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Servery on Automatic Toll Collection and Theft Vehicle Detection

Prof. Vijay Sonawane¹, Pranjali Patil², Ashwini Nitnaware³, Shirin Khan⁴, Priyanka Nikam⁵

Dept. of Computer Engineering, JSPM's BSIOTR, Wagholi, Pune, India¹

Student, Dept. of Computer Engineering, JSPM's BSIOTR, Wagholi, Pune, India^{2,3,4,5}

ABSTRACT: The main problem of the existing toll booth system is it is time consuming. The theft vehicle detection system is also not proper working. In the previous work the number plate of theft vehicle can be removed from the vehicle or it can be replace by other number plate, it makes very difficult to detect the theft vehicle to the police. We have proposed new technique on the HC2D barcode based vehicle detection system in which barcode is generated at the RTO office. The barcode is not removable from the vehicle. The vehicle not having barcode is considered a theft vehicle. Any other person cannot change the barcode because he does not have knowledge about the data present in the barcode

KEYWORDS: HC2D Barcode, Camera, Application program, ASP.net MD5, Reed Soloman.

I. INTRODUCTION

HC2D barcode is largest capacity of 2D barcode for communication, public relations, and data transport. In proposed system, to avoid the drawbacks of existing system, we are implementing the concept of HC2D barcode system. Our barcode will consist of vehicle number, owner information, vehicle chassis number, bank details. In the proposed system barcode is generated at authorized RTO office only. Hence no other can develop the barcode for vehicle. The purpose is to design a new image recognition algorithm for read the QR barcode in real time mode attached at the vehicle front and back end. In this system, when user buy the vehicle, he get the barcode instead of number plate. In that barcode, the unique identity number is hidden. If his vehicle is stolen, then he will make the entry in stolen vehicle detection system. His all details and vehicle details are stored in database. If users stolen vehicle detected by tollbooth operator because this vehicle unique identity number and unique number present in database are matched, then tollbooth operator inform to the RTO officer. After that RTO offices check this vehicle. In the proposed system video will be passed as an input or can be browsed from any location. Using this video the number plate is detected and further process continues. Various modules of this system are RTO admin, Toll admin, Police admin, Super admin and the general public. The role of the Super admin is to register toll centers at various locations using User name and password. Some Benefits Are HC2D barcode:

- It reduce the cost of implementation
- It provides high capacity
- It requires less space compare to QR- barcode
- It can be read from any direction.

II. RELATED WORK

1) A DATA MATRIX-BASED MUTANT CODE DESIGN AND RECOGNITION METHOD RESEARCH.

A Data Matrix mutant barcode which was also a matrix 2D barcode was designed Based on Data Matrix 2D barcode. By simulating actual environment a distorted image of a mutant barcode was obtained. By barcode localizing the barcode area in the image was acquired. These barcode characteristic parameters were abstracted after the barcode area being analysed and by exercise, the distorted image fitting formula was gained, which set up the correspondence between distorted barcode image point coordinates and the standard one. Thus the 01 code of mutant barcode of the distorted image can be abstracted. By this way, the barcode recognizing speed is faster than others, and this method was robust, is shown from the actual testing result.



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Methodology:

With Data Matrix decode method is used to decode the barcode in which implicit information in the 01 code can be decoded.

Limitations:

It only decodes binary data.

2) Whats the Power behind 2D Barcodes? Are they the Foundation of the Revival of Print Media?

2D barcodes are capable of storing different kind of data. A significant number of new mobile phones come with a built-in camera. These technologies together with the fact that mobile phones are next to the owner most of the time are the foundation of a variety of interesting applications. 2D barcodes can be used to exchange information between mobile phones and to connect to the mobile web. These days the Western World is gaining interest in this technology.

Methodology:

Here Mobile Tagging is used. Mobile Tagging is the process of 1) capturing the image of the barcode with the camera-equipped mobile phone 2) decoding the image using a software program, called barcode reader.

Limitations:

The link between print media and World Wide Web is the next big step in the digital World. This should be increased.

3)QR Barcode Reader using Embedded Camera in Android Phone.

The QR barcode is highest capacity of 2D barcode. It occupies a small area. The size of the QR barcode is suitable for displaying on print media such as paper or poster. But for reading the QR barcode, the bit of the barcode is obtained by scanning the image of the

barcode with scanner machine only. In order to improve the practical application property of the two-dimensional barcode Quick Response (QR) code, we investigate the coding and decoding process of the QR code image. Run-length coding is applied to binary QR code image so as to accelerate the identification of QR code image. The QR code is transformed into many runs of data in alternate pixels of black and white. The related runs of data among adjacent rows are formed a unit module. After the whole image has been scanned, all of such modules in binary QR code image can be generated accordingly. With a noisy QR image captured by an industrial camera as an example, the experiments of image binarization, image seeking and localization adjustment are accomplished in sequence. Also the error correction algorithm is discussed in detail. A decoding system of QR code is designed and the online detection experiments are carried out.

Methodology:

The embedded camera in mobile phones is used as new input interfaces such as symbol recognition like 1D barcode, 2D barcode, data matrix barcode and QR code. Edge detection and image decoding algorithm is based on the code area found by two vertical line, one horizontal line and the dash line detection of QR barcode. This algorithm is robust for the real time recognition of QR barcodes and an average recognition rate is 91.33.

Limitations:

The barcode recognition should be made more exact. The algorithm should be improved to retreat the decoding time.

Embedded cam:-

Embedded Camera is a video Camera. Generally it is used to capture image. Embedded Camera is connected by USB and computer "Embedded Cam" long form is Embedded Camera it is a digital Camera and it is connected to computer Embedded Camera can send live pictures from whatever it captures. Many desktop computer are coming with Camera means Camera are already in build in it. Or if not than we need to buy Camera and feet to the computer separately any time and can also remove it whenever we want. The Embedded Camera is going to capture the QR-Tokens. The QR-Tokens is of two-dimensional QR-Tokens. Generally it used to store the small amount of test data. There are different size of error correction levels for storing different amount of data. Recent mobile phones like Android phones have ability to use the content of QR-Token URL to open in the phone embedded browser. iPhone are also used to be able to read QR-Token with the help of software nematode.

QR-Token are also used to scan text messages if human personal information if it is at the risk than near field is used for payment purpose. The QR consist of square dots that is known as black modules arranged in white



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background we can be captured by the Embedded Camera. These information can processed by using read Solomon error until the image is interpreted properly. Data is then extracted from the pattern in the both horizontal and vertical component of the image.

E-Tooling system:-

In this paper we have proposed for to collect the correct amount of the toll according to type of vehicle automatically on the arrival of the vehicle from the tollbooth so, we proposed the system which is build a real time application which is reliable ,safe and environment friendly. In old system of tollbooth every vehicle have to wait for the long to pay the amount. Automatic toll system helps to removing the unnecessary traffic delays. And also it keep eye on each and every can correctly register and unregistered number plate and exchange for the purpose means if the vehicle is stolen than that vehicle will be captured on the tollbooth.

E-Tolling is for automatically reducing the correct value from tollbooth and image processing technique is used for guessing the particular bike number.

Code Detection:

- The Divided 63×448 matrix into 32 smaller matrices is considered as a single hash code.
- So 63×448 is to be horizontally scanned to and the corners of the barcode so as to detect the reading point of the encoded data.
- Once the left corner and right corner is found, the data between these two corners is read column by column with the width of 13 and height of 59 till bottom corner is detected.
- Here, when user reads the data from encoded columns, reader checks whether read data id $\neq 0$, i.e. whether current pixel being read is not the background pixel, if not, that value is preserved and next column is traversed and so on.
- After decoding the hash code, this value is passed to the server to retrieve the corresponding data value encoded with respect to the hash

III. EXISTING SYSTEM

1. Corruption in money collection at toll booths: On the tollbooth 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 corrupt.
2. Increasing rate of stolen vehicle: In previous system, there is no any mechanism to detect the stolen vehicle which is pass through toll this increases the rate of stolen vehicle.
3. Vehicle congestion at toll booths: In the existing system, the owner pass the vehicle through the toll then the cashier was give the receipt to every owner and by this the existing system is got slow and bythis lots of vehicles is get waiting in the queue and by this vehicle congestion is occur.

IV. PROPOSED SYSTEM

Now day's vehicle theft is increasing in tremendous amount. There is need to develop the system which can resist this. Also to pay the road toll we need to face the time required due to change. The objective of the proposed system is to develop a handy barcode to detect the stolen vehicle and avoid the time at tollbooth to pay the road tax. Design the system which will automatically reduce the toll amount from the use r account.

1. Using this system, we can detect the stolen vehicles easily.
2. System will help to reduce the time required at tollbooth

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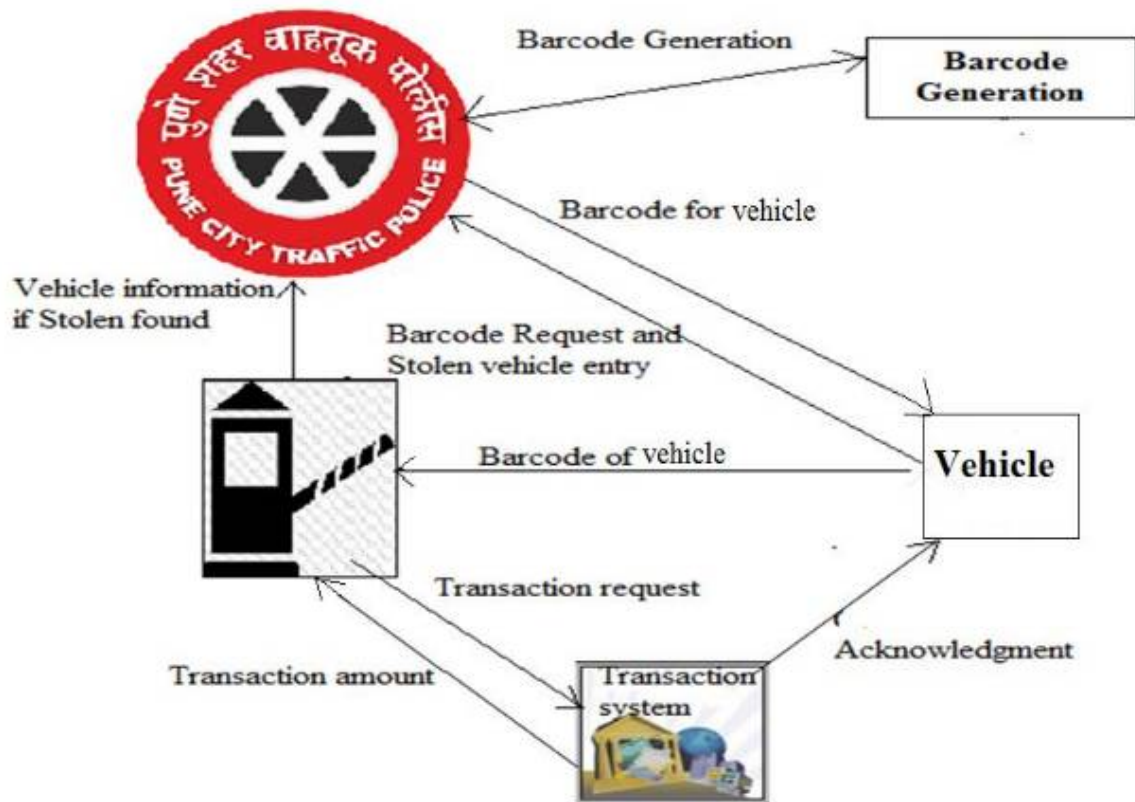


Fig -1 Architecture Diagram

V. FUTURE WORK

AUTOMATIC TOLL COLLECTION SYSTEM:-

In this paper we have proposed for to collect the correct amount of the toll according to type of vehicle automatically on the arrival of the vehicle from the tollbooth so, we proposed the system which is build a real time application which is reliable ,safe and environment friendly. In old system of tollbooth every vehicle have to wait for the long to pay the amount. Automatic toll system helps to removing the unnecessary traffic delays. And also it keep eye on each and every can correctly register and unregistered number plate and exchange for the purpose means if the vehicle is stolen than that vehicle will be captured on the tollbooth. Automatic Toll collection is for automatically reducing the correct value from tollbooth and image processing technique is used for guessing the particular bike number.

VI. CONCLUSION AND EXPECTED RESULTS

Thus a system for Image Processing Based Automatic Toll Booth in Indian Condition which is secure and highly reliable can be obtained. It can be used to remove drawbacks with the current system such as time and human effort and it also does not require any tag only required best quality camera and barcode at the front end of vehicle.This system also helps to detect the stolen vehicle. In Architectural diagram we have tried to explain our system in detail. So when vehicle will entered is the Toll booth Embedded Camera will captured the vehicle number plate and model number. Capturing image and the process it with the help of QR-Code.



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This system will also check the stolen vehicle all the database which is captured by Camera gone to be matched with the police station vehicle stolen database. If any case is there then further action will be taken and if not that it will only deduct amount of money from the owner account. The Advantage of the system it will save time reduce traffic generally in toll booth and consumes fuel. And if the vehicle is registered or stolen then it will be easily identified by this proposed system.

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