Fancy Number Plate Detection using Automatic Number Plate Recognition

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Abstract— Fancy Number plate detection is to recognize the pattern and format of the vehicle number plate. A number plate contain the vehicle passing info and unique identification of vehicle. We wish to create a system which identify the number plate and identify the Number plate format which defined by RTO and government. Using Number plate recognition we capture the image of vehicle number plate and processing the image to examine whether the number plate is valid as per RTO rules or not. Also it has various scopes in future to reduce criminal activities like stolen vehicle. Our aim is to build a strong and reliable product.

Key words: Number Plate Recognition, Image Processing, segmentation

I. INTRODUCTION

By law a vehicle should display its registration number on the front and rear side. All number plates are required to be in modern Arabic numerals with Latin letters. In short, the registration number of a vehicle should be readable and clearly visible. However, as we Indians love to decorate each and everything we own, a vehicle's number plate is not an exception.

Two-wheeler and four-wheeler vehicles are used in criminal events such as kidnapping, murder, molestation, and chain or mobile phone snatching. It is observed by the officials that a common factor in such crimes was that a vehicle with a fancy number plate was used to throw the police off their trail.

A fancy number plate recognition is a technology use optical character recognition to read vehicle registration plate to create vehicle data. For that we need cameras specifically designed for the task of ANPR.

II. LITERATURE REVIEW

S. K. KIM, D. W. KIM, H.J. KIM. [1] Proposed the license plate character extraction. In these paper author vehicle number plate extracted using character segmentation, the execution of extracted license plate ratio is 97%. Character segmentation plays vital role for identifying the owner of of vehicle and license plate is a unique identification for vehicle. Also in these paper we learn about character segmentation.

Tejendra Panchal, Hetal Patel, Ami Panchal. [2] represent the license plate detection using haris corner and character segmentation, these is for license plate localization and integrated segmentation approach. Is uses ALPR (Automatic license plate recognition) for recognizing license plate from vehicle it uses different algorithms for image processing. These method we working on the basis of Pixel count, aspect ratio and height of character.

Rafael C. Gonzalez and Richard E. Woods [7] is as an author of Digital Image Processing Second Edition book in these book Rafael C. Gonzalez presents the concepts of different digital image processing also it contain the probability, statistics and vector in brief for digital image processing.it defines a digital image and its processing.

III. METHODOLOGY

In these technology we are going to use cameras which are specially designed for ANPR. Which is capture the image of vehicle and license plate, then using image processing techniques character and background image is detected.

After image is detected and image processing is applied then the content of image is compared with trained data that we have been provided to database.

A. Guidelines for Vehicle Number Plate

Vehicles having less than 70cc engine should display a number plate with a font height of 15mm and width of 2.5mm.The space between each letter and number should be at least 2.5mm. For 500cc vehicles or three-wheelers, the font height should be 35mm and width should be 7mm. These vehicles should have at least 5mm of space between each letter and number. For vehicles which do not fall into this category, the font height of number plates (both front and rear) should be 65mm with the width of 10mm, and space of 10mm between each letter and number. Also, the vehicle's number plate should not display any symbols, names or stickers.

B. Which Color Combination Is Allowed by RTO?

Type	Background Color	Font Color
Private Vehicle	White	Black
Transport Commercial	Yellow	Black
Transport Registered	Yellow	Red
Rental Cab	Yellow	Black

Table 1:

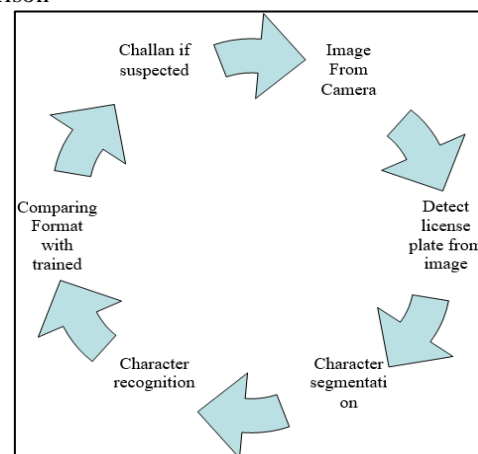These trained data provided to database at the time of comparison

Figure 1 Block diagram

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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) Image from Camera.
2) Detect License Plate From Image.
3) Character Segmentation.
4) Character Recognition.
5) Comparison with Trained Data.
6) Challan if Suspected.

A. *Image from Cameras*

CCTV or Camera is captured the image of vehicle for the further processing of image. The camera are placed in that position where camera is able to read and capture the image of vehicle. For that we have to assign the image as an input image to the system for the processing over an input image.

Fig. 1: Vehicle Image

B. *Detect License Plate From Image*

For Detecting the License Plate from image we have to use an input image as an input. And we assign an number plate Function for License plate detection.
numberplate = find_number_plate(im);
numpl = char(numberplate);
numpl = numpl';

Fig. 2: Number Plate

C. *Character Segmentation*

These method is working on character Segmentation we will divide each character of number plate to find the numbers and characters for identifying the pattern of character. Further we perform character recognition.

D. *Character Recognition*

These method is working on character recognition from the number plate which we have extracted from Image and license plate. We use each character from image using Optical Character Recognition and plate format using open cv.

E. *Comparing Format with Trained Data*

In these method we actually defined whether the number plate is valid as per RTO rule or not. In trained data we assign some data like font size, font color, background color etc. these trained data is compared with the input data and defined whether it is valid or not. And also we find whether the number plate is find in our database or not.

F. *Challan if Suspected*

In these method we assign a fine if the license plate is not in the RTO rules. As fancy number plate detected then the challan will be sent owner to its address or contact number which was provided at the time of vehicle registration. Then owner have to pay the challan within 7 days and owner have to change its number plate as RTO rules.

V. CONCLUSION

In these system fancy number plate will be detected and reduce the man power of police department. Also it is able to provide owner information using umber plate.

In these system have to camera which is specifically designed for ANPR. If the fancy number plate detected then it will send challan to owner and owner have to pay the challan within 7 days.

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