AUTOMATIC LICENSE PLATE DETECTION USING IMAGE PROCESSING

Varshini B[1], Venkatesh prabhu N[2], Sachin V S[3], Sathesh Kumar K[4]

[1,2,3] UG Student, Bannari Amman Institute of Technology, Sathyamangalam, India.
[4]Asst.Professor, Bannari Amman Institute of Technology, Sathyamangalam, India.

---***---

Abstract - *Rash Driving is the major reason for all the accidents that happen. Though rash driving is a crime and it is out of rule many people still do such driving and end up in an accident. Manually it is difficult to identify the vehicle number by the traffic police as it goes too fast. There are many methods to identify the number plate of the vehicle automatically. In this paper we discuss one of the methods. Automatic License Plate Detection is an Image processing technology that captures the image of the vehicle and recognize its registration number and convert the letters and numbers on the number plate into digital text format .Optical Character Recognition is used for character recognition. Optical character recognition (OCR) allow computers to recognize and analyze printed or handwritten documents automatically and prepare text data into editable formats for computer systems to efficiently process them. The system is implemented in software model and the performance is tested on real Image.*

1. INTRODUCTION

License plate identification and acknowledgment is utilized in a large number of the applications, including travel time estimation, vehicle relying on parkways, petty criminal offenses discovery, and observation applications. With the developing population, vehicles number are increased drastically. The ANPR(Automatic Number Plate Recognition) frameworks which are ordinarily known as MANPR are utilized by State Police Forces, and the Department of Justice. A fixed ANPR framework was first utilized by the Highway Patrol power in the territory of the South Wales. They started with a portable ANPR framework with three infrared cameras fitted to the Highway Patrol power. The framework recognizes enlisted, unregistered and taken vehicles and furthermore the certified, excluded or suspended drivers. This made them check one million vehicles for each week. Utilizing this framework, information gathering and changeless gantry establishments were carried online with ANPR to screen the speed of vehicles utilizing detection, imaging and factual abilities.

Automatic license Plate detection is an innovation that uses pattern recognition to read registration plate of the vehicle. In straightforward terms the cameras captures the number plates of the vehicles that passes by. This photo is then taken care of in a PC framework to discover insights regarding the driver and proprietor of the vehicle and insights regarding the vehicle itself. As a vehicle passes, the system reads the Vehicle Registration number – all the more regularly known as number plates - from computerized images, taken through cameras found either in a portable unit ,in-worked in rush hour gridlock checking vehicles. Optical Character recognition algorithms for license plate recognition play an essential job in the acknowledgment of the number plate. Therefore they structure the center modules in any ANPR framework. The automatic license plate recognition incorporates a static camera, a designer, a PC, and specially crafted programming for picture handling, examination and acknowledgment.

2. WORKING METHOD

The Camera which is fitted in the vehicle crossing territory screens the vehicle interruption into the region and records the activity as video and it is known as the discovery of vehicle. The video is isolated into different edges and afterward the license plate of the vehicle is portioned, this progression is known to Extraction of the number plate. The separated number plate pictures are exposed to a procedure named (OCR) Optical Character Recognition and afterward the Characters from the tag are isolated through a different pre-processing procedures and they are sent to the analyze. It compares the acquired information to the information put away in the database. Also, at last the analyzed information is shown in the screen.

A. Detection of vehicle

The vehicle entering the parking garage is distinguished utilizing a camera. Image processing strategies are executed where a Gaussian Filter is utilized to subtract the original picture from the live video to identify the vehicle entering the parking area.
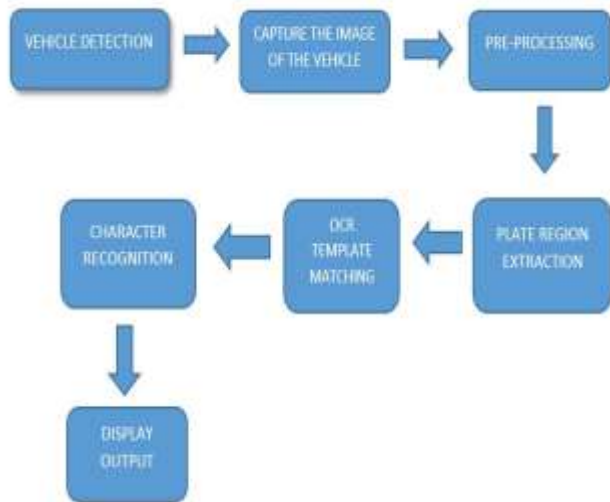
Fig -1: Flow Diagram

The picture is separated from video and taken as casings or caught by advanced camera are sequenced should be pre-handled. The account will create noise due to the variety in the luminance, shading and different parameters. This causes a minimization in the picture quality gained from the recording, which could be overwhelmed by making it clear what's more, recognizable. This is done in the phase of preprocessing where the undesirable data (clamor) are pared and the required information is showed, for example, the difference, sharpness what's more, smoothness. A GUI based framework is utilized to consolidate the upgrading procedure of the number plate. Though the reconciliation of low-pass Gaussian channel is utilized to diminish the clamor. There are two sorts of preprocessing procedures. They are,

• Gray Processing: This progression changes over the picture in to dark levels where, the shading pictures are changed over in to dim picture. The dark estimation of a picture is determined and the dim picture simultaneously utilizing the estimations of R, G, B values in the picture

• Median Filtering: Media sifting is a stage, where the clamors of the picture are evacuated. Grey Processing can't evacuate the noise.

B. OCR Template Matching

Template matching is a standout amongst other Character Recognition strategies since it is effectively and easily implemented. The absolute first thing that is done in the format coordinating is to give a template that must be coordinated with the image. This procedure of finding the area of the sub image(template picture) is called as the template matching. Layout coordinating shows the

likenesses between a given layout and the picture that ought to be coordinated with it. It works by pixel-by-pixel correlation of the picture and the format for every conceivable relocation of the format. This procedure includes the utilization of a database of characters or layouts. There exists a layout for all conceivable input characters. Templates are made for every one of the alphanumeric characters**.**

3. CONCLUSION

This paper clarifies the recognition method using image Processing and it is easy to understand, productive framework that works in any climatic conditions unaffected. That framework ought not be affected by the variables like speed, light, text dimension and styles. This system performs by catching the information picture document captured through the different timings and with assortment of lighting conditions. The Optical Character Recognition (OCR) is utilized to extricate the number from the number plate. This framework permits the client to utilize different positions number plate and can likewise be actualized in real time.

REFERENCES

[1] A. N. Rajagopalan , and R. Chellappa. "Vehicle detection and tracking in video." In Proceedings of International Conference on Image Processing (Cat. No. 00CH37101), vol. 1, IEEE, 2000, pp. 351-354.

[2] P Surekha: Automatic License Plate Recognition Using Image Processing and Neural Network DOI: 10.21917/ijivp.2018.0251

[3] P. Sai Krishna, "Automatic Number Plate Recognition by using Matlab", International Journal of Innovative Research in Electronics and Communications, Vol. 2, No. 4, pp. 1-7, 2015

[4] Hanit Karwal, Akshay Girdhar, "Vehicle Number Plate Detection System for Indian Vehicles", IEEE, 2015.