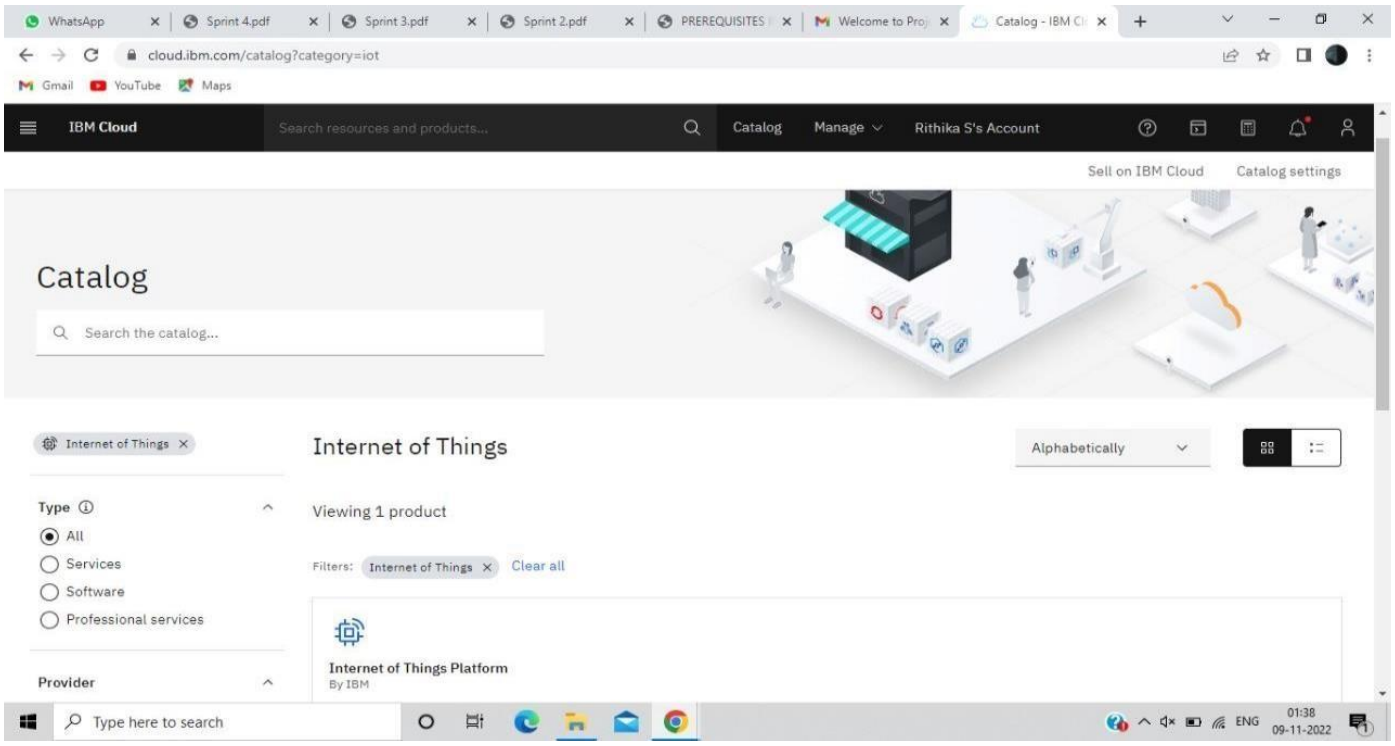
PROJECT DEVELOPMENT DELIVERY

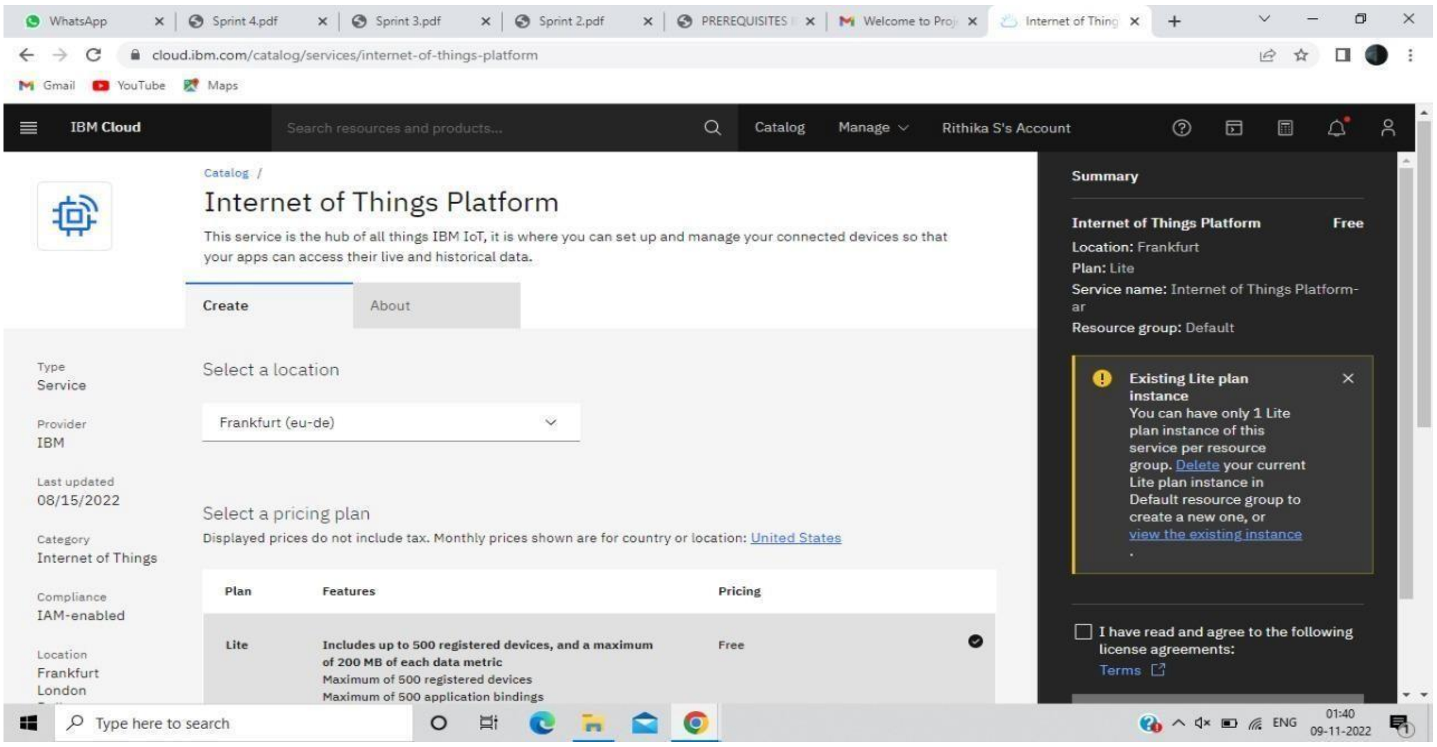
SPRINT-1

Date	29 OCTOBER 2022
Team ID	PNT2022TMID33093
ProjectName	IOT Based Smart crop protection system for Agriculture

Create IBM Watson IOT Platform

IBM WATSON CLOUD





Internet of Things Platform

This service is the hub of all things IBM IoT, it is where you can set up and manage your connected devices so that your apps can access their live and historical data.

Type
Service

Provider
IBM

Last updated
08/15/2022

Category
Internet of Things

Compliance
IAM-enabled

Location
Frankfurt
London

Select a location

Frankfurt (eu-de)

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or location: United States

Plan	Features	Pricing
Lite	Includes up to 500 registered devices, and a maximum of 200 MB of each data metric Maximum of 500 registered devices Maximum of 500 application bindings	Free

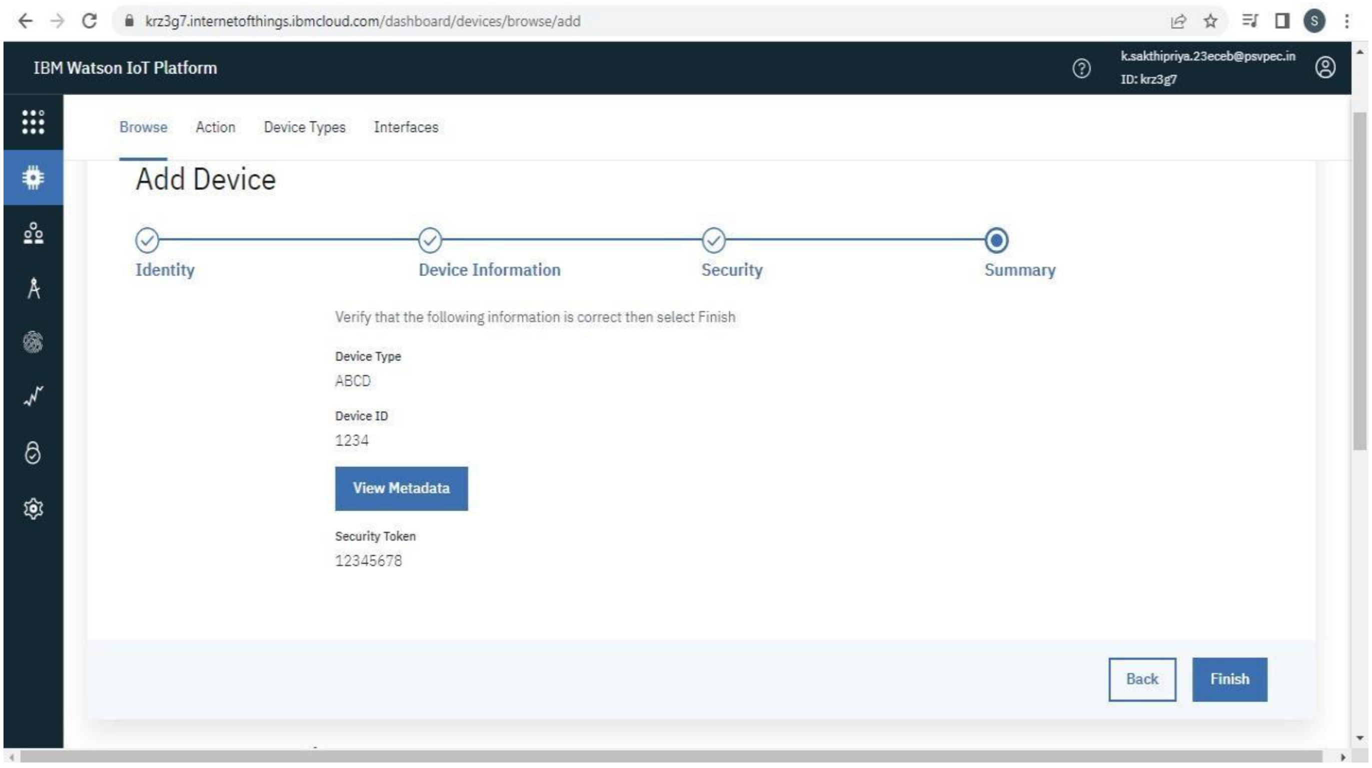
Summary

Internet of Things Platform Free
Location: Frankfurt
Plan: Lite
Service name: Internet of Things Platform-ar
Resource group: Default

Existing Lite plan instance
You can have only 1 Lite plan instance of this service per resource group. Delete your current Lite plan instance in Default resource group to create a new one, or view the existing instance
.

I have read and agree to the following license agreements:
Terms

Device credentials information:


krz3g7.internetofthings.ibmcloud.com/dashboard/devices/browse/add
IBM Watson IoT Platform
k.sakthipriya.23eceb@psvpec.in
ID: krz3g7
Browse
Action
Device Types
Interfaces

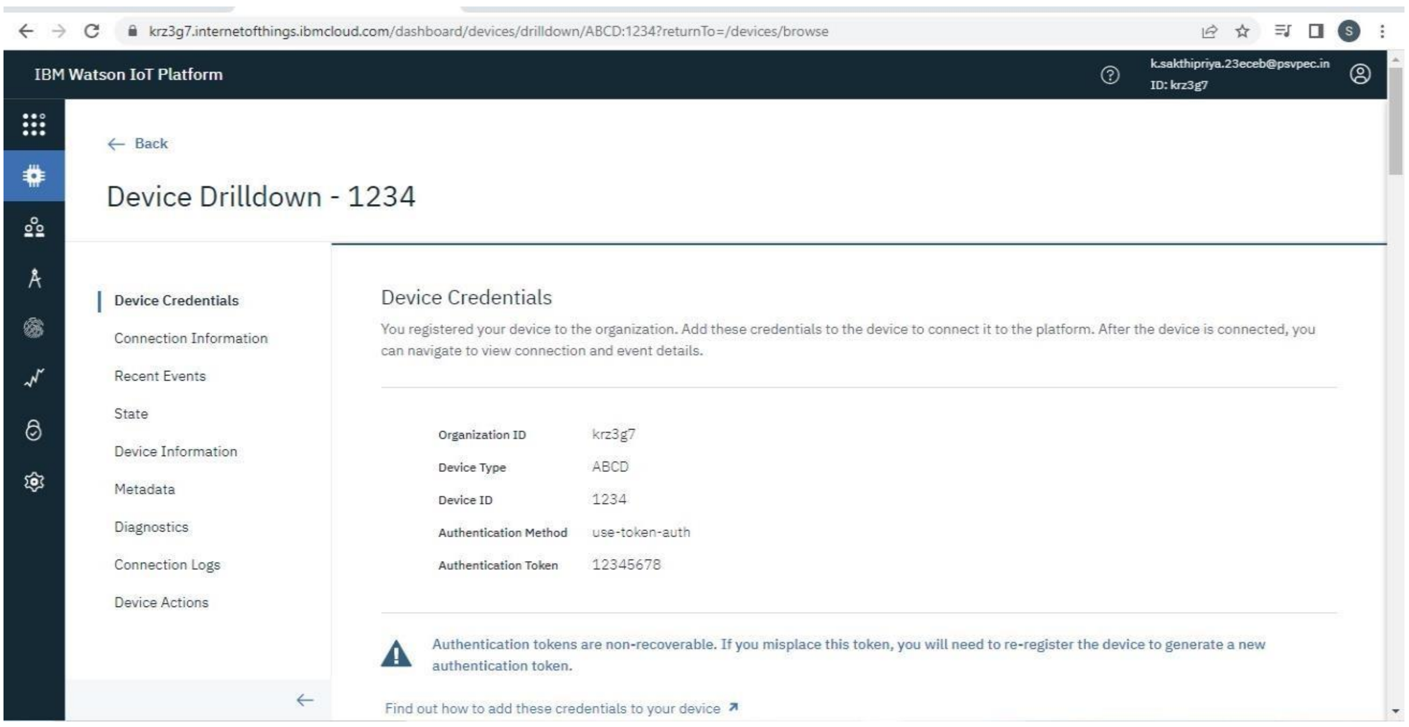
Add Device

Verify that the following information is correct then select Finish

Device Type
ABCD

Device ID
1234

Security Token
12345678


krz3g7.internetofthings.ibmcloud.com/dashboard/devices/drilldown/ABCD:1234?returnTo=/devices/browse

IBM Watson IoT Platform

k.sakthipriya.23eceb@psvpec.in
ID: krz3g7

Back

Device Drilldown - 1234

- Device Credentials
- Connection Information
- Recent Events
- State
- Device Information
- Metadata
- Diagnostics
- Connection Logs
- Device Actions

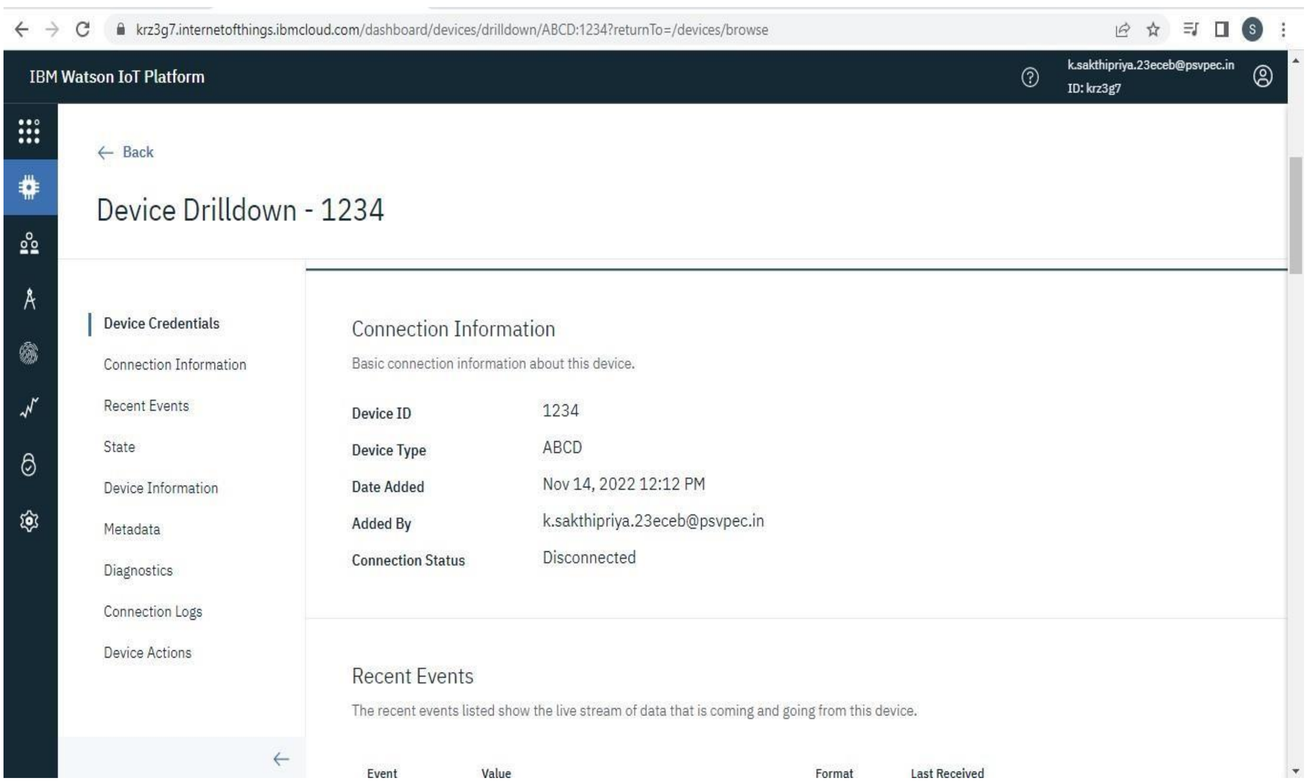
Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID	krz3g7
Device Type	ABCD
Device ID	1234
Authentication Method	use-token-auth
Authentication Token	12345678

Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token.

Find out how to add these credentials to your device


krz3g7.internetofthings.ibmcloud.com/dashboard/devices/drilldown/ABCD:1234?returnTo=/devices/browse

IBM Watson IoT Platform

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ID: krz3g7

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Device Drilldown - 1234

- Device Credentials
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Connection Information

Basic connection information about this device.

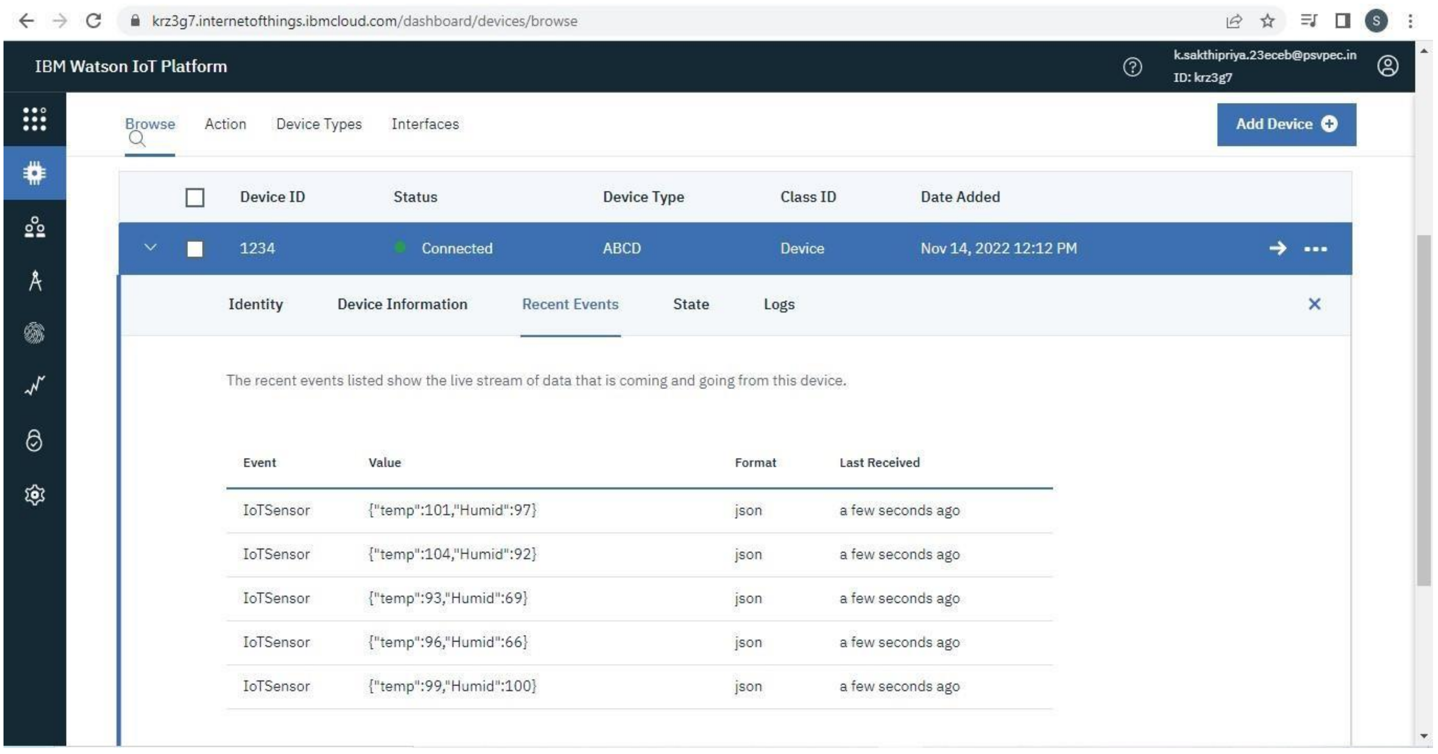
Device ID	1234
Device Type	ABCD
Date Added	Nov 14, 2022 12:12 PM
Added By	k.sakthipriya.23eceb@psvpec.in
Connection Status	Disconnected

Recent Events

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

Event	Value	Format	Last Received

IBM Watson Output:


krz3g7.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

k.sakthipriya.23eceb@psvpec.in
ID: krz3g7

Device ID	Status	Device Type	Class ID	Date Added
1234	Connected	ABCD	Device	Nov 14, 2022 12:12 PM

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

Event	Value	Format	Last Received
IoTSensor	{"temp":101,"Humid":97}	json	a few seconds ago
IoTSensor	{"temp":104,"Humid":92}	json	a few seconds ago
IoTSensor	{"temp":93,"Humid":69}	json	a few seconds ago
IoTSensor	{"temp":96,"Humid":66}	json	a few seconds ago
IoTSensor	{"temp":99,"Humid":100}	json	a few seconds ago

Create a Device and Configure the IBM IOT Platform

Python Code:

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

 #IBM Watson Device Credentials.
 organization = "krz3g7"
 deviceType = "ABCD"
 deviceId = "1234"
 authMethod = "token"
 authToken = "12345678"
 def myCommandCallback(cmd):
print("Command received: %s" % cmd.data['command'])
status=cmd.data['command']
if status=="sprinkler_on":
  print ("sprinkler is ON")
  else :
  print ("sprinkler is OFF")
#print(cmd)

 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()
    #Connecting to IBM watson.
    deviceCli.connect()
    while True:
    #Getting values from sensors.
   temp_sensor = round( random.uniform(0,80),2)
   PH_sensor = round(random.uniform(1,14),3)
   camera = ["Detected","Not Detected","Not Detected","Not Detected","Not Detected","Not Detected",]
   camera_reading = random.choice(camera)
   flame = ["Detected","Not Detected","Not Detected","Not Detected","Not Detected","Not Detected",]
   flame_reading = random.choice(flame)
   moist_level = round(random.uniform(0,100),2)
   water_level = round(random.uniform(0,30),2)

  #storing the sensor data to send in json format to cloud.
   temp_data = { 'Temperature' : temp_sensor}
 PH_data = { 'PH Level' : PH_sensor } camera_data =
 { 'Animal attack' : camera_reading}flame_data = {
 'Flame' : flame_reading } moist_data = { 'Moisture
 Level' : moist_level} water_data = { 'Water Level' :
 water_level}

    # publishing Sensor data to IBM Watson for every 5-10 seconds.
   success = deviceCli.publishEvent("Temperature sensor", "json", temp_data, qos=0)
   sleep(1)
   if success:
        print (" ............................publish ok............................ ")
   print ("Published Temperature = %s C" % temp_sensor, "to IBM Watson")

   success = deviceCli.publishEvent("PH sensor", "json", PH_data, qos=0)
   sleep(1)
   if success:
        print ("Published PH Level = %s" % PH_sensor, "to IBM Watson")

   success = deviceCli.publishEvent("camera", "json", camera_data, qos=0)
   sleep(1)
   if success:
      print ("Published Animal attack %s " % camera_reading, "to IBM Watson")
   success = deviceCli.publishEvent("Flame sensor", "json", flame_data, qos=0)
   sleep(1)
   if success:
        print ("Published Flame %s " % flame_reading, "to IBM Watson")

   success = deviceCli.publishEvent("Moisture sensor", "json", moist_data, qos=0)sleep(1)
   if success:
         print ("Published Moisture Level = %s " % moist_level, "to IBM Watson")

   success = deviceCli.publishEvent("Water sensor", "json", water_data, qos=0)
   sleep(1)
   if success:
      print ("Published Water Level = %s cm" % water_level, "to IBM Watson")
   print ("")
   #Automation to control sprinklers by present temperature an to send alert message to IBM Watson.
   if (temp_sensor > 35):
        print("sprinkler-1 is ON")
      success = deviceCli.publishEvent("Alert1", "json",{ 'alert1' : "Temperature(%s) is high, sprinkerlers are
    turned ON" %temp_sensor }
  , qos=0)
   sleep(1)
   if success:
        print( 'Published alert1 : ', "Temperature(%s) is high, sprinkerlers are turned ON" %temp_sensor,"to
    IBM Watson")
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   sleep(1)
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   sleep(1)
   if success:
        print( 'Published alert1 : ', "Temperature(%s) is high, sprinkerlers are turned ON" %temp_sensor,"to
```
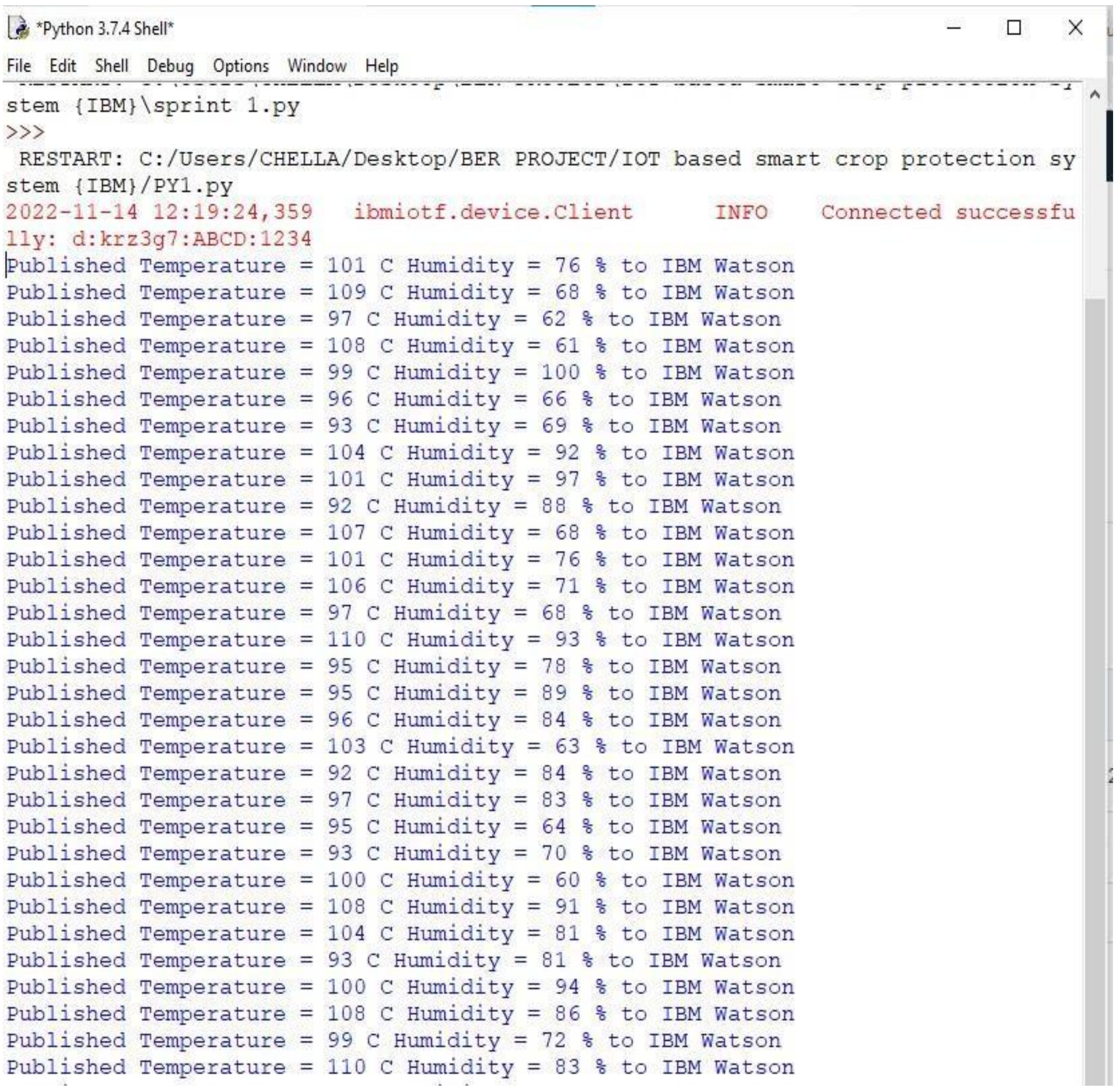

IBM Watson")

Python Output:



```
stem {IBM}\sprint 1.py
>>>
 RESTART: C:/Users/CHELLA/Desktop/BER PROJECT/IOT based smart crop protection sy
stem {IBM}/PY1.py
2022-11-14 12:19:24,359   ibmiotf.device.Client      INFO    Connected successfu
lly: d:krz3g7:ABCD:1234
Published Temperature = 101 C Humidity = 76 % to IBM Watson
Published Temperature = 109 C Humidity = 68 % to IBM Watson
Published Temperature = 97 C Humidity = 62 % to IBM Watson
Published Temperature = 108 C Humidity = 61 % to IBM Watson
Published Temperature = 99 C Humidity = 100 % to IBM Watson
Published Temperature = 96 C Humidity = 66 % to IBM Watson
Published Temperature = 93 C Humidity = 69 % to IBM Watson
Published Temperature = 104 C Humidity = 92 % to IBM Watson
Published Temperature = 101 C Humidity = 97 % to IBM Watson
Published Temperature = 92 C Humidity = 88 % to IBM Watson
Published Temperature = 107 C Humidity = 68 % to IBM Watson
Published Temperature = 101 C Humidity = 76 % to IBM Watson
Published Temperature = 106 C Humidity = 71 % to IBM Watson
Published Temperature = 97 C Humidity = 68 % to IBM Watson
Published Temperature = 110 C Humidity = 93 % to IBM Watson
Published Temperature = 95 C Humidity = 78 % to IBM Watson
Published Temperature = 95 C Humidity = 89 % to IBM Watson
Published Temperature = 96 C Humidity = 84 % to IBM Watson
Published Temperature = 103 C Humidity = 63 % to IBM Watson
Published Temperature = 92 C Humidity = 84 % to IBM Watson
Published Temperature = 97 C Humidity = 83 % to IBM Watson
Published Temperature = 95 C Humidity = 64 % to IBM Watson
Published Temperature = 93 C Humidity = 70 % to IBM Watson
Published Temperature = 100 C Humidity = 60 % to IBM Watson
Published Temperature = 108 C Humidity = 91 % to IBM Watson
Published Temperature = 104 C Humidity = 81 % to IBM Watson
Published Temperature = 93 C Humidity = 81 % to IBM Watson
Published Temperature = 100 C Humidity = 94 % to IBM Watson
Published Temperature = 108 C Humidity = 86 % to IBM Watson
Published Temperature = 99 C Humidity = 72 % to IBM Watson
Published Temperature = 110 C Humidity = 83 % to IBM Watson
```