Integration of Towing Abandoned Vehicles with Numbers Plate Recognition System

Prof. V.S.Phad[1] Vaishali Dhiman[2] Bhavik Shah[3] Shweta Bangad[4] Akshay Padvi[5]
[1,2,3,4,5]SKNCOE, SPPU University

Abstract— E-government, necessity for good and corruption free nation means by using information and communication technologies, exclusively internet, to achieve better government by delivering public services and processing domestic works in government in a much more suitable, customer leaning and cost effective. Like other e-government related services e-police organization is also an e-government related service which makes the communication process a possibility, an extreme success for modern era with increasing the professional efficiency for the government police administrations. We expected a design of e-police system for traffic police to help towing management. Basically, owner has no issue if its abandoned vehicle is getting carried by traffic police, but he/she wanted a notification of equal. So that user will not get jam and his vehicle will be safe. We wanted to provide a good solution to this problem via integrating this with image fulfill. Our work will definitely help the police system in making the police work more efficient.

Key words: Numbers Plate Recognition System, Towing Abandoned Vehicles

I. INTRODUCTION

We want to develop a system which will help vehicle user to get notifications from traffic police if his/her vehicle has been tow from non-parking area. As a normal user we also faced same problem many a times and hence decided to provide some solution to this problem. If we park our vehicle in non-parking area, traffic police will tow our vehicle. Basically, owner has no problem if its abandoned vehicle is getting carried by traffic police, but he/she wanted a notification of same. This is because; the traffic police cannot tow/carry any vehicle without a written order (Panchnama) from the traffic constable. So, there is a need of such a system which can help Vehicle owner, Traffic police and Towing Contractor to solve all types of problems. We wanted to provide a good solution to this problem via integrating this process with image processing.

II. PROPOSED SYSTEM

Here the system will be based on Client Server architecture .Towing agent will have to take photo using smart phone, where this photo will be send to server. Server will extract number from images using Number Plate Recognition technique. Then server track vehicle owner information on the basis of vehicle number. Server will send SMS notification to owner saying his/her vehicle has been deposited into some nearest police station. When the user came to withdraw his/her vehicle, server will calculate the fine. Server will send SMS receipt to user of vehicle for his/her payment.

A. Objectives

The basic aim of the project is to integrate traffic police system, towing agents and user to solve towing of non-parking vehicles problem using advance image processing. Also user should get SMS notification so that he will not get panic due to such activity.

1) Traffic Police Admin:
Access via web
2) Towing Agent:
Access via Smart Phone
3) Vehicle Owner:
Access via Web

III. PROPOSED SOLUTION

Image Capture and Pre-processing: The images will be stored as color JPEG format on the camera. Next, we will to convert the vehicle JPEG image into gray scale format. Input of this system is the image captured by a camera placed at a distance of 1-2 meters away from the vehicle.

When an image is acquired, there may be noises present in an image. These noises induce the recognition rate greatly. So these noises should be removed from the images. To remove noise from the image FIR filters are used so that image becomes free from noise.

Plate region extraction: The aim of this phase, given an input image, is to produce a number of candidate regions, with high probability of containing number plate and certify for true number plate.

1) Image binarization: Covert gray scale image into binary image using OtsuâAZs method.
2) Edge Detection: Sobal Operator
   - Sobal Edge Detection
   - Vertical edge detection

Now we can detect an area of the number plate allow to a statistics of the snapshot using vertical projection of an image into the axes x and y. The vertical point of the image is a graph, which represents an overall magnitude of the image according to the axis y:

Segmentation of character in the extracted number plate: The segment usually contains several pieces. One of them represents the character and others represent redundant elements, which should be eliminated. The goal of the piece extraction algorithm is to find and extract pieces from a segment of the plate. This can be done using â AIJ horizontal segmentation â AI technique .Since the segment has been processed by an adaptive thresholding filter, it contains only black and white pixels. The bordering pixels are grouped together into larger pieces, and one of them is a character.

A. Architectures Design

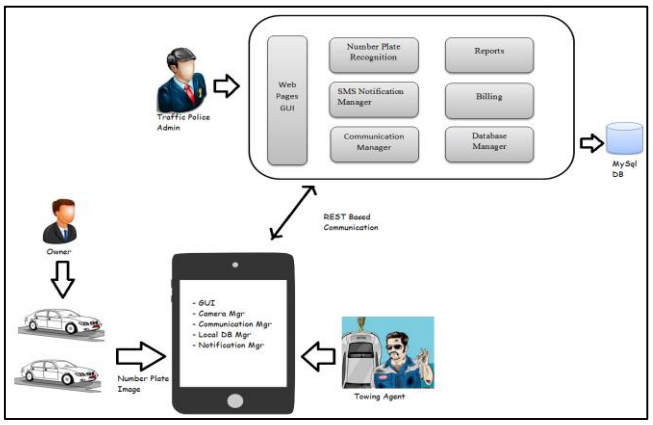

Fig. 1: Architecture

B. Hardware Resources Required

- CPU Speed 2GHz Need to handel multiple images at a time
- RAM 3GB Need to handel multiple images at a time
- Android handset Minimum Version 2.3 Nil

C. Software Resources Required

- Operating System: windows XP/7/8
- IDE: Eclipse Indigo
- Programming Language: Java
- Database: MYSQL 6
- Tomcat 6
- Android SDK

D. Technical Keywords

1) ANPR-Automatic number plate recognition
2) ANN-Artificial neural networks
3) OP-Object point
4) FP-function point
5) MMS-multimedia message service
6) WAN-wide area network
7) REST-representational state transfer
8) SOAP-simple object access protocol

IV. LITERATURE SURVEY

Existing system: Traffic Police Tow/Carry abandoned vehicles without notifying vehicle owner. Even people who tow the vehicles don't give exact information at which police station the owner should contact. Towing contractors demand huge amount to free vehicle. Sometime the vehicle gets damage due to improper handling. There is no such system present as of today.

V. CONCLUSION

It provides a good solution to problem via integrating this with Image processing and notification will be sent to vehicle user. As e-government is a necessity for good and corruption free Nation it is very important to provide a service which is helpful for traffic police system i.e. a system to citizens for getting better and secure e-government services. In our paper we have direct about system for developing countries where the traffic police to people vehicle ratio are unacceptable, therefore, the citizens of these countries have been sufferer. The main decided of this paper is to upgrade the developing countries administration to the world standard by using modern information and communication technologies.

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