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# Security for Campus Vehicle by Automatically Recognition of Number Plate with Notification

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**Abstract --** The growing effluence of urban India has made the ownership of vehicle a necessity. This has resulted in an unexpected civic problem –that of vehicle identification and security. Security of vehicle has become overstressed due to growing numbers of vehicles. For efficient of vehicle security, vehicle security management areas beginning to use License Plate Recognition (LPR) products. The automatic license plate identification enables vehicle security. The Automatic Number Plate Recognition System (ANPR) plays an important role in addressing these issues as its application ranges from parking admission to monitoring or to track automobile thefts. There are numerous ANPR systems available today which are based on different methodologies. No additional devices such as GPS or radio frequency identification (RFID) need to be installed for implementing the proposed system. Using special cameras, the system takes the pictures from each passing vehicle and forwards the image to the computer for being processed by the software. Plate recognition software uses different algorithms such as localization, orientation, normalization, segmentation. The resulting data is applied to compare with the records on database and then send notification to vehicle owner

**Keywords:** identification, notification.

## I. INTRODUCTION

With the rapid development of the global economy and the consistently improving living standard, there have been a growing number of vehicles. For efficient of vehicle security, vehicle security management areas beginning to use License Plate Recognition (LPR) products. Vehicle's license and number plate recognition (LNPR) system has been an important area of research interest in image monitoring and processing system. With the advent of high-tech cameras, number plate recognition system has numerous applications such for vehicle security management, traffic management applications. The automatic license plate identification enables vehicle security. Most of time the entries of vehicle are managed manually by security guards who do not keep track of all the vehicles entering and exiting the campus on their register. It also takes lot of time to make entry on register as it is manually done. And there is chances of stealing the vehicle as owner don't know when his/her vehicle get enter or exit the campus. Also the absence of the security guards may lead to vehicle thefts. Therefore, a system has been implemented who goal is to recognize the vehicle number plate for vehicle's security purposes.

## II. RELATED WORKS

### A. Reham faour

This system, an application software is designed for the detection of number plate of vehicles using their number plate. At first plate location is extracted using morphological operation then separated the plate characters individually by segmentation. Finally Neural Network is applied for recognition of plate characters.

### B. Ravindra Jogekar

This paper has generally discussed the design and implementation of automatic number plate recognition (ANPR) on android mobile phone platform. The proposed system can be redesigned for multinational vehicle license plate in future. This ANPR algorithm has been tested over a wide range of images yielding a high accuracy rate.

## III. PROBLEM STATEMENT

The entry of vehicle incoming and outgoing is maintained on register whenever any vehicles entered or exit the campus. It takes lot of time to make entry as it is manual done tasks. And there is chances of stealing the vehicle as owner don't know when his/her vehicle get entered or exit the campus.

#### IV. PROPOSED PLAN

The proposed system is focused to solve the problem prevalent in campus, namely keeping track of number and type of vehicles currently in the premise while also aiding owners with exact time their vehicle had left premise in case of thefts.

##### A. Software Design

The important part of this system is the software design. The software design requires a series of image processing techniques. The ANPR algorithm is divided into four parts:

- 1) Capture vehicle number plate image
- 2) Image pre-processing and filtering
- 3) Segmentation of the number plate image
- 4) Recognize the numbers plate image using algorithm.

##### B. Hardware Design

The hardware design is all consisting in mobile phone device, including camera to capture the image of number plate, central processing unit which is inside the mobile phone to process the ANPR algorithm using android mobile phone with Specification.

##### C. Algorithm

Step 1: With the help of camera, the number plate of vehicle will be captured.

Step 2: The number plate of the vehicle will be processed using an image processing technique.

Step 3: Once the license number is extracted from the overall image, it will be compared and searched in the centralize database and the respective vehicle owner's details will be fetched.

Step 4: Along with the details, it will also check whether the owner of the vehicle is registered user.

Step 5: If the owner of the vehicle is registered user then the system will send notification about the timing of vehicle enter or exit.

Step 6: Else if the owner of the vehicle is not registered user then the system will only store the detail in database. Using the proposed system mentioned above, the problem of vehicle's thefts will be minimized. It will also provide an email/message notification to particular responsible person.

#### V. FLOW DIAGRAM

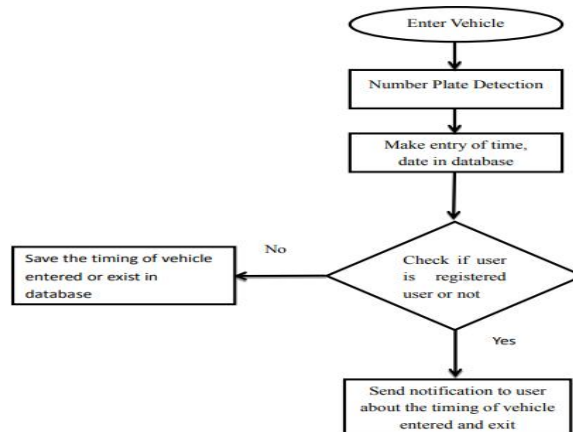


Fig. Flow diagram of vehicle monitoring system with notification

#### VI. CONCLUSION AND FUTURE ENHACEMENT

##### A. Conclusion

Users can have the information of vehicle incoming and out coming time with the help of notification. System will automatically make entry of vehicle. User will be ensuring that their vehicles are safe within the campus.



### *B. Future Enhancement*

To improve the system efficiency and to track vehicle GPS technology within the vehicle can be implemented which will not only increase the efficiency but also will increase the cost of implementation. An alarm is sounded on when a vehicle having a license plate number not listed in the registered database is detected. The implementation of the proposed system can be extended for the recognition of number plates of multiple vehicles in a single image frame by using multi- level genetic algorithm.

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