THEFT CONTROLLING AND TRUE IDENTIFICATION OF VEHICLE USING BAR CODE AND NUMBER PLATE RECOGNITION

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Abstract

With the increasing number of the vehicles the validation of the vehicles and tracing the faulty vehicles becoming more and more difficult these days. So, for coping up with this issue , we have suggested an algorithm for validating the vehicles by automatic number plate extraction and the bar code validation, where the barcode is generated using the Chassis Number or Engine Number of Vehicle and the vehicle Registration Number. The results which are achieved are quite satisfactory and provide the new concept of authenticating the missing vehicles, POC validation and more.

Keywords:
Registration Number Detection, Bar Code, PUC, Missing Vehicles, Restricting Vehicles

1. INTRODUCTION

Vehicle Number Plate Detection focuses on location of the License Plate present on a vehicle and afterward removing the substance of that License Plate. A vehicle's tag is normally known as 'a number plate'. It is a metal plate that is connected to a vehicle and has the official enlistment number of a vehicle decorated on it. Number plates are put at the front and back of the vehicle and help anybody to distinguish a vehicle. Motor vehicle enrolment is the enrolment of a motor vehicle with an organization authority, either obligatory or something different. The inspiration driving motor vehicle enrolment is to set up an association between a vehicle and an owner or customer of the vehicle. This association might be used for charge evaluation or bad behaviour recognizable proof purposes Contents of Number Plates. [1]

The enrolment identifier is a numeric or alphanumeric code that exceptionally recognizes the vehicle inside the giving position database. These number plates can be of different concealing and have various content style and text measurement dependent upon the country and various standards.

2. LITERATURE SURVEY

[a. Menon and B. Omran, 2018] Label confirmation is undeniably the clearest and cleverest structure used for vehicle confirmation purposes. Modified name confirmation (ALPR) is used to find the license plate area. These approaches and systems change depending on conditions such as image quality, steady state vehicle, light conditions, single image, and so on. In the same way, you should decide to change according to the varieties on the labels of different countries and states. In addition, the system should have the option to work reliably with the number of characters on the plates or the size of the plates in the images obtained. We base ourselves hypothetically on the location and label affirmation of individual vehicles in a particular package. The proposed framework consists of two steps: disclosure and confirmation of license plate number. In the exhibition part of the plate, we apply both Spanish and Indian labels. In our evaluation we will work with license plates from Spain. Three undisputed labels blank each other in their size and shape. In the plate number recognition phase, the label is assumed from the received image and after some time in the second stage, a separate plate is passed to confirm the plate from which the characters are chosen and the number.

[Answer O. Yasin, et. As of 2019] a custom number plate number frame (ANPD) and modified number plate confirmation frame (ANPR) are concrete advances used to view and view vehicle number plates. In this document, another dataset called Northern Iraq-Vehicle Images (NI-VI) of the three districts (Duhok, Erbil and Sulaimani) is presented for vehicle photographs. This dataset contains 1500 images. They were determined using managed cameras to shape an appropriate data set of vehicle images. The important duty of this work is the production of another dataset for vehicle labels in northern Iraq with Arab artistic styles in various and poorly organized conditions. The data set combines three types of images: rotated, scaled, and decrypted images. Image destinations are 4288 x 2848 and 5184 x 3456. In addition, some images are intended for catastrophic air conditions, such as sharp, dusty and low light. Some images of dirty plates in the dataset are treated in the same way. The motivation to add this dataset is to design and build a proper dataset for the ANPD and in relation to the ANPR framework.

[F. Fajas, et. al 2012] Automatic Number Plate Recognition or ANPR is a mass reconnaissance methodology that utilizes optical character affirmation on pictures to look at the number plates on vehicles. This structure is organized with a neural system which is set up to see all the characters that can be found in an Indian Standard High Security Number Plate and is executed utilizing MATLAB.

[Yes. Peachimal and J. a. Renjith 2017] Automatic license plate recognition is an image that manages progress to visualize the image or narrative license plate data. Visited license plate images are routinely found at low destinations and move through authentic loss of shore information, throwing shocking evidence at the license plate area of the current vehicle and the shocking plans.

3. PROPOSED ALGORITHMS

3.1 Proposed Algorithm for Bar Code Generation

Stage 1: Input the Vehicle Number.

Stage 2: Input the Engine Chassis Number.

Stage 3: Extract the Digits from Vehicle Number beginning from the fifth situation till the end and Extract digits of the Chassis number beginning from the fourth situation till the end.

Stage 4: If Vehicle Details Exists at that point

Print "Vehicle Details as of now in Barcode Database"

Else:

a. Generate Barcode
b. Show Barcode Image
c. Store subtleties in Barcodedata table.

[End of If structure]

Stage 5: Stop

3.2 Proposed Algorithm for Validation of Number Plate

The proposed calculation will work in the accompanying advances:

Stage 1: Read the Card Image containing the vehicle Number Plate.

Stage 2: For the quality investigation of the picture convert the picture to the dark scale.

Stage 3: Perform the commotion evacuation utilizing the Median Filtering.

Stage 4: Resize the picture with the goal that it will be best flexible for the examination reason.

Stage 5: Perform the Edge Detection.

Stage 6: Perform Morphological Gradient investigation.

Stage 7: Then Brightened, Enhanced and Horizontal Line Removal.

Stage 8: Perform the Trimming of the picture.

Stage 9: Perform the format coordinating and with the character acknowledgment.

Stage 10 : Get the Vehicle Registration Extracted from Image and Input Barcode

Stage 11: Search for the Vehicle Number in Vehicle Registration Table.

Stage 12: If Found then Go to Step 13 Else Go to 20.

Stage 13: Display the Vehicle Owner Information got from the database.

Stage 14: Fetch Current Date and Perform the number investigation for the Even/Odd Vehicle Entry.

Stage 15: Set Vehicle Allowed or Not Allowed relying on the information investigation.

Stage 16: Perform the Vehicle search in Missing Vehicle Database.

Stage 17: If discovered at that point Send Email and different subtleties to the worry police headquarters.

Stage 18: Perform Pollution Check Data Analysis utilizing the Pollution Database.

Stage 19: If Pollution information is legitimate for vehicle at that point no fine Else Fine Details Mailed to Email Id.

Stage 20: Stop.

4. IMPLEMENTATION AND RESULT ANALYSIS

The implementation of the proposed work is done using the MATLAB and all the database related work is done using the relational database management system MSACESS.

The Fig.1 shows the main form which will appease in the initial loading of the proposed system

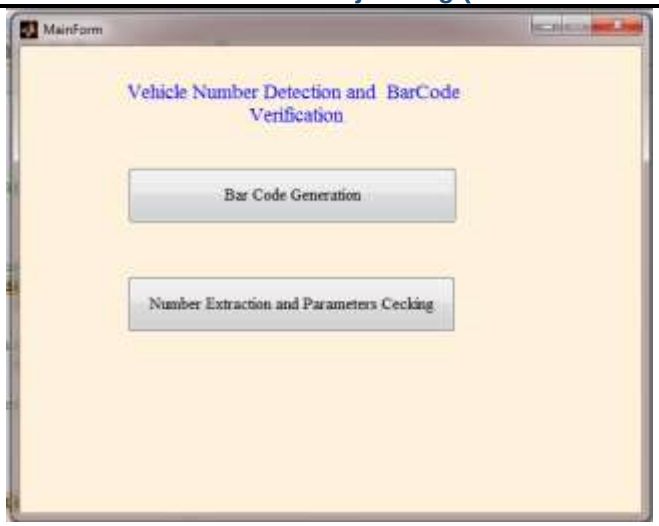

Fig.1. Main Screen

Fig.2.Bar Code Generation

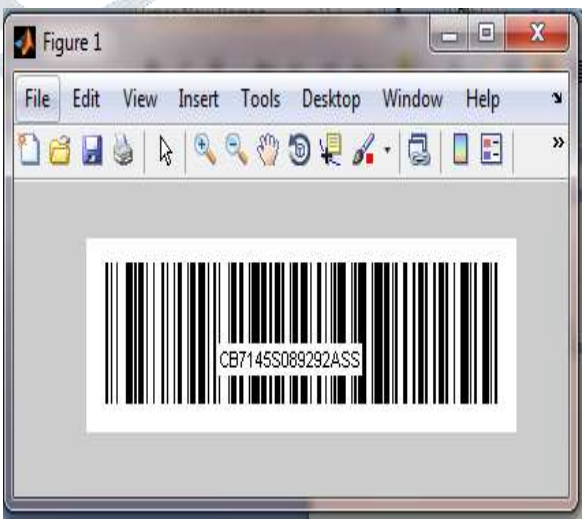

Fig.3. Generated Barcode

Fig.4. Registratiion Plate

Fig.5.Vehiicle Validation

Result Analysis is shows in the table 1,

Table.1. Registration Table Detection Results

Number Identified	Image of Number Plate	Result
RJ14CU5794		Success
RJ14CJ5252		Success
RJ14CK8175		Success

The validation of the vehicles is also shown using the barcode and vehicle number plate validation, and such validation is in the fig 6 and 7.

Case 1: Bar code Invalid

Fig.6.Detection of False Bar Code

Case 2: False Number Plate

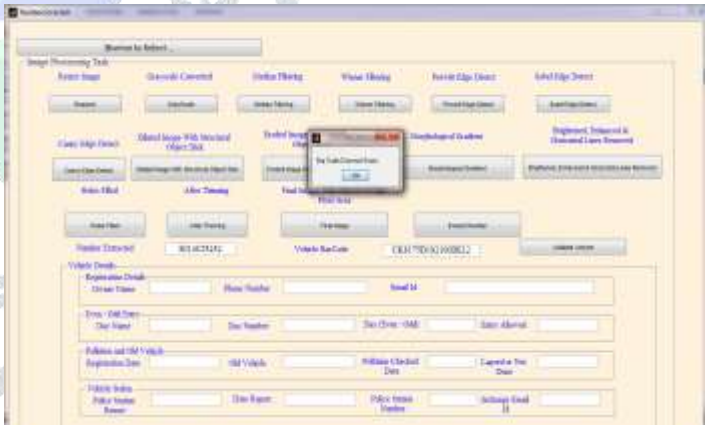

Fig.7.Detection of False Number Plate

5. CONCLUSION

The fundamental methodology is to extricate characters from number plate utilizing MATLAB based on the Fourier investigation. The framework will consequently get the record of the PUC and the Vehicle Registration and will confine the defective vehicles, just as follow the missing vehicles with the redirection of sends to the police headquarters, distinguishing proof of the protection flawed vehicles, AND Similar Vehicle Detection. Along with that , we have additionally utilized the idea of the scanner tag for the further approval of the vehicle, the standardized tag is produced utilizing the vehicle enlistment number and the suspension number, and this scanner tag is one of a kind for every vehicle , so this will additionally helps in following the vehicles and for the better usage of the laws.

REFERENCES

[1] A. Menon and B. Omman, "Detection and Recognition of Multiple License Plate From Still Images," 2018 International Conference on Circuits and Systems in Digital Enterprise Technology (ICCSDET), Kottayam, India, 2018, pp. 1-5.

[2] N. O. Yaseen, S. Ganim Saeed Al-Ali and A. Sengur, "Development of New Anpr Dataset for Automatic Number Plate Detection and Recognition in North of Iraq," 2019 1st International Informatics and Software Engineering Conference (UBMYK), Ankara, Turkey, 2019, pp. 1-6.

[3] F. Fajas, F. Yousuf, P. R. Remya, A. P. Pavanan, S. Ambadiyil and V. Swaminathan, "Automatic Number Plate Recognition for indian standard number plates," 2012 IV International Congress on Ultra Modern Telecommunications and Control Systems, St. Petersburg, 2012, pp. 1026-1028

[4] B. Pechiammal and J. A. Renjith, "An efficient approach for automatic license plate recognition system," 2017 Third International Conference on Science Technology Engineering & Management (ICONSTEM), Chennai, 2017, pp. 121-129

[5] Allam Mousa "Canny edge-detection based vehicle plate recognition" Int. J. Signal Process. Image Process. Pattern Recognit. vol. 5 no. 3 pp. 1-8 2012.

[6] T. D. Duan D. A. Duc and T. L. H. Du "Combining Hough transform and contour algorithm for detecting vehicles' license-plates" Proc. IEEE Int. Symp. Intell. Multimedia Video Speech Process. pp. 747-750 2004.

[7] P. Kanani A. Gupta D. Yadav R. Bodade and R. B. Pachori "Vehicle license plate localization using wavelets" Proc. IEEE ICT pp. 1160-1164 2013.

[8] Sushama H. Bailmare and A.B. Gadicha "A Review paper on Vehicle Number Plate Recognition (VNPR) Using Improved Character Segmentation Method" International Journal of Scientific and Research Publications vol. 3 no. 12 December 2013 ISSN 2250-3153.

[9] Prashant Chaudhary V. S. Dhaka and Manoj Kumar "Automatic License Plate Recoganization System Using LabVIEW: Review" Interational Journal of Advanced Research in Computer Science and Software Engineering vol. 6 no. 2 February 2016.

[10] Sarbjit Kaur and Sukhvir Kaur "An Efficient Approach for Number Plate Extraction from Vehicles Image under Image Processing" International Journal of Computer Science and Information Technologies vol. 5 no. 3 pp. 2954-2959 2014.

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