

Vehicle Monitoring

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Abstract— Vehicle monitoring is a system that ensures vehicle info using automatic number plate detection. A license plate contain vehicle registration number and owner info, it is also contain RC, PUC, and insurance. Our system provide vehicle monitoring using Number plate detection. There are many vehicle rooming on street with a fake and illegal pattern of number plate, which is also known as forgery or fake vehicle for that our system find out such vehicle and track that vehicle. In our system we find out the proper and legal vehicle to reduce man power and energy of cops. Basically we wish to detect a number plate and then process on that number plate.

Keywords: Number Plate Recognition, Image Processing, Segmentation

I. INTRODUCTION

Vehicle number plate is an identity of vehicle and owner, vehicle contain license plate and according to RTO rules a number plate should be neat and clean it should be visible also license plate does not contain any other matter except registration number.

In case of any matter found is will be considered as illegal number plate and owner have to pay fine.so we trying to build a system that can examine these type of vehicle with Automatic Number Plate Recognition. As increase in theft of vehicle our system will help to find out the stolen vehicle, which is quite difficult to find out vehicle to police physically. We wish to find out stolen vehicle with the help of our system.

II. LITERATURE REVIEW

MOHAMED MAHMOUD ABD EL-WAHAB [1] The main focus in this research project is to experiment deeply with, and find Alternative solutions to the image segmentation and character recognition problems Within the License Plate Recognition framework. Three main stages are identified in such applications.

CHIRAG INDRAVADANBHAI PATEL Charotar University of Science and Technology, D. SHAH Sardar Patel University. [2] Character segmentation is very important in order to perform character recognition with good amount of accuracy. Sometimes character recognition is not possible due to error in character segmentation. In some literature of ANPR, character segmentation is not discussed with details. Some methods such as image binarization, CCA, vertical and horizontal projection can produce better results of character segmentation.

ANISHA GOYAL, REKHA BHATIA Department of CSE ,Punjabi University Regional Centre for Information Technology and Management, Mohali, Punjab, India [7] Captured RGB image is appeared in fig2.The captured image is influenced by many elements like: Optical system distortion, system commotion, lack of presentation or over the top relative motion of camera or vehicle and so forth result is the degradation of a captured vehicle image and the

unfriendly influence to the further image processing. Therefore before the main image processing, pre-processing of the captured image ought to be taken out which include converting RGB to gray in fig 3, clamor evacuation, and border enhancement for brightness.

III. METHODOLOGY

In these system we are going to build a strong interface with the RTO and vehicle, basically we provide an vehicle video then these video will processed and finding each vehicles license plate. then further it examine that vehicle is legal or not if legal then it will skip or image of vehicle will be send to RTO.

A. Vehicle License Plate or Number Plate:

If the vehicle is private vehicle then the background color should be white and font color black. If the vehicle is transport commercial then background color should be yellow and font color should be black. If the vehicle is transport registered then background color should be yellow and font color should be red. If the vehicle is rental cab then background color should be black and font color should be yellow. The vehicle's number plate should not display any symbols, names or stickers.

These trained data provided to database at the time of comparison.

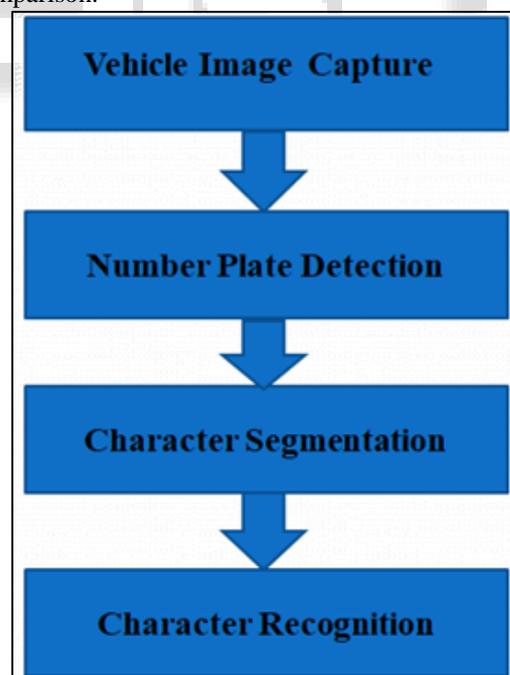


Fig. 1: Block diagram

IV. PREPARE YOUR PAPER BEFORE STYLIN

In the Block diagram shows the different blocks in the system to recognize and internal working of the system.

- 1) Vehicle Image Captured.
- 2) Number Plate Detection.

- 3) Character Segmentation.
- 4) Character Recognition.

A. Vehicle Image Captured

Camera or video is captured the image of vehicle for the further processing of image. Then after image will be processed, a Digital Image Processing is method to convert an image into digital form and perform some operation on it. Here the image will be captured and then processed the purpose is that image will captured and number plate will be detected, that's why we use ANPR for detecting number plate from vehicle image.



Fig. 2: Vehicle Image

B. Number Plate Detection

For Detecting the License Plate from image we have to use an input image as an input. And we assign a number plate Function for License plate detection.

```
numberplate = find_number_plate(im);
numpl = char(numberplate);
numpl = numpl';
```



Fig. 3: Number Plate

C. Character Segmentation

In this method the extracted number plate is divided in each block and words, the word or block will be processed and for identifying numbers it must be recognize each character of number plate.

The character segmentation is used to segment of block or words from the number plate it contain some alphabets and some numbers. As we know in India a vehicle registration number contain first two words then two character then one or two words and last four characters. This is a unique identity for vehicle.

D. Character Recognition.

This method is working on Optical Character Recognition i.e. OCR. The OCR is a character Recognition library which is created by someone for character recognition. For that we also used an opencv library it is also open source library it will help to recognizing the character from number plate.

V. CONCLUSION

After detecting the number plate it will check whether the number plate is valid or legal or illegal. If number plate is illegal then the image is forwarded to RTO module and RTO will fined to that vehicle via mail or message.

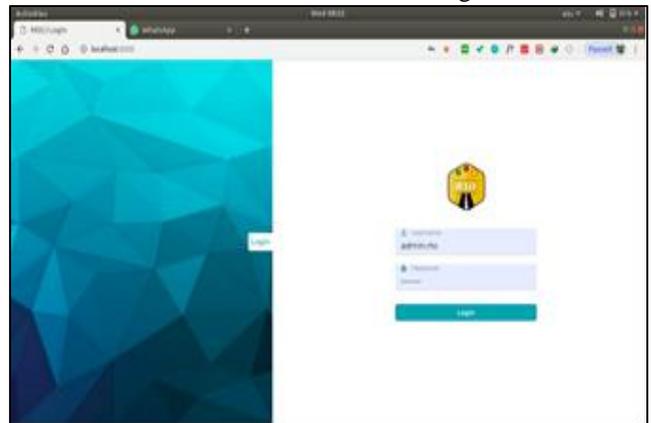


Fig. 4: Login page.

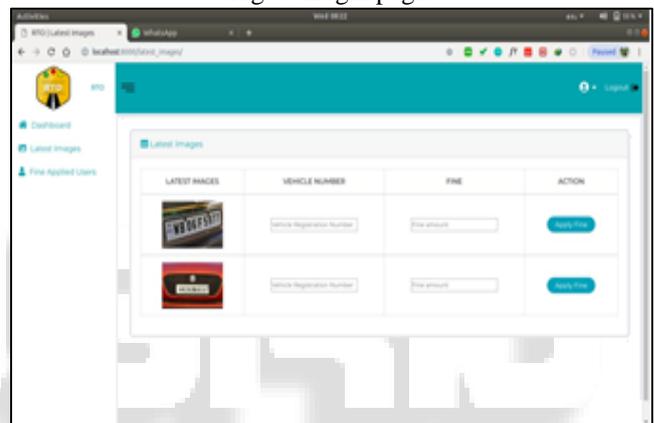


Fig. 5: RTO image

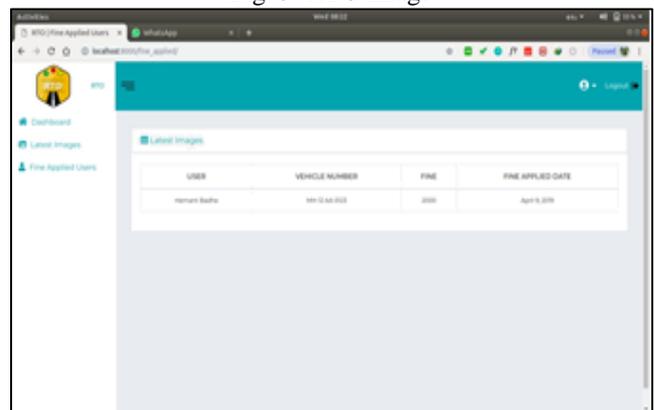


Fig. 6: Fined page.

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