PROJECT DEVELOPMENT
DELIVERY OF SPRINT - 4

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PROJECT NAME	SmartFarmer - IoT Enabled Smart Farming Application

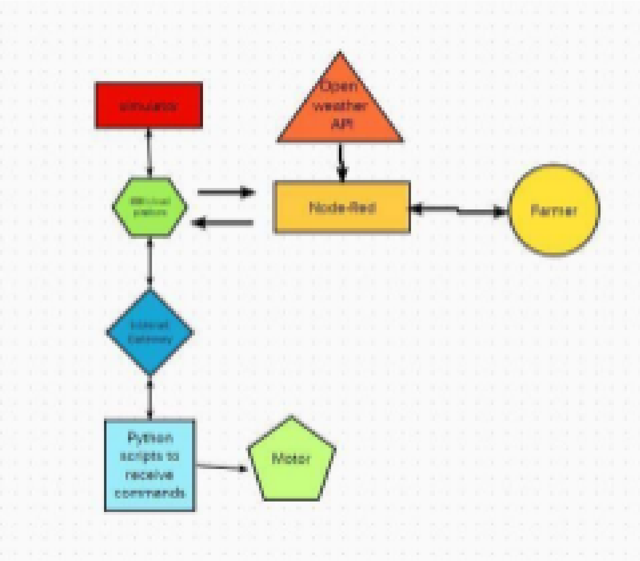
Receiving commands from IBM cloud using Python program

```
import time

import sys
import ibmiotf.application
import ibmiotf.device
import random


#Provide yourIBM Watson Device Credentials
organization = " nicw4y"

deviceType = " NodeMCU"

deviceId = "12345"

authMethod = "token"

authToken = "123456"
```

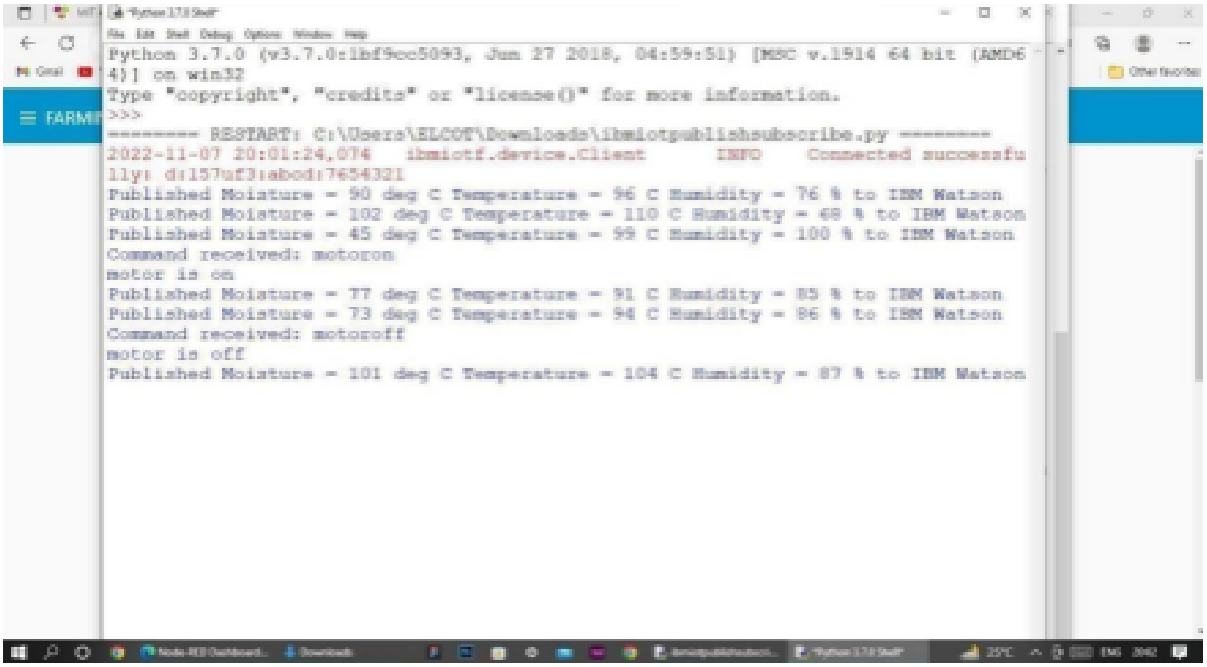
```
# Initialize GPIO

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()
```

Flow Chart

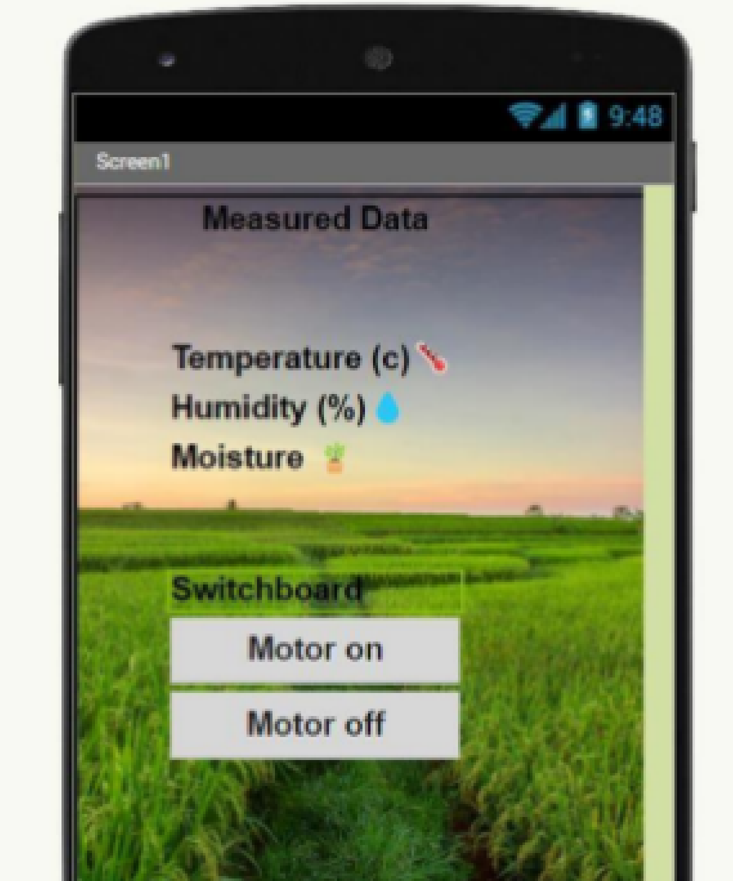


Observation and results:



```
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
```

Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
FARMI



9:48
Screen1
Measured Data
Temperature (c)
Humidity (%)
Moisture
Switchboard
Motor on
Motor off