

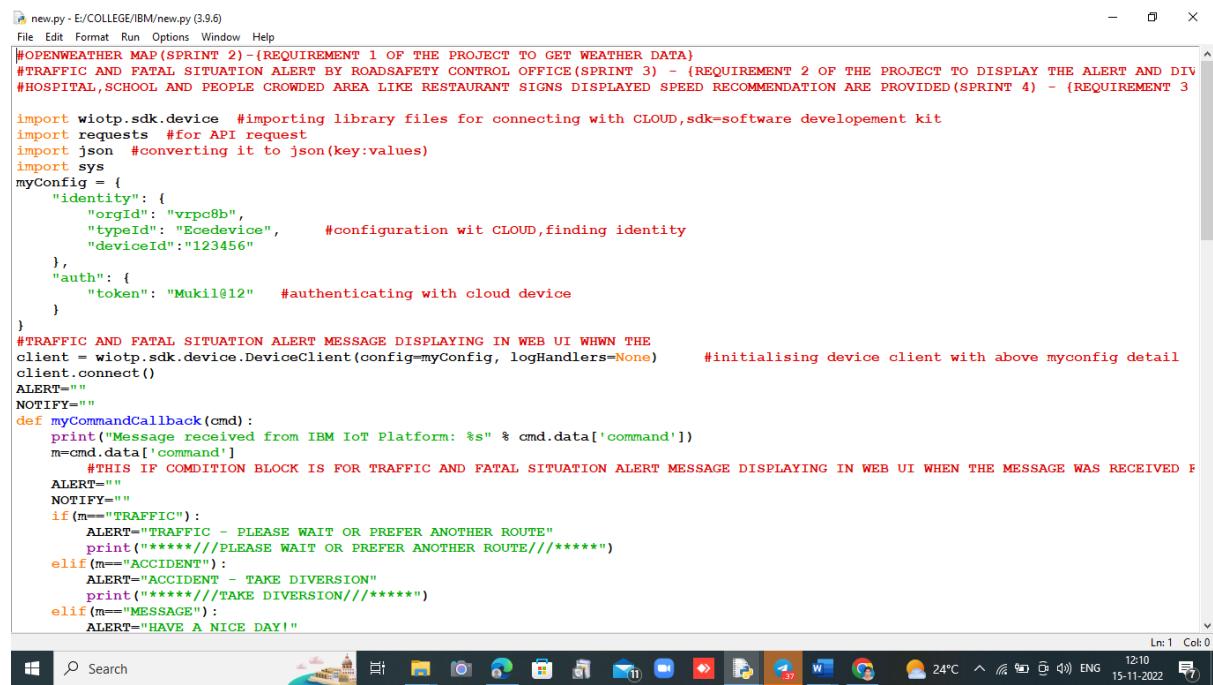
SPRINT 4 -USN 7

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

Project link:

<https://node-red-zeori-2022-11-05.eu-gb.mybluemix.net/ui/>

Python Code:



```
new.py - E:/COLLEGE/IBM/new.py (3.9.6)
File Edit Format Run Options Window Help
#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 DIV
#HOSPITAL,SCHOOL AND PEOPLE CROWDED AREA LIKE RESTAURANT SIGNS DISPLAYED SPEED RECOMMENDATION ARE PROVIDED(SPRINT 4) - (REQUIREMENT 3

import iotp.sdk.device #importing library files for connecting with CLOUD,sdk=software development kit
import requests #for API request
import json #converting it to json(key:values)
import sys
myConfig = {
    "identity": {
        "orgId": "vrpc8b",
        "typeId": "Ecedevice",
        "#configuration with CLOUD,finding identity
        "deviceId": "123456"
    },
    "auth": {
        "token": "Mukil@12" #authenticating with cloud device
    }
}
#TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHEN THE
client = iotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) #initialising device client with above myconfig detail
client.connect()
ALERT=""
NOTIFY=""
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
    #THIS IF CONDITION BLOCK IS FOR TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHEN THE MESSAGE WAS RECEIVED F
    ALERT=""
    NOTIFY=""
    if(m=="TRAFFIC"):
        ALERT="TRAFFIC - PLEASE WAIT OR PREFER ANOTHER ROUTE"
        print("*****//PLEASE WAIT OR PREFER ANOTHER ROUTE//*****")
    elif(m=="ACCIDENT"):
        ALERT="ACCIDENT - TAKE DIVERSION"
        print("*****//TAKE DIVERSION//*****")
    elif(m=="MESSAGE"):
        ALERT="HAVE A NICE DAY!"
```

```
new.py - E:/COLLEGE/IBM/new.py (3.9.6)
File Edit Format Run Options Window Help
elif(m=="MESSAGE") :
    ALERT="HAVE A NICE DAY!"
    print("HAVE A NICE DAY!")
    #THE BELOW CONDITION BLOCK IS TO DISPLAY HOSPITAL ,SCHOOL, AND RESTAURANT REGIONED AREA AND SPEED RECOMMENDATION
if(m=="SCHOOL") :
    NOTIFY="SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR"
    print("SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR")
elif(m=="HOSPITAL") :
    NOTIFY="HOSPITAL REGION DONT USE HORN"
    print("HOSPITAL REGION DONT USE HORN")
elif(m=="RESTAURANT") :
    NOTIFY="CROWDED AREA PLEASE MAINTAIN SPEED LIMIT"
    print("CROWDED AREA PLEASE MAINTAIN SPEED LIMIT")
mydata1={}
if(m=="TRAFFIC" or m=="ACCIDENT" or m=="MESSAGE") :
    mydata1={"SITUATION":ALERT}
elif(m=="SCHOOL"or m=="HOSPITAL" or m=="RESTAURANT" ) :
    mydata1={"CAUTION":NOTIFY}
client.publishEvent("123456","json",mydata1)
while True:
    print("-----")
    AREA = "Chennai,<?>IN"
    weatherData = requests.get("https://api.openweathermap.org/data/2.5/weather?q=" + AREA + "&appid=b966927276060e981c650a5ca4409f8b&")
    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 = ""
    RecommendationForVisibility = ""

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```

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```
new.py - E:/COLLEGE/IBM/new.py (3.9.6)
File Edit Format Run Options Window Help
#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")
elif (main == "Clouds"):
    SpeedRecommendation = "MAINTAIN NORMAL SPEED LIMIT UPTO 50 KM/HR"
    #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):
    RecommendationForVisibility = "SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT"
else:
    RecommendationForVisibility = "visibility range is ideal for vehicles"
#print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT")
mydata={ "temperature":temp, "TemperatureRecommendation":TemperatureRecommendation, "humidity":humi, "WeatherCondition":main, "SpeedRe Ln: 76 Col: 32
```

Windows Search File Explorer Task View Start Taskbar 24°C 12:11 ENG 15-11-2022

```

new.py - E:\COLLEGE\IBM\new.py (3.9.6)
File Edit Format Run Options Window Help
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")
elif (main == "Clouds"):
    SpeedRecommendation = "MAINTAIN NORMAL SPEED LIMIT UPTO 50 KM/HR"
    #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):
    RecommendationForVisibility = "SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT"
else:
    RecommendationForVisibility = "visibility range is ideal for vehicles"
#print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON THE HEAD LIGHT")
mydata={"temperature":temp, "TemperatureRecommendation":TemperatureRecommendation,"humidity":humi,"WeatherCondition":main,"SpeedRe
print(mydata)
client.publishEvent("12345","json",mydata)
client.commandCallback = myCommandCallback

```

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Windows Search icon Taskbar icons Date/Time: 12:11 15-11-2022

Python Output:

```

IDE Shell 3.9.6
File Edit Shell Debug Options Window Help
notation: '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN'}
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
endation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: TRAFFIC

*****//PLEASE WAIT OR PREFER ANOTHER ROUTE///*****
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
endation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: ACCIDENT

*****//TAKE DIVERSION//*****
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
endation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: MESSAGE

Message received from IBM IoT Platform: HAVE A NICE DAY!
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
endation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: SCHOOL

SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecomm
endation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'v
isibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: RESTAURANT

CROWDED AREA PLEASE MAINTAIN SPEED LIMIT

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Ln: 371 Col: 354

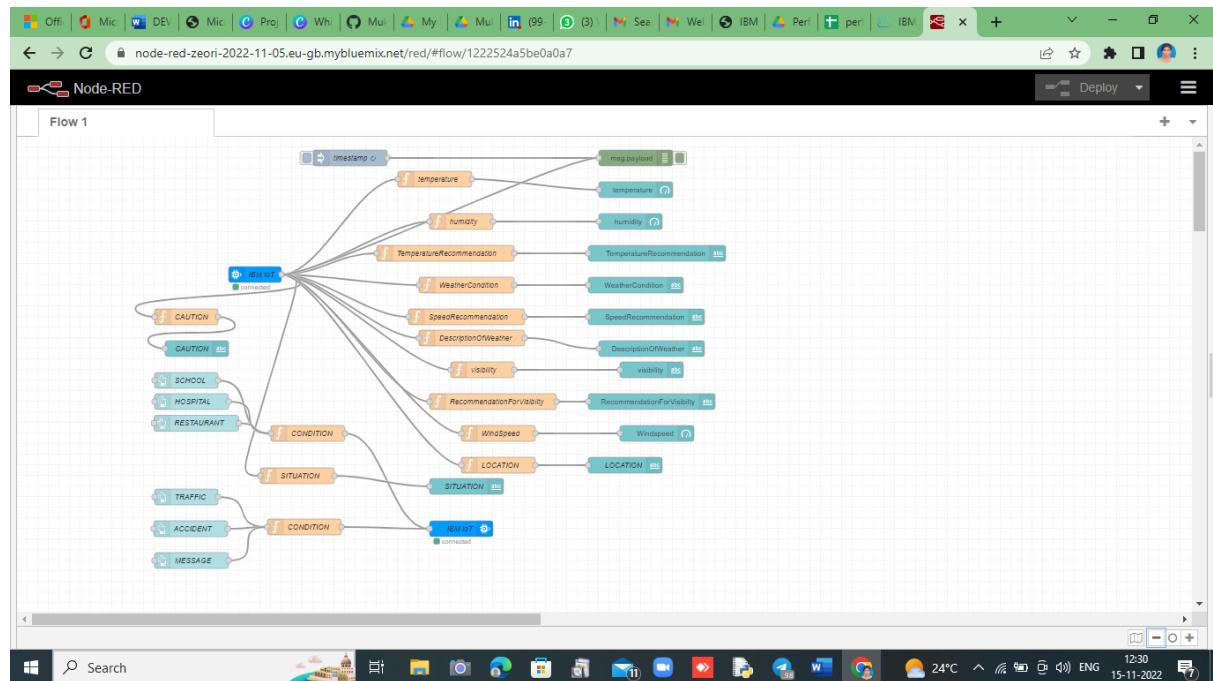
Windows Search icon Taskbar icons Date/Time: 10:59 15-11-2022

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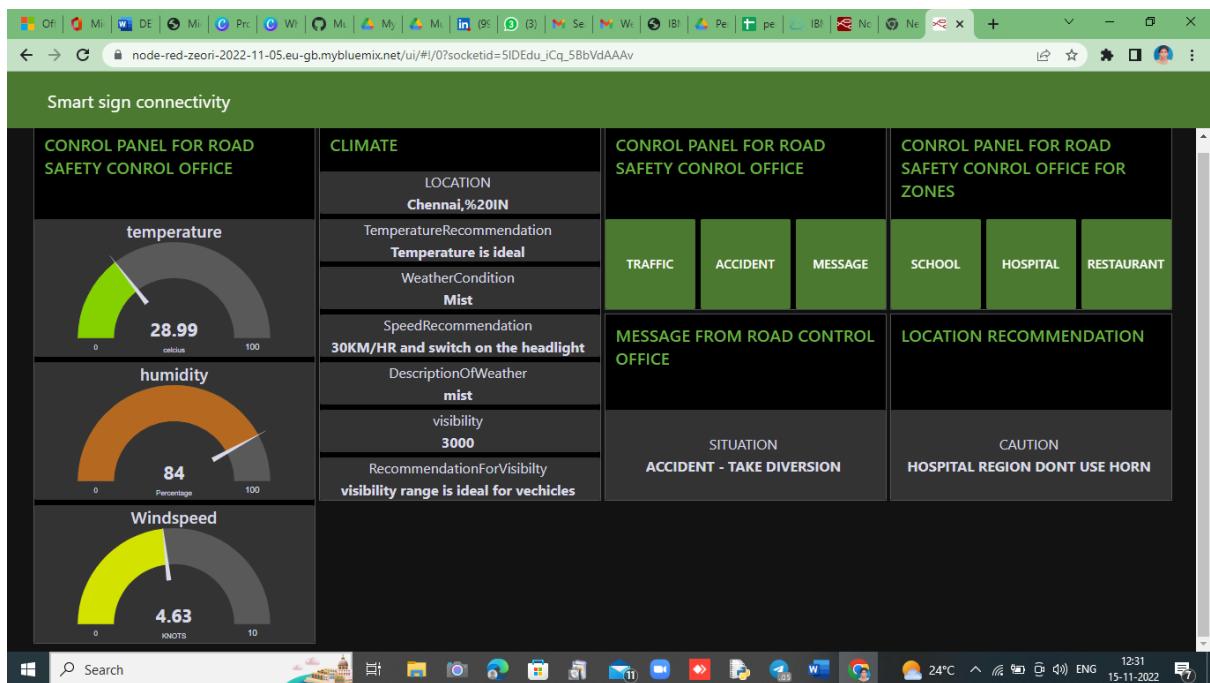
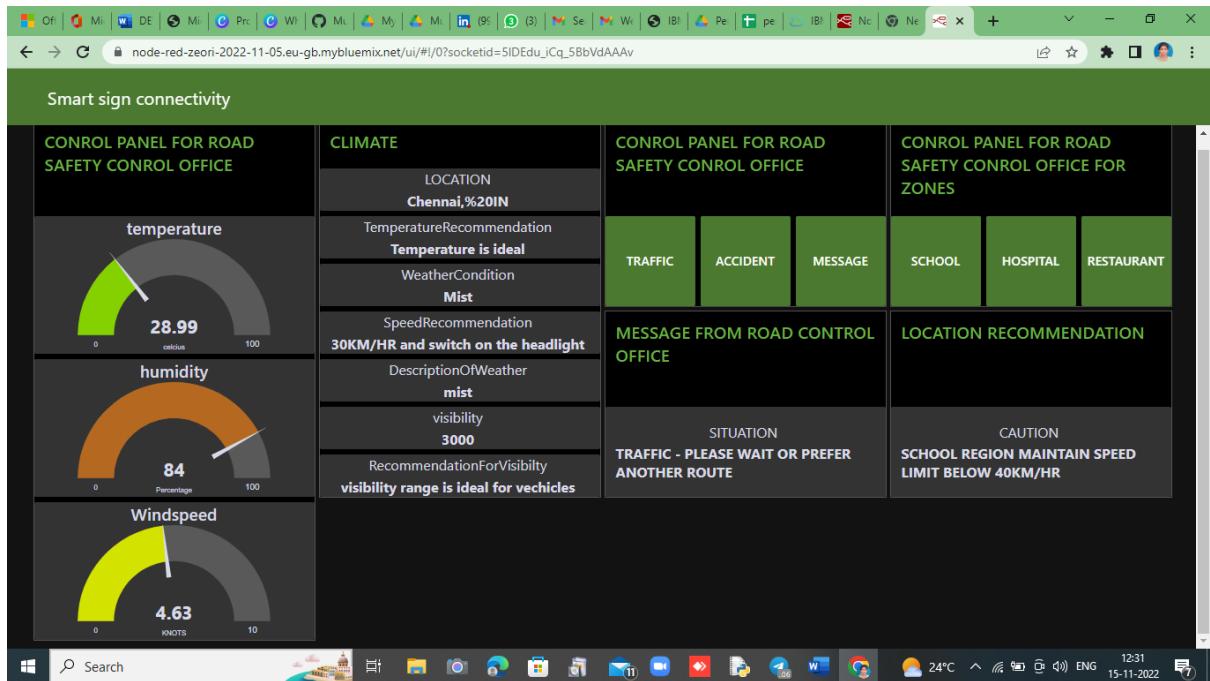
IDELE Shell 3.9.6*
File Edit Shell Debug Options Window Help
*****//IBM IoT Platform: ACCIDENT*****
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
*****//TAKE DIVERSION//*****
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: MESSAGE
HAVE A NICE DAY!
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
Message received from IBM IoT Platform: SCHOOL
SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')Message received from IBM IoT Platform: RESTAURANT
*****CROWDED AREA PLEASE MAINTAIN SPEED LIMIT*****
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')
('temperature': 28.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 89, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibility': 'visibility range is ideal for vehicles', 'WindSpeed': 3.09, 'LOCATION': 'Chennai,%20IN')

```

Node red Interface:



RESULT:



Smart sign connectivity

CONROL PANEL FOR ROAD SAFETY CONROL OFFICE	CLIMATE	CONROL PANEL FOR ROAD SAFETY CONROL OFFICE	CONROL PANEL FOR ROAD SAFETY CONROL OFFICE FOR ZONES
<p>temperature</p>  <p>humidity</p>  <p>Windspeed</p> 	<p>LOCATION Chennai,%20IN</p> <p>TemperatureRecommendation Temperature is ideal</p> <p>WeatherCondition Mist</p> <p>SpeedRecommendation 30KM/HR and switch on the headlight</p> <p>DescriptionOfWeather mist</p> <p>visibility 3000</p> <p>RecommendationForVisibility visibility range is ideal for vechicles</p>	<p>TRAFFIC</p> <p>ACCIDENT</p> <p>MESSAGE</p>	<p>SCHOOL</p> <p>HOSPITAL</p> <p>RESTAURANT</p>
	<p>MESSAGE FROM ROAD CONTROL OFFICE</p> <p>HAVE A NICE DAY!</p>	<p>SITUATION</p> <p>CAUTION</p>	<p>LOCATION RECOMMENDATION</p> <p>CROWDED AREA PLEASE MAINTAIN SPEED LIMIT</p>

Windows Search 24°C 12:31 15-11-2022