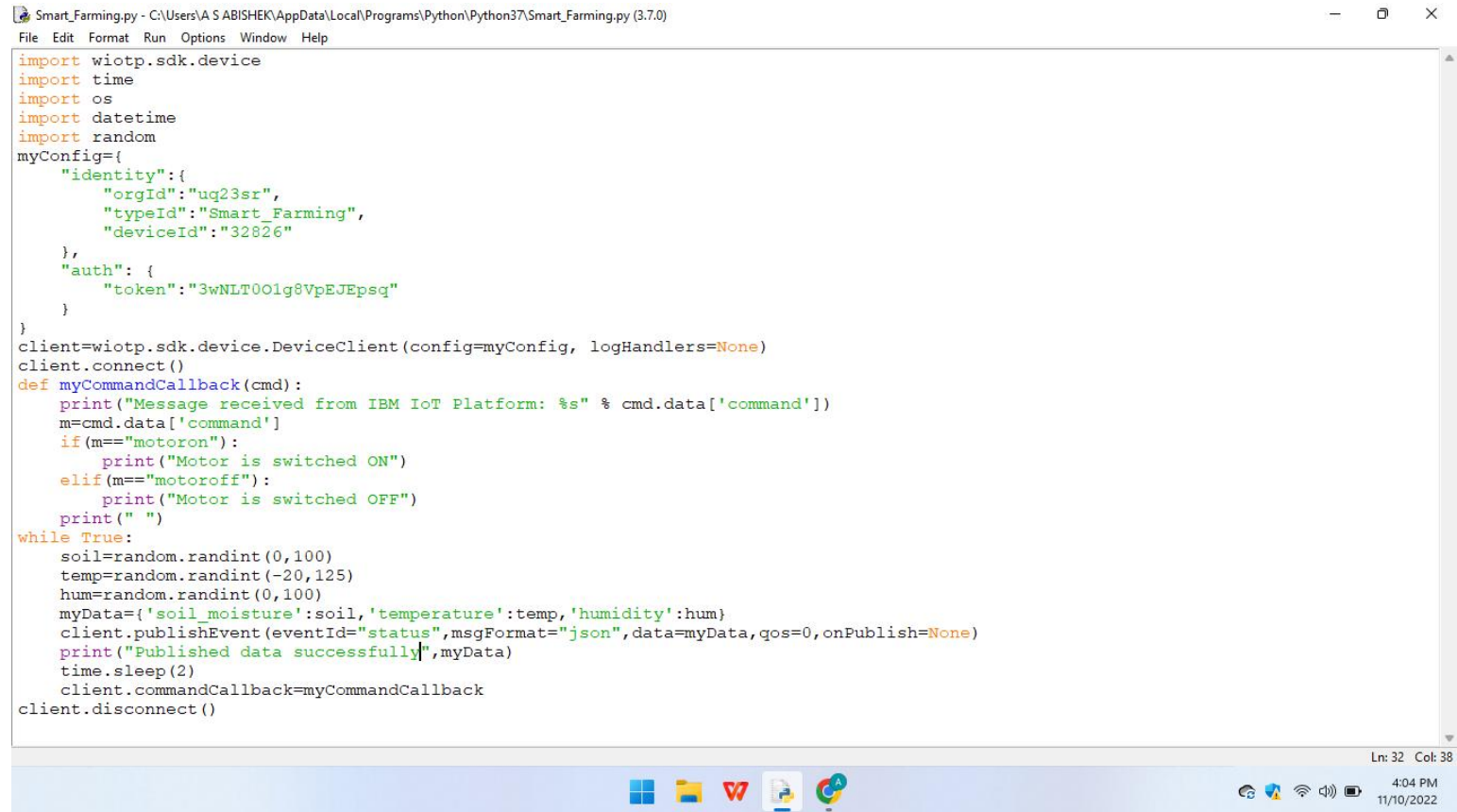


PROJECT DEVELOPMENT PHASE

Delivery of Sprint - 3

Date	10 November 2022
Team ID	PNT2022TMID32826
Project Name	Smart farmer - IoT Enabled Smart Farming Application



```
Smart_Farming.py - C:\Users\A S ABISHEK\AppData\Local\Programs\Python\Python37\Smart_Farming.py (3.7.0)
File Edit Format Run Options Window Help

import wiotp.sdk.device
import time
import os
import datetime
import random
myConfig={
    "identity":{
        "orgId":"uq23sr",
        "typeId":"Smart_Farming",
        "deviceId":"32826"
    },
    "auth": {
        "token":"3wNLT00lg8VpEJEpsq"
    }
}
client=wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
    if(m=="motoron"):
        print("Motor is switched ON")
    elif(m=="motoroff"):
        print("Motor is switched OFF")
    print(" ")
while True:
    soil=random.randint(0,100)
    temp=random.randint(-20,125)
    hum=random.randint(0,100)
    myData={'soil_moisture':soil,'temperature':temp,'humidity':hum}
    client.publishEvent(eventId="status",msgFormat="json",data=myData,qos=0,onPublish=None)
    print("Published data successfully",myData)
    time.sleep(2)
    client.commandCallback=myCommandCallback
client.disconnect()

Ln: 32 Col: 38
4:04 PM
11/10/2022
```

```
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\A S ABISHEK\AppData\Local\Programs\Python\Python37\Smart_Farming.py
2022-11-10 16:04:42,463 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:uq23sr:Smart_Farming:32826Published
data successfully
{'soil_moisture': 37, 'temperature': 1, 'humidity': 35}
Published data successfully {'soil_moisture': 89, 'temperature': 94, 'humidity': 24}
Published data successfully {'soil_moisture': 57, 'temperature': 28, 'humidity': 90}
Published data successfully {'soil_moisture': 65, 'temperature': -18, 'humidity': 4}
Published data successfully {'soil_moisture': 87, 'temperature': 81, 'humidity': 92}
Published data successfully {'soil_moisture': 62, 'temperature': -16, 'humidity': 33}
Published data successfully {'soil_moisture': 99, 'temperature': 105, 'humidity': 62}
Published data successfully {'soil_moisture': 41, 'temperature': 114, 'humidity': 78}
Published data successfully {'soil_moisture': 26, 'temperature': -15, 'humidity': 49}
Published data successfully {'soil_moisture': 55, 'temperature': 84, 'humidity': 87}
Ln: 5 Col: 0
4:05 PM
11/10/2022
```

Service Details - IBM Cloud

IBM Watson IoT Platform

Node-RED : node-red-zncs-

Getting Started with MIT App

MIT App Inventor

← → ↻ 🔒 uq23sr.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

813819205004@smartinternz.com
ID: uq23sr

⋮

⚙️

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🔒

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Browse

Action

Device Types

Interfaces

Add Device +

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	
▼ <input type="checkbox"/>	32826	Connected	Smart_Farming	Device	Oct 28, 2022 11:29 PM	→ ...

Identity

Device Information

Recent Events

State

Logs

×

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"soil_moisture":29,"temperature":99,"humidity"...	json	a few seconds ago
status	{"soil_moisture":2,"temperature":42,"humidity":...	json	a few seconds ago
status	{"soil_moisture":2,"temperature":37,"humidity":...	json	a few seconds ago
status	{"soil_moisture":94,"temperature":106,"humidit...	json	a few seconds ago
status	{"soil_moisture":71,"temperature":-6,"humidity"...		

0 Simulations running

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🔍 📶 🔊 🔋

4:07 PM
11/10/2022

Service Details - IBM Cloud x IBM Watson IoT Platform x Node-RED : node-red-zncis-2 x Getting Started with MIT App x MIT App Inventor x

node-red-zncis-2022-11-04.au-syd.mybluemix.net/red/#flow/f23f5cad061e8487

Node-RED

filter nodes

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch

Flow 1 Diagram:

```
graph LR
    IoT1[IBM IoT] --> SM[Soil Moisture]
    IoT1 --> Hum[Humidity]
    IoT1 --> Temp[Temperature]
    SM --> SM2[Soil Moisture]
    Hum --> Hum2[Humidity]
    Temp --> Temp2[Temperature]
    Temp --> MP1[msg.payload]
    MP1 --> MP2[msg.payload]
    MP2 --> HTTP1[http]
    GET1[/data] --> DATA[data]
    DATA --> HTTP2[http]
    MOTOR_ON[MOTOR ON] --> IoT2[IBM IoT]
    MOTOR_OFF[MOTOR OFF] --> IoT2
    MOTOR_OFF --> MP3[msg.payload]
    MP3 --> MP4[msg.payload]
    MP4 --> HTTP3[http]
    GET2[/command] --> HTTP3
```

debug

all nodes

all

msg.payload : number

95

10/11/2022, 16:09:05 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/ev/status/fmt/json :
msg.payload : number

71

10/11/2022, 16:09:05 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/ev/status/fmt/json :
msg.payload : number

93

10/11/2022, 16:09:07 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/ev/status/fmt/json :
msg.payload : number

16

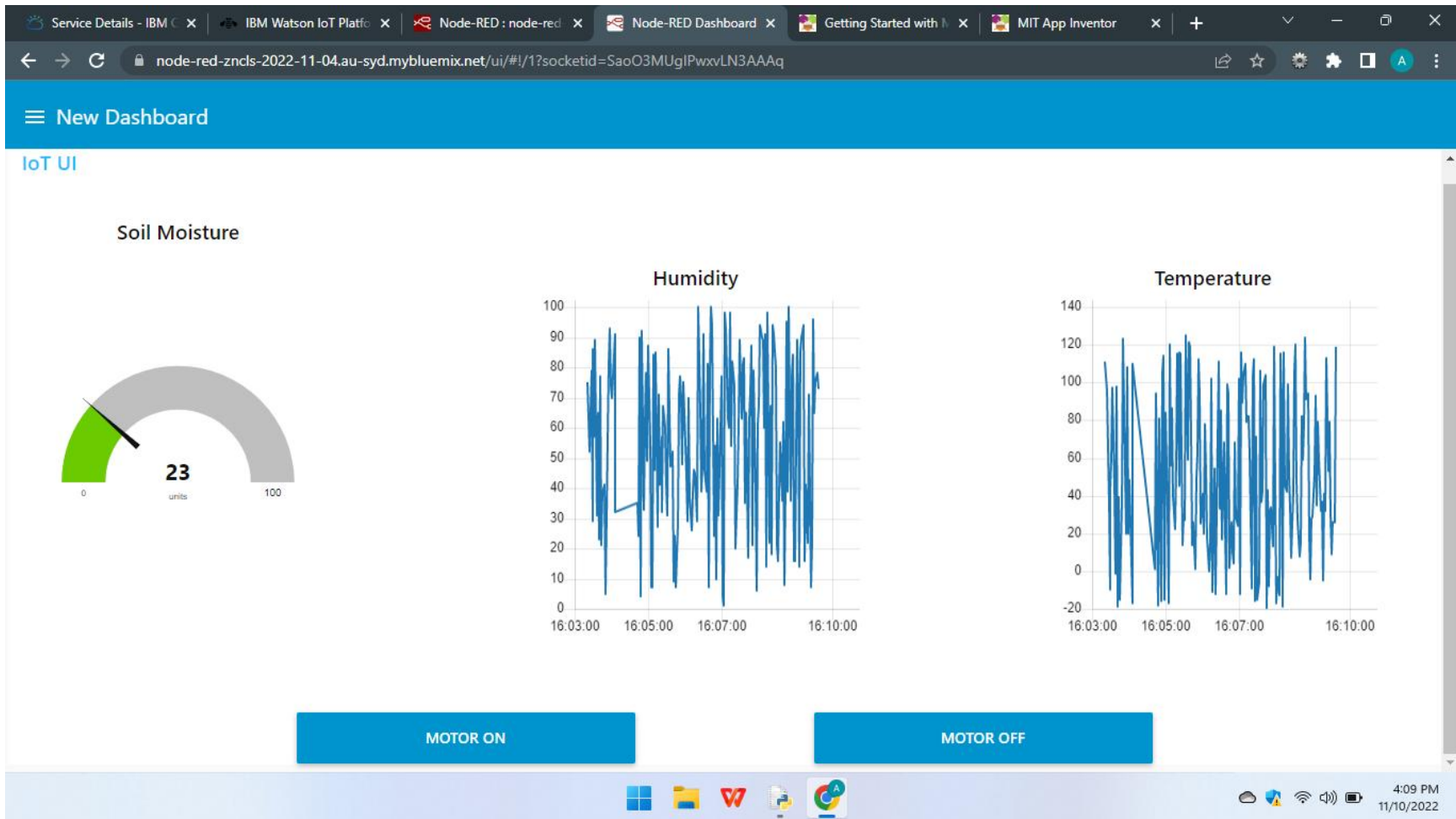
10/11/2022, 16:09:07 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/ev/status/fmt/json :
msg.payload : number

14

10/11/2022, 16:09:07 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/ev/status/fmt/json :
msg.payload : number

35

4:09 PM
11/10/2022



After receiving MOTOR ON and MOTOR OFF command from the Web UI:

```
*Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Published data successfully {'soil_moisture': 50, 'temperature': 112, 'humidity': 71}
Published data successfully {'soil_moisture': 54, 'temperature': 112, 'humidity': 79}
Published data successfully {'soil_moisture': 37, 'temperature': -6, 'humidity': 74}
Published data successfully {'soil_moisture': 69, 'temperature': 96, 'humidity': 83}
Published data successfully {'soil_moisture': 57, 'temperature': 88, 'humidity': 84}
Published data successfully {'soil_moisture': 25, 'temperature': 54, 'humidity': 99}
Published data successfully {'soil_moisture': 27, 'temperature': 16, 'humidity': 7}
Published data successfully {'soil_moisture': 28, 'temperature': -1, 'humidity': 100}
Published data successfully {'soil_moisture': 64, 'temperature': 69, 'humidity': 19}
Published data successfully {'soil_moisture': 9, 'temperature': 39, 'humidity': 86}
Published data successfully {'soil_moisture': 8, 'temperature': -3, 'humidity': 61}
Published data successfully {'soil_moisture': 41, 'temperature': 61, 'humidity': 49}
Published data successfully {'soil_moisture': 87, 'temperature': 92, 'humidity': 8}
Published data successfully {'soil_moisture': 84, 'temperature': 92, 'humidity': 84}
Message received from IBM IoT Platform: motoron
Motor is switched ON

Published data successfully {'soil_moisture': 80, 'temperature': 26, 'humidity': 99}
Message received from IBM IoT Platform: motoroff
Motor is switched OFF

Published data successfully {'soil_moisture': 31, 'temperature': 108, 'humidity': 46}
Published data successfully {'soil_moisture': 36, 'temperature': 86, 'humidity': 69}
Published data successfully {'soil_moisture': 49, 'temperature': 99, 'humidity': 34}
Published data successfully {'soil_moisture': 91, 'temperature': 90, 'humidity': 15}
Published data successfully {'soil_moisture': 99, 'temperature': 75, 'humidity': 2}
Published data successfully {'soil_moisture': 25, 'temperature': 2, 'humidity': 99}
Published data successfully {'soil_moisture': 61, 'temperature': 7, 'humidity': 61}
Published data successfully {'soil_moisture': 17, 'temperature': 39, 'humidity': 85}
Published data successfully {'soil_moisture': 89, 'temperature': 51, 'humidity': 61}
Published data successfully {'soil_moisture': 72, 'temperature': 18, 'humidity': 7}
Published data successfully {'soil_moisture': 7, 'temperature': 42, 'humidity': 36}
Published data successfully {'soil_moisture': 67, 'temperature': -4, 'humidity': 94}
Published data successfully {'soil_moisture': 21, 'temperature': 41, 'humidity': 74}
Published data successfully {'soil_moisture': 26, 'temperature': 114, 'humidity': 71}
Published data successfully {'soil_moisture': 89, 'temperature': -2, 'humidity': 48}
Published data successfully {'soil_moisture': 10, 'temperature': -12, 'humidity': 2}

Ln: 406 Col: 0
4:18 PM
11/10/2022
```

Service Details - IBM x IBM Watson IoT Platf x Node-RED : node-red x Node-RED Dashboard x Getting Started with x MIT App Inventor x

node-red-zncs-2022-11-04.au-syd.mybluemix.net/red/#flow/f23f5cad061e8487

Node-RED

Flow 1

filter nodes

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch

Flow 1 Diagram:

```
graph LR
    IoT[IBM IoT] --> SM[Soil Moisture]
    IoT --> Hum[Humidity]
    IoT --> Temp[Temperature]
    SM --> SM_Widget[Soil Moisture]
    Hum --> Hum_Widget[Humidity]
    Temp --> Temp_Widget[Temperature]
    Temp --> MP[msg.payload]
    MP --> MP_Widget[msg.payload]
    GET_DATA[GET /data] --> DATA[data]
    DATA --> HTTP_DATA[http]
    MOTOR_ON[MOTOR ON] --> IoT
    MOTOR_OFF[MOTOR OFF] --> IoT
    MP_Widget --> MP_Widget
    GET_CMD[GET /command] --> MP_Widget
    GET_CMD --> HTTP_CMD[http]
```

debug

all nodes

msg.payload : number
92

10/11/2022, 16:15:47 node: 47237c95f9032d61
msg.payload : Object
{ command: "motoron" }

10/11/2022, 16:15:48 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/evt/status/fmt/json :
msg.payload : number
80

10/11/2022, 16:15:49 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/evt/status/fmt/json :
msg.payload : number
99

10/11/2022, 16:15:50 node: c7bc968f68e5d4e5
iot-2/type/Smart_Farming/id/32826/evt/status/fmt/json :
msg.payload : number
26

10/11/2022, 16:15:50 node: 47237c95f9032d61
msg.payload : Object
{ command: "motoroff" }

10/11/2022, 16:15:51 node: c7bc968f68e5d4e5

4:16 PM
11/10/2022