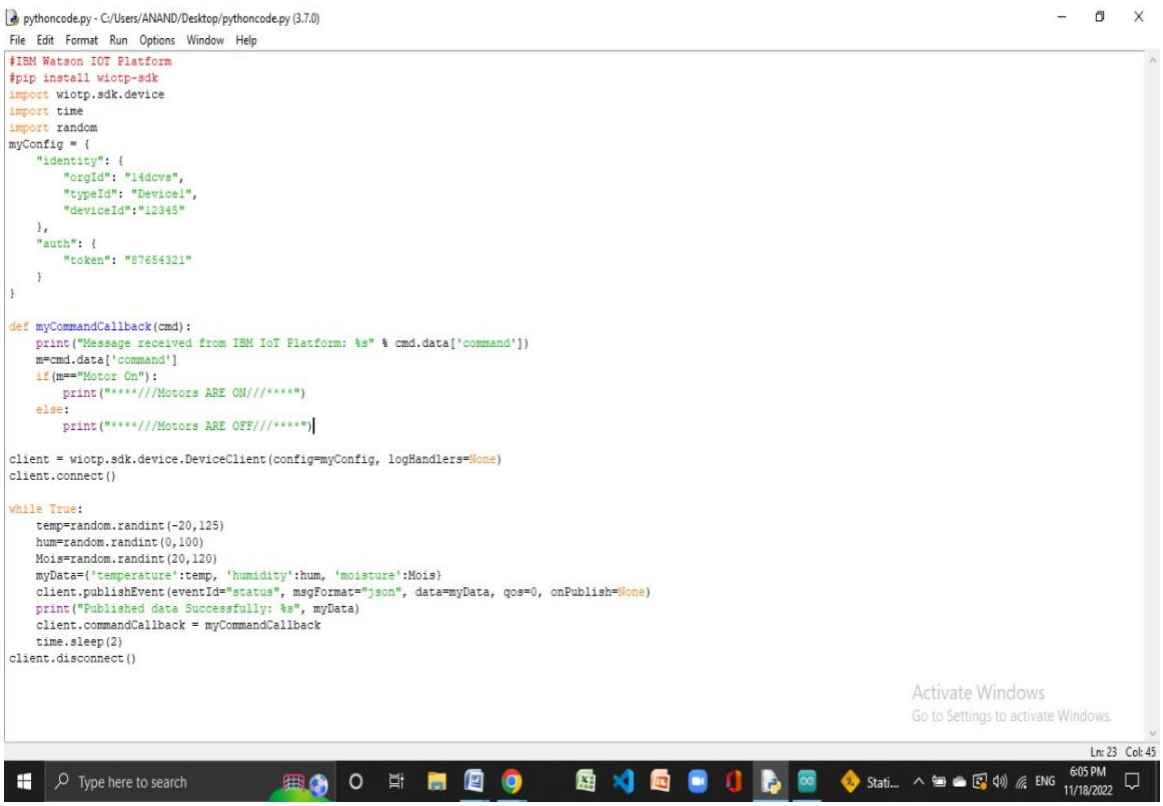
SPRINT DELIVERY – 4

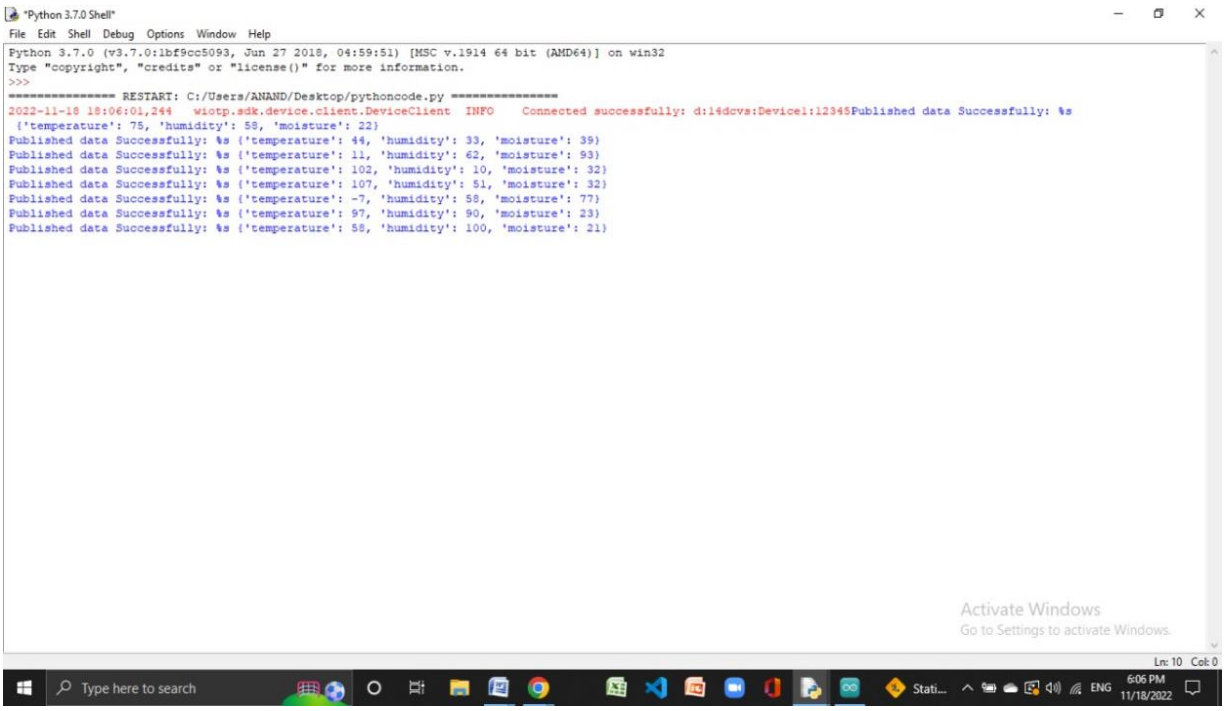
Team ID	PNT2022TMID16026
Project Name	Smart Farmer-IoT Enabled Smart Farming Application

Receiving commands from IBM cloud using Python program

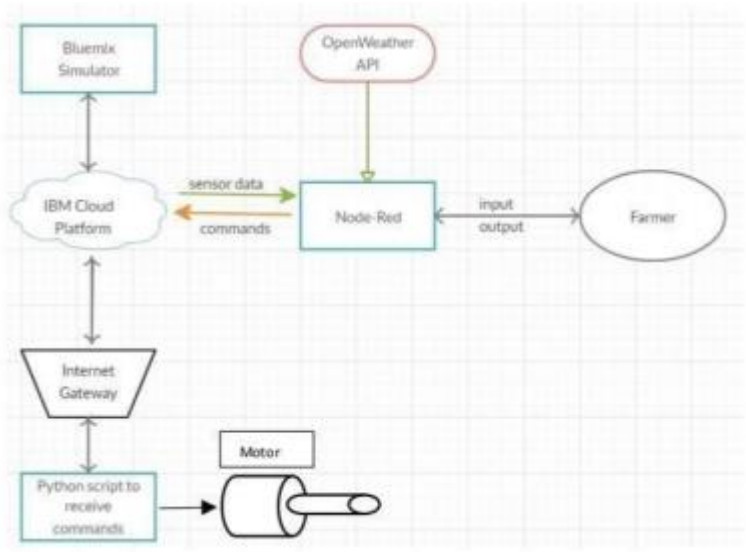
```
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity": {
        "orgId": "14dcvs",
        "typeId": "Device1",
        "deviceId":"12345"
    },
    "auth": {
        "token": "87654321"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
if(m=="Motor On"):
        print("*///Motors ARE ON///*")
    else:
        print("*///Motors ARE OFF///*")

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    temp=random.randint(-20,125)
    hum=random.randint(0,100)
```

```
    Mois=random.randint(20,120)
    myData={'temperature':temp, 'humidity':hum, 'moisture':Mois}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

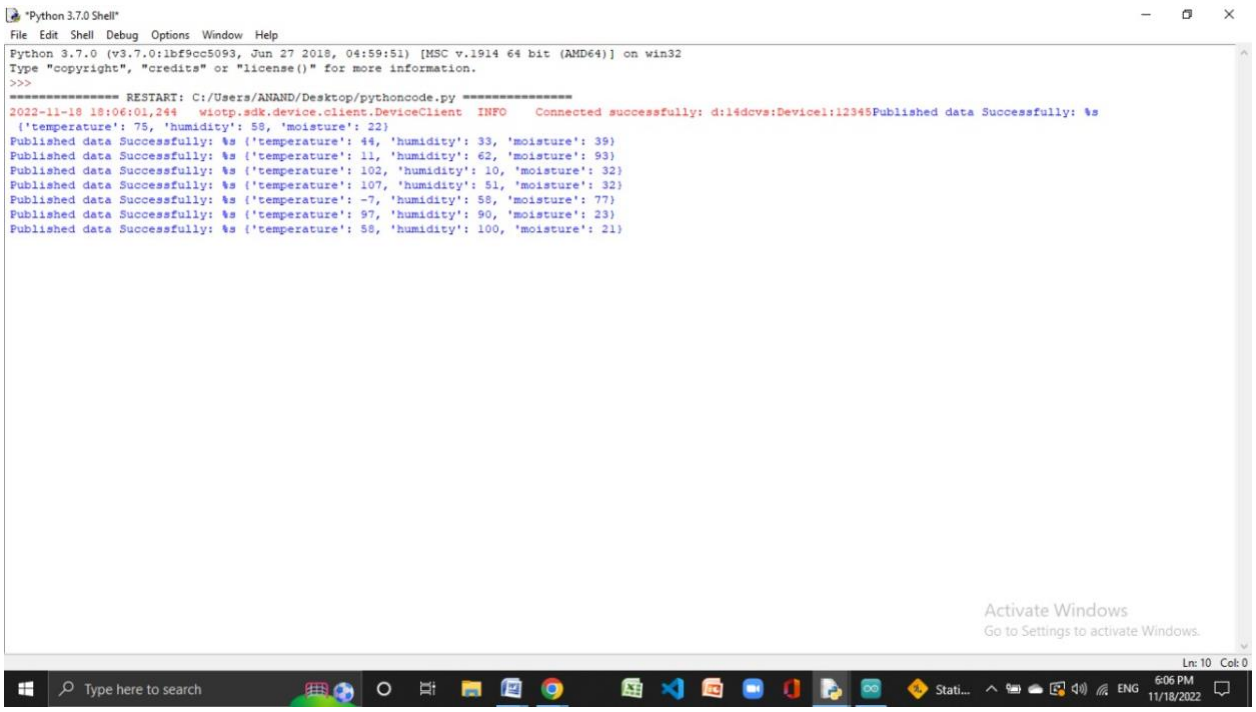


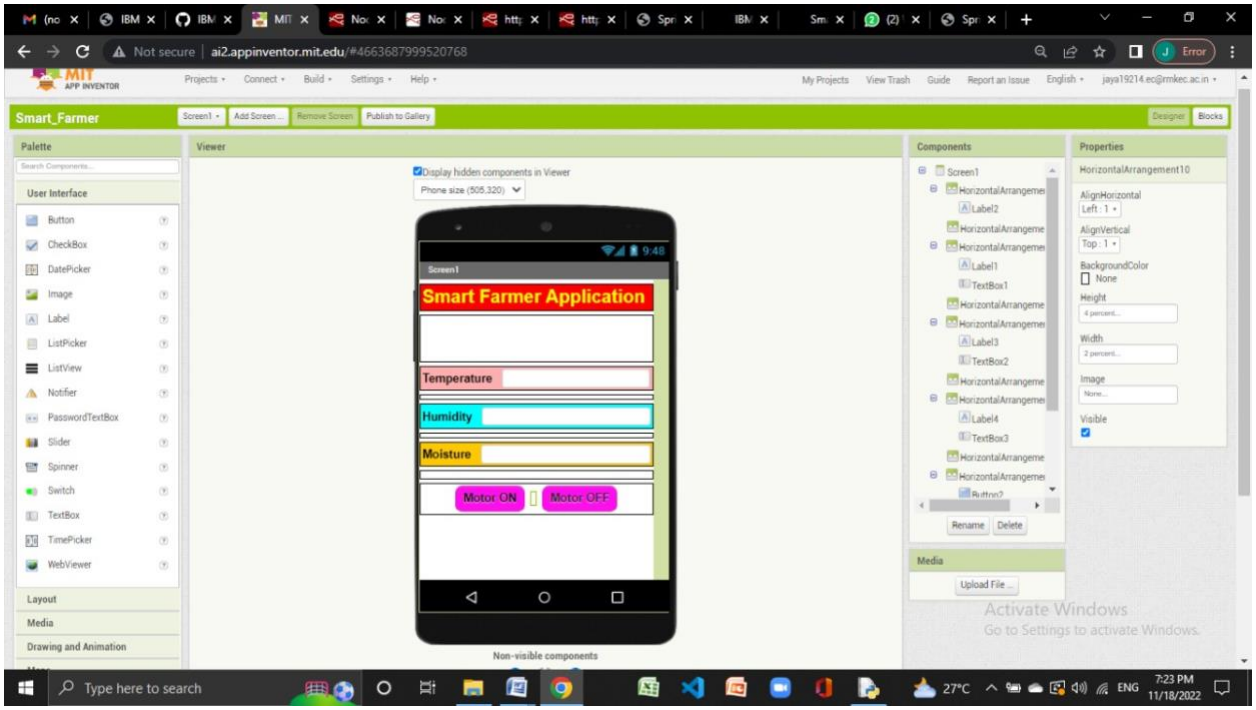

"Python 3.7.0 Shell"
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/ANAND/Desktop/pythoncode.py ==========
2022-11-18 18:06:01,244 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:14dcvs:Device1:12345Published data Successfully: %s
{'temperature': 75, 'humidity': 58, 'moisture': 22}
Published data Successfully: %s {'temperature': 44, 'humidity': 33, 'moisture': 39}
Published data Successfully: %s {'temperature': 11, 'humidity': 62, 'moisture': 93}
Published data Successfully: %s {'temperature': 102, 'humidity': 10, 'moisture': 32}
Published data Successfully: %s {'temperature': 107, 'humidity': 51, 'moisture': 32}
Published data Successfully: %s {'temperature': -7, 'humidity': 58, 'moisture': 77}
Published data Successfully: %s {'temperature': 97, 'humidity': 90, 'moisture': 23}
Published data Successfully: %s {'temperature': 58, 'humidity': 100, 'moisture': 21}
Activate Windows
Go to Settings to activate Windows.
Ln: 10 Col: 0
Type here to search
ENG
6:06 PM
11/18/2022

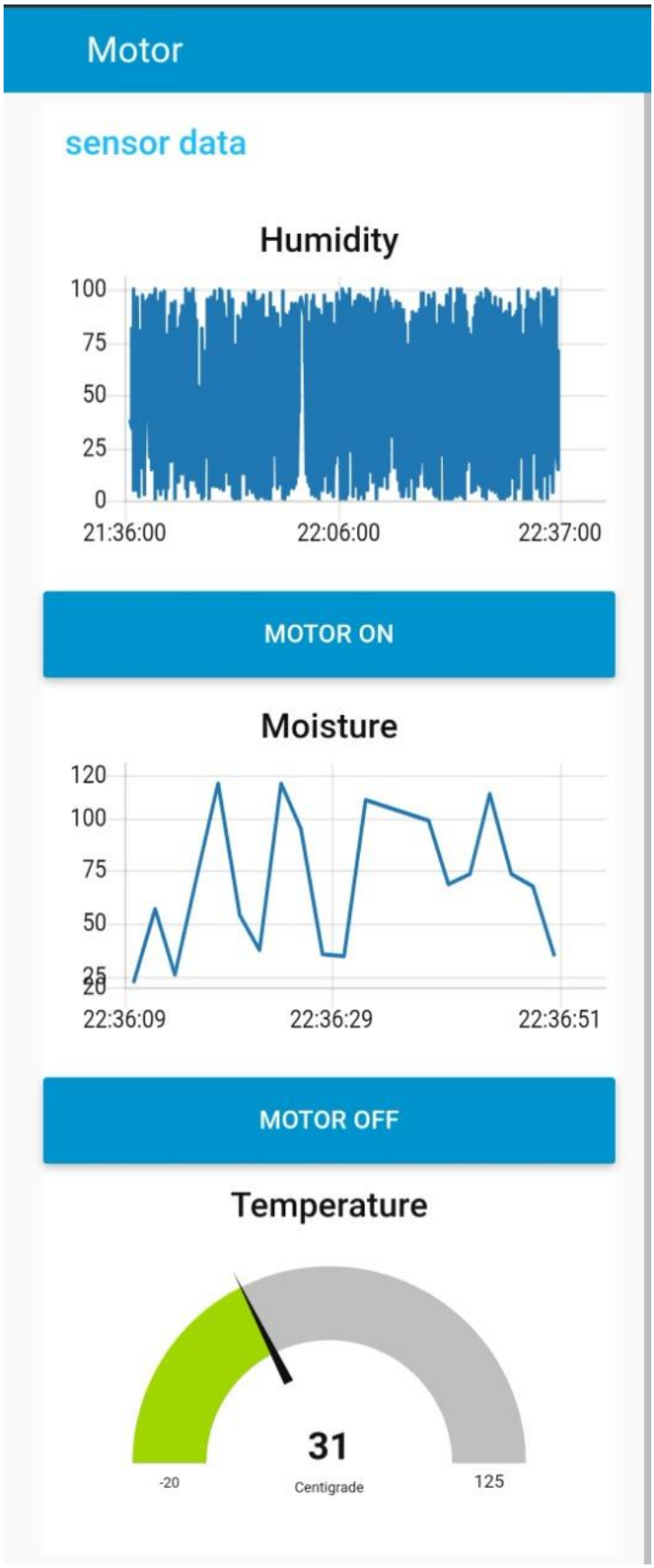
FLOWCHART


Bluemix Simulator
OpenWeather API
IBM Cloud Platform
sensor data
commands
Node-Red
input
output
Farmer
Internet Gateway
Motor
Python script to receive commands

OBSERVATION AND RESULT






Motor
sensor data
Humidity
100
75
50
25
0
21:36:00
22:06:00
22:37:00
MOTOR ON
Moisture
120
100
75
50
25
20
22:36:09
22:36:29
22:36:51
MOTOR OFF
Temperature
31
Centigrade
-20
125

ADVANTAGES AND DISADVANTGES

ADVANTAGES:

- ✓ A remote control system can help in working irrigation system valves dependent on schedule. Irrigating remote farm properties can be exceptionally troublesome and labor-intensive. It gets hard to comprehend when the valves were started and whether the ideal measure of water was distributed.
- ✓ For situations where a quick reaction is required, manual valve actuation may not be conceivable constantly. Thus, remote observing and control of irrigation systems, generators or wind machines or some other motor-driven hardware become the next logical step.
- ✓ Various solutions are available to monitor engine statistics and starting or stopping the engine. When the client chooses to begin or stop the motor, the program transmits a sign to the unit within seconds by means of a mobile phone system.

DISADVANTAGES:

- ✓ The smart agriculture needs availability of internet continuously. In Rural part most of the developing countries do not fulfil this requirement. Moreover internet connection is slower.
- ✓ The smart farming based equipment requires farmers to understand and learn the use of technology. This is major challenge in adopting smart agriculture farming at large scale across the countries.

CONCLUSION

The project concludes that this system is easy to implement and time, money, and manpower saving solution for irrigating fields. It will be comfortable for farmers to operate the irrigation at remote locations i.e. from home. A farmer should visualize his agricultural land's moisture content from time to time and whether the water level of the source is sufficient or not. The IOT based irrigation system displays the values of the sensors continuously in smart phones and farmers can operate them anytime from and anywhere. This will save time and avoid the problem of continuous vigilance. Not only this, it will also control the consumption of water for the irrigation of the field, thus preventing the water wastage and would help in sustaining productivity, increasing the yield.