**AUTOMATIC TEXT EXTRACTION FROM THE LICENSE PLATE IMAGES BY USING BINARIZATION AND TEMPLATE MATCHING**

**ABSTRACT**

Automatic License Plate Identification (ALPI) has many applications in traffic systems. Segmentation of text from badly degraded images is very challenging tasks due to the high inter/intra variation between the background and the foreground text of different license plate images. In this paper, we propose an image binarization technique that addresses these issues by using median filter. Vehicle's number/license plate recognition algorithm is based on Templates matching. The algorithm takes an input image of the number plate (number plate should be dominant in the image) and after filtering the image, it performs region based operations. Then it tries to capture the characters regions in a processed binary image and with the aid of template matching outputs the string of number plate characters. The proposed method is simple, robust, and involves minimum parameter tuning.

**OBJECTIVES**

* To enhance the gradient and contrast of the Input image
* To detect the edges from the input image.
* To Design a method that is very effective to be used for text extraction from the license plate images.
* To segment the text output from the background pixels.

**EXISTING SYSTEM**

Traditional license plate detection methods can be classified into three categories: colour-based, edge-based, and texture-based. Colour-based approaches are based on the observation that some countries have specific colours in their license plates. It is intuitive to extract license plates by locating their colours in the images the collocation of license plate colour and character colour is used to generate an edge image. Then, it checks neighbours of pixels with a value within the license plate colour range to find candidate license plate regions

* Lotufo, Morgan and Johnson proposed automatic number-plate recognition using optical character recognition techniques.
* Choi and Kim proposed the method based on vertical edge using Hough transform (HT) for extracting the license plate.

**EXISTING SYSTEM DRAWBACKS**

* The existing method cannot work properly on degraded images with a complex background.
* Poor segmentation results
* Low accuracy.
* Noise content was high.

**PROPOSED SYSTEM**

This paper is on the development of new approaches for extraction of license plates. In this paper, the proposed algorithm is based on extraction of plate region, segmentation of plate characters and recognition of characters. Extraction of plate is a difficult task. In this paper, a simple license plate extraction method is presented. The method is basically based on the morphological algorithms and connected components analysis, including four major stages, which are, RGB to gray-scale conversion, image binarization and filtration, analysis and dilation, and extracting the accurate location of the license plate. Template matching is used for automatic vehicle identification and for recognition of characters. Some post-processing is further applied to improve the output quality.

The method comprises the following major stages, which are: RGB to gray-scale conversion, vertical edge detection and image binarization, analysis and dilation, vertical projection and thresholding, extracting the accurate location of the license plate, filtration and image enhancement, binarization and smoothing process, and Character segmentation in horizontal and vertical direction of the image

**PROPOSED SYSTEM BLOCK DIAGRAM**

**THRESHOLDING**

**MEDIAN FILTER**

**RGB TO GRAY CONVERSION**

**LICENSE PLATE INPUT IMAGE**

**SEGMENTED TEXT OUTPUT**

**MORPHOLOGICAL OPERATIONS**

**BINARY IMAGE**

**PROPOSED SYSTEM ADVANTAGES**

* Our proposed method shows better performance compared to existing.
* It is simple, robust, and involves minimum parameter tuning.
* Accurate segmentation result of license plate characters.
* The noise content was removed completely.

**FUTURE ENHANCEMENT**

We can also detect the license plate and extract the license plate characters of the moving vehicle. The snap of the moving vehicle was degraded by uneven illumination, blur and smear. Even-though it was blurred and degraded, we can successfully extract the license plate characters. we can also measure the image quality performance.

**APPLICATION**

Automatic License Plate Identification is an essential stage in intelligent traffic systems. Nowadays vehicles play vital role in transportation. Also the use of vehicles has been increasing because of population growth and human needs in recent years. Therefore, control of vehicles is becoming a big problem and much more difficult to solve. Automatic vehicle identification systems are used for the purpose of effective control. Automatic License Plate Identification (ALPI) is a form of automatic vehicle identification Automatic License Plate Identification (ALPI) has many applications in traffic systems (highway electronic toll collection, red light violation enforcement, border and customs checkpoints, etc.).

**SOFTWARE REQUIREMENTS**

* MATLAB 7.14 Version R2012

**MATLAB**

The MATLAB high-performance language for technical computing integrates computation, visualization, and programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation.

* Data Exploration ,Acquisition ,Analyzing &Visualization
* Engg drawing and Scientific graphics
* Analyzing of algorithmic designing and development
* Mathematical functions and Computational functions
* Simulating problems prototyping and modeling
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Using MATLAB, you can solve technical computing problems faster than with traditional programming languages, such as C, C++, and Fortran.