- Observations & Results




12:01 PM 2.6KB/s
Screen1
smart farming
HUMIDITY
57
soil moisture
78
TEMPERATURE
41
MOTOR ON
MOTOR OFF


MIT App Inventor
Service Details - IBM Cloud
Node-RED : node-red-hdyfv-20
Node-RED Dashboard
https://node-red-hdyfv-2022-10-01.eu-gb.mybluemix.net/ui/#!/1?socketid=ZgBLuLWNfw0sYpeTAAAZ
Gmail
YouTube
Maps
New Tab
Other favorites
FARMING MEASURE DATA
Farming Measure Data
Temperature
110
108
106
104
102
100
98
96
94
92
90
20:01:33
20:01:53
20:02:13
20:02:33
20:02:53
20:03:13
20:03:34
Humidity
91
%
0
100




- 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 helpfarmers to control and monitor their farms has been implemented successfully.

10.Bibliography

IBM cloud reference: https://cloud.ibm.com/

IoT simulator : https://watson-iot-sensor-simulator.mybluemix.net/OpenWeather : https://openweathermap.org/