DAYANANDA SAGAR UNIVERSITY

A Pattern Recognition Synopsis

ON

''Licence Plate Recognition''

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

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ABSTRACT:

Traffic control and vehicle owner identification has become major problem in every country. Sometimes it becomes difficult to identify vehicle owner who violates traffic rules and drives too fast. Therefore, it is not possible to catch and punish those kinds of people because the traffic person might not be able to retrieve vehicle number from the moving vehicle because of the speed of the vehicle. Therefore, there is a need to develop Automatic Number Plate Recognition system as a one of the solutions to this problem. There are numerous Automatic Number Plate Recognition systems available today. These systems are based on different methodologies but still it is really challenging task as some of the factors like high speed of vehicle, non-uniform vehicle number plate, language of vehicle number and different lighting conditions can affect a lot in the overall recognition rate. Most of the systems work under these limitations.
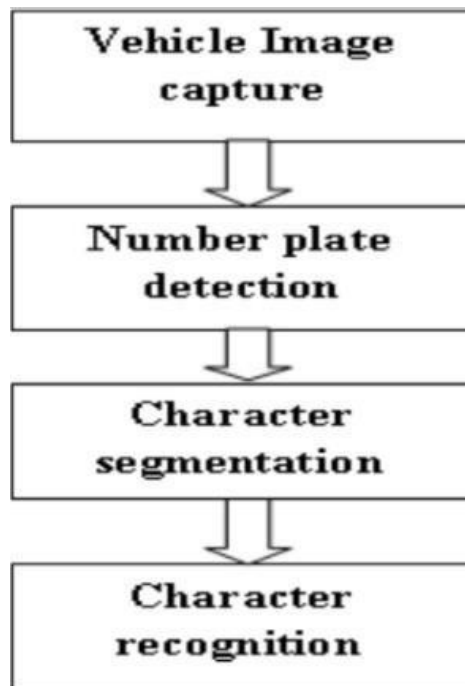
PROBLEM STATEMENT:

Researchers have to face various problems while automatic detection and recognition of license plate. Here we have explored few major problems. The first problem is the non uniformity of the license number plate models for different cities. It may also varies from one state to another and thus from vehicle to vehicle. Length of the number plates may also vary. Second prime difficulty is the low resolution of the number plates for vehicles in video frames under typical surveillance systems. The expected solutions for these problems are to develop the sequential coordination of image and video processing tasks. This processing sequence may include, algorithms,object tracking and segmentation, locating the license plate area, detecting number and its color.

INTRODUCTION:

Number Plate Recognition System is an essential stage for the automation of traffic system. Use of vehicles is getting increased in today's era that is why traffic control is being tough. It is hard to store and maintain the record of vehicles manually.Number Plate Recognition System can be used for better control of vehicles and for store and maintain the record of vehicles automatically.

License plate recognition (LPR) system is able to detect vehicles on the monitored road and automatically extract vehicle license information and process it. LPR is a modern intelligent transportation system, an important part of one widely used. It is based on digital image processing, pattern recognition, computer vision and other technology. By means of some post-processing, it can be used in highway toll, parking management, weighing systems, traffic guidance, traffic enforcement, road inspection, vehicle scheduling, vehicle inspection and many other occasions. To maintain traffic safety and urban security, to prevent traffic congestion, to achieve traffic automation management, the LPR system has practical significance.

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┌─────────────────────┐
│   Vehicle Image     │
│      capture        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Number plate      │
│    detection        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│     Character       │
│   segmentation      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│     Character       │
│    recognition      │
└─────────────────────┘
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SOFTWARE AND HARDWARE REQUIREMENTS:

HARDWARE:
i3 processor based computing or higher
Memory : 4 GB RAM
Hard drive : 50 GB

SOFTWARE:
Code editor : Visual studio code
Operating System : Windows or Linux
Programming Language: Python3
Libraries Required : Numpy,Matplotlyb,Opencv,Random

CONCLUSION:

The image segmentation problem in license plate recognition for Indian License Plates has been examined in two stages: license plate Localization and extraction from the scene followed by the separation of the characters from the previously extracted license plate region background. Various approaches for license plate detection in an image, and extensive experiments have been devised to test them are presented. The purpose of this project has been to investigate the scope of automatic license plate recognition under minimal restrictions. The main objective is aimed at contributing towards the research in the fields of machine vision, pattern analysis and image processing. The system developed investigates the possibility of automating the whole process of license plate recognition for a wide range of environments. Given an input image, the system extract extracts the license plate, isolates the characters, and finally identify the characters.