PROJECT DEVELOPMENT PHASE

DELIVERY OF SPRINT – 2

Date	16 November 2022
Team ID	PNT2022TMID32979
Project Name	Signs with Smart Connectivity for Better Road Safety

Sprint goals :

- ✓ Push data from local code to cloud.

Program code:

>brain.py

```
#Python code



# IMPORT SECTION STARTS



import weather
from datetime import datetime as dt



# IMPORT SECTION ENDS
# ----------------------------------------------------


# UTILITY LOGIC SECTION STARTS


def processConditions(myLocation,APIKEY,localityInfo):
 weatherData = weather.get(myLocation,APIKEY)
 finalSpeed = localityInfo["usualSpeedLimit"] if "rain" not in weatherData else
localityInfo["usualSpeedLimit"]/2
 finalSpeed = finalSpeed if weatherData["visibility"]>35 else finalSpeed/2
 if(localityInfo["hospitalsNearby"]):
 # hospital zone
   doNotHonk = True
 else:
   if(localityInfo["schools"]["schoolZone"]==False):
 # neither school nor hospital zone
    doNotHonk = False
   else:
 # school zone
    now = [dt.now().hour,dt.now().minute]
 activeTime = [list(map(int,_.split(":"))) for _ in
localityInfo["schools"]["activeTime"]]
 doNotHonk = activeTime[0][0]<= now[0]<=activeTime[1][0] and
activeTime[0][1]<=now[1]<=activeTime[1][1]
 return ({
"speed" : finalSpeed,
"doNotHonk" : doNotHonk
})
# UTILITY LOGIC SECTION ENDS
```

>main.py

```
# Python code


# IMPORT SECTION STARTS


import brain


# IMPORT SECTION ENDS
#

# USER INPUT SECTION STARTS


myLocation = "Thiruvarur,IN"
APIKEY = "22aa01c42f0c7e0d38ecb57f4fc65226"
```

```
localityInfo = { "schools" : {
"schoolZone" : True,
"activeTime" : ["7:00","17:30"] # schools active from 7 AM till 5:30 PM

},
"hospitalsNearby" : False, "usualSpeedLimit" : 50 # in km/hr
}



# USER INPUT SECTION ENDS
#

# MICRO-CONTROLLER CODE STARTS



print(brain.processConditions(myLocation,APIKEY,localityInfo))

'''
MICRO CONTROLLER CODE WILL BE ADDED IN SPRINT 2 AS PER OUR PLANNED
SPRINT SCHEDULE '''

# MICRO-CONTROLLER CODE ENDS
```

>weather.py

```
# Python code
import requests as reqs



def get(myLocation,APIKEY):
  apiURL =
f"https://api.openweathermap.org/data/2.5/weather?q={myLocation}&appid={A
PIKEY}"
  responseJSON = (reqs.get(apiURL)).json()
  returnObject = {
    "temperature" :
    responseJSON['main']['temp'] - 273.15,
    "weather" : [
        responseJSON['weather'][_]['main'].lower()
        for _ in range(len(responseJSON['weather']))
    ],
    "visibility" :
    responseJSON['visibility'] /
    100, # visibility in percentage where 10km is 100% and 0km is 0%
  }
  if("rain" in responseJSON):
    returnObject["rain"] = [
        responseJSON["rain"][key] for key in responseJSON["rain"]
    ]
  return(returnObject)
```

>pushdata.py

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

#Provide your IBM Watson Device Credentials
organization = "q9m3l6"
deviceType = "mdhar"
deviceId = "8602"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="switchon":
        print ("Switch is on")
    else :
        print ("Switch 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()


# 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


        temperature=28.99000000000001
        visibility=50
        data = { 'temperature' : temperature, 'visibility': visibility}


        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temperature, "visibility = %s %%" 
% visibility,"to IBM Watson")

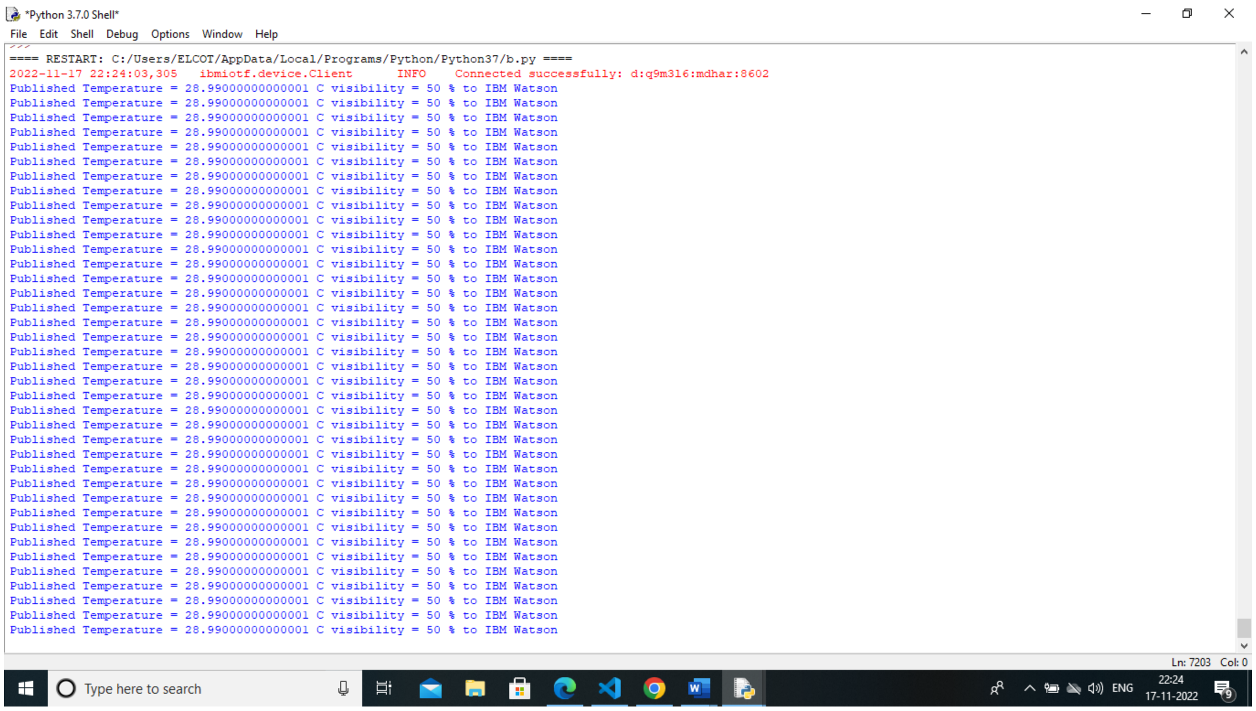

        success = deviceCli.publishEvent("ibmiot", "json", data, qos=0, 
on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoTF")
        time.sleep(1)


        deviceCli.commandCallback = myCommandCallback


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

# output :

```
Connected successfully: d:q9m3l6:mdhar:8602
```



```
==== RESTART: C:/Users/ELCOT/AppData/Local/Programs/Python/Python37/b.py ====
2022-11-17 22:24:03,305   ibmiotf.device.Client      INFO    Connected successfully: d:q9m3l6:mdhar:8602
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