

NEW APPROACH FOR LICENSE PLATE FOR VEHICLE CONTROL USING GEO-LOCATION

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Abstract: Rules are always very difficult to implement and more difficult is its fairer implementation. In our proposed paper we have suggested an innovative approach which not only ease and speed up the process of Pollution and Vehicle Restriction process but also helps in its proper implementation. We our proposed work have used the Camera for capturing the number plate and connecting the system with the RTO simulated database and pollution control database we have suggested the system for fairer fine implementation with lesser human involvement using the Geo-location of the vehicle and tool booth for the proper location placement of vehicle.

I. INTRODUCTION

License Plate Recognition (LPR) assumes a noteworthy job in this bustling world, as the number of vehicles expands step by step, robbery of vehicles, disrupting movement norms, entering limited zone are likewise increments directly, so to hinder this demonstration license plate recognition framework is planned. License Plate Recognition systems fundamentally comprise of 3 principle processing steps, for example, Detection of number plate, Segmentation of plate characters and Recognition of each character. Among this, character segmentation is a most difficult assignment, as the exactness of the character recognition depends on the precision of the character segmentation. Issues of various lighting condition, attachment, break, bolt, pivot debases the precision of the character segmentation. So with the end goal to conquer these issues and inspire the precision of character segmentation different calculations are produced. In this it presents a hearty technique for license plate area, segmentation and rearrangement of the characters present in the found plate. The images of different vehicles have been procured and changed over in to dim scale images. At that point commotion present in the plates is evacuated. At last, character in the license plate is distinguished. LPR is an image-processing innovation used to distinguish vehicles by their license plates. This innovation is utilized in different security and movement applications, for example, the entrance control framework Being ready to distinguish auto number plates rapidly and mechanically is of incredible advantage to numerous organizations and associations for a wide assortment of uses including security, wrongdoing location, activity administration and even automatic installment systems (e.g. for auto parks). Enormous mix of data innovations into all parts of current life caused interest for processing vehicles as reasonable assets in data systems. Since an independent data framework with no information has no sense, there was likewise a need to change data about vehicles between the truth and data systems. This can be

accomplished by a human operator, or by uncommon shrewd hardware which is have the capacity to perceive vehicles by their number plates in a genuine domain and reflect it into applied assets.

II. RELATED WORK

[R. Boliwala et.al 2016] Automatic Number Plate Detection is the innovation which is utilized to peruse vehicle number plate from an image containing a still or moving photo of a vehicle. It is a noteworthy leap forward in the innovation which is extremely useful for the law authorizations and activity administration experts. The variety of the plate compose and some ecological enlightenments are considered in this paper. This innovation utilizes exceptional sort of reconnaissance cameras to find and record the vehicles enrollments and find their exercises effectively. Because of fast increment in vehicles everywhere throughout the world it is extremely hard to monitor every one of these vehicles and to make sense of the criminal exercises. In this way it is indispensably vital to monitor every one of these vehicles by the separate specialists. To improve their tremendous assignment this innovation is created which helped them a great deal in their administration.

[B. Pechiammal et.al 2017] Auto Recognition of License Plate is a sort of image handling innovation for perceiving the number plate data from images or recordings. The watched plate images are typically in low goals and endure extreme loss of edge information, which cast, mind boggling test to existing vehicle number plate location and acknowledgment designs. The procedure of Auto acknowledgment of License plate requires an abnormal state of accuracy, when there are different vehicles going in a short range and number plate reflection is a number is a troublesome undertaking, fundamentally as a result of number game plan, and effect of ecological work. This progression impacts the precision of character partition and affirmation structure. This paper presents a calculation for Auto acknowledgment of tag framework using different methodologies. Auto acknowledgment of tag technique contains three fragments: Character division, Optical character acknowledgment and template coordinating. The proposed structure shows the programmed vehicle number plate ID framework using a vehicle number plate extraction. Another methodology using Gabor sifting for character acknowledgment in dim scale image is proposed in this paper. Segments are isolated specifically from dim scale character images by Gabor channels which are uncommonly proposed for quantifiable information of character structures. Template coordinating is a framework which is misused to discover a sub image of an objective image which facilitates

a template image. Test result results to demonstrate the prevalence of their proposed methodology to the extent adequacy.

[M. T. Shahed et.al 2017] In this paper, they propose associated part examination based calculation to consequently identify and read Bengali number plates utilized in the metropolitan urban communities of Bangladesh. Their proposed programmed number plate acknowledgment (ANPR) framework includes image pre-handling and morphological activity pursued by edge recognition, local limitation and character division to recognize the Bengali characters in the number plate proficiently and additionally with less computational multifaceted nature. For different climate conditions, their proposed calculation demonstrates a recognition precision rate of ~95% with a normal preparing time of 0.75 seconds. Their framework may be exceptionally compelling continuously activity control, security improvement also in electronic toll accumulation.

[B. V. Kakani et.al 2017] Significant innovative work of calculations in canny transportation has caught more eye lately. A computerized, quick, exact and hearty vehicle plate acknowledgment framework has progressed toward becoming requirement for activity control and law authorization of movement directions; and the arrangement is ANPR. This paper is committed on an enhanced procedure of OCR based tag acknowledgment utilizing neural system prepared dataset of protest highlights. A mixed calculation for acknowledgment of tag is proposed and is contrasted and existing strategies for enhance precision. The entire framework can be arranged under three noteworthy modules, in particular License Plate Localization, Plate Character Segmentation, and Plate Character Recognition. The framework is recreated on 300 national and universal engine vehicle LP images and results got legitimizes the principle necessity.

III. PROPOSED WORK

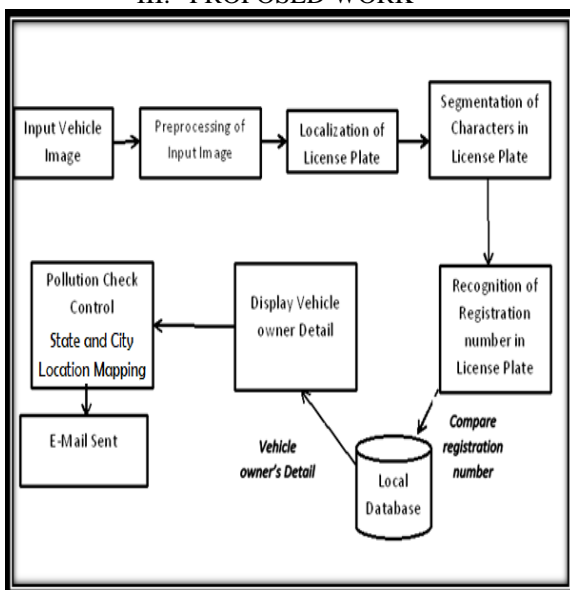


Fig 1. Block Diagram of Proposed Work

- Step1: Select input image.
- Step2: Resize the input image.
- Step3: Convert input image into gray scale.
- Step4: Apply median filter to remove the noise from the gray scale image.
- Step5: Scale the brightness and intensity of image (min0.5 and max0.7).
- Step6: Fill holes(set of background pixels) in the binary image.
- Step7: Display registration number in the notepad.
- Step8: Compare the license plate number to the local database.
- Step9: Display the vehicle's owner details.
- Step10: If pollution check date is expired from the due date then go to step11.
- Step11: Sends the mail to the vehicle owner regarding fine.
- Step12: Else pollution check is not expired then got to step 13.
- Step 13: Sends the mail to the vehicle owner regarding pollution check expiry date.
- Step 14: Extract the First two characters and check in the state database , if not found go to step
- Step 15: Display the state name.
- Step 16: Extract the Next two characters and check in the city database , if not found go to step
- Step 17: Display the city name
- Step 18: Read the last toll booth id
- Step 19: Access the Geo-Location of the Toll Booth
- Step 20: Place the vehicle on the Google map using the Geo-Location

Algorithm for Median Filter to Remove Noise:

- Step1: Input gray scale image.
- Step2: Pad the image matrix with zero of size (m+2 by n+2).
- Step3: Copy the original image matrix to the padded matrix.
- Step4: Store the 3 by 3 neighbor values in the array.
- Step5: Sort and find the middle element.
- Step6: Place the median element in the output matrix.
- Step7: Procedure is repeated for the values in the input matrix by sliding the window.
- Step8: Convert the image into an image of 0-255 color range type.
- Step9: Display the image without noise.
- Step10: stop.

Performance Parameters

Performance measurement is generally defined as regular measurement of outcomes, which generates reliable data on the effectiveness and efficiency of program. There are various parameters to measure the performance of the system. The performance measurement parameters help in determining the behavior of the system and define how correct the system is. Following are the parameters used for analysis

Accuracy

Accuracy is term used to define the correctness of a system. It refers to how close your system is the fully correct system. It is a measure of efficiency of a system. The more the

accurate is a system the more efficient it is.

Accuracy can be defined by a formula listed as below:

$$\text{Accuracy} = \frac{\text{Number of LP detected}}{\text{Total number of LP tested}}, \text{ where LP is license plate}$$

Recognition Rate

Recognition rate is defined as correct recognition of characters in number plate with respect to total number of characters

$$\text{Recognition Rate} = \frac{\text{No. of digits detected in LP}}{\text{Total No. of digits in LP}}$$

Processing Time

It is a total processing time to detect a license plate.

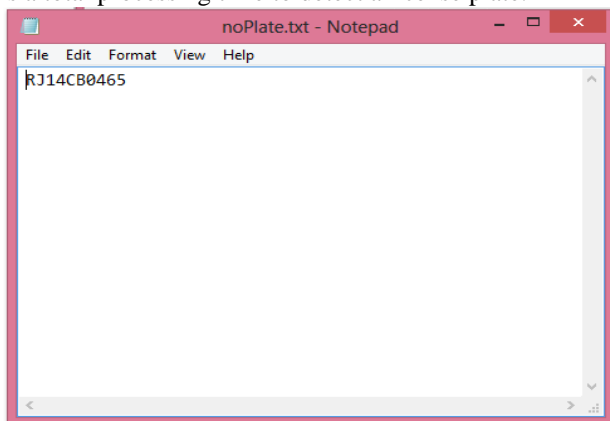


Fig 2 Recognized Number for DataSet 1



Fig 3 Details of Owner and Fine Information from Database for DataSet 1

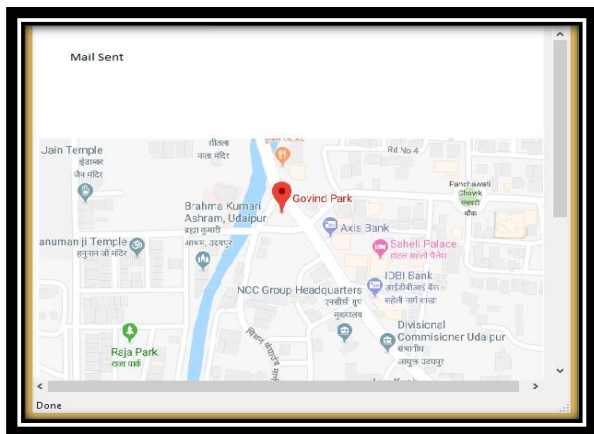


Fig 3 Map Placement Data Set 1

IV. CONCLUSION

In this paper, a methodology for limitation of Indian number plates is shown. In this methodology, number plate arranged at any edge of picture can be constrained. Given a data picture, it should have the ability to initially think the tag, by then isolate the characters contained in the plate, finally perceive the characters in the tag. The proposed structure will examine the image for high thickness edge districts which may contain a tag. After that a cleaning and a check technique will be performed on the removed locale to filter through those regions that are not containing a tag. After that the plate will be passed to the division arrange where it will be disengaged into different sub-pictures proportional to the amount of the characters contained in the plate. Finally the character in the each sub-picture is seen.

Number plates having assortment, for instance, white establishment dull substance, dim establishment white substance and yellow establishment dim substance can be successfully restricted. Unfortunate conditions, for instance, screws and unwanted substance on number plate which make issue for constraint are sensibly thought about. As indicated by the Indian conditions, the genuine wellsprings of error were the tilt of the number plate, the non-English substance, lavish stickers, and unprecedented assortment in the estimations of the characters ,which can be fittingly ousted by redesigning this methodology further. Thusly another structure will be delivered to execute this system totally in India.

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