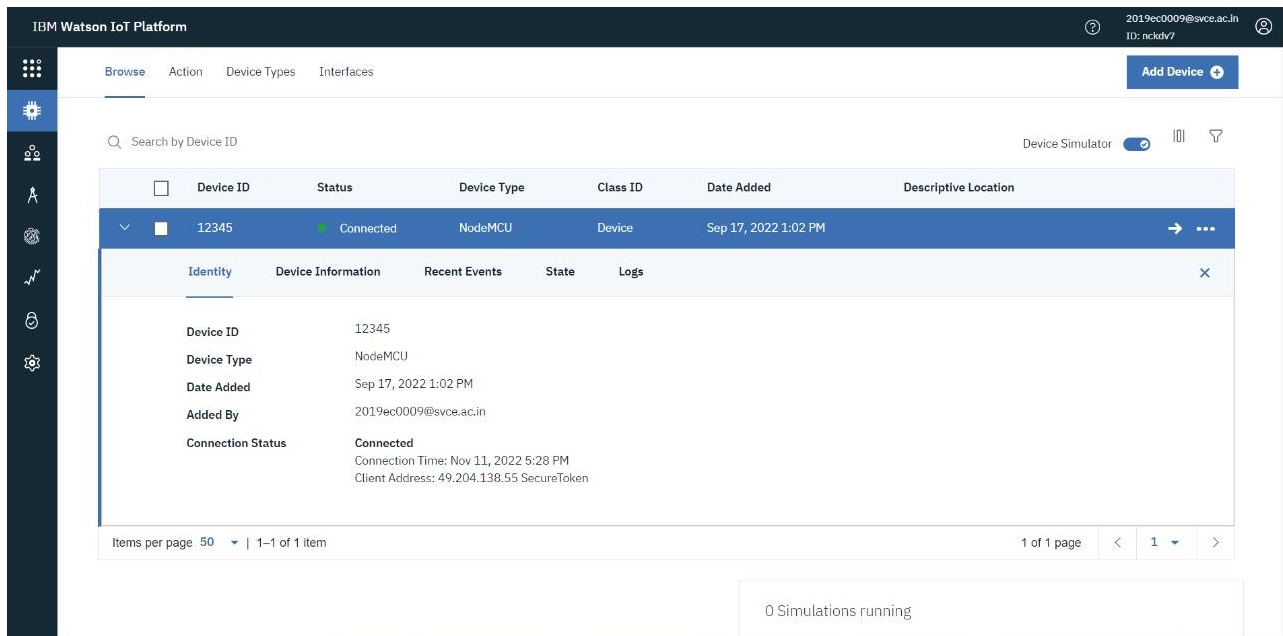


SPRINT 1

Date	29 October 2022
Team ID	PNT2022TMID53609
Project Name	Smart Farmer – IOT Enabled Smart Farming Application
Maximum Marks	8 Marks

Configuration of the IBM Watson IOT Platform and a device:

In the IBM Watson IOT Platform, under the catalog list, under the Internet of Things platform, a device has been created. From that the device credentials such as Device ID, Device Type, Organization ID, Authentication token were obtained.



The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar labeled 'Search by Device ID' is present. A table lists devices, with one device (ID: 12345) highlighted. The device details panel shows the following information:

Identity	Device Information	Recent Events	State	Logs
Device ID	12345			
Device Type	NodeMCU			
Date Added	Sep 17, 2022 1:02 PM			
Added By	2019ec0009@svce.ac.in			
Connection Status	Connected			
	Connection Time: Nov 11, 2022 5:28 PM			
	Client Address: 49.204.138.55 SecureToken			

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

Development of Python Script to publish data to IBM Watson IOT platform:

Code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
```

```
#Provide your IBM Watson Device Credentials
organization = "nckdv7"
deviceType = "NodeMCU"
deviceId = "12345"
authMethod = "token"
authToken = "12345678"
```

```

# Initialize GPIO
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(0,100)
    pulse=random.randint(0,100)
    moisture= random.randint(0,100)
    humidity=random.randint(0,100);
    lat = 17
    lon = 18
    data = { 'temperature' : temp, 'humidity' : humidity, 'Moisture' : moisture}
    #print data
    def myOnPublishCallback():
        print ("Published Temperature = %s C" % temp, "Humidity = %s %" % humidity, "Soil
Moisture = %s %" % moisture,"to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoT")
            time.sleep(1)

    deviceCli.commandCallback = myCommandCallback
# Disconnect the device and application from the cloud
deviceCli.disconnect()

```

Python Code Output:

```

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\manoj-pt5890\Documents\python\project.py =====
2022-11-11 17:28:32,248 ibmiotf.device.Client INFO Connected successfully: d:nckdv7:NodeMCU:12345
Published Temperature = 89 C Humidity = 70 % Soil Moisture = 3 % to IBM Watson
Published Temperature = 78 C Humidity = 5 % Soil Moisture = 2 % to IBM Watson
Published Temperature = 85 C Humidity = 61 % Soil Moisture = 34 % to IBM Watson
Published Temperature = 75 C Humidity = 83 % Soil Moisture = 23 % to IBM Watson
Published Temperature = 72 C Humidity = 34 % Soil Moisture = 70 % to IBM Watson
Published Temperature = 38 C Humidity = 36 % Soil Moisture = 48 % to IBM Watson
Published Temperature = 62 C Humidity = 36 % Soil Moisture = 35 % to IBM Watson
Published Temperature = 34 C Humidity = 64 % Soil Moisture = 29 % to IBM Watson
Published Temperature = 95 C Humidity = 40 % Soil Moisture = 100 % to IBM Watson
Published Temperature = 47 C Humidity = 95 % Soil Moisture = 58 % to IBM Watson
|

```

After publishing data to IBM IOT platform:

The screenshot displays the IBM Watson IoT Platform interface. At the top, the header shows 'IBM Watson IoT Platform' and a user profile with email '2019ec0009@svce.ac.in' and ID 'nckdv7'. The main navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is labeled 'Search by Device ID'. A 'Device Simulator' toggle is set to 'On'. The main content area shows a list of devices. The selected device has ID '12345', status 'Connected', type 'NodeMCU', class 'Device', and was added on 'Sep 17, 2022 1:02 PM'. Below the device list, the 'Recent Events' tab is active, showing a table of live data events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. Five events are listed, all from 'IoTSensor' in 'json' format, with values representing temperature, humidity, and moisture. A status bar at the bottom right indicates '0 Simulations running'.

Event	Value	Format	Last Received
IoTSensor	{"temperature":46,"humidity":4,"Moisture":88}	json	a few seconds ago
IoTSensor	{"temperature":76,"humidity":72,"Moisture":80}	json	a few seconds ago
IoTSensor	{"temperature":76,"humidity":20,"Moisture":50}	json	a few seconds ago
IoTSensor	{"temperature":21,"humidity":85,"Moisture":11}	json	a few seconds ago
IoTSensor	{"temperature":29,"humidity":59,"Moisture":45}	json	a few seconds ago