

## Sprint-1

**Team ID: PNT2022TMID02250**

**Project Name: IoT Based Smart Crop Protection System for Agriculture**

Python code to generate random data and pass it to IBM Watson IoT platform

### Source Code:

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

#Provide your IBM Watson Device Credentials
organization = "041ole"
deviceType = "IoT"
deviceId = "12345"
authMethod = "token"
authToken = "12345689"

# 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:

    temp=random.randint(0,100)
    Hum=random.randint(0,100)
    moisture=random.randint(0,100)

    data = { 'temperature' : temp, 'Humidity': Hum, 'Moisture':moisture }
```

```
def myOnPublishCallback():
    print ("Temperature = " + str(temp)+" C Humidity = " + str(hum)+ " moisture = " +
str(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(10)

    deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

## Output:

```
python_to_ibm (1).py - C:\Users\gopik\Downloads\python_to_ibm (1).py (3.7.0)
File
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.
>>>
try:
===== RESTART: C:\Users\gopik\Downloads\python_to_ibm (1).py =====
2022-11-03 23:34:49,480 ibmiotf.device.Client INFO Connected successfully
lly: d:wu5b55:cropl:1234
Temperature = 48 C Humidity = 35 moisture = 78to IBM Watson
Temperature = 43 C Humidity = 100 moisture = 59to IBM Watson
except:
Temperature = 38 C Humidity = 55 moisture = 18to IBM Watson
|

# Co
dev

while

# D
dev
```

Source code is deployed on IBM Watson IoT platform to generate sensor data.

### Source Code:

```
{  
    "temperature": random(0, 100),  
    "humidity": random(0, 100),  
    "moisture": random(0, 100),  
    " animalDetected ":random(0,2)  
}
```

### Output:

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various functions. The main content area shows details for a device with ID '12345', which is 'Disconnected'. The 'Recent Events' tab is selected, showing a table of live data events.

Event	Value	Format	Last Received
event_1	{"temperature":80,"humidity":60,"soilMoisture":...	json	a few seconds ago
event_1	{"temperature":91,"humidity":27,"soilMoisture":...	json	a minute ago
event_1	{"temperature":50,"humidity":38,"soilMoisture":...	json	a minute ago
event_1	{"temperature":4,"humidity":62,"soilMoisture":6...	json	a minute ago
event_1	{"temperature":5,"humidity":41,"soilMoisture":5...	json	a minute ago