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

organization = "157uf3" deviceType = "abcd"
deviceId = "7654321" authMethod = "token"
authToken = "87654321"

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:

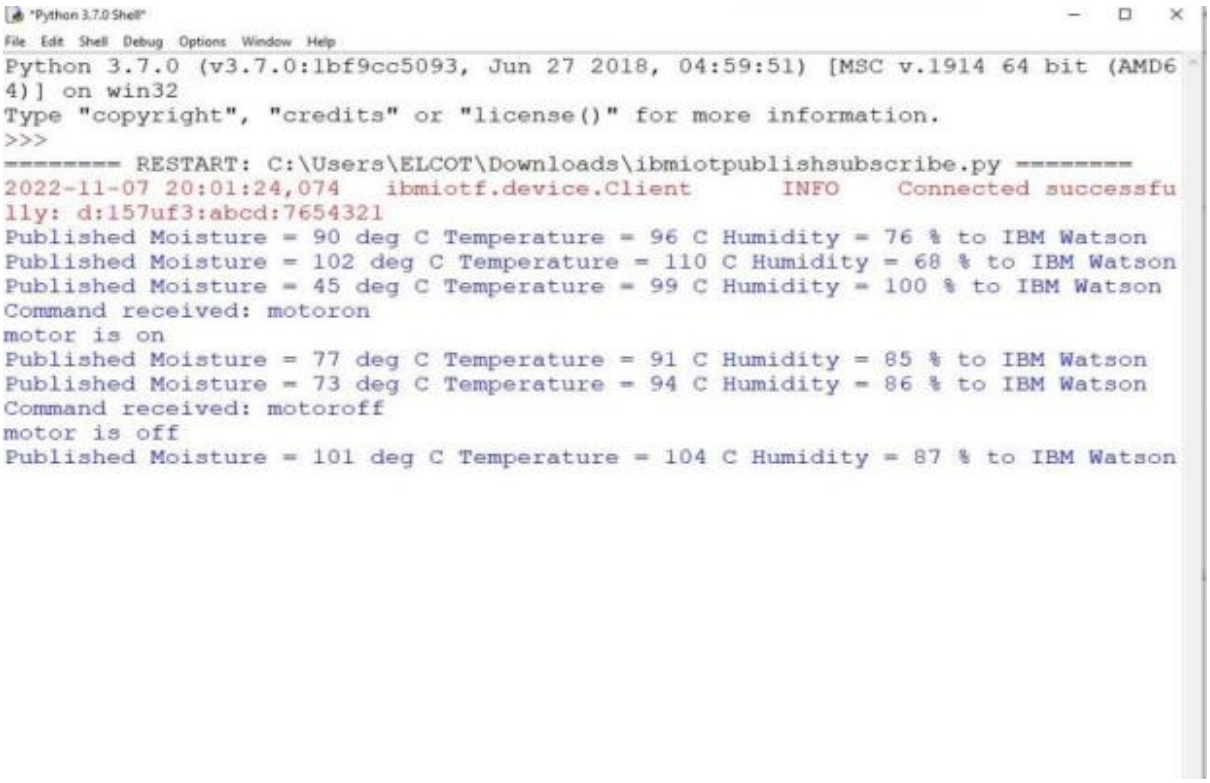
print("Not connected to IoTF") time.sleep(10)

deviceCli.commandCallback = myCommandCallback

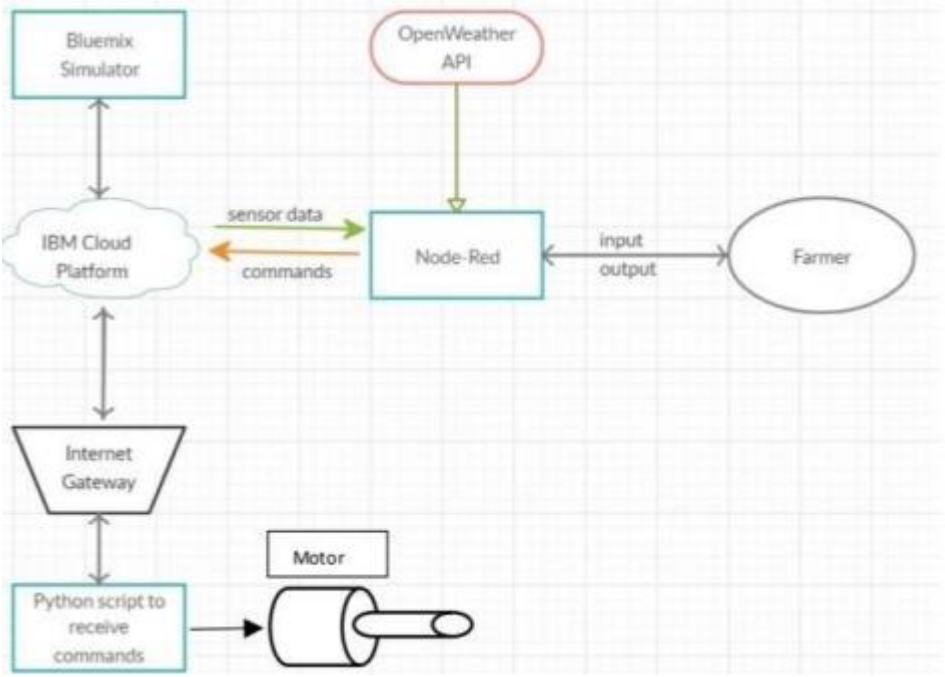
Disconnect the device and application from the cloud

deviceCli.disconnect()

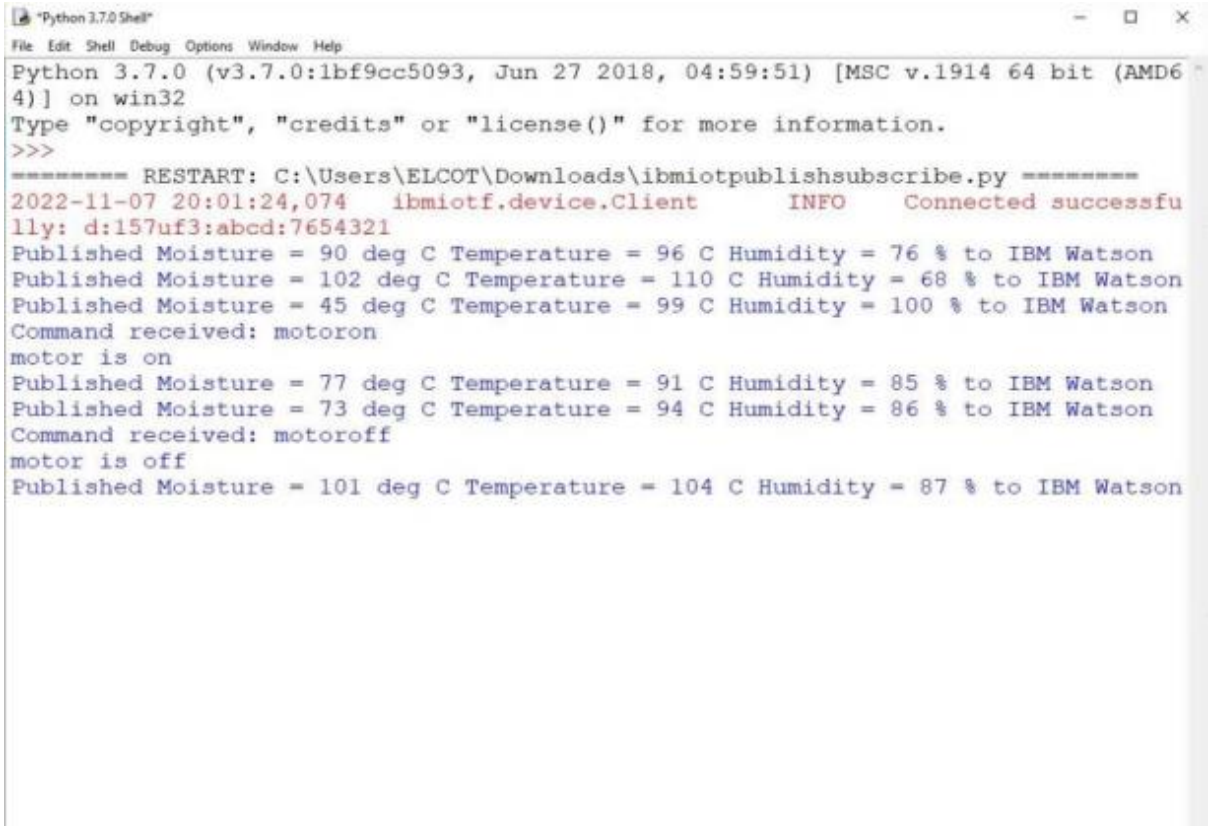
```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random


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

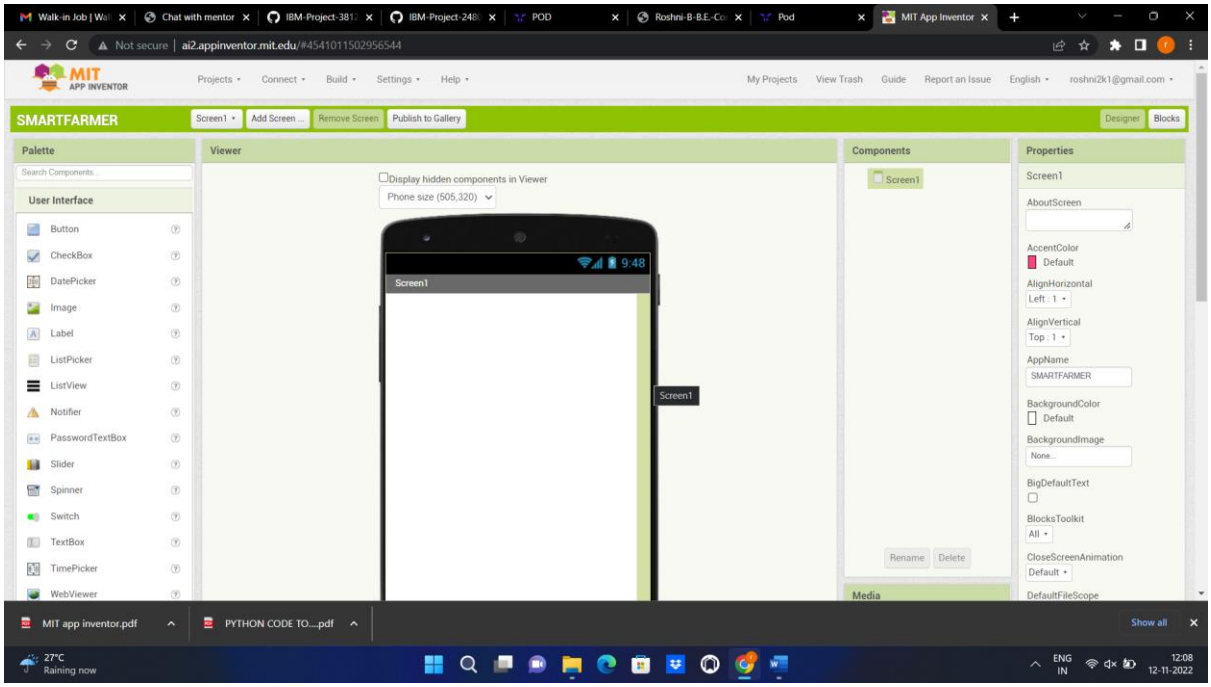


Flow Chart



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
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


MIT App Inventor
SMARTFARMER
Screen1
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Palette
Viewer
Components
Properties
User Interface
Button
CheckBox
DatePicker
Image
Label
ListPicker
ListView
Notifier
PasswordTextBox
Slider
Spinner
Switch
TextBox
TimePicker
WebViewer
Display hidden components in Viewer
Phone size (505,320)
9:48
Screen1
AboutScreen
AccentColor
Default
AlignHorizontal
AlignVertical
AppName
SMARTFARMER
BackgroundColor
BackgroundImage
BigDefaultText
BlocksToolkit
CloseScreenAnimation
DefaultFileScope
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Delete
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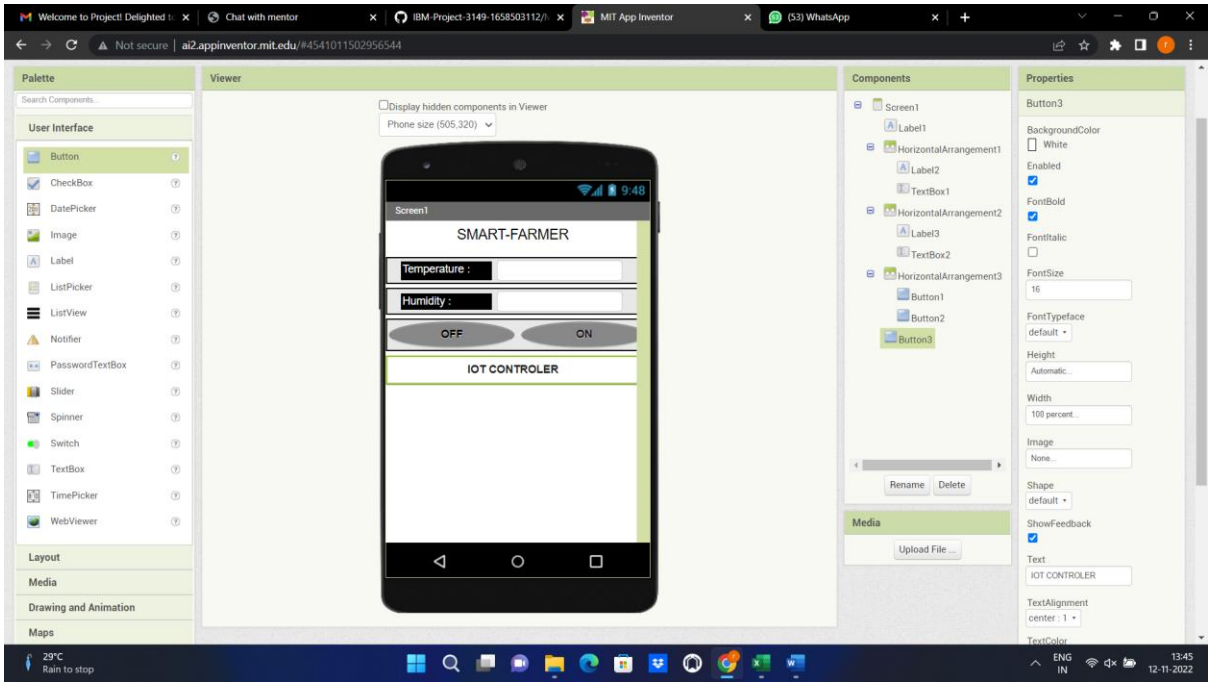
12-11-2022



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.

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