SPRINT
DELIVERY – 4

TITLE	**Smart Farmer-IOT Enabled Smart FarmingApplication**
DOMAIN NAME	INTERNET OF THINGS
TEAM ID	PNT2022TMID44735
LEADER NAME	SRIMATHI K
TEAM MEMBER NAME	SOUNDARYA M MADHAN D NIVETHA P

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

Credentialsorganization = "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
:
     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
aneventof type "greeting" 10 times deviceCli.connect()


while True:
     #Get Sensor Data
fromDHT11
temp=random.randint(90,1
10)
Humid=random.randint(60
```

,100)Mois=random.

Randint(20,120)

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

Humid ,‘Mois’: Mois}

#print data   defmyOnPublishCallback(

):

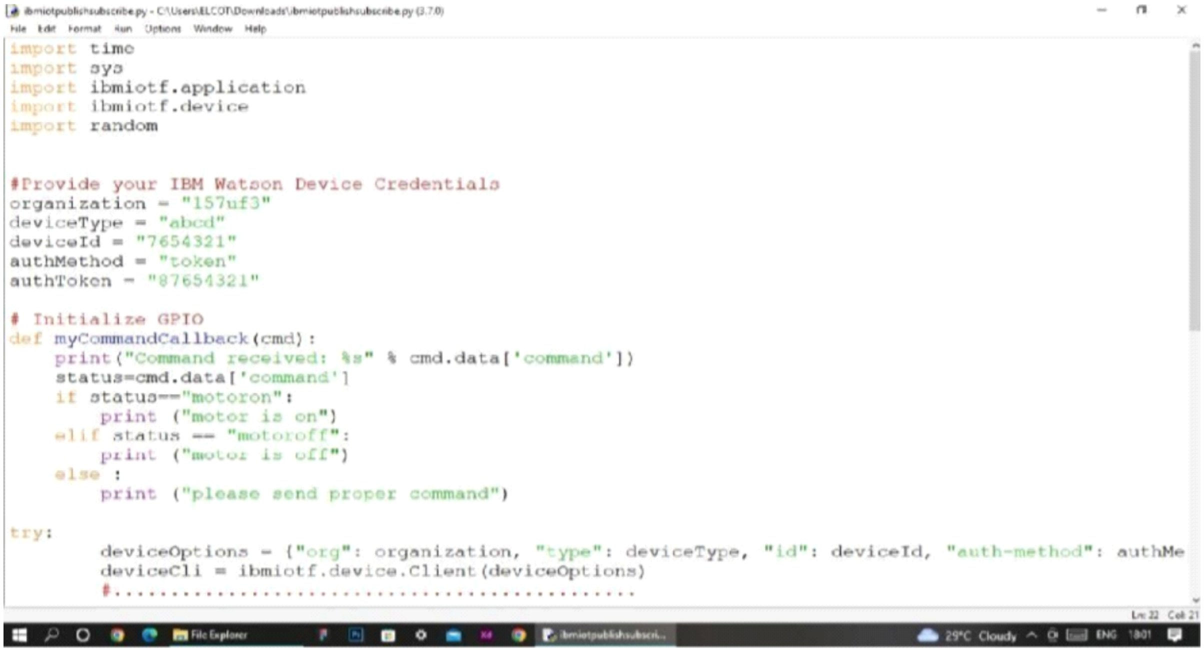
print ("Published Temperature = %s C" % temp, "Humidity = %s %%" %Humid, “Moisture =%s deg c” % Mois “to IBM Watson")

success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,on_publish=myOnPublishCallback) if not success:
print("Not connected to IoTF")

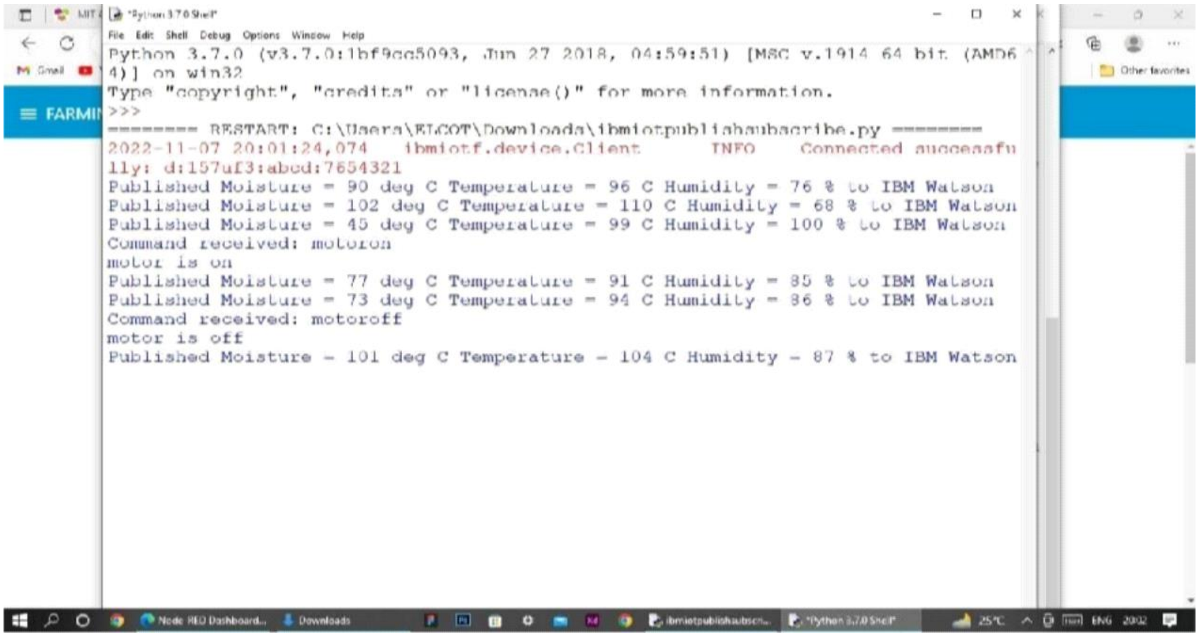
time.sleep(10)

deviceCli.commandCallback = myCommandCallback # Disconnect the device and application from the cloud

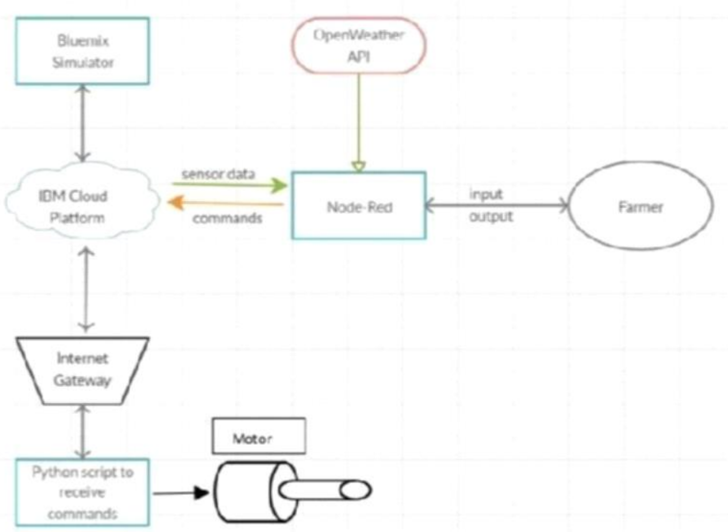
deviceCli.disconnect()



```
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)
        #..............................................
```

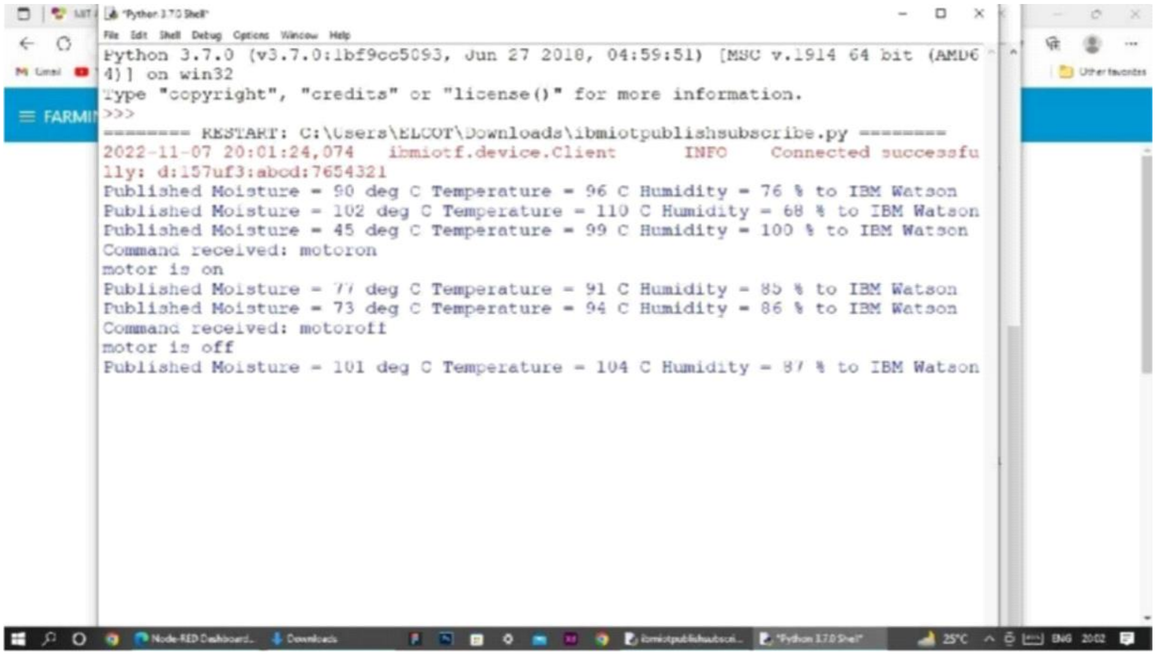


```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py ========
2022-11-07 20:01:24,074   ibmiotf.device.Client      INFO    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
```



- Flow Chart

- Observations & Results



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motor is off
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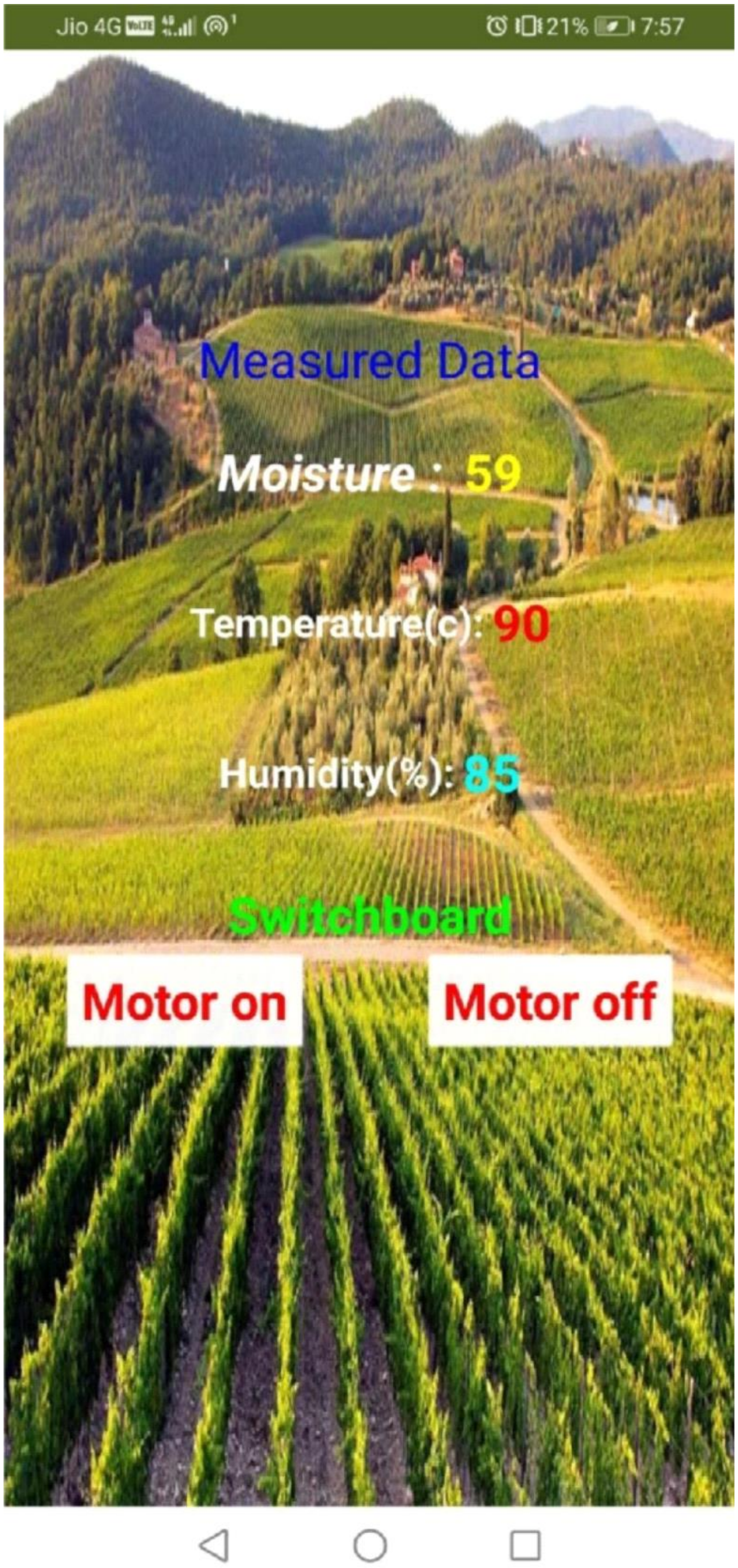


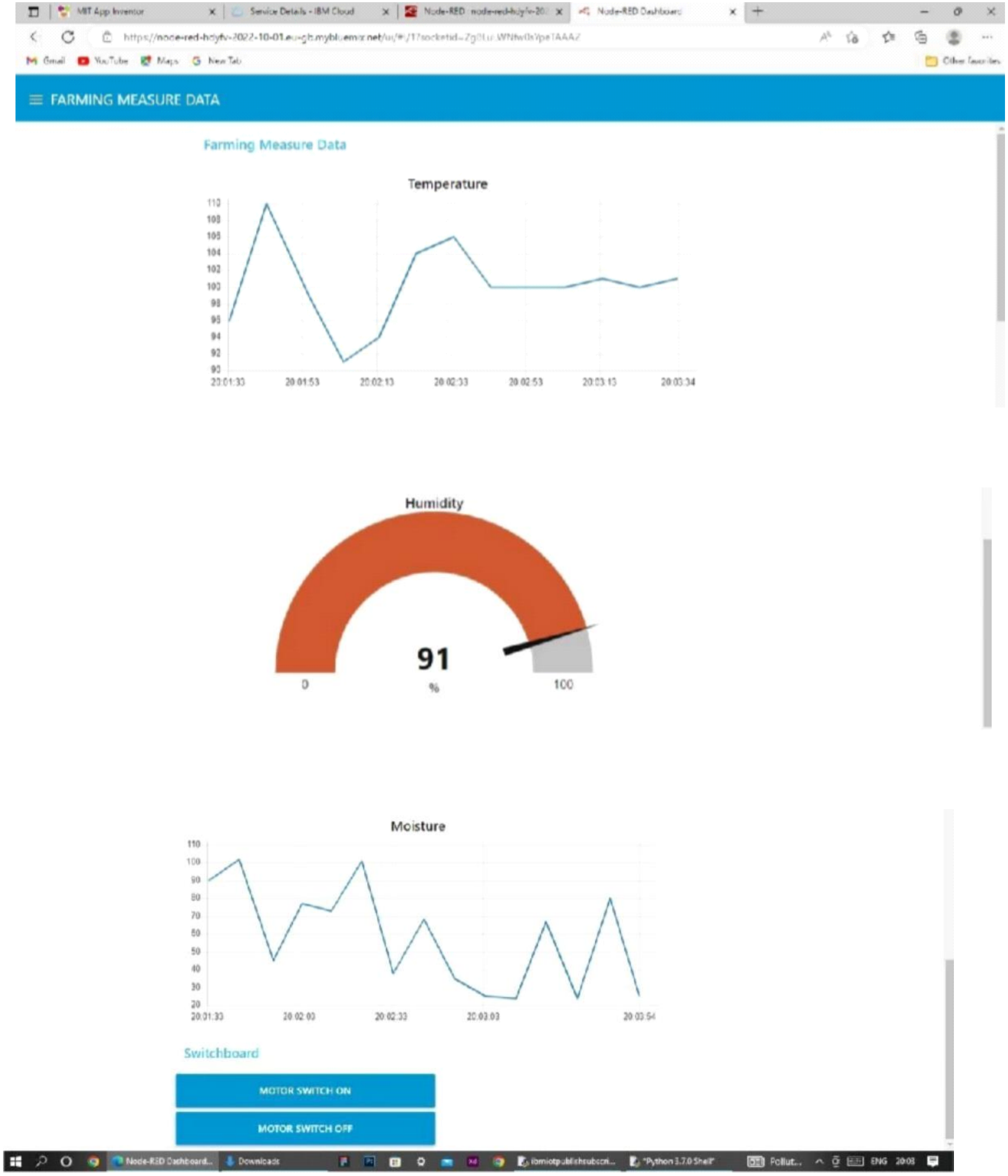
Measured Data

Moisture : 59

Temperature(c): 90

Humidity(%): 85

Switchboard



- 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.

10.Bibliography

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

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

OpenWeather : https://openweathermap.org/