VEHICLE TRACKINGUSING NUMBER PLATE RECOGNIZATION AND DRUNK AND DRIVE DETECTION SYSTEM

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Abstract - *License plate localization is an important stage in vehicle license plate recognition (ANPR) for intelligent transport systems(cars etc..). This paper presents a efficient real time method of license plate location. License plate recognition has been widely studied, and the advantage of image capture technology helps to enhance or create new methods to achieve this objective. Due to the rapid growth of highways and the extensive use of vehicles, researchers launch more interest on proficient and accurate intelligent transportation systems. In such circumstances, it is difficult for identification of the vehicle number plate. The above mentioned challenge is highlighted in Automatic Number Plate Recognition of vehicle. For this, the concept of Optical Character Recognition is used. This work presents a strong technique for localization, segmentation and recognition of the characters within the located plate. In this work, a method for real time detection and segmentation of car license plate based on image analyzing processing techniques is presented. Here the optical character recognition algorithm (OCR) is used to recognize the individual character with the help of database stored for each and every alphanumeric character. After recognizing the license plate, the respective vehicle owner's details will be retrieved from the database. And these details can be used for checking whether the vehicle is licensed or registered.*

 Here we also add the concept of alcohol detection, if alcohol was detected , then automatically notification will be send to the nearby toll service or police station, and activates the camera nearby toll service.camera clicks number plate and number is extracted and sent to near by police station along with the location using GPS module.

Key Words: *ANPR, Drunk and drive detection, OCR Model, GPS*

1. INTRODUCTION

License plate localization is an important stage in vehicle license plate recognition (ANPR) for intelligent transport systems(cars etc..). This paper presents a efficient real time method of license plate location. License plate recognition has been widely studied, and the advantage of image capture technology helps to enhance or create new methods to achieve this objective. Due to the rapid growth of highways and the extensive use of vehicles, researchers launch more interest on proficient and accurate intelligent transportation systems. In such circumstances, it is difficult for identification of the vehicle number plate. The above mentioned challenge is highlighted in Automatic Number Plate Recognition of vehicle. For this, the concept of Optical Character Recognition is used. This work presents a strong technique for localization, segmentation and recognition of the characters within the located plate. In this work, a method for real time detection and segmentation of car license plate based on image analyzing processing techniques is presented. Here the optical character recognition algorithm (OCR) is used to recognize the individual character with the help of database stored for each and every alphanumeric character. After recognizing the license plate, the respective vehicle owner's details will be retrieved from the database. And these details can be used for checking whether the vehicle is licensed or registered.

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Automatic vehicle license plate recognition system(ANPR) plays a important role in real time such as in parking, toll gates collection and road traffic monitoring(Traffic lights). This system recognizes a vehicle's number plate in the form of an image by digital camera(raspberry pi cameras etc..). It is fulfilled by sequence of techniques such as image acquisition(capturing the image of licence plate) localizing the license plate character(assigns place to characters number plate),segmentation (locating and finding individual characters on the License plate of the vehicle)and optical character recognition(OCR algorithm).Now a day's, recognition or identifying the information present on the moving objects is turning of great importance. The increasing human dwelling and the growth of industry arena in the current scenario has made vehicle a mandatory need which in turn leads into a serious traffic issues.

 The major accidents in the world, more than 50% are caused due to menace of driving under the influence of alcohol consumption. Therefore, since the death due to

drunken-driving has assumed proportion larger than one can imagine, it requires immediate attention. This paper attempts to explore the possibility of using System would detect the level of alcohol content in the blood (BAC) and prevent "very-start" of the motor vehicle. This System aims at preventing the user from driving when drunk and reduces accidents due to drunk and drive and saves lives.. The model is created using Raspberry pi zero w and Alcohol detecting sensor. The alcohol detecting sensor (MQ-3) when connected to a Raspberrypi detects the level of alcohol content in blood by analysing driver's breath. The MQ-3 alcohol sensor is embedded (placed) at the center of the steering wheel (IOT) so that whenever the driver exhales the sensor measures and detects the alcohol content level, analyses whether it is within the "safe" limit or not, before starting or allowing the ignition of the "motor-engine". The " legal limit of alcohol level in India is 0.03%, which means 30 microliters of alcohol in 100 ml of blood. Needless, to say as and when the excess-alcohol content(more than 0.03% alcohol content) gets detected it sets up alarm or buzzer. The placing of the alcohol-sensor at the middle of the steering wheel ensures that the detection of alcohol-content is limited to the driver's seat and does not take into the account the alcohol content in the blood of the fellow-passengers(BAC). The paper attempts to produce the design and operation of the "model-device "that when produced commercially can help avoid accidents due to drunk and drive and save precious life lost to reckless driving under the influence of alcohol.

In the case of alcohol detection(if alcohol contentis greater than 0.03%), vehicle tracking (With GPS tracking is necessary to control the accidents caused due to drunk and drive. For this vehicle tracking GPS module is used along with Rasberrypi.

Numberplate recognition procedure is generally divided into four parts are

1)**Image acquisition** is capturing the image of the license plate (Number plate of the vehicle)

2)**Pre-processing** the image is limiting the area of the license plate

3)**Character segmentation** i.e. locating and finding the individual symbol or character image on the plate

4)**Optical character recognition** is identification of printed characters using photoelectric devices and computer software.

Hence when alcohol is detection, image is captured and number is extracted through OCR model.

Then along with number, location(through gps modules) is sent to near by police station through email.

2. METHOD

Three Raspberry pis are used and python language are used in this project.

In first raspberry pi, Mq3 alcohol sensor and gps module are connected. First raspberry pi is placed in Car.

Raspberry pi Cameras are connected to second raspberry pi or third raspberry pi. 2 nd and 3 rd raspberry pis are fixed in position and gps values are noted.

STEP1: Alcohol percentage is detected using mq3 sensor and if alcohol percentage is more than 30%, and gps of car is equal to gps of camera(second raspberry pi or third raspberry pi)It sends event to second raspberry pi or third raspberry pi using socket programming.[1]

STEP2: Camera1 or camera2 captures the image according to gps of car. [2]

STEP3: This imaged proceesed (OCR MODEL) and number is extracted. [3]

STEP4: Number is sent to Main application and stored in database.[4]

STEP5: When user Enters Vehicle number, Main Application (developed with Tkinter) [5] displays Path of Vehicle, by comparing with Vehicle number stored in database along this camera nos(As cameras location is fixed) and google map of car location.
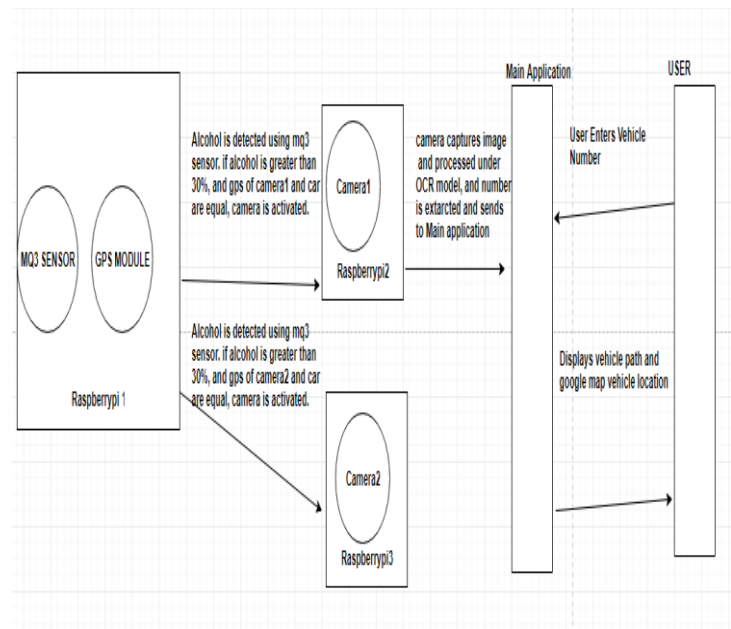

Fig.1. Vehicle tracking using number plate recognization and drunk and drive detection

3. RESULTS

When python simpletst.py is executed, Alcohol percentage is displayed as below..
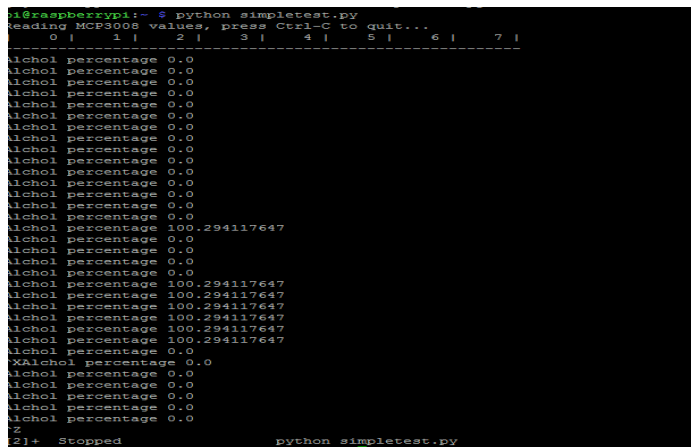

Fig.2. ALCOHOL DETECTION

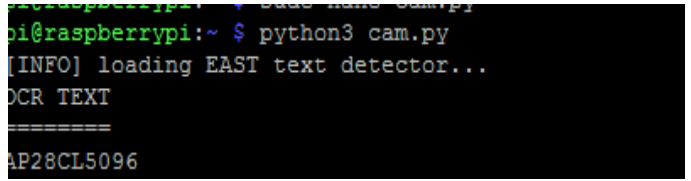When python cam.py is executed, number extracted is displayed as below.

Fig.3. NUMBER EXTRACTION USING OCR MODEL

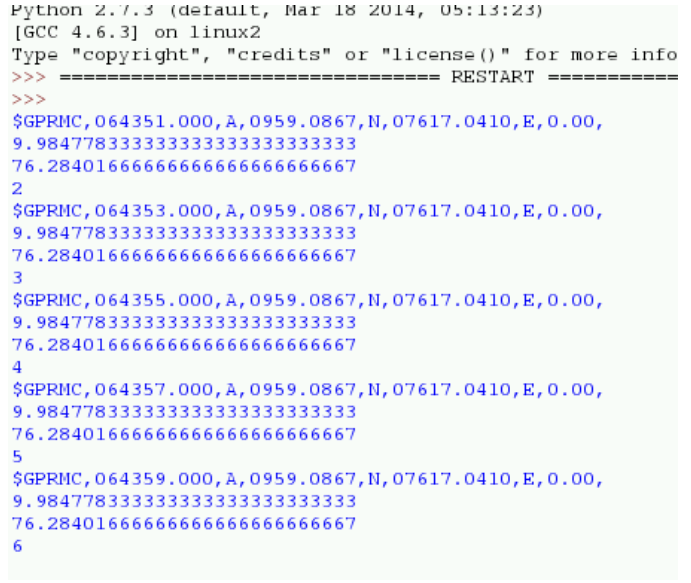When python gps.py is executed, latitude and longitude are displayed as follows

Fig.4. FINDING GPS COORDINATES

An application is developed using Tkinter module in python and icon is created. When icon clicked displays as follows to eneter vehicle number
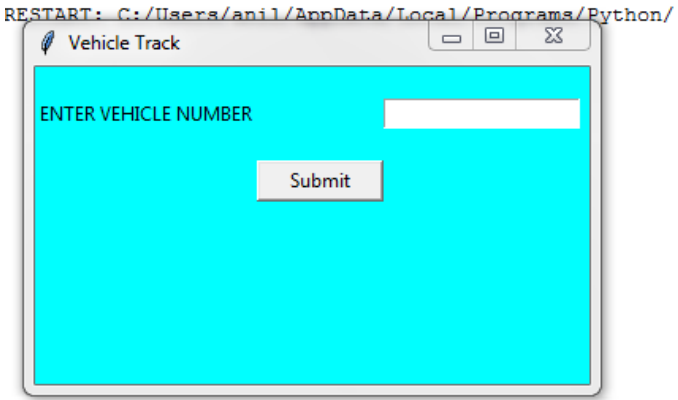

Fig.5. Enter vehicle number
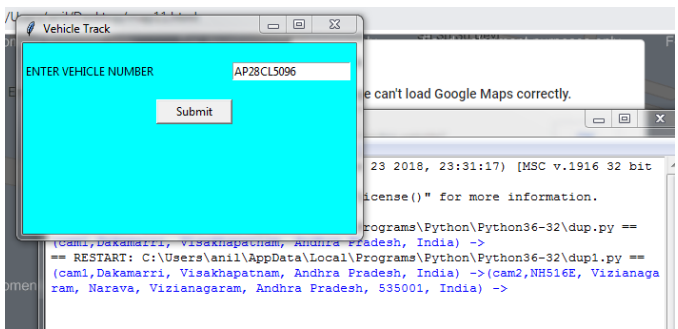
Displays path of the vehicle as follows..

Fig.6. PATH OF THE VEHICLE

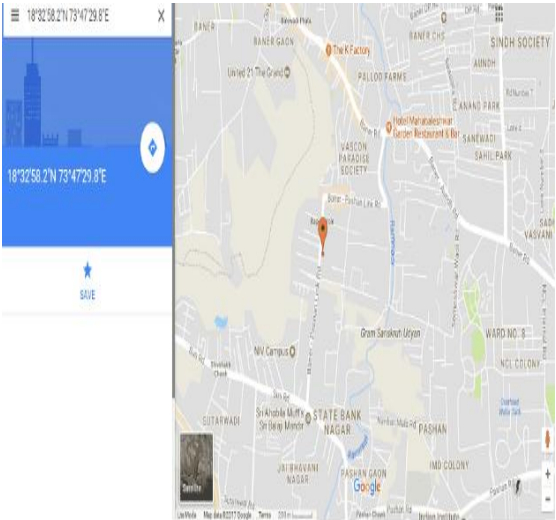Then displays google map location of the vehicle as follows.

Fig.7. GOOGLE MAP OF VEHICLE

4. CONCLUSIONS

In this paper, an Sophisticated ANPR system for for tracking vehicle(with GPS tracking) and drunk drive detection system is proposed. The main advantage of our system is to alert to police control room if drunk and drive is dtected. We have tested this system in real time, Alert is sent automatically to police control room through email if drunk and drive is detected. If detected drunk and drive immediately vehicle number is also sent to the police control room. We assure

In future with this system, major accidents due to drunk and drive can be avoided. Alerts will be immediately sent is alcohol detected with gps location and number of the vehicle.

5. REFERENCES

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BIOGRAPHIES

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