Access to the Unknown Vehicle using Automatic Password

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ABSTRACT:

Now a days security is very need for all people. This project says about Automatic license plate recognition (ALPR) is the extraction of vehicle license plate information from an image from the detection of known and unknown vehicles in apartments. The system model uses already captured images for this recognition process. First the recognition system starts with character identification based on number plate extraction, Splitting characters and template matching. If the vehicle number matched with the dataset, then they will give allow process. Otherwise, they will send OTP to the known vehicle person in apartments then the password is correct with unknown it will give access to allow otherwise not allow the vehicle. The tasks of managing and using cars well, cracking theft and robbery of motor vehicles, as well as maintaining the normal order of urban transport have become increasingly heavy. Currently, it has become an important issue for the public security department to tom static management into dynamic change management and to tumor manual management into automation. There are urgent needs to employ Intelligent Transportation System (ITS) so as to make effective management. ITS can perform efficient and reliable management to ambient vehicles under various circumstances.

KEYWORDS: ALPR, Intelligent Transportation System, security, recognition.

I.INTRODUCTION

The tasks of managing and using cars well, cracking theft and robbery of motor vehicles, as well as maintaining the normal order of urban transport have become increasingly heavy. There are urgent needs to employ Intelligent Transportation System (ITS) so as to make effective management. ITS can perform efficient and reliable management to ambient vehicles under various circumstances. As one of the core technologies of ITS, Vehicle Feature Recognition Technology is an important link to police enforcement system, automated highway toll collection system, Urban Traffic Surveillance System and Intelligent Parking Management System, etc. Thus, employing image processing technology to recognize the vehicle license plate number of various kinds of vehicles is not only an important issue for information process technology, but also a research issue which is of great importance in modem transportation management.

It’s can perform proficient and dependable administration to encompassing vehicles

under different conditions. Together of the centre advances of ITS, Vehicle Feature Recognition Technology is a significant connect to police requirement framework, Computerized expressway cost assortment framework, Urban Traffic closed-circuit television and Intelligent Parking Management System, etc.

The aim of the project is detecting the license plate using character reorganization and cropping the license plate from the car image. We can easily identify the number plate with the good result for the application of the identify the authenticate plate. If the license plate is not registered then the OTP will be sent to the registered person.

Using this project, we can track the number plate and also identify the number plate using character recognition to allow vehicle into apartments. And edge detection is used to detect the exact area of the number plate detection. For this process we can use localization. Basically, here we are using Nearest neighbour for the algorithm process.

II.RELATED WORK

A license plate recognition system is common in the art of image processing application theme. Style license plate recognition system, most builds on the stationary photographic equipment, with computer links, mutual transfer of information for computing. The main reason is based on the application side of the system, such as e- parking space management systems, vehicle traffic violation detection systems, as well as the stolen vehicle identification systems. When setting up these types of systems, it can be inferred that the vehicle will be predicted route passing by the common sense, and makes the license plate information falls within the scope of the system to detect.

License plate recognition system flow the main calculation process license plate recognition system, from the input image, can roughly be divided into five parts: before image processing, detection and capture license plate location, license plate element segmentation, feature extraction element plate area, license plate character identification and so on. In the image pre-processing stage, in order to solve related problems, you might encounter before finding the license plate location, the system will make the appropriate image pre-processing. Which contain the region of interest (Region of Interest, ROI) setting, with the capture angle correction, ROI rotation correction, ROI grayscale conversion, ROI Gaussian smoothing, the initial ROI binarization seven works, and sequentially performed.

On the other hand, when the system narrows the display area, the user can tell the system to detect the target of desire approximate location. In the final step of image pre-processing, we can get an ROI binary image of the license plate information included. The system enters the license plate position detection stage. Because some of the effects of external factors, such as license plate light, dirt, and damaged, resulting in images obtained prior to treatment as expected, that the calculation of the license plate location in the system, get the wrong results. Therefore, in order to capture the exact location of the license plate is out, this paper

proposed conditions of use iterative binarization method, the main purpose is to amend the binarization result is not good enough. After the system has been the position of the license plate, the rectangular marquee will indicate the detected position of the license plate, and according to its aspect ratio, and limit the number of iterations, eliminate plate marquee abnormal result, two amendments the value of the threshold value of the image ROI Gaussian smoothing again after binarization.

Pre-processing is a common name for operations with images at the lowest level of abstraction both input and output are intensity images. The aim of pre-processing is an improvement of the image data that suppresses unwanted distortions or enhances some image features important for further processing.

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III.PROPOSED SYSTEM

Pre-handling is a typical name for tasks with pictures at the least degree of reflection - both information and yield are force images. The point of pre-preparing is an improvement of the picture information that smothers undesirable twists or upgrades some picture highlights significant for additional preparing.

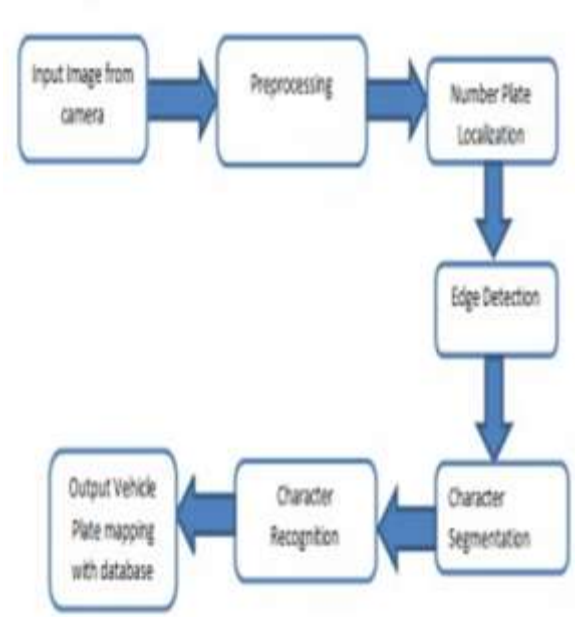

Fig 3.1: System Architecture

3.1.1 Pre-processing

The aim of pre-processing is to improve the quality of the image so that we can analyse it in a better way. By pre-processing we can suppress undesired distortions and enhance some features which are necessary for the particular application we are working for. Those features might vary for different applications. We are working on a project which can automate Vehicle Identification, then our main focus lies on the vehicle, its colour, the registration plate, etc., We do not focus on the road or the sky or something which isn't necessary for this particular application.

3.1.2 Edge Detection

Edge detection is a technique of image processing used to identify points in a digital image with discontinuities, simply to say, sharp changes in the image brightness. These points where the image brightness

varies sharply are called the edges (or boundaries) of the image.

Fig 3.2: Edge Detection

3.1.3 Character Segmentation

In character segmentation, we extract only characters from word. Character segmentation is a difficult step of OCR systems as it extracts meaningful regions for analysis. This step decomposes the images into classifiable units called character. A poor segmentation process leads to incorrect recognition or rejection segmentation process carried after out only after the pre-processing of the image.

Fig 3.3: Character Segmentation

3.1.4 Character Recognition:

Character recognition is to extract and recognize the text from images and can be thus used to analyse contents, documents, or

Optical process images Natural

Fig 3.4: character recognition

3.2 Data Flow Diagram

Also known as DFD, Data flow diagrams are used to graphically represent the flow of data in a business information system. DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation.

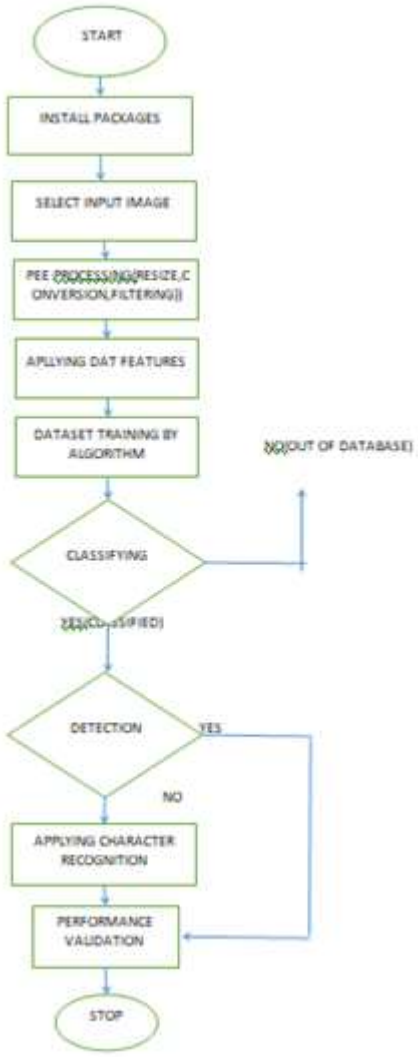

Fig 3.5: Data flow diagram

Data flow diagrams can be divided into logical and physical. The logical data flow diagram describes flow of data through a system to perform certain functionality of a business. The physical data flow diagram describes the implementation of the logical data flow.

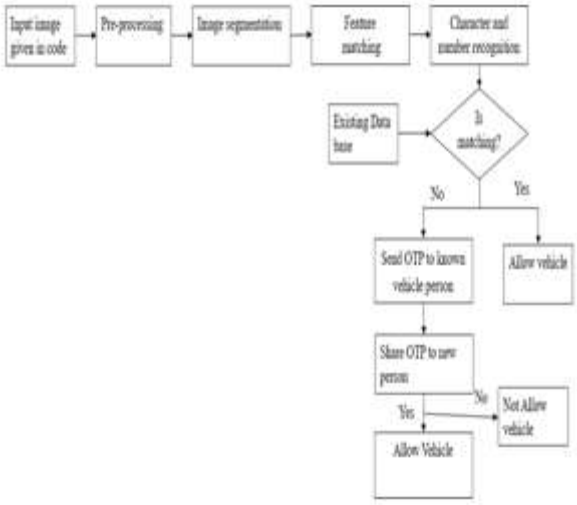

Fig 3.6 Flow chart

IV.RESULTS AND DISCUSSION

In this chapter we will observe the results of the project “Access to the unknown vehicle using automatic password”.

This is the window which is displayed immediately after running the code.

Fig 4.1: obtained output

When the code is executed, the below image is captured, alpha and numerical values are detected. It also enhances the number plate into binary conversion.

Fig 4.2: Detected Image

When the given OTP from the user is correct then the output will be given as below.

Fig 4.3: Output obtained when the OTP is correct

When the given OTP from the user is incorrect the output will be displayed as below.

Fig 4.4: Output obtained when the OTP is incorrect

V.CONCLUSION AND FUTURE SCOPE

Four algorithms of image pre-processing, license plate location, license plate segmentation and character recognition are introduced. License plate location is the basis of image pre-processing. The location of license plate has a direct impact on the accuracy of character segmentation. In our project vehicle plate detection is obtained by using character recognition and region of interest. After completion of extraction if vehicle registered in apartments, then it will allow vehicles else it will send OTP using Twilio account to registered person. If he sent OTP to unknown vehicle person, the person entered correct password means it will allow otherwise it won't allow vehicle.

According to the license plate detection feature extraction process is important. During this detection we can detect the thief when he will take the vehicle. Here we are

using morphological filters for the addition of color to detect the features. Maximum we are using on roads and car parking areas. These can be used at traffic, parking Areas, airport etc. For the future purpose we can avoid robberies. After completion of extraction if vehicle registered in apartments, then it will allow vehicles else it will send OTP using Twilio account to registered person. If he sent OTP to unknown vehicle person, the person entered correct password means it will allow otherwise it won't allow vehicle in real time.

VI.REFERENCES

[1] Hong Yamin. The two generation License Plate Segmentation and Recognition photo identification [J]. Journal of Lanzhou industry college, 2013,06:18-22.

[2] Zhao Xingwang, Li Tianyang, Wang Liang, Zhou Jing. The two generation License Plate Segmentation and Recognition number recognition system of [J]. computer and modernization based on digital equipment, 2014,06:132-136.

[3] Fu Ronghui. The research and design of vehicle license plate recognition system in traffic management system [J]. International Journal of Signal Processing, Image Processing and Pattern Recognition, v 9, n 3, p 445-456, 2016.

[4] YingyonZou, JianZhai, Yongde Zhang, Xinyan Cao, Guangbin Yu, Juhui, Chen. Research on algorithm for automatic license plate recognition system[J]. International Journal of Multimedia and Ubiquitous Engineering, v 10, n 1, p 101-108, 2015.

[5] Tao Hong, Gopalakrishnam A.K. License plate extraction and recognition of a Thai vehicle based on MSER and BPNN[J]. Proceedings of the 2015 7th International Conference on Knowledge

[6] Dong Jingwei,Sun, Meiting,LiangGengrui,JinKui. The improved neural network algorithm of license plate recognition[J]. International Journal of Signal Processing, Image Processing and Pattern Recognition, v 8, n 5, p 49-54, 2015.

[7] QuZhong, Chang Qing-li, Chen Chang-zhi, Lin Li-dan. An improved character recognition algorithm for license plate based on BP neural network[J].Open Electrical and Electronic Engineering Journal, v 8, n 1, p 202-207, 2014.

[8] Zhang Shuili,ZhouMeili. A license plate recognition method based on improved artificial neural network [J]. RevistaTecnica de la Facultad de Ingenieria Universidad del Zulia, v 39, n 3, p 373-379,2016.

[9] Zhao Xiaochuan. Apply modern digital image processing technology to improve and detailed case (MATLAB version) [M]. Beihang University press. 2012.

[10] ChaofengLan,Fengchen Li, Yingjian Jin, Xuemei Sui, Shouqiang Kang,Liping Zhang. Research on the license plate recognition based on image processing[C].2015 Fifth International Conference on Instrumentation and Measurement, Computer, Communication and Control (IMCCC), p 731-4, 2015.

[11] A. Broumandnia and M. Fathy, "Application of pattern recognition for Farsi

license plate recognition," in Proc. Int. Conf. GVIP, Cairo, Egypt, 2005

[12]J. Cano and J. C. Perez-Cortes,Vehicle License Plate Segmentation in Natural Images, vol. 2652, F. J. Perales et al., Eds. New York: SpringerVerlag, 2003, pp. 142–149

[13] J. Barroso, E. Dagless, A. Rafael, and J. Bulas-Cruz, "Number plate reading using computer vision," in Proc. IEEE Int. Symp. Ind. Electron., pp. 761–766.

[14] T. D. Duan, T. L. H. Du, T. V. Phuoc, and N. V. Hoang, "Building an automatic vehicle license-plate recognition system," in Proc. Int. Conf. Comput. Sci. (RIVF), 2005, pp. 59–63.

[15] K. K. Kim, K. I. Kim, J. B. Kim, and H. J. Kim, "Learning-based approach, for license plate recognition," in Proc. IEEE Signal Process. Soc. Workshop, NNs Signal Process., 2000, vol. 2, pp. 614–623.

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G Srilakshmi received her B.Tech degree from GNITS, Hyderabad in the year 2001 and M.Tech degree from JNTUH in the year 2005. Her teaching experience is 18 years. Presently working as an Associate Professor at Bhoj Reddy Engineering College for Women, Hyderabad. Her research interests include Biomedical Image Processing and Signal Processing.

Cherupally Anusha

Cherupally Anusha is a driven final year B. Tech Undergraduate specializing in Electronics and Communications Engineering at Bhoj Reddy Engineering College for Women, Hyderabad. With a keen interest in emerging technologies such as AI, ML. she is a proactive learner and a detail oriented multi tasker. She has demonstrated her leadership skills as she led the team for the research on "Access to the unknown vehicle using automatic password".She is excited to explore new areas and contribute to the development of technologies that make a positive impact on people's lives.

Chilukuri Kavya

Chilukuri Kavya is a dedicated and detail- oriented senior pursuing her undergraduate degree in Electronics and communications Engineering at Bhoj Reddy Engineering College for Women, Hyderabad. She is passionate about technology and excels at keeping her goals and tasks organized to ensure maximum productivity. As a team player, Kavya actively contributed to the development of " Access to the unknown vehicle using automatic password" project. With a keen interest in IoT, Kavya constantly seeks out new opportunities to learn and refine her skills. whether it is delving into new areas of technology or refining her existing expertise, she is committed to pursuing excellence and making a positive impact in the world of engineering.