

Sprint 3

Date	12 November 2022
Team ID	PNT2022TMID21337
Project Name	Project – Smart Farmer-IoT Enabled Smart Farming Application
Maximum Marks	2 Marks

Code:

```
import time

import sys

import ibmiotf.application

import ibmiotf.device

import random

#Provide your IBM Watson Device Credentials

organization = "obbnyv"

deviceType = "raspberrypi"

deviceId = "123456789"

authMethod = "token"

authToken = "12345678910"

# Initialize GPIO

def myCommandCallback(cmd):

    print("Command received: %s" % cmd.data['command'])

    status=cmd.data['command']

    if status=="lighton":

        print ("led is on")

    elif status == "lightoff":

        print ("led is off")

    elif 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

    sm=random.randint(0,110)

    temp=random.randint(-20,125)

    Humid=random.randint(0,100)

    data = {'soil': sm, 'temp' : temp, 'Humid': Humid }

    #print data

    def myOnPublishCallback():

        print ("Published Soil Moisture = %s %% " %sm,"Temperature = %s C" % temp, "Humidity = %s
        %% " % Humid, "to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
        on_publish=myOnPublishCallback)

        if not success:

            print("Not connected to IoT")

            time.sleep(10)

            deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud

deviceCli.disconnect()

```

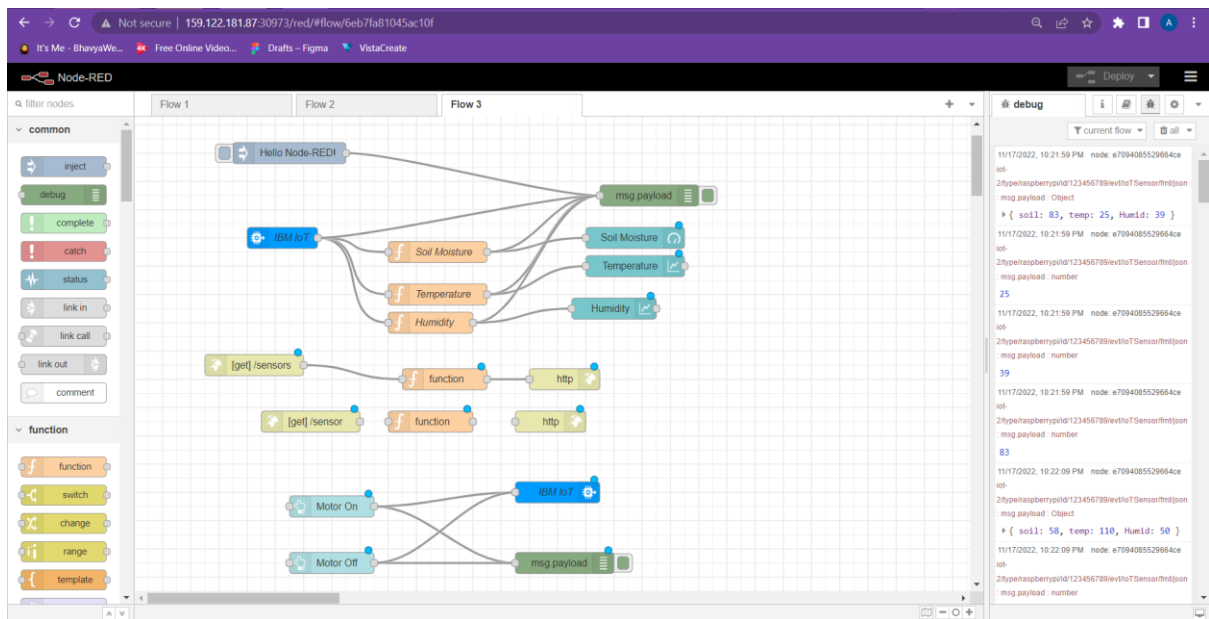
```

2022-11-17 22:21:29,167  ibmiotf.device.Client      INFO    Connected successfully:
d:obbnyv:raspberrypi:123456789
Published Soil Moisture = 104 % Temperature = 102 C Humidity = 87 % to IBM Watson
Published Soil Moisture = 88 % Temperature = 18 C Humidity = 96 % to IBM Watson
Published Soil Moisture = 52 % Temperature = 32 C Humidity = 63 % to IBM Watson
Published Soil Moisture = 83 % Temperature = 25 C Humidity = 39 % to IBM Watson
Published Soil Moisture = 58 % Temperature = 110 C Humidity = 50 % to IBM Watson
Published Soil Moisture = 2 % Temperature = 42 C Humidity = 85 % to IBM Watson
Published Soil Moisture = 34 % Temperature = 33 C Humidity = 56 % to IBM Watson
Published Soil Moisture = 44 % Temperature = 68 C Humidity = 90 % to IBM Watson
Published Soil Moisture = 58 % Temperature = 28 C Humidity = 2 % to IBM Watson
Command received: motoron
motor is on
Command received: motoron
motor is on
Published Soil Moisture = 37 % Temperature = 108 C Humidity = 34 % to IBM Watson
Published Soil Moisture = 104 % Temperature = -4 C Humidity = 0 % to IBM Watson
Traceback (most recent call last):

```

Configuration of Node-Red to send commands to IBM cloud

ibmiot out node I used to send data from Node-Red to IBM Watson device. So, after adding it to the flow we need to configure it with credentials of our Watson device.



IBM Watson:

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes "Browse", "Action", "Device Types", and "Interfaces". The main content area displays the details for a device with ID "123456789". The device is connected and its last update was on Oct 29, 2022, 12:54 PM.

The "Recent Events" tab is selected, showing a table of events:

Event	Value	Format	Last Received
event_1	{ "randomNumber": 96, "temp": 98, "Humid": 97, "soil": 83 }	json	a few seconds ago
event_1	{ "randomNumber": 77, "temp": 83, "Humid": 42, "soil": 39 }	json	a few seconds ago
event_1	{ "randomNumber": 17, "temp": 90, "Humid": 7, "soil": 25 }	json	a minute ago
event_1	{ "randomNumber": 42, "temp": 97, "Humid": 18, "soil": 83 }	json	2 minutes ago
event_1	{ "randomNumber": 35, "temp": 100, "Humid": 70, "soil": 58 }	json	2 minutes ago

At the bottom, it indicates "0 Simulations running".

Get/Sensors:



```
{"Soil":31,"Temperature":25,"Humid":73}
```