IOT ENABLED SMART FARMING APPLICATION

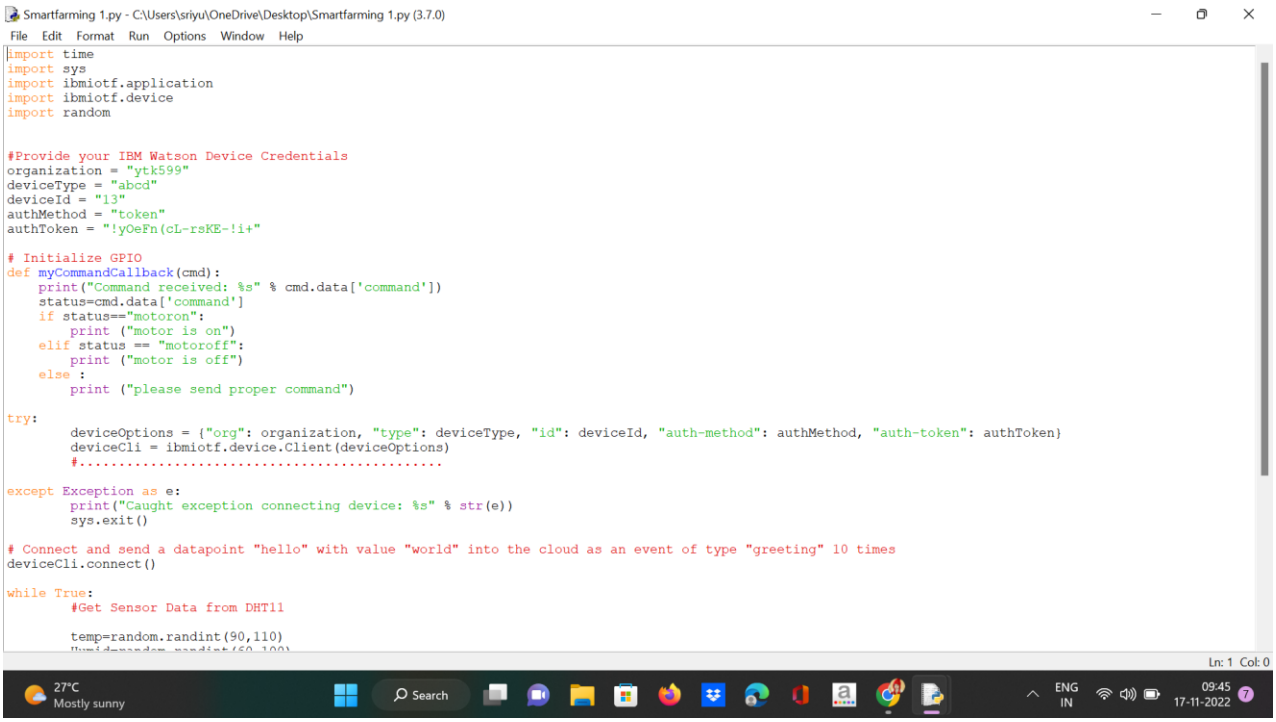
SPRINT DELIVERY – 4

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 Credentials
organization = "ytk599" deviceType = "abcd" deviceId
= "13" authMethod = "token" authToken =
"!yOeFn(cL-rsKE-!i+"

# 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")           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()
```


Smartfarming 1.py - C:\Users\sriyu\OneDrive\Desktop\Smartfarming 1.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
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authToken = "!yOeFn(cL-rsKE-!i+"
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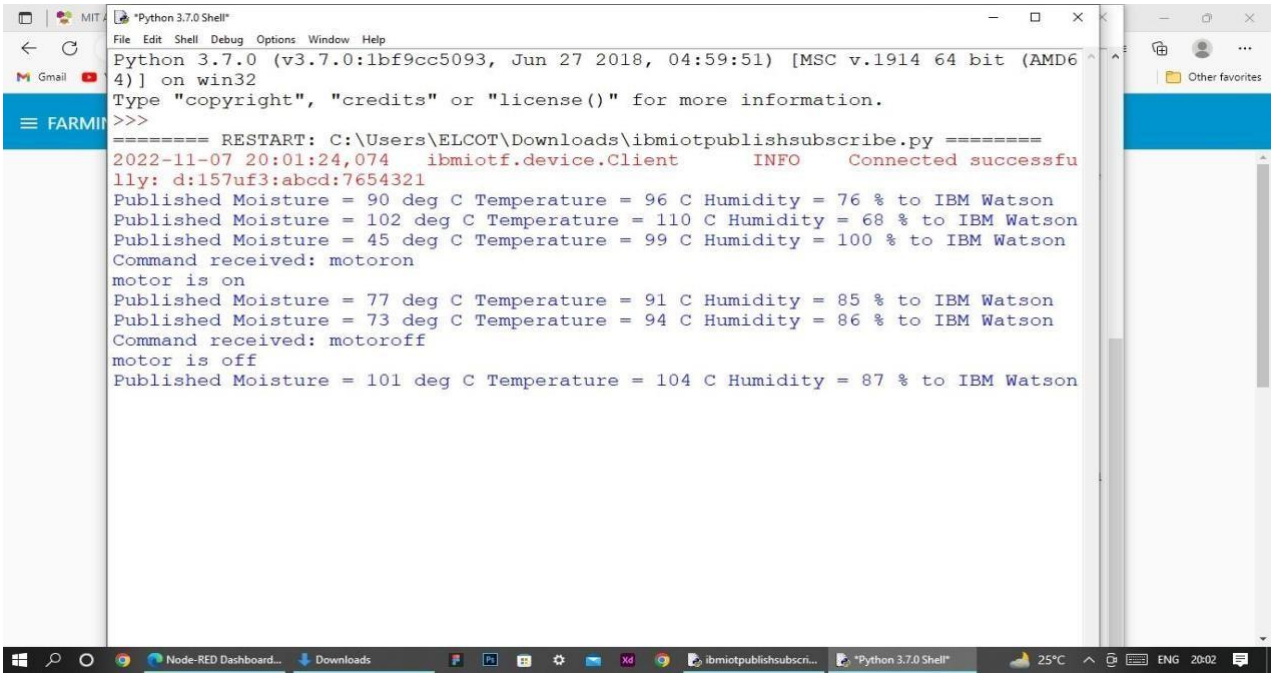
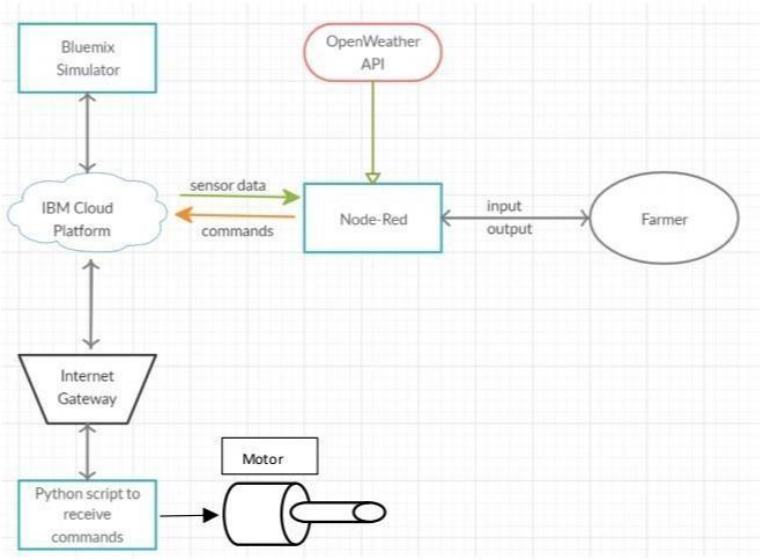
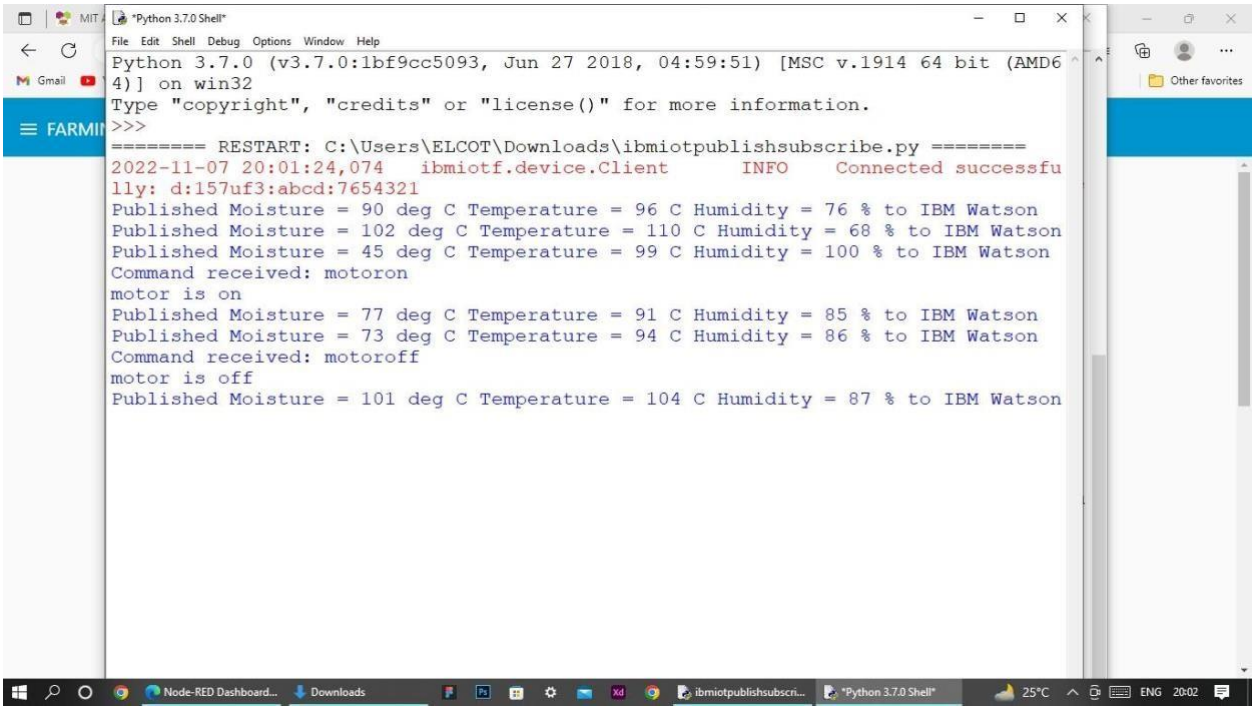
deviceCli = ibmiotf.device.Client(deviceOptions)
#.....
except Exception as e:
print("Caught exception connecting device: %s" % str(e))
sys.exit()
# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()
while True:
#Get Sensor Data from DHT11
temp=random.randint(90,110)
Ln: 1 Col: 0
27°C
Mostly sunny
Search
ENG
IN
09:45
17-11-2022

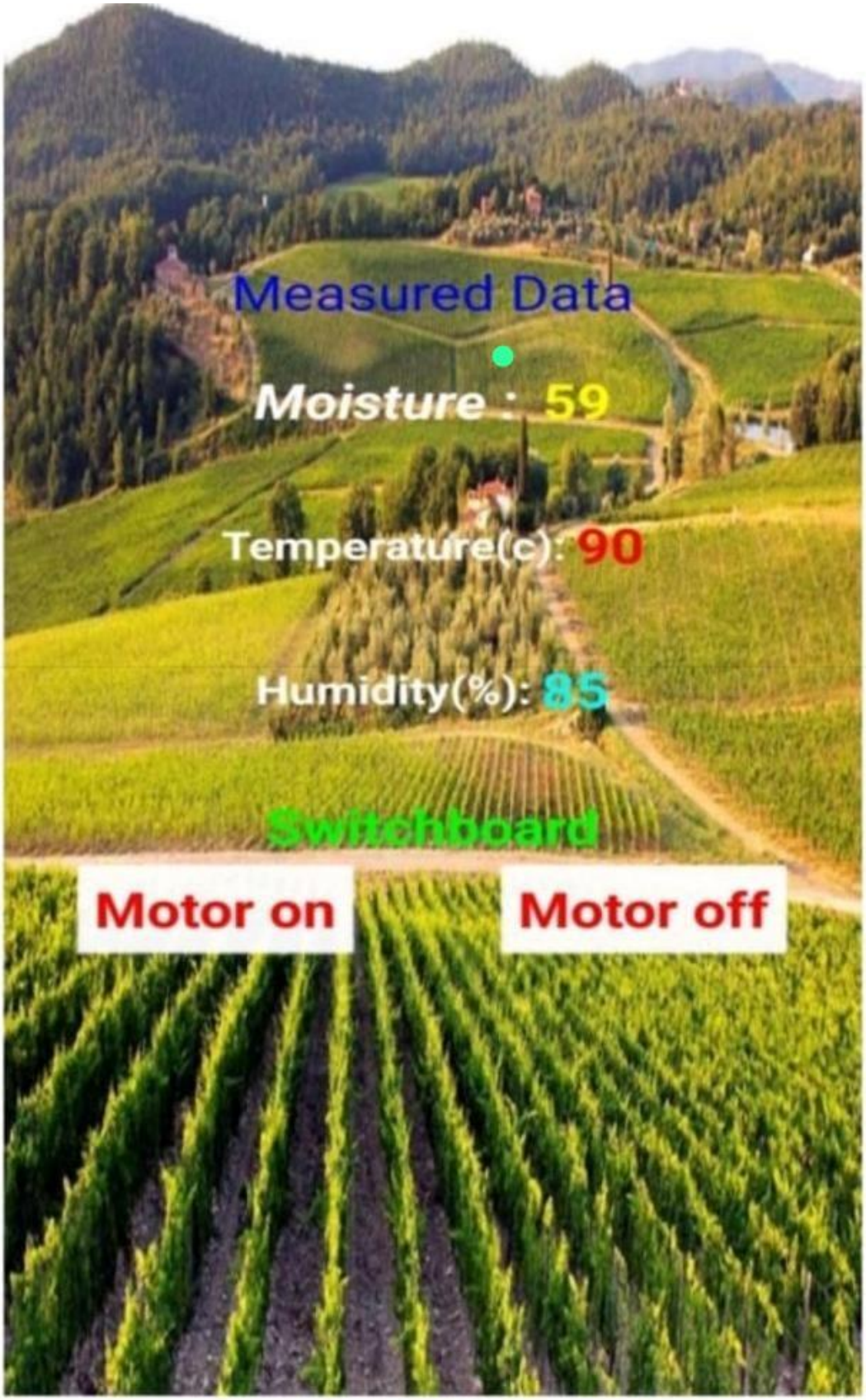

Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\ELCOT\Downloads\ibmiotpublishsubscribe.py ========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

6.Flow Chart



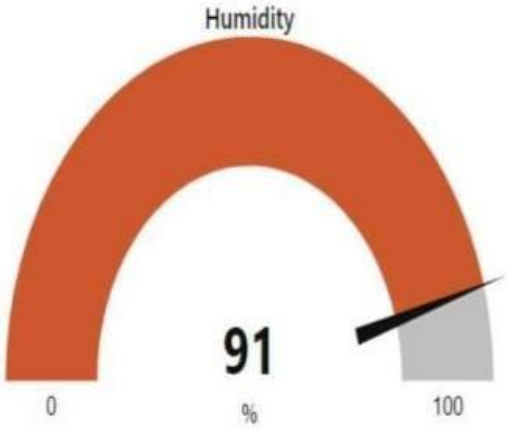
7.Observations & Results




Measured Data
Moisture : 59
Temperature(c): 90
Humidity(%): 85
Switchboard
Motor on
Motor off

FARMING MEASURE DATA

Farming Measure Data



Switchboard

MOTOR SWITCH ON

MOTOR SWITCH OFF

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/