Scientific Journal Impact Factor (SJIF) : 4.364
International Journal of Modern Trends in Engineering and Research
ISSN (ONLINE) : 2349 - 9745 ISSN (PRINT) : 2393 - 8161

E-WALLET SYSTEM FOR DEDUCTION AT TOLL PLAZA

Bhawana Nimbhorkar[1] and Professor .Gunjan Agre[2]
[1]Department of computer science and engineering, Nagpur Institute of Technology
[2]M Tech (computer science and engineering), Nagpur Institute of Technology

Abstract— In this system the portable stolen vehicle recognition is design for police officer who work on the road side we provide the prototype design chart of the detector the approach of tagging of number plate for collection of toll with application to automated toll system. The number plate tagged in the database with the user personal information bank account and vehicle details .The main aim is to create automation in traffic management without much change in current system and should be less expensive. The information of the vehicle register against the number plate store on the central database through the RTO will be used for verification so the purpose to capture the number plate will be sent to the server received at the toll along queue at toll plaza on express way which waste lots of journey time ,fuel .We are trying to develop a system that would pay the toll automatically and reduce the queue at the tollbooth.

Keywords— Toll collection, Toll detection, Time consuming, stolen vehicle, payment gateway, SMS gateway

I. INTRODUCTION

It used on the term VNR is an image processing technology which enables to extract vehicle license number from digital images. VNR can be used in many areas like high ways and motor ways to automate the toll tax collection VNR consist of the video of the number plate detect when vehicle traveled from the toll plaza. Automated toll collection is considered as one of the intelligent transport system .it is more reliable, efficient and safe and environment friendly. When the vehicles passing through the toll plaza do not need to stop to pay toll and the payment automatically takes from the user account. Using image processing and computer vision techniques can also help to detect stolen vehicles a license plate recognition program is utilized to conform the identification of the vehicle .when a stolen vehicle is found, the police officers need to key in the position where the vehicle is located. We proposed a portable stolen vehicle detector system which combines with GPS, license plate reorganization program and, remote database with a smart query method. For maximizing user convenience, the manual operation of this system will be reduced as few as possible. System is useful in detecting the number plate but the limitation of the system is that it is the fixed position system. The toll amount for particular vehicle is collected through credit card or bank account. The intimation of toll payment will made by SMS or email, the technology used to eliminate the traffic congestion in tollbooth.

II. PROBLEMS IN EXISTING SYSTEM

2.1 Traffic congestion:

When vehicle enter to the toll plaza to stop there and pay the toll tax hence there is more congestion of traffic. when we pay the tax by hand then there may be a problem of change so it may take a long time process. When we pay the tax they provide the receipt to us and other vehicle are waiting to the toll plaza.

2.2Curruption in toll collection:

When we pay the toll tax the admin does not enter in to the database so corruption is occurred at the time of paying the toll tax, the toll cashier collect the correct amount of money but not give the collected count of money to toll admin at that time mostly chances of corruption.

2.3Stolen vehicles:

In existing system there is more chances of the stolen vehicle and we do not found easily .in our India increase rate of the stolen vehicles to minimize this problem the proposed system is planned. If the query of the stolen vehicle database is false then that license plate is not reported as stolen vehicles

III. METHODOLOGY

The proposed system template matching algorithm is used.

The template-matching algorithm implements the following step:-

A. The first step is the character image from the detected string is selected.

B. The second step the image to the size of the first template is rescaled.

C. Then rescale the image to the size of the original image, the matching metric is computed.

D. The highest match found is stored. If the image is unmatched repeat the third step.

E. The index of the best match is stored as the recognized character.

Automatic Character recognition include a number of problems which make must required the development of an automatic process of classifying input information according to the particular requirements imposed on such a classification. The problem of alphabet recognition results in the automatic making of the decision on the basis of data which is not directly indicate the best of all possible decisions.

3.1 Gray Scale Method.

In general form the problem may be formulated as Character Recognition Using Template Matching In this method, RGB to gray-scale conversion is adopted. To facilitate the plate extraction, and increase the processing speed. Color image acquired by a digital camera is converted to gray-scale image based on the color to gray-scale conversion technique.

The basic idea of this conversion is performed by deleting the hue and saturation information while retaining the luminance. The following equation shows an optimal method for color to gray-scale conversion.

3.2 Image Binarization

This conversion is the most important stage in all phases of the LPR system, and more specifically for plate extraction phase. As known, the foreground and background colors of vehicle license plates are quite distinct. However, input images to the LPR system, often contain unevenly distributed gray intensities, or all the intensity values could lie within a small range, such as the images with weak contrast.

Therefore, the crucial point is to use an effective technique for binarization; otherwise, the method would fail to detect the license plate region from the vehicle image in a correct way.

In order to overcome the illumination problems, our method performs this task. As a result, the plate characters are show clearly after image finalization. The next step removes any object continent to the border of the image. Thus, we can get rid of unnecessary objects, while the plate characters will not affected because they are grounded by a black background. After removing the unwanted objects, a specific filter is used for illuminating the very small objects based on the size of each one Mistake.

IV. LITERATURE REVIEW

4.1Automated Toll Collection System Using RFID

Pranoti Salunk1, Poonam Malle, Kirti Datir, Jayshree Dukale

In this we do the identification with the help of radio frequency. A vehicle will hold an RFID tag. This tag is nothing but unique identification number assigned.

4.2Automated Toll Plaza Using RFID and GSM

Tejonidhi Aphale1, Rahul Chaudhary, Jinit Ban sod

The aim of this research paper is to illustrate the citation and gentility of an automatic toll plaza system using RFID Technology and its advantages over toll plazas using other techniques

4.3 RFID Based Toll Collection System

Vimal Surendran, Vignesh K S, Srikesh Baburaj,
Vishnu V S ,Krishn aveni S R

The main idea behind implementing toll collection system is to automate the toll collection process and thus discriminating the long queues at tollbooths.

V. FLOWCHART

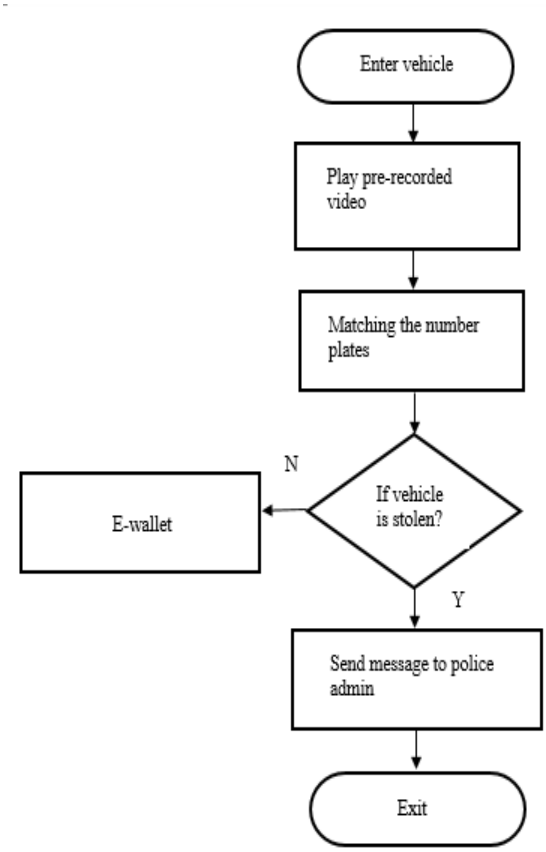

Fig. Flow of E-wallet system for deduction at toll plaza

A. The process will start when the vehicle is entered to the toll plaza .then the toll admin can play the pre-recorded video and matching the number plate.

B. If the detected number plate is stolen then toll admin can the message to the police admin and then to the owner.

C .If the detected number plate is not stolen then the toll admin can deduct the money from the e-wallet and send the message to the owner.

VI. APPLICATIONS

6.1 Applicable at parking areas

The e-wallet system is used for the payment at the parking areas .by that the deduction of money is done easily.

6.2 Applicable at highways

The system used for to recognize the stolen vehicle and also the e-wallet system used for the deduction.

VII. ADVANTAGES

7.1 Reduced vehicle congestion

When the vehicle is waiting for the receipt of paying money then the vehicle may in a waiting, hence by using the e-wallet system the vehicle congestion will be reduced.

7.2 Identify the stolen vehicles

If the entered vehicle is stolen then the toll admin can send the message to the police admin and confirm that the vehicle is stolen or not and then send the message to the owner of that vehicle.

7.3To solve the problem of time consuming

When the money pays by hand then it requires some time to process, hence by using the e-wallet system the time for processing is reduced

VIII. CONCLUSION

The proposed system is implemented for to solve the four problems at the toll plaza .The problems are the vehicle congestion, stolen vehicle, time consuming ,collection of money The pre-recorded video is used for the number plate detection ,if the detected number plate is stolen then the toll admin send the data to the police admin as well as to the owner of that vehicle. By using the e-wallet system the deduction of money is easy and time will be reduced for the processing.

REFERENCES

[1] A Novel Chipless "RFID System Based on Planar Multiresonators for Barcode Replacement" Stevan Prer Adovic, Isaac Balbin, Nemai C. Karmakar and Gerry Swiegers 2008.
[2] Alberto Carini and Silvia Malatini., "Automated Toll booth System using RFID", IEEE Transactions on Signal Processing, Vol.16, pp.1558- 1563, 2008.
[3] Liang Wang and Woon-Seng Gan.,"Electronic Based Toll Collection System", IEEE Transactions on Signal Processing,Vol.17,pp.342-347, 2009.
[4] H. Vogt. "Efficient Object identification with passive RFID tags." In F .Mattern and M. Naghsinesh, editors, International Conference on Pervasive Computing. Volume 2414 of Lecture Notes in Computer Science, pages 9 8 113, Zurich, August 2002. Springer- Verleg.
[5] Ankita bhore, Bhawana nimbhorkar, Punam pure, Priya thombare, "automatic toll system for number plate detection and collection". Volume 5,issue 9,Oct 2016 .
[6] Elipe.NageswaraRao, G.Tirumala Vasu, N.G.N.Prasad, kranthi Kumar, V.Rajesh, "Payment Automation at Toll-Gate Using RFID and SMS Alert", IJCET Vol.2,SP-1,Dec.2011.
[7] Alberto Carini and Silvia Malatini., "Automated Toll Plaza System using RFID", IEEE Transactions on Signal Processing,Vol.16,pp.1558-1563,2008.
[8] Bram Cornelis, Simon Doclo, Tim Van dan Bogaert, Marc Moonen, Fellow and Jan Wouters., "RFID Based Toll Deduction System", IEEE Transactions on Signal Processing, Vol.18, pp.1452-1458, 2010. Das D.P, Panda,G. and Kuo,S.M., "Research Trends in RFID Technology", IEEE Transactions on Signal Processing, Vol.15No.8,pp.1434-1446,2007.
[9] Debi Prasad Das, Swagat Ranjan Mohapatra, Aurobinda Routray and Basu, T. K. "RFID Security System", IEEE Transactions on Signal Processing, Vol.14, pp.545-549, 2006.

