
**THIRUVALLUVAR COLLEGE OF ENGG & TECH**

**Department of Electronics & Communication Engineering**

# Smart Farmer-IOT Enabled Smart Farming Application

**IBM NALAIYATHIRAN**

## SPRINT DELIVERY – 4

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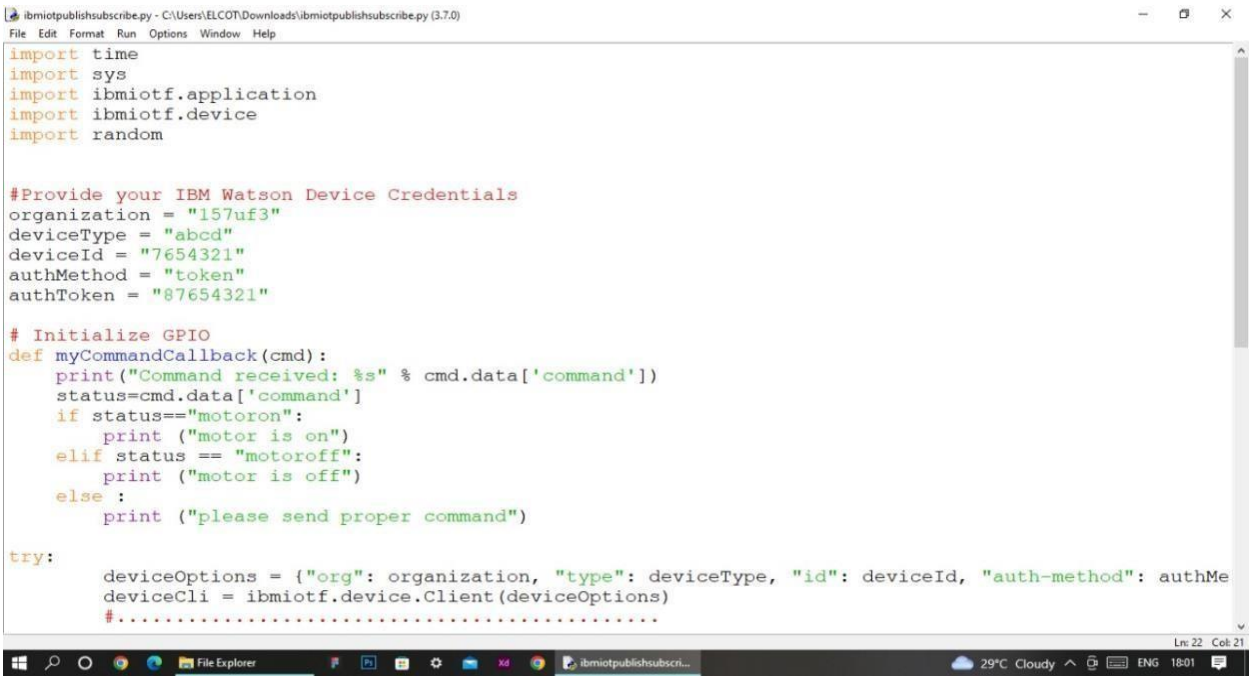
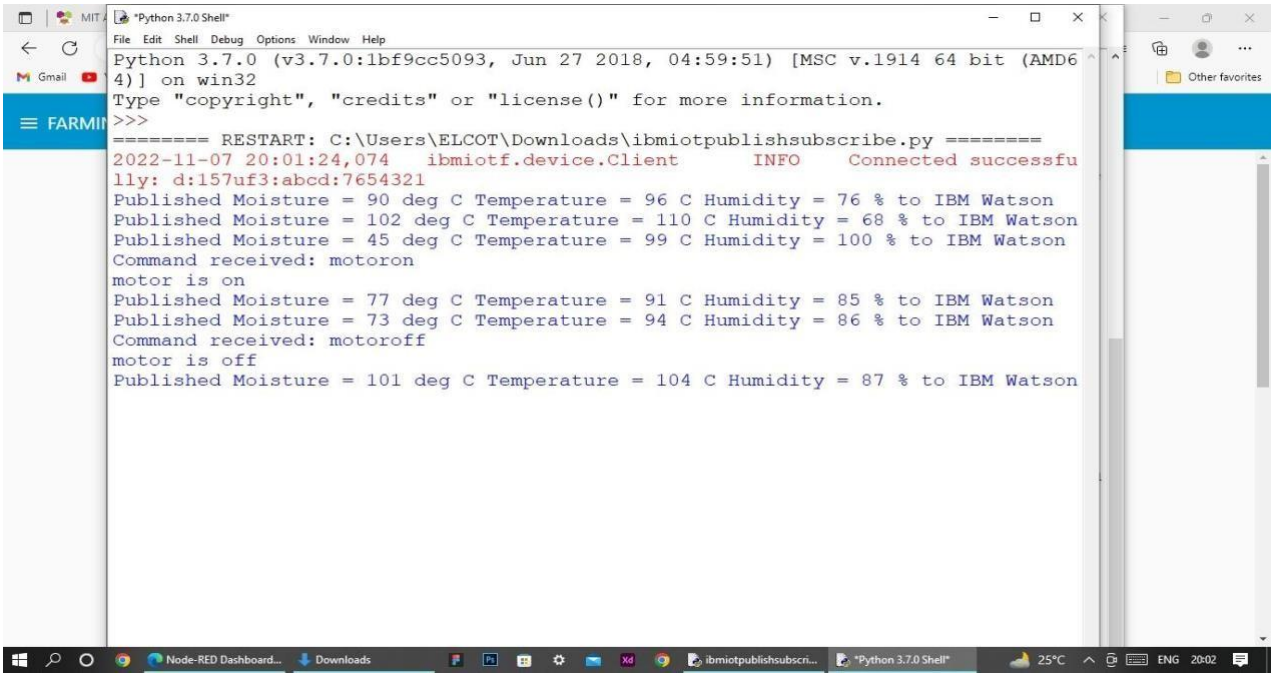
## 5.5 Receiving commands from IBM cloud using Python program

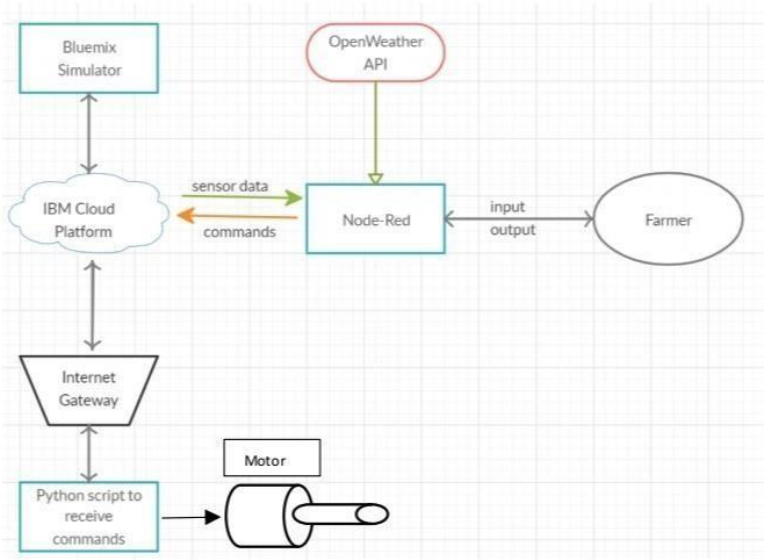
```
import time import
sys
import ibmiotf.application
import ibmiotf.device import
random

#Provide your IBM Watson Device
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")                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 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 IoTF")
time.sleep(10)
      deviceCli.commandCallback = myCommandCallback #
Disconnect the device and application from the cloud
deviceCli.disconnect()
```

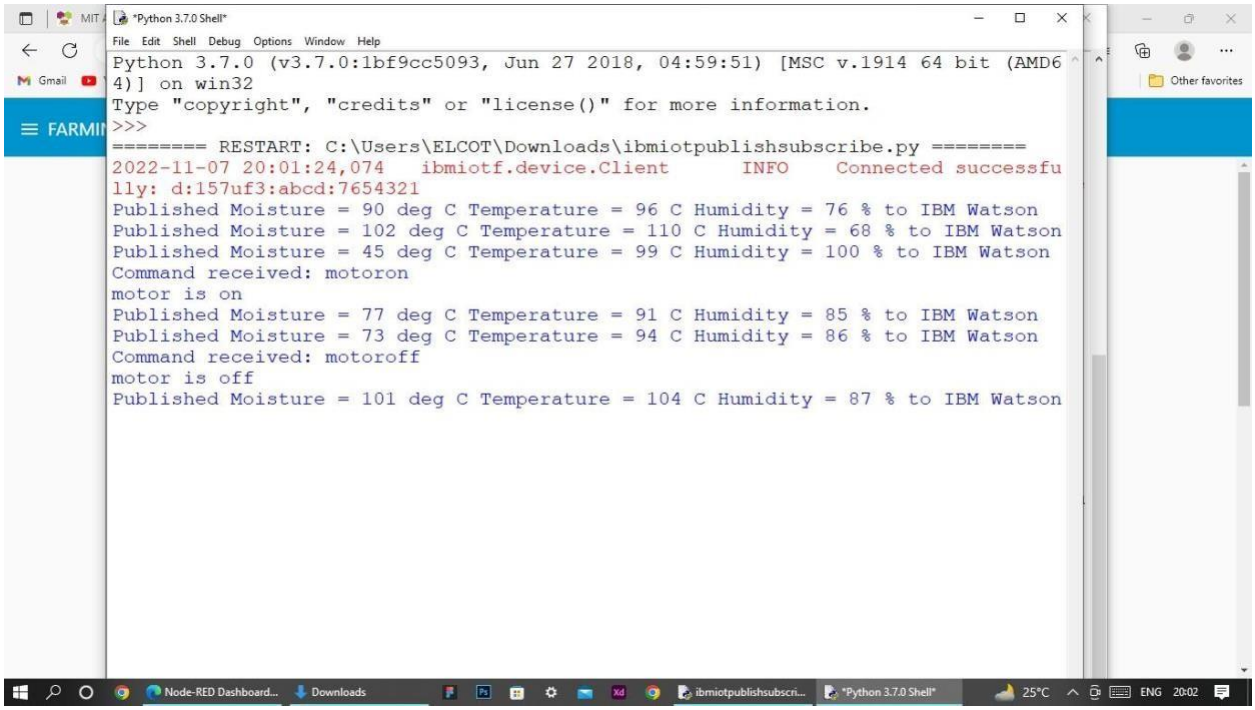

ibmiotpublishsubscribe.py - C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py (3.7.0)
File Edit Format Run Options Window Help
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
#Provide your IBM Watson Device Credentials
organization = "157uf3"
deviceType = "abcd"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

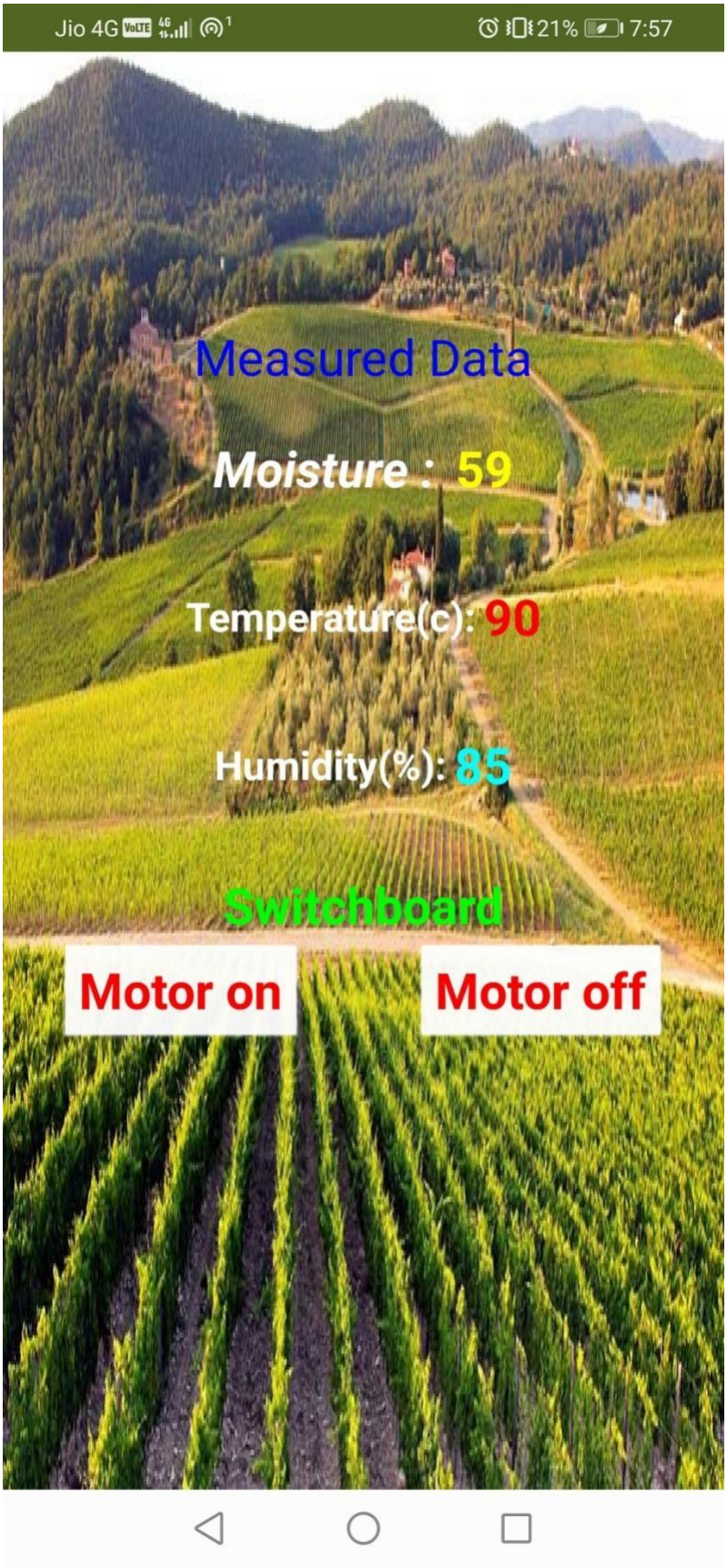

*Python 3.7.0 Shell*
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py ========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

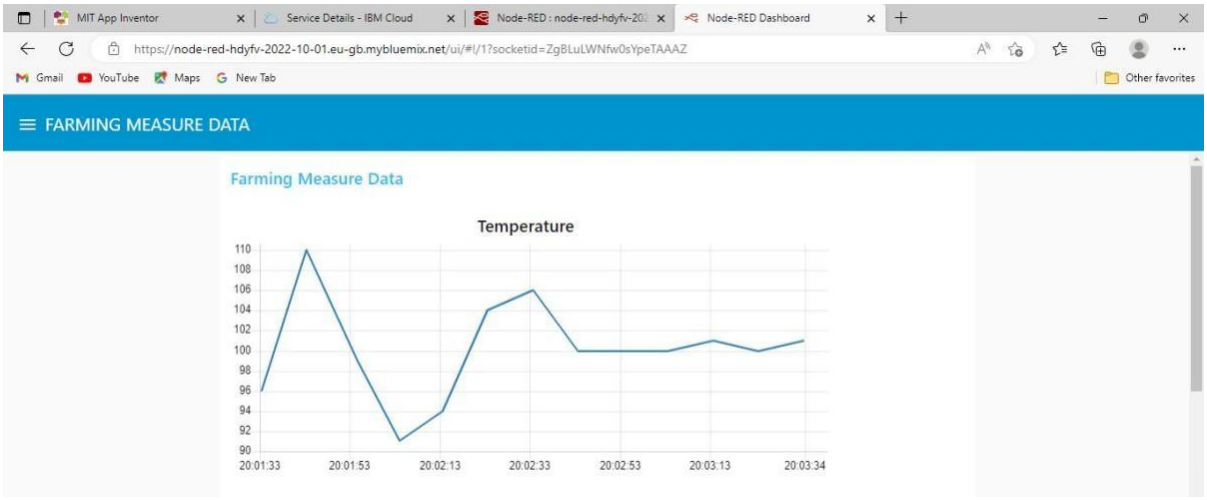
## 6. Flow Chart

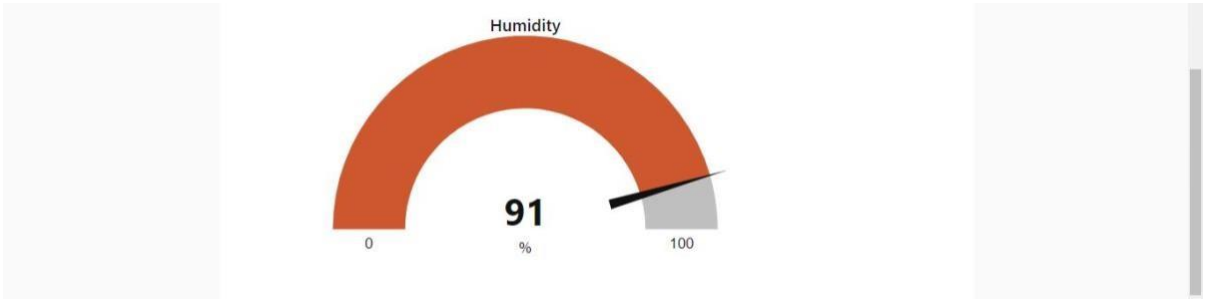


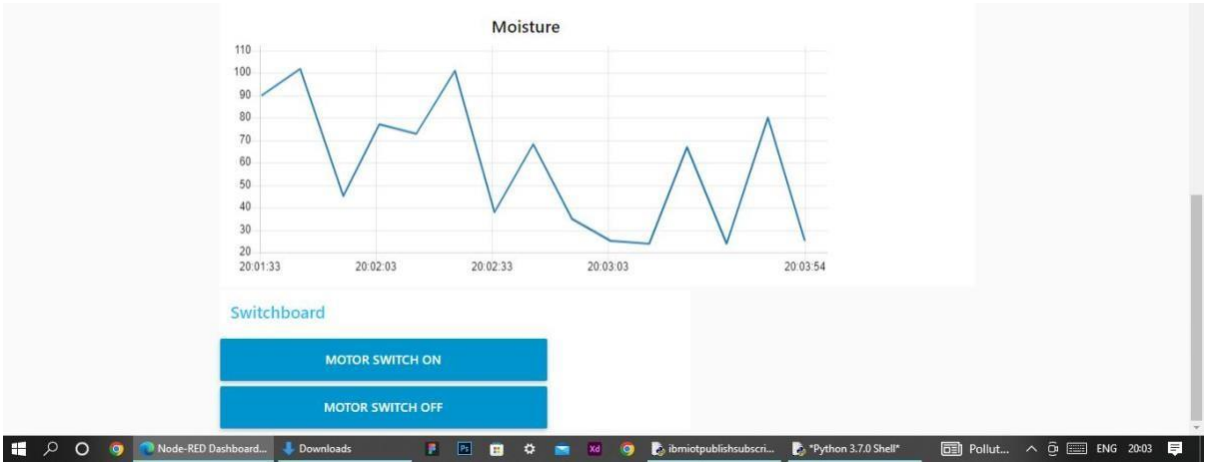

## 7. Observations & Results




Jio 4G
21%
7:57
Measured Data
Moisture : 59
Temperature(c): 90
Humidity(%): 85
Switchboard
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


Moisture
110
100
90
80
70
60
50
40
30
20
20:01:33
20:02:03
20:02:33
20:03:03
20:03:54
Switchboard
MOTOR SWITCH ON
MOTOR SWITCH OFF
Node-RED Dashboard...
Downloads
ibmiotpublishsubscri...
*Python 3.7.0 Shell*
Pollut...
ENG
20:03

## 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.

## 10. Bibliography

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

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

OpenWeather : https://openweathermap.org/