CLOUD ENABLED VEHICLE THEFT & ACCIDENT DETECTION SYSTEM

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CONTENTS:

1.INTRODUCTION:-

a.Overview:

With the advancement technology and increasing traffic,road accidents and traffic hazard have increased, causing more chances of loss of life due to lack of timely facilities.This project is an attempt towards solutions for timely accident notification,vehicle theft control.The project records the parameters of vehicle at regular intervals of time,through a "smart device" installed in the vehicle and sends these values onto the cloud,vehicle or a third party.Based on the information ,appropriate algorithms are implemented to send alerts and initiate action.The system will facilitate the users in number of ways such as notifications for immediate aid in case of accident,tracking the vehicle in cases of theft and disabling the vehicle remotely.

b.Purpose:

The vehicle is integrated with a small device,if anyone wants to open the door the OTP is to be verified.There will be continuous tracking of the vehicle by using GPS coordinates .The system will facilitate the users in a number of ways such as notification for immediate aid in case of accident,tracking the vehicle in case of theft and disabling the vehicle remotely.

2.LITERATURE SURVEY:-

a.Existing problem:

In today's scenario , owning multiple vehicles is considerd a social status in the society and consequently the number of vehicles on the roads has increased immensely.So,there will be chances of increasing accidents in the society.Therefore the rate of fatalities increased due to delay in emergency services.The delay happens due to traffic congestion or unstable communication to the medical units.The vehicle, its accessories and the property inside are all targets for theives.Recreational vehicles are also targets for theft and burglary.

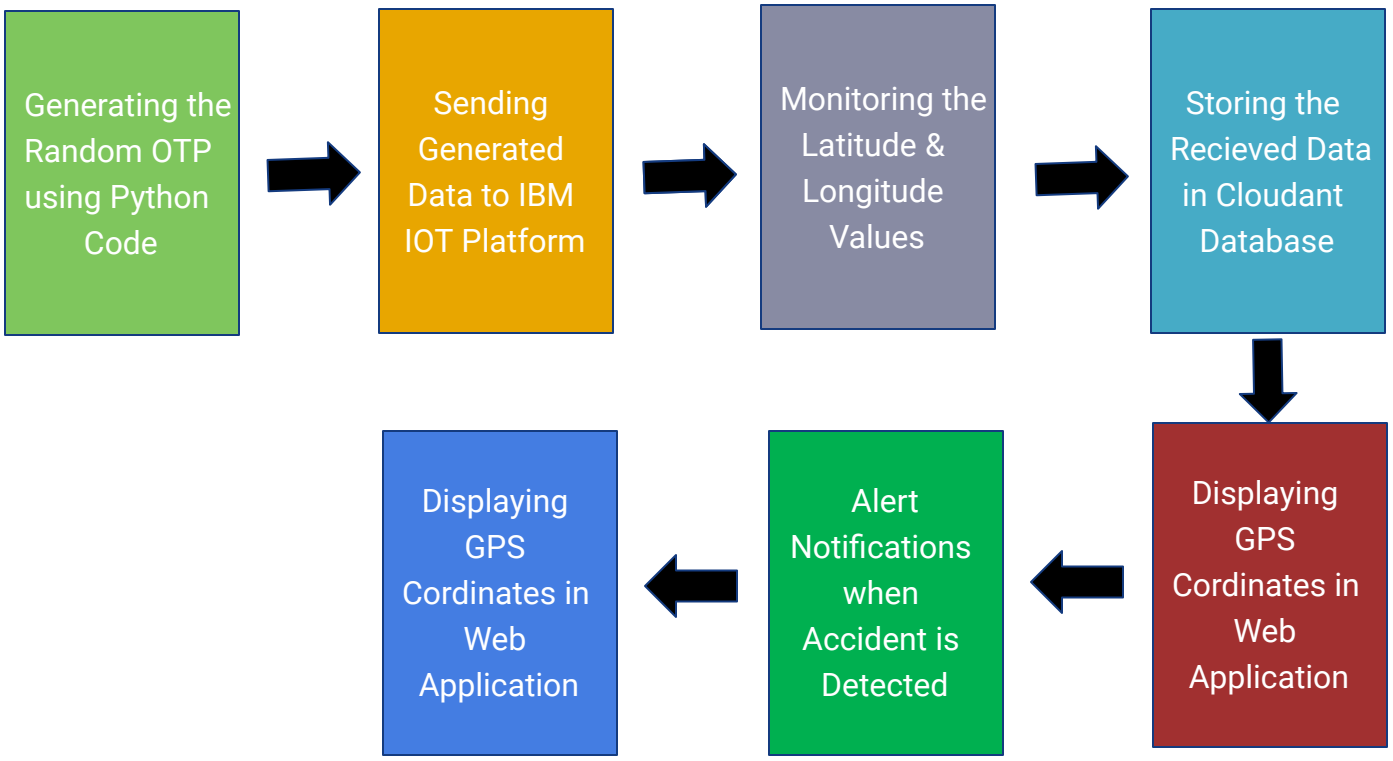
b.Proposed solution:

To avoid the above problem, we implement the project "cloud enabled vehicle theft and accident detection system".For accident detection , the parameters of vehicle at regular intervals of time through a "smart device" installed in the vehicle and sends these values onto the cloud .For vehicle theft , for opening of the

door we click on the button after few seconds we get an OTP generated using python code.In case of vehicle theft, vehicle engine is monitered using mobile app.

3.THEROTICAL ANALYSIS:

a.Block Diagram:



b.Hardware/software designing:-

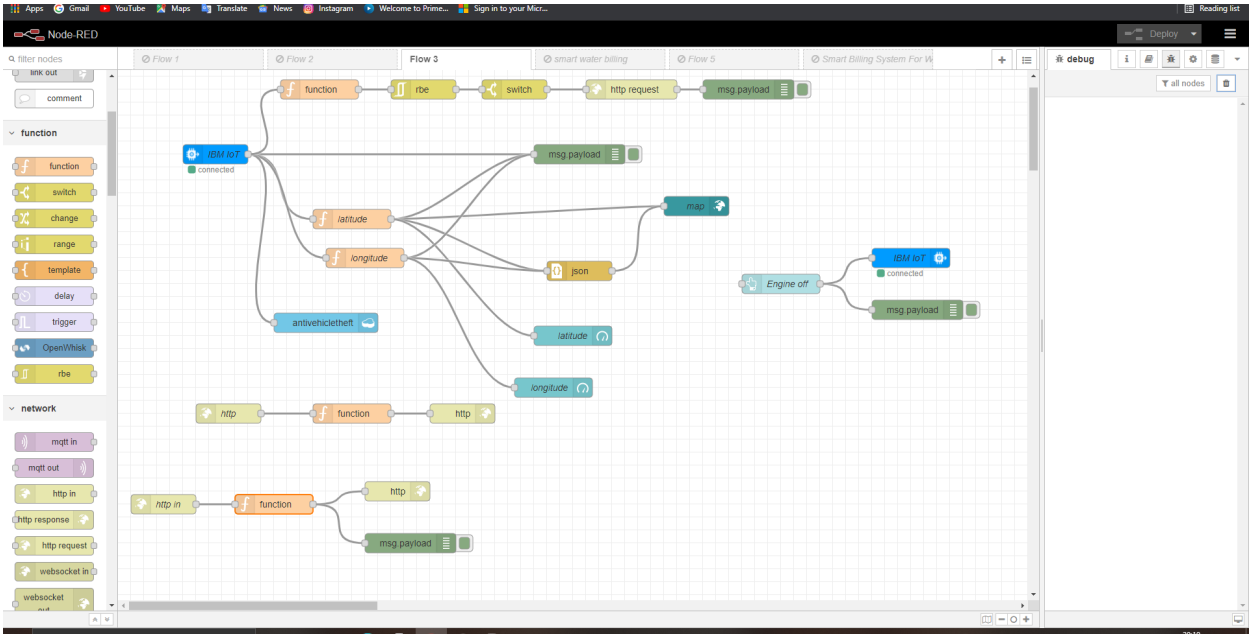
We follow a step-by-step procedure to set up all the interfaces required for our project and develop the code in python to send random sensor data to the cloud . The following software is required:

1.Python idle
2.IBM cloud
3.Nodered service
4.MIT app inventor

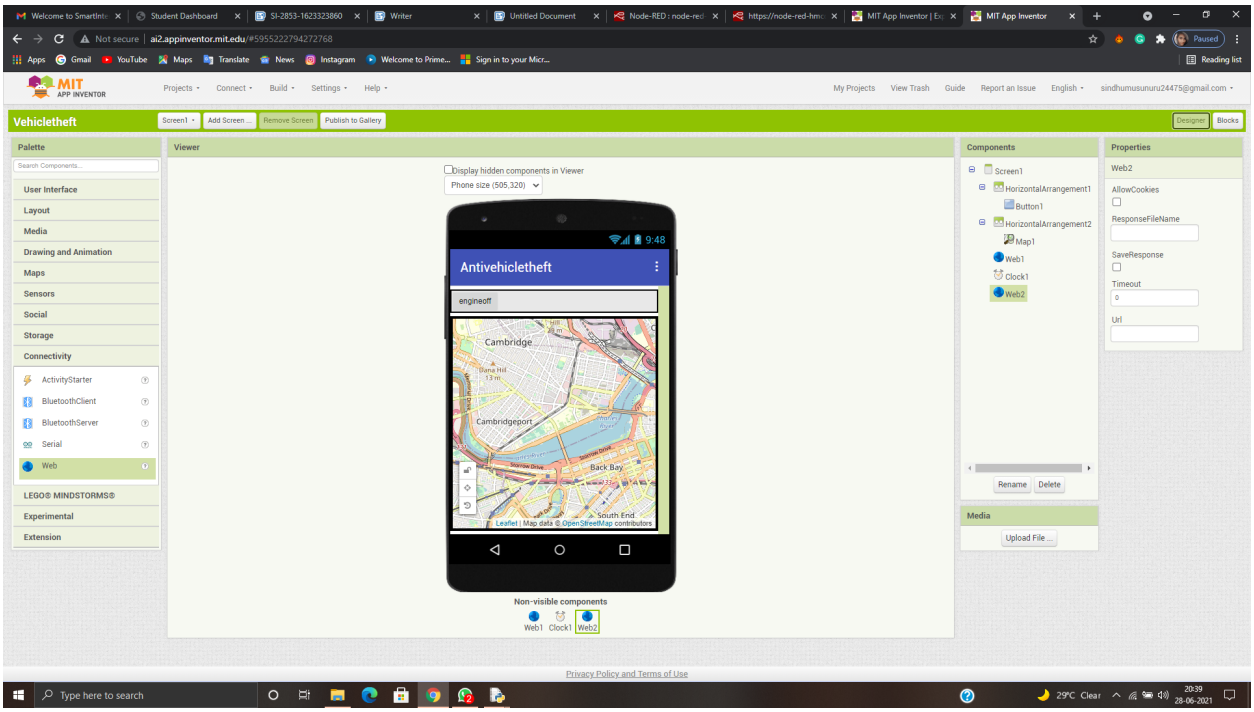
4.EXPERIMENTAL INVESTIGATIONS:-

Intially, for successful monitaring the anti vehicle theft some sensors are placed in the vehicle. Since the hardware is not available , a python code snippet is used to generate random values.If a person wants to open the door , he/she should enter the OTP ,if the randomly generated OTP matches with the entered OTP,it results in the opening of the vehicle door ,if the OTP doesn't matched it will gives the alert. It also publishes the data of latitudes and longitudes.This randomly generated data is sent to the IBM IoT platform.

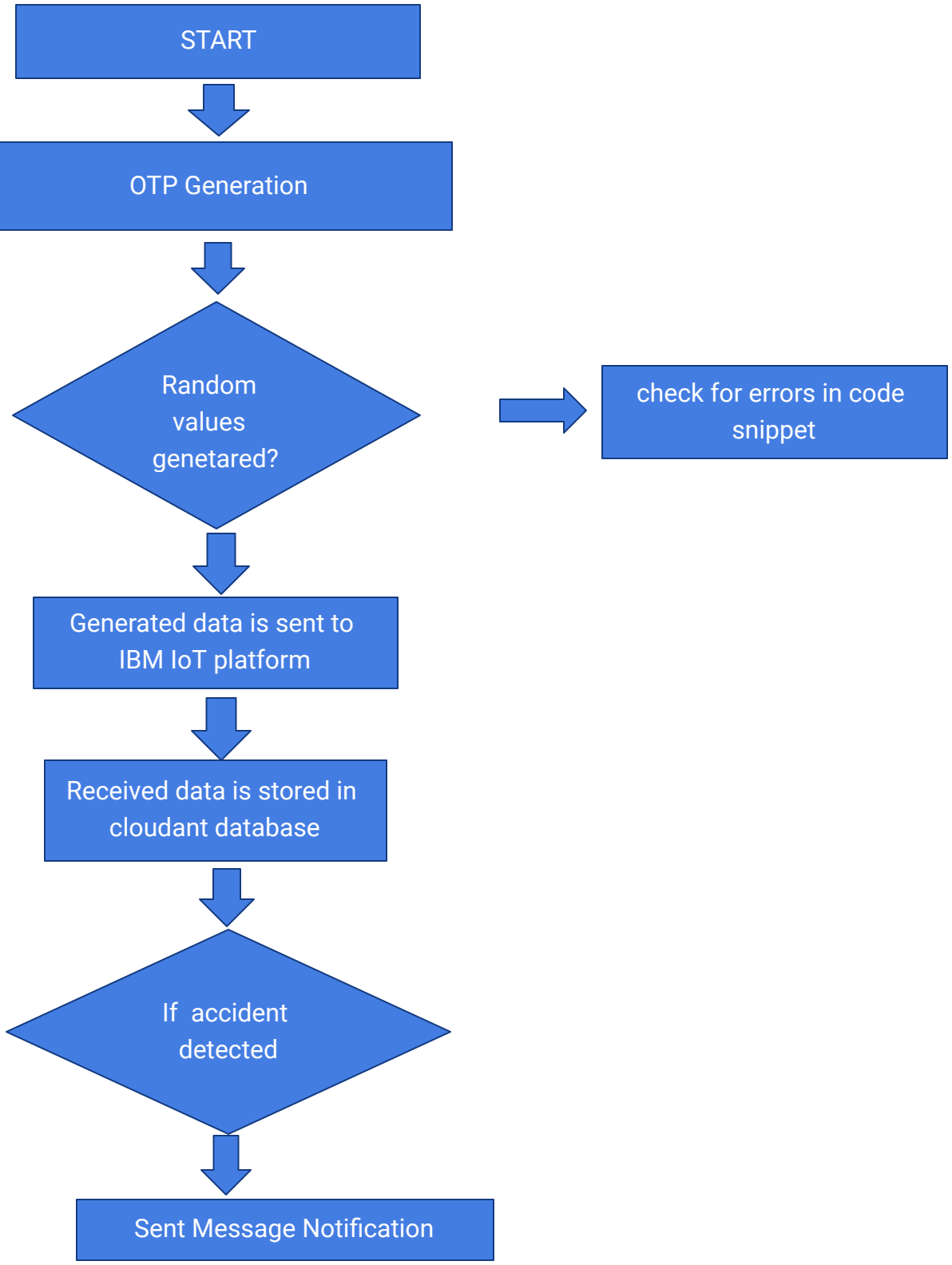
Using node red service,a node red flow is created which retrieves the data from IBM IoT platform.This received data is store in the cloudant database.If there is an accident detected it will notify the nearby people and emergency notications will be sent to the concerned persons using fast2sms.

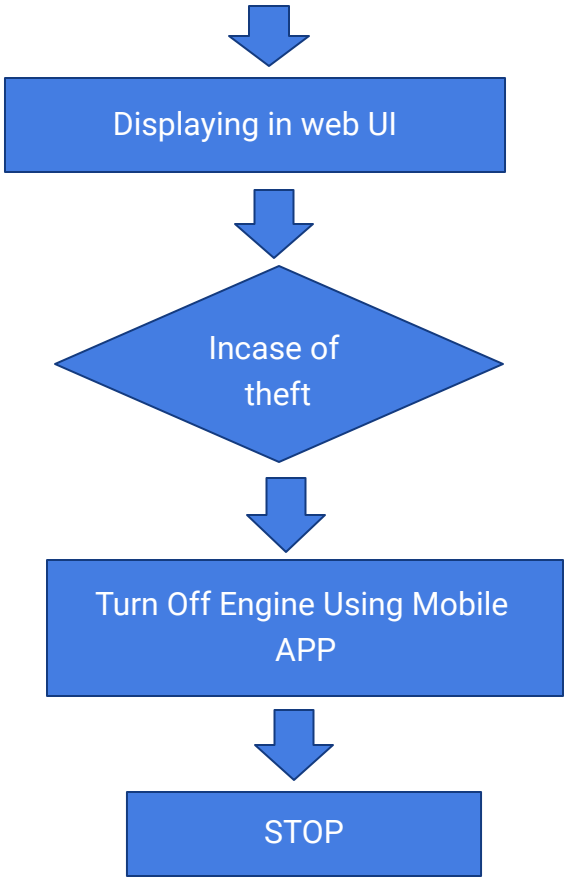


In case if the vehicle is theft ,engine can be turnedoff using MIT app inventor.


Vehicletheft
Palette
Viewer
Components
Properties
Antivehicletheft
engineoff
Cambridge
Cambridgeport
Back Bay
South End
Non-visible components
Web1
Clock1
Web2
Privacy Policy and Terms of Use

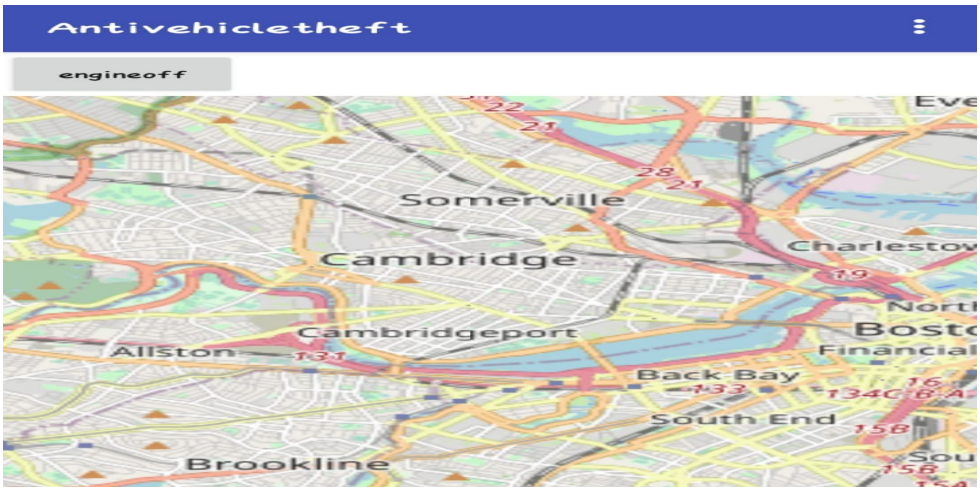
5.FLOW CHART:-

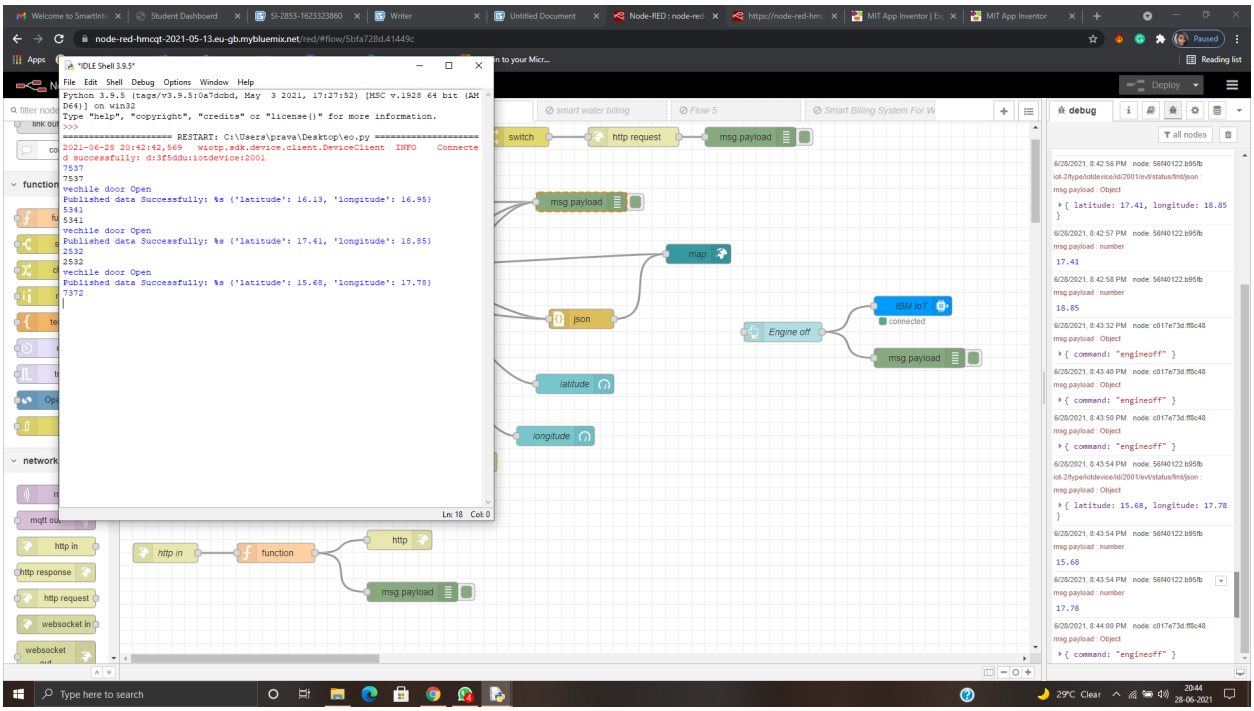

START
OTP Generation
Random values genetared?
check for errors in code snippet
Generated data is sent to IBM IoT platform
Received data is stored in cloudant database
If accident detected
Sent Message Notification



6.RESULT:-

The result of the project satisfies the less vehicle theft and the rate of the fatalities decreses if there is a immediate response incase of emergency and real time vehicle tracking.





7.ADVANTAGES AND DISADVANTAGES:-

a.Advantages:

- Sophisticated security.
- Monitors all hazards and threats.
- Alert message to mobile phone for remote information.

b.Disadvantages:

- Application doesn't support offline function.
- In some places where there is no provision of GSM networks it is difficult for communication.
- If the mobile network is disrupted,the safety of the occupant cannot be guranteed.

8.APPLICATIONS:-

- ➤ It can be used for stolen vehicle recovery.
- ➤ Automotives and transport vehicles.
- ➤ Security,remote monitaring,transportation and logistics.
- ➤ This system can also be interfaced with vehicle airbag system.

9.CONCLUSION:-

Main moto of this project is to sending alert notifications when the accident is detected.So that, it can reduce the chances of losing life.Vehicle tracking system is proposed to locate the exact position of vehicle when it is lost.Anti-theft system is also developed to provide security.

10.FUTURE SCOPE:-

The proposed approach implements to control the vehicle theft by using GPS and GSM. This system can be enhanced into the advanced system which uses IoT concept to operate the vehicle remotely by anyone from anywhere in the world.This can also developed by interconnecting a camera to the controller module that take place the photograph of the accident spot that makes the tracking easier.

11.BIBLIOGRAPHY:-

- http://data.conferenceworld.in/ICSTM2/P341-352.pdf
- https://flows.nodered.org/node/node-red-dashboard

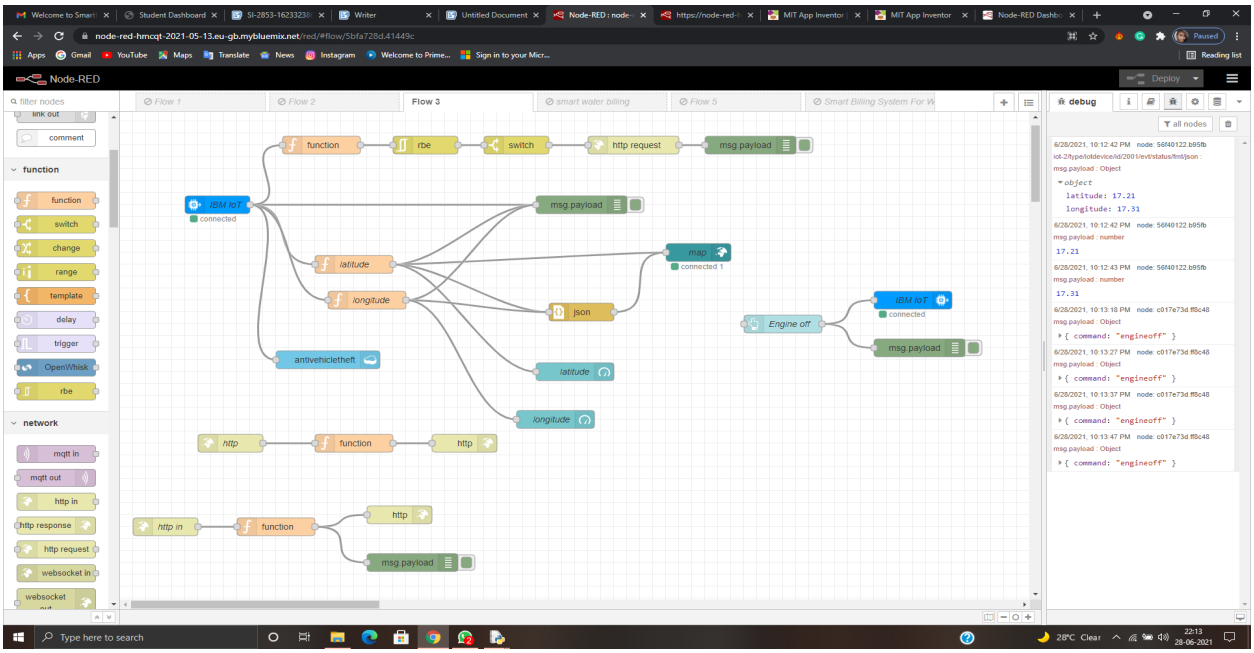
12.APPENDIX:-

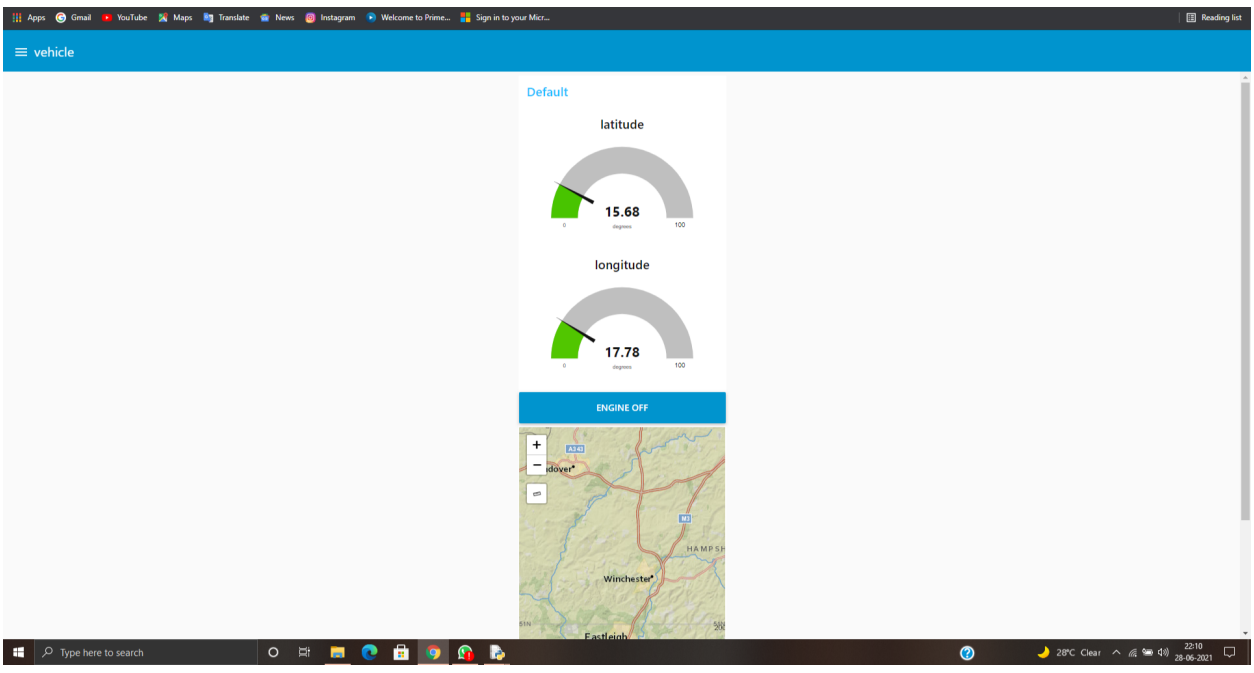
a.Source code:

```
import wiotp.sdk.device
import time
import random
myConfig = {
   "identity": {
      "orgId": "3f5ddu",#place you're crednetials
      "typeId": "iotdevice",
      "deviceId":"2001"
   },
   "auth": {
      "token": "Sindhu@27"
   }
}

def myCommandCallback(cmd):
```

```
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()



while True:
    otp=random.randint(1111,9999)
    print(otp);
    admin_otp=int(input())
    if(otp== admin_otp):
        print("vehicle door Open")
        lat=round(random.uniform(15,20),2)
        lon=round(random.uniform(15,20),2)
        myData={'latitude':lat,'longitude':lon}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)
        print("Published data Successfully: %s", myData)
        client.commandCallback = myCommandCallback
        time.sleep(5)
    else:
        var="alert"
        myData={'danger':var}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)
        print("Published data Successfully: %s", myData)
        client.commandCallback = myCommandCallback
        time.sleep(5)

client.disconnect()
```

b.UI output:


Node-RED
Deploy
Flow 1
Flow 2
Flow 3
smart water billing
Flow 5
Smart Billing System For W
debug
function
rbe
switch
http request
msg.payload
IBM IoT
connected
latitude
longitude
msg
connected 1
json
antivehicletheft
Engine off
http
http in
Type here to search
28°C Clear
22:13
28-06-2021


vehicle
Default
latitude
15.68
longitude
17.78
ENGINE OFF
Winchester
Type here to search
28°C Clear
22:10
28-06-2021