

Developing the Python Script

Date:	15 th November 2022
Team ID	PNT2022TMID27964
Project Name	Project – Smart Farmer- IoT basedSmartFarmingApplication

Python Code :

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

#Provide your IBM Watson Device Credentials
organization = "asgkbn"
deviceType = "smart_farming"
deviceId = "69696969"
authMethod = "token"
authToken = "12345678"

# 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")
    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

    temp=random.randint(90,110)
    Humid=random.randint(60,100)
```

```

data = { 'temp' : temp, 'Humid': Humid }
# print data
def myOnPublishCallback():
    print ("Published Temperature = %s C" % temp, "Humidity = %s %" % Humid, "to IBM Watson")

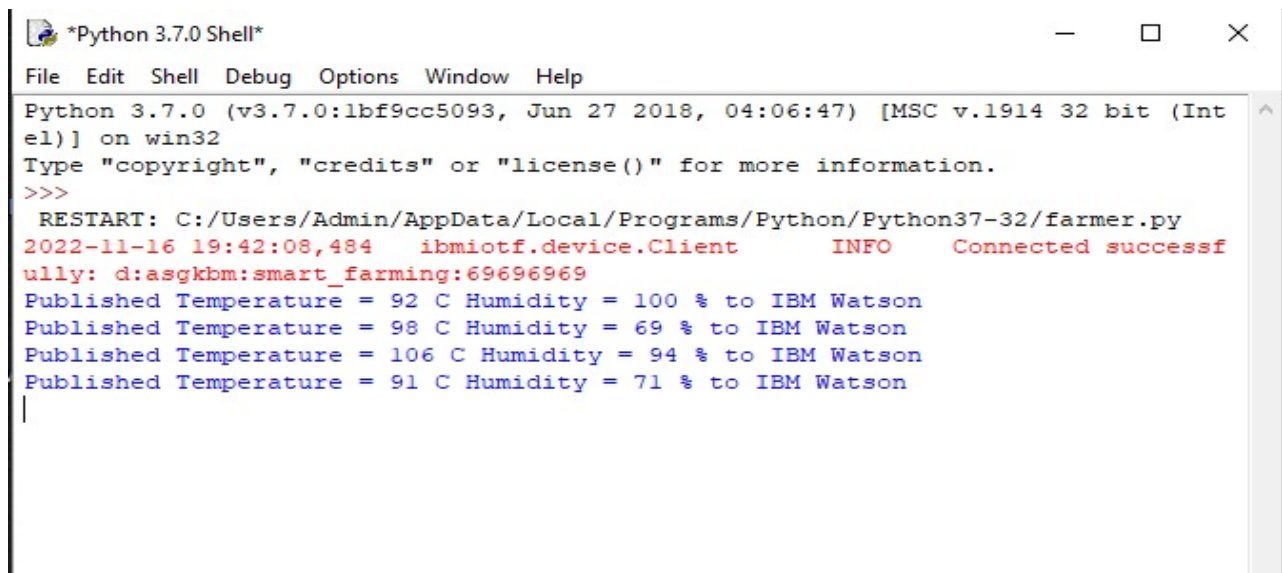
success = deviceCli.publishEvent("IoT Sensor", "json", data, qos=0, on_publish=myOnPublishCallback)
if not success:
    print("Not connected to IoT")
    time.sleep(10)

deviceCli.commandCallback = myCommandCallback

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

```

Output :

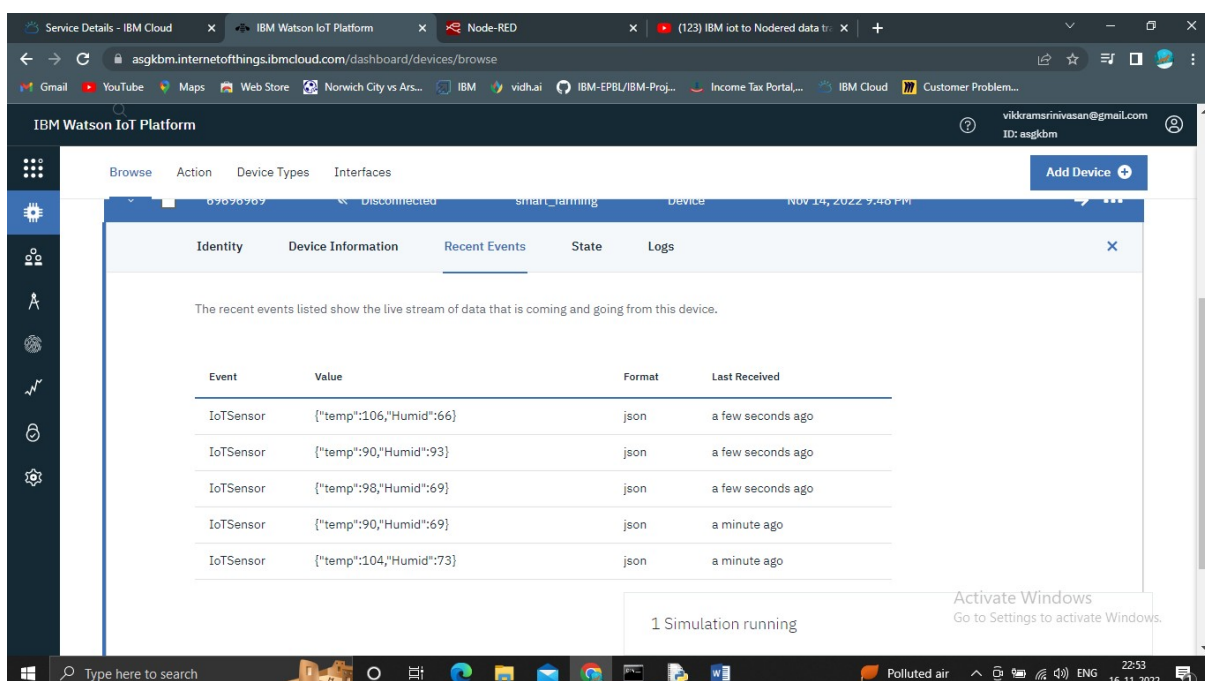


```

Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:/Users/Admin/AppData/Local/Programs/Python/Python37-32/farmer.py
2022-11-16 19:42:08,484 ibmiotf.device.Client INFO Connected successfully: d:asgkbm:smart_farming:69696969
Published Temperature = 92 C Humidity = 100 % to IBM Watson
Published Temperature = 98 C Humidity = 69 % to IBM Watson
Published Temperature = 106 C Humidity = 94 % to IBM Watson
Published Temperature = 91 C Humidity = 71 % to IBM Watson

```

This data will now be shared to the IBM Watson from where it will be linked to the web application using Node Red



The screenshot shows the IBM Watson IoT Platform dashboard. The 'Recent Events' tab is selected, displaying a table of live data streams from a device. The table has four columns: Event, Value, Format, and Last Received. The events are listed as follows:

Event	Value	Format	Last Received
IoT Sensor	{"temp":106,"Humid":66}	json	a few seconds ago
IoT Sensor	{"temp":90,"Humid":93}	json	a few seconds ago
IoT Sensor	{"temp":98,"Humid":69}	json	a few seconds ago
IoT Sensor	{"temp":90,"Humid":69}	json	a minute ago
IoT Sensor	{"temp":104,"Humid":73}	json	a minute ago

At the bottom of the dashboard, it indicates '1 Simulation running'.