

## SPRINT 2

Date	14 <sup>th</sup> November - 2022
Team ID	PNT2022TMID42737
Project Name	Project – Smart Farmer-IoT Enabled smart Farming Application

### Python code with random values generator:

```
import wiotp.sdk.device
import time
import os
import datetime
import random
myConfig = {
    "identity":{
        "orgId": "ik6mgw",
        "typeId": "smartfarmer",
        "deviceId": "147852369"
    },
    "auth": {
        "token": "9790375943"
    }
}
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(0,100)
    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: %s", myData)
    time.sleep(10)
    client.commandCallback = myCommandCallback
client.disconnect();

```

## Connecting IoT Simulator to IBM Watson IoT Platform:

The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area shows a table of devices. The first device, 'smartfarmer', is highlighted, and its details are shown in a modal window. The details include:

- Device ID:** 147852369
- Device Type:** smartfarmer
- Date Added:** Nov 5, 2022 10:45 AM
- Added By:** 711619104004@smartinternz.com
- Connection Status:** Disconnected
  - Last Connected: Nov 13, 2022 9:56 PM
  - Client Address: 223.187.119.182 SecureToken
  - Duration: 19 minutes
  - Data Transferred: 13.8 KB

Below the modal, a table lists other devices, including one with ID '928451' and name 'assign4'. The bottom of the dashboard shows '1 Simulation running'.

IBM Watson IoT Platform

147852369 Connected smartfarmer Device Nov 5, 2022 10:45 AM

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":46,"temperature":3,"humidity":...	json	2 minutes ago
status	{"soil_moisture":51,"temperature":12,"humidity":...	json	8 minutes ago
status	{"soil_moisture":87,"temperature":78,"humidity":...	json	8 minutes ago
status	{"soil_moisture":69,"temperature":61,"humidity":...	json	8 minutes ago
status	{"soil_moisture":95,"temperature":71,"humidity":...	json	9 minutes ago

1 Simulation running

IBM Watson IoT Platform

147852369

Gauge 2.0

Donut chart Total 70 %

Simulations

8 events sent 456 bytes sent

Device Type Device ID Event Type

- event\_1 smartfarmer • 147852369 x 2  
{"soil\_moisture":69,"temperature":62,"humidity":49}  
{"soil\_moisture":17,"temperature":77,"humidity":13}
- event\_1 smartfarmer • 147852369 x 2  
{"soil\_moisture":17,"temperature":26,"humidity":45}  
{"soil\_moisture":74,"temperature":12,"humidity":75}
- event\_1 smartfarmer • 147852369 x 1  
{"soil\_moisture":96,"temperature":54,"humidity":21}
- event\_1 smartfarmer • 147852369 x 2  
{"soil\_moisture":30,"temperature":22,"humidity":41}  
{"soil\_moisture":46,"temperature":39,"humidity":12}

IBM Watson IoT Platform

147852369

Gauge: 95.0

Donut chart: Total 12 %

Device Type: smartfarmer

Events 1

Event type name: event\_1

Schedule: 1 Every Minute

Payload

```
{
  "soil_moisture": random(0, 100),
  "temperature": random(0, 100),
  "humidity": random(0, 100)
}
```

Upload a CSV file

Cancel Save

IBM Watson IoT Platform

147852369

Add New Card Settings

Gauge: 31.0

Donut chart: Total 12 %

Bar chart: 39.0 °F

temperature

1 Simulation running

# Configuration of Node-Red to collect Data from Ibm cloud:

This screenshot shows the Node-RED web interface in a browser. The main workspace displays a flow named 'Flow 1' with an 'IBM IoT' node connected to a 'Humidity' function node, which is then connected to a 'temperature' function node. A 'switch' node is also present, connected to a 'data' function node. The 'Edit IBM IoT node' dialog is open, showing the following configuration:

- Authentication: API Key
- API Key: event\_1
- Output Type: Device Command
- Device Type: smartfarmer
- Device Id: 147852369
- Command Type: IOT
- Format: json
- Data: msg.payload
- QoS: 0
- Name: IBM IoT
- Service: registered

The 'debug' console on the right shows a series of messages received from the IoT node, including timestamps and payloads like 'msg.payload: number'.

This screenshot shows a more complex flow in Node-RED. The 'IBM IoT' node is connected to three function nodes: 'soil moisture', 'Humidity', and 'temperature'. These function nodes are connected to corresponding output nodes: 'Soil moisture', 'Humidity', and 'Temperature'. A 'switch' node is connected to an 'http request' node, which is then connected to a 'data' function node. The 'data' function node is connected to an 'http' node. The 'debug' console on the right shows a series of messages received from the IoT node, including timestamps and payloads like 'msg.payload: number'.