

# A Review Report on Localization of License Number Plate using Processing of Active Image and Genetic Algorithms Technique

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**Abstract:** License plate recognition techniques have been successfully applied to the management of stolen cars, management of parking lots and traffic flow control. This study proposes a license plate based strategy for checking the annual inspection standing of motorcycles from images taken on the wayside and at selected inspection stations. Both a UMPC (Ultra Mobile Personal Computer) with a web camera and a desktop computer are used as hardware platforms in this paper a survey is being carried out in the field of Automatic license plate localization. Automatic license plate recognition (ALPR) is to extract vehicle license plate information from an image or a sequence of images. The extracted info can be used with or without a database in many applications like electronic payment systems, freeway and specific road observation systems for traffic surveillance.

**Keywords:** Genetic algorithms, image processing, image representations, license plate detection, Machine vision, road vehicle identification.

## I. INTRODUCTION

Automatic license plate Recognition (ALPR) has a wide range of real-life applications like automatic toll collection, traffic enforcement, and road traffic observation [1]. Reading or locating the license number plate is the main and the initiative in determinant the identities of parties involved in the traffic incidents. The common aim of these applications is to reduce man power and facilitate to the automatic management. An ALPR system must thus exhibit a high recognition rate and processing speed. For example, drivers commonly have little patience when awaiting their vehicle to be recognized by a car parking system. It's also mass surveillance methodology that uses optical character recognition on images to read vehicle registration plates. They can use existing television system or road-rule enforcement cameras, or ones specifically designed for the task.

They are used by various police forces and as a method. The applied detection algorithms ranged from window-based statistical matching ways to extremely intelligent-based technique that used neural networks or fuzzy logic. GAs has been used seldom due to their high process needs. In GA was used to search for the simplest mounted rectangular area having a similar texture options as that of the prototype template. In GA was wont to locate the plate vertically when detection the left and right limits based on horizontal symmetry of the vertical texture bar graph round the plate's space. GA was used in to recognize the LP symbols to not notice the LP. Another cluster of researchers tried to control the problem from the texture perspective to differentiate between text and different image varieties. Motorcycles are one of the most normally

used types of transportation in Southeast Asia in general, and in Taiwan especially, because of their low cost, the high concentration of individuals and the traffic congestion. The increase in motorcycles on the road results in new issues like more thefts and more pollution.

All the developed techniques will be categorized consistent with the selected options upon that the detection algorithmic rule was based and also the form of the detection algorithmic rule itself. Color-based systems are designed to observe specific plates having mounted colors. External-shape based mostly techniques were developed to observe the plate based on its rectangular form. Edge-based techniques were additionally implemented to observe the plate based on the high density of vertical edges within it.

## II. LITERATURE REVIEW

G. Abo Samra et. al. [1] "Localization of License Plate Number Using Dynamic Image Processing Techniques and Genetic Algorithms" A new genetic based example system for localizing 2-D compound objects within plane pictures has been introduced and tested within the localization of LP symbols. The results were encouraging and a innovative approach for resolution the LP detection drawback relying only on the geometrical layout of the LP symbols has been by experimentation proved. Also, a versatile system has been introduced which will be simply adapted for any LP layout by constructing its GRM matrix. The system proved to be invariant to object distance (scaling), insensitive with regard to perspective

distortion within a reasonable angle interval, and immutable to a large extent to the presence of various types of photos within the vehicle background. Because of the independence on color and also the adaptive threshold used for binarization, the planned system possessed high immunity to changes in illumination either quickly or spatially through the plate area. Furthermore, our experiments proved that though leaving some options within the compound object illustration because of the variable nature of the inner objects like the side ratios and also the relative widths, a high proportion success rate was achieved with the help of the ability side of the GAs. The power of the system to differentiate between LP text and normal text has been proved by experimentation. A very vital achievement is overcoming most of the issues arising in techniques based on CCAT by permitting the GA to skip step by step and randomly one or additional symbols to achieve to an appropriate value of the target distance. Moreover, an improvement within the performance of the developed GA has been achieved by applying the new usps crossover operators that greatly improved the convergence speed of the whole system. Finally, a brand new analysis dimension for GAs has been opened to permit for the detection of multiple plates and even multiple designs within the same image and to extend the performance in terms of speed and memory and to use the same technique in different drawback domains analogous to the LP problem.

Shan Du et. al [2] "Automatic License Plate Recognition (ALPR): A State-of-the-Art Review" Automatic license plate recognition (ALPR) is the extraction of vehicle license plate info from a picture or a sequence of pictures. The extracted info can be used with or without a database in many applications, like electronic payment systems (toll payment, parking fee payment), and freeway and arterial observance systems for traffic surveillance. The license plates can be partially included by dirt, lighting, and towing accessories on the car. In this paper, authors present a comprehensive review of the state-of-the-art techniques for ALPR. This paper presented a comprehensive survey on existing ALPR techniques by categorizing them according to the features used in each stage. Comparisons of them in terms of pros, cons, recognition results, and processing speed were addressed.

Chi-Hung Chuang et.al [3] "Vehicle License Plate Recognition Using Super-Resolution Technique" Due to the advance of economy and technology, the people's demands on cars is growing and so are the issues, like finding stolen car, prohibition violation and parking zone management. It will be time-consuming and low-efficiency if we do those jobs only by human due to the limitation of human being's concentration. Therefore, it has been a popular topic to develop intelligent monitoring system under new video technology within a decade. There are still many rooms for future development and application in the car license detection and recognition fields. This paper proposed a approach which restored image with super resolution, the system based on the blur

license plate. By using the feature of LBP with the concept of fuzzy to make the image recognizing and restoring.

Sami Ktata et.al.[4] "License Plate Detection Using Mathematical Morphology" This Automatic license plate recognition (LPR) is a crucial technique in the intelligent transport system. It has been widely adopted into various applications like unattended parking, security control and stolen vehicle verification. In general, LPR system comprises 2 separate modules: Plate detection and characters recognition. in this paper we have presented an approach for license plate detection based on mathematical morphology. The LP Detection system presents three steps: Pre-processing Image, LP Localization and LP Extraction. The proposed method makes use of the rich edge information in the plate area. After the pre-processing original car image by application of a 2-D median filtering, we locate the license plate by using histogram in order to define the area of the plate and then we applied the mathematical morphology: erosion, opening and dilation.

Ioannis Giannoukos et. al [5] "Operator context scanning to support high segmentation rates for real time license plate recognition" In the LPR system, the OCS algorithmic rule is applied on the sliding concentric Windows pixel operator and has been found to boost the LPR system's performance in terms of speed by rapidly scanning input pictures focusing only on regions of interest, while at the same time it does not reduce the system effectiveness. Additionally, a novel characteristic is presented, namely, the context of the image based on a sliding windows operator. This paper introduces a novel image scanning technique, the Operator Context Scanning algorithm, which increases the processing speed of pattern recognition applications that use sliding window operators, with minimum or zero performance cost. Specifically, the OC Susessliding windows pixel operators, which produce candidate pixels, and takes advantage of the fact that these arched object in many applications occupies only a small percentage of the total image surface.

Halina Kwaśnicka et. al [6] "License plate localization and recognition in camera pictures" The method planned during this paper appears to be very universal just in case of localization and recognition varied license plates under completely different environmental and lighting conditions. Its ability to properly recognize all license plates located within the image, during a short time, although they're dirty or containing little mechanical damages. The ultimate results of effectiveness of planned license plate localization and recognition system isn't very spectacular. That's caused by the poor effectiveness of the planned character segmentation and recognition ways. One incorrectly segmented or accepted character is enough to reject entire localized, segmented and recognized caption within the syntax analysis method. At the present we tend to try and benefit of segmentation techniques based on the recognition of characters. Additionally it's to enhance the recognition technique by applying few co-operating ways.

These modifications ought to considerably increase the effectiveness of our technique. Roman.

### III. METHOD

The existing system concept algorithm is very complicated to be implemented on all weather. In the Proposed algorithm to be developed will locate strong edges which are spaced proportionally given the expected size of the plate relative to the whole image. A strong edge is defined as a vertical line where adjacent pixels have high luminousness deltas, relative to alternative areas of the scene. Using which the accuracy of license plate detection will be high analysis. This technique has the advantage of analysing quality in an infinite number of directions and scales. A method for license plate location based on the Gabor transform is given.

#### A. Geometric Operation

Geometric operation could be a method to find the car license plate. The aim of this operation is to localize the car plate for faster character identification over slightly region. An improved Back Propagation network is used to beat the weakness of convergence speed in [1]. Genetic algorithmic rule and momentum term is introduced to the present network to extend the speed of convergence rate. this BP network learning method is alleged to be simply turn out error if initial weights isn't set properly and it's tough to determine the amount of hidden layer and hidden nodes. The improved network using BP momentum increase the speed and also the accuracy to localize the car license place location. Greyscale pictures extract the edge of the license plate using Sobel operator.

#### B. Architecture of OCR

Since HP had independently-developed page design study technology that was used in product, (and so not released for open-source) Tessera act never required its own page layout analysis. Tessera act therefore assumes that its input may be a binary image with elective multilateral text regions defined. Process follows a ancient step-by-step pipeline, however a number of the stages were uncommon in their day, and probably remain thus even currently. The first step may be a connected element analysis during which outlines of the elements are stored. This was a computationally expensive design decision at the time, however had a major advantage: by inspection of the nesting of outlines, and also the range of kid and issue outlines, it's easy to observe inverse text and recognize it as simply as black-on-white text. Tessera act was probably the first OCR engine able to handle white-on-black text thus trivially. At this stage, outlines are gathered on, strictly by nesting, into Blobs. Blobs are organized into text lines, and also the lines and regions are analysed for fixed pitch or proportional text.

#### C. Character Recognition

Character recognition is the most necessary task in recognizing the plate range. The recognition of characters has been a problem that has received a lot of attention

within the fields of image process, pattern recognition and AI. It's as a result of their loads of risk that the character produced from the standardization step differs from the info. An equivalent character could differ in sizes, form and elegance that might result in recognition of false character, and have an effect on the effectiveness and increase the quality of the total system.

### IV. CONCLUSION

This paper has reviewed the mainly latest research trends and dynamic image processing methodology is proposed. In this paper a new genetic algorithm based prototype system for localizing 2-D compound objects inside plane images has been introduced and tested within the localization of LP symbols. A new genetic algorithm is design to identify the locations of the license plate (LP) symbols. Throughout this paper we have presented Localization of license plate variety using Dynamic Image processing Techniques and Genetic Algorithms.

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