DATE	**15– NOVEMBER-2022**
TEAM ID	**PNT2022TMID42266**
PROJECT NAME	**SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY**

PROJECT DEVELOPENT PHASE
SPRINT – 3 (USN-5)

#OPENWEATHER MAP(SPRINT 2)-{REQUIREMENT 1 OF THE PROJECT TO GET WEATHER DATA}

#TRAFFIC AND FATAL SITUATION ALERT BY ROADSAFETY CONTROL OFFICE(SPRINT 3) - {REQUIREMENT 2 OF THE PROJECT TO DISPLAY THE ALERT AND DIVERSION MESSAGE THAT WAS FROM ROAD SAFETY OFFICE

```
import wiotp.sdk.device  #importing library files for connecting with CLOUD,sdk=software developement kit

import requests  #for API request

import json  #converting it to json(key:values)

myConfig = {
   "identity": {
      "orgId": "vrpc8b",
      "typeId": "Ecedevice",     #configuration wit CLOUD,finding identity
      "deviceId":"123456"
   },
   "auth": {
      "token": "Mukil@12"   #authenticating with cloud device
   }
```

```
}
#TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHWN THE
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) #initialising device client with above myconfig detail
client.connect()
def myCommandCallback(cmd):
   print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
   m=cmd.data['command']
   ALERT=""                          #THIS IF COMDITION BLOCK IS FOR TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHEN THE MESSAGE WAS RECEIVED FROM THE ROAD SAFETY OFFICE
   if(m=="TRAFFIC"):
      ALERT="TRAFFIC - TAKE DIVERSION"
      print("*****///TAKE DIVERSION///*****")
   elif(m=="ACCIDENT"):
      ALERT="ACCIDENT - TAKE DIVERSION"
      print("*****///TAKE DIVERSION///*****")
   else:
      ALERT="HAVE A NICE DAY!"
      print("HAVE A NICE DAY!")
   mydata1={"SITUATION":ALERT,}
   client.publishEvent("123456","json",mydata1)
while True:
   print("====================================")
```

```
    weatherData =
requests.get('https://api.openweathermap.org/data/2.5/weather?q=Chennai,%2
0IN&appid=b966927276060e981c650a5ca4409f8b&units=metric')
    a=weatherData.text
    b=json.loads(a)
    temp = b["main"]["temp"]
    humi = b["main"]["humidity"]
    main = b["weather"][0]["main"]      #0th index is taken from the object
    description = b["weather"][0]["description"]
    visibility = b["visibility"]
    Windspeed = b["wind"]["speed"]

    TemperatureRecommendation =""

    SpeedRecommendation = ""

    RecommendationForVisibilty = ""
    #print("Temperature(celcius) :",b["main"]["temp"])
    if (temp>33):
        TemperatureRecommendation="Temperature is higher than ideal value"
        #print("Temperature is higher than ideal value")
    elif (temp<19):
        TemperatureRecommendation="Temperature is lower than ideal value"
        #print("Temperature is lower than ideal value")
    else:
```

```
        TemperatureRecommendation="Temperature is ideal"
        #print("Temperature is ideal ")
    #print("Humidity :",b["main"]["humidity"])
    #print("WeatherCondition",(b["weather"][0]["main"]))
    if (main == "Rain"):
        rain = b["rain"]["1h"]
        SpeedRecommendation = "30KM/HR ,ROAD WILL BE SLIPPERY"
        #print("Rain:",b["rain"]["1h"])
        #print("SPEED RECOMMENDATION : 30KM/HR ,ROAD WILL BE SLIPPERY")
    elif (main == "Drizzle"):
        SpeedRecommendation = "30KM/HR"
        #print("SPEED RECOMMENDATION : 30KM/HR")
    elif (main == "Mist"):
        SpeedRecommendation = "30KM/HR and switch on the headlight"
        #print("SPEED RECOMMENDATION : 30KM/HR and switch on the Headlight")
    elif (main == "Thunderstorm"):
        SpeedRecommendation = "30KM/HR and stay away in the open place"
        #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the open
place")
    #print("Description of weather :",(b["weather"][0]["description"]))
    #print("visibility",(b["visibility"]))
    if (visibility<1000):
        RecommendationForVisibilty = "SPEED RECOMMENDATION : 30KM/HR and
SWITCH ON THE HEAD LIGHT"
    else:
```

RecommendationForVisibilty = "visibility range is ideal for vechicles"

#print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT")

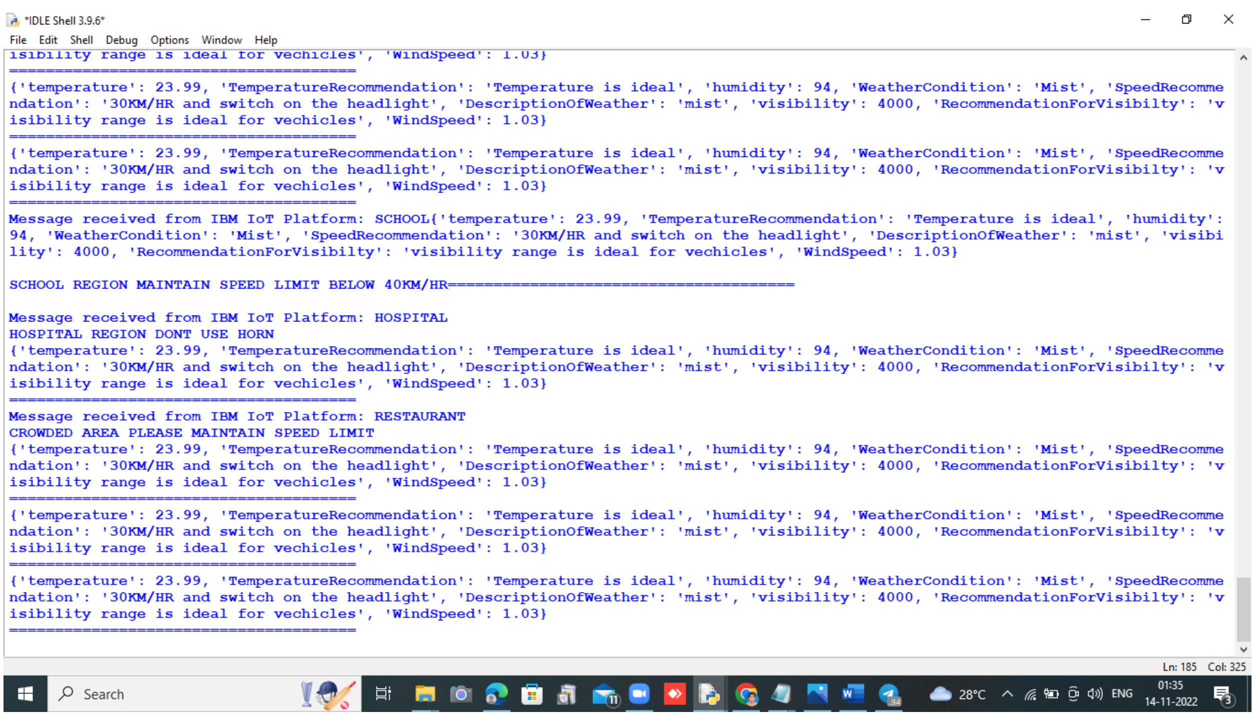
mydata={"temperature":temp, "TemperatureRecommendation":TemperatureRecommendation,"humidity":humi ,"WeatherCondition":main,"SpeedRecommendation":SpeedRecommendation ,"DescriptionOfWeather":description,"visibility":visibility,"RecommendationForVisibilty":RecommendationForVisibilty,"WindSpeed":Windspeed}

print(mydata)

client.publishEvent("123456","json",mydata)

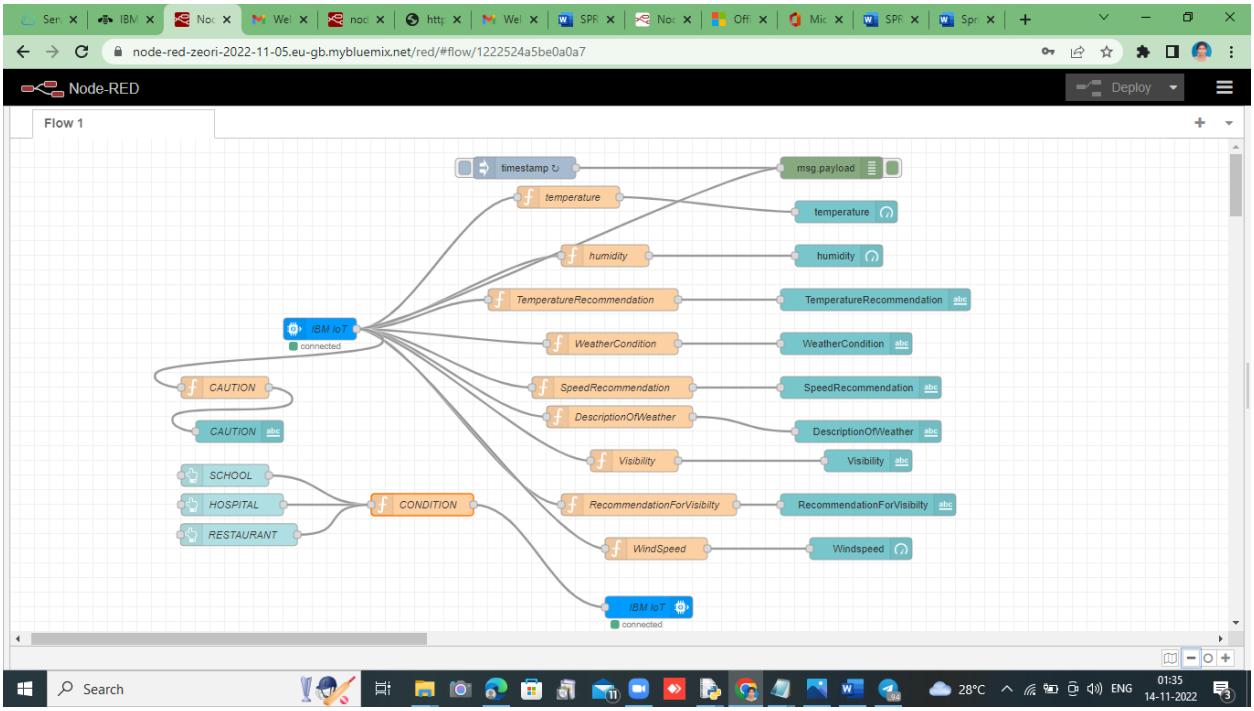
client.commandCallback = myCommandCallback

PYTHON OUTPUT:

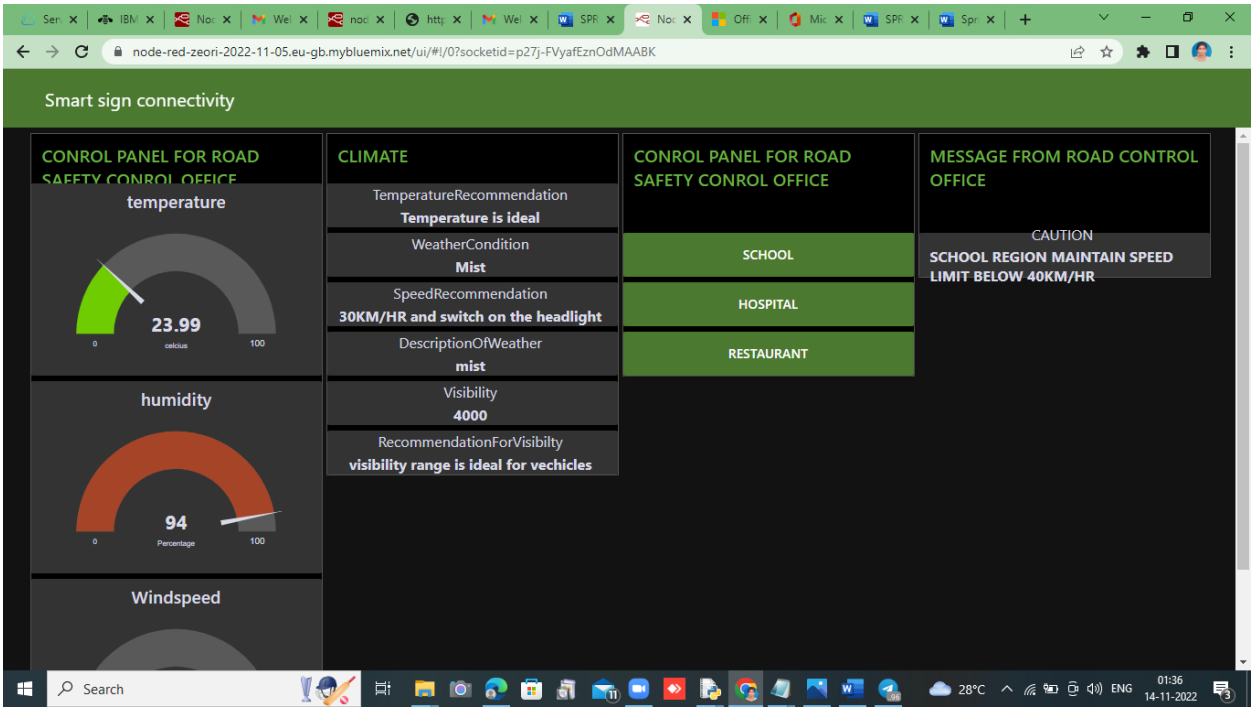


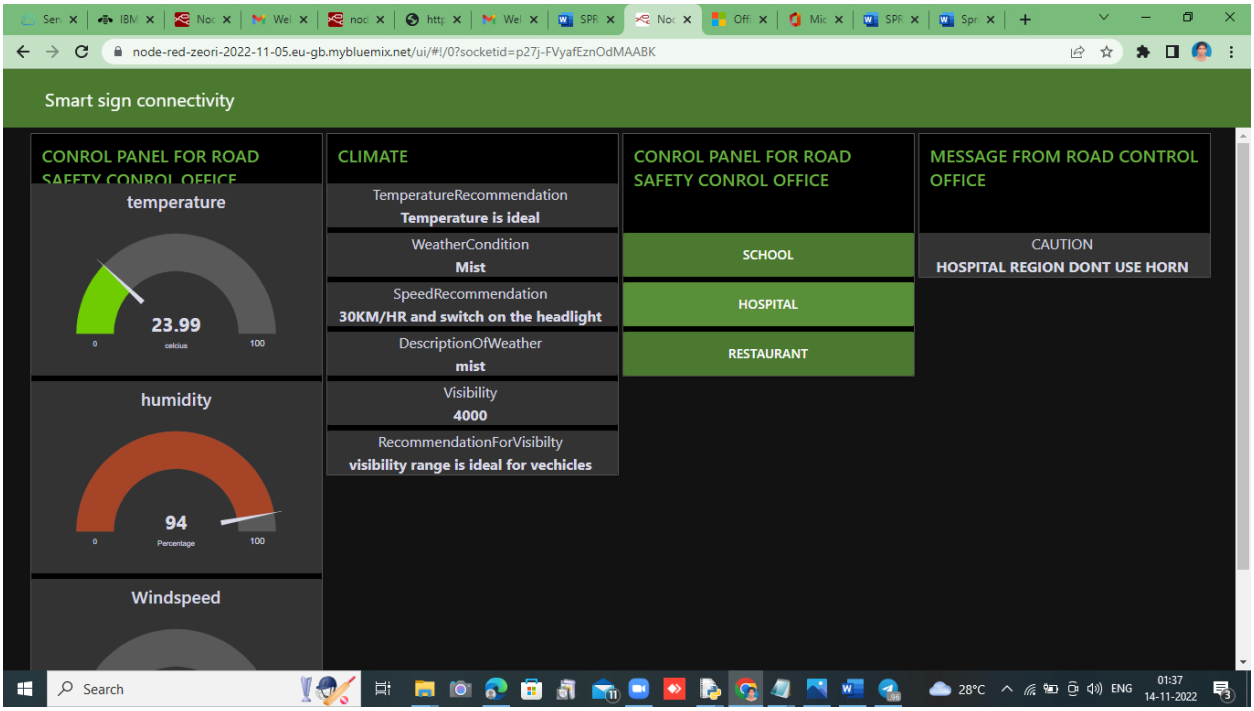
```
*IDLE Shell 3.9.6*
File  Edit  Shell  Debug  Options  Window  Help
isibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
Message received from IBM IoT Platform: SCHOOL{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}

SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR=====================================

Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
Message received from IBM IoT Platform: RESTAURANT
CROWDED AREA PLEASE MAINTAIN SPEED LIMIT
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
{'temperature': 23.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 4000, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03}
=====================================
Ln: 185  Col: 325
```

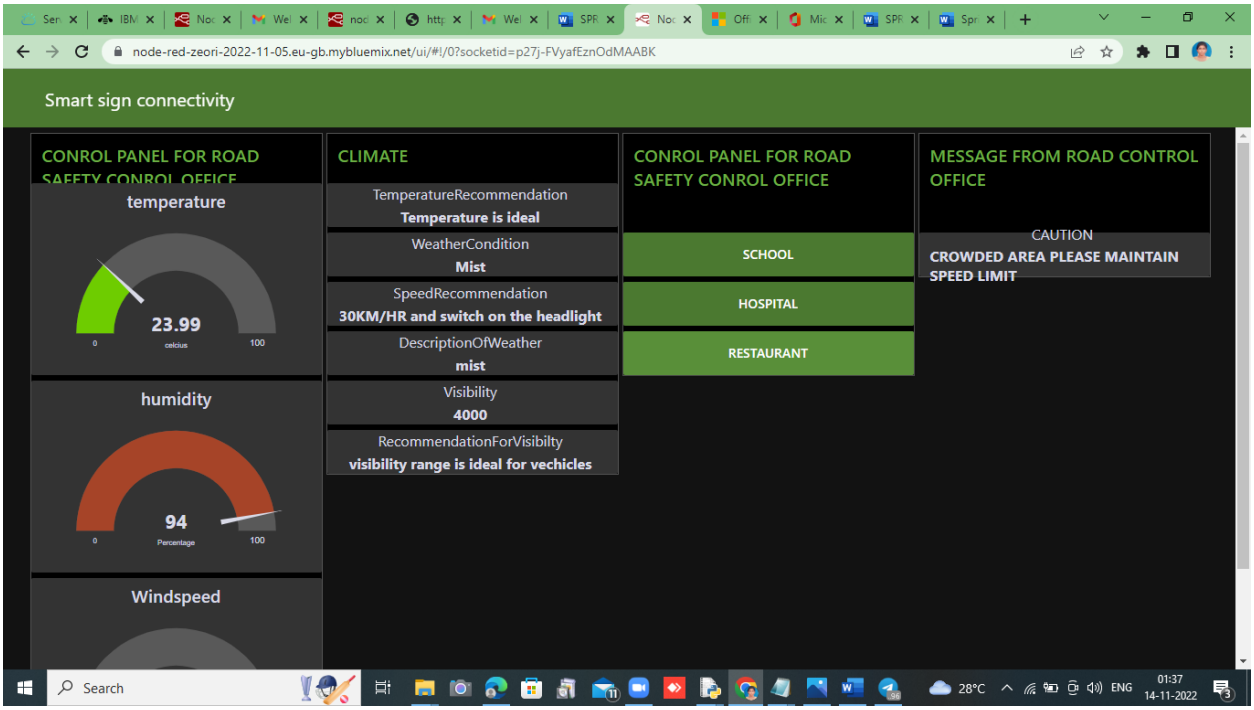
NODE RED INTERFACES :



WEB UI OUTPUT:




node-red-zeori-2022-11-05.eu-gb.mybluemix.net/ui/#!/0?socketid=p27j-FVyafEznOdMAABK
Smart sign connectivity
CONROL PANEL FOR ROAD SAFETY CONROL OFFICE
temperature
23.99
celcius
0
100
humidity
94
Percentage
0
100
Windspeed
CLIMATE
TemperatureRecommendation
Temperature is ideal
WeatherCondition
Mist
SpeedRecommendation
30KM/HR and switch on the headlight
DescriptionOfWeather
mist
Visibility
4000
RecommendationForVisibilty
visibility range is ideal for vechicles
CONROL PANEL FOR ROAD SAFETY CONROL OFFICE
SCHOOL
HOSPITAL
RESTAURANT
MESSAGE FROM ROAD CONTROL OFFICE
CAUTION
HOSPITAL REGION DONT USE HORN
Search
28°C
ENG
01:37
14-11-2022


node-red-zeori-2022-11-05.eu-gb.mybluemix.net/ui/#!/0?socketid=p27j-FVyafEznOdMAABK
Smart sign connectivity
CONROL PANEL FOR ROAD SAFETY CONROL OFFICE
temperature
23.99
celcius
0
100
humidity
94
Percentage
0
100
Windspeed
CLIMATE
TemperatureRecommendation
Temperature is ideal
WeatherCondition
Mist
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30KM/HR and switch on the headlight
DescriptionOfWeather
mist
Visibility
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RecommendationForVisibilty
visibility range is ideal for vechicles
CONROL PANEL FOR ROAD SAFETY CONROL OFFICE
SCHOOL
HOSPITAL
RESTAURANT
MESSAGE FROM ROAD CONTROL OFFICE
CAUTION
CROWDED AREA PLEASE MAINTAIN SPEED LIMIT
Search
28°C
ENG
01:37
14-11-2022