Detecting Automated Toll Card and Vehicle Comparision Using Image Steganography

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ABSTRACT:Toll gates are usually considered an inconvenience by travellers not only for the cost of the toll, but also for the delays at toll booths, toll roads and bridges. In order to ensure a steady flow of traffic, both staff and drivers require easy access to an efficient communication system covering the specific requirements of toll gates. In this way, hitches can be resolved while maintaining a convenient toll gate system. Security systems can also be added, which will further enhance the system.An efficient utilization of TOLL ID CARD using QR Code Scanner to facilitate vehicle monitoring, vehicle authentication and automated toll collection on the highways is proposed. The system is implemented to automatically a more convenient way of collecting the toll and traffic management. The implementation is divided into the design of three methods, Vehicle Module (Toll Card with QR code Generation) and the Central Database Module, Tollgate station. Nevertheless, the functions of these devices are too simple to prevent the vehicle theft crimes from happening, furthermore, their burglar proof methods are not only character.

KEYWORDS: Toll gate;QR code; Vehicles.

I.INTRODUCTION

There are millions of drivers passing through Toll Gate Stations every day. The conventional or the traditional way of collecting the toll from the vehicle owners or the drivers is to stop the car by the Toll Gate Stations and then pay the amount to the toll collector standing (or perhaps sitting!) by the side of the toll booth, after which the gate is opened either mechanically or electronically for the driver to get through the toll station. The advances in the technologies related to image processing has led to the emergence of several designs to aid the human requirements. Today on one side the importance for secured access is growing in several fields and on other side with technology advancements the QR Code cards and readers are becoming low cost. Both these aspects are the primary reasons for rapidly growing QR based authentication system.

II. PROPOSED SYSTEM

The proposed system makes sure that the traffic at the toll gates is streamlined and security is also present. The tax which is collected is based on the load carried by the vehicle. Through this system we can also identify stolen vehicles. The proposed system having all components is centralized with cloud. Every vehicle must have a unique ID Tag for store the Vehicle name and user's details. An ID card is allocated on each vehicle with read/write memory. An ID reader at the gate reads this data from the vehicle as it approaches the toll booth. ID reader communicates with PC using QR Scanner. Scanner takes bytes of data and transmits the individual bits in a sequential fashion. It consists of the entire database which is updated periodically. Now after reading the information, it compares the data in the database and allows the access accordingly by opening/closing the gate. The pressure of the vehicle is obtained using the pressure sensor and accordingly the pressure of the vehicle is displayed on the display. A counter is used to count the number.

III.METHODOLGY

QR code (abbreviated from **Quick Response Code**) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte / binary, and kanji) to efficiently store data; extensions may also be used. The QR Code system has become popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. Applications include product tracking, item identification, time tracking, document management, general marketing, and much more. A QR code consists of black modules (square dots) arranged in a square grid on a white background, which can be read by an imaging device (such as a camera) and processed using Reed–Solomon error correction until the image can be appropriately interpreted. The required data are then extracted from patterns present in both horizontal and vertical components of the image.

Cost

The cost required in the proposed system is comparatively less to the existing system.

Effort

Compared to the existing system the proposed system will provide a better working environment in which there will be ease of work and the effort required will be comparatively less than the existing system.

Time

Also, the time required generating a report or for doing any other work will be comparatively very less than in the existing system. Record finding and updating will take less time than the existing system.

Need for Computerization

To solve the problems faced during the manual processing of exam registration forms distribution, collection, sorting and transferring data to ledgers – consumes lot of time as well as manpower and results in delay of the overall cycle of processes starting from registration to result publishing. By shifting to the online system client can save a lot of time and manpower. Also, the delay in conducting exams and publishing results can be avoided. They required a web based application that will provide a working environment that will be flexible and will provide ease of work and will reduce the time for report generation and other paper works. User needs a web-based system, which will remove all the above-mentioned Problems that, the user is facing. The user wants a web-based system, which will reduce the bulk of paperwork, provide ease of work, flexibility, fast record finding, modifying, adding, removing and generating the reports.

IV.ARCHITECTURE

The architecture diagram for detecting automated toll card and vehicle comparison using image processing is figure 1. This system modules are a) vehicle module b) verification module c) approval module d) card generation module e)compiled report generation module f) tollgate module g)administrator module.
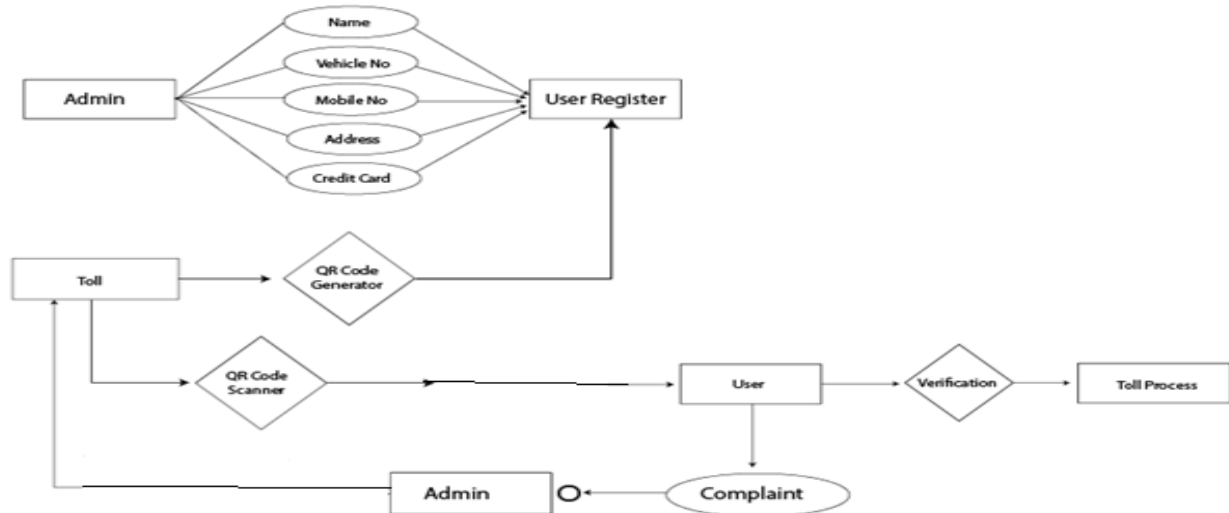
Fig.1 Architecture diagram for detecting automated toll card and vehicle comparison using image steganography.

A. VEHICLE MODULE:

The fig.1 describes all the people of the state can apply their vehicle details to get a new Toll card. They can register and create an account by use of user name and password given by the admin side. Here the public will be able to accessing the entire application in a secured way. Provision for changing the contact number, address, photo and password.

B. VERIFICATION MODULE:

The fig.1 describes admin will view the application lists and make the verification for the lists. Then the admin will go and verify the family details manually. After the verification admin will report to this module as verified or rejected. This report will send to the respective applications and also to the administrator.

C. APPROVAL MODULE:

The fig.1 describes admin will view the verified application lists and will approve the Card generation Permission to the department.

D. CARD GENERATION MODULE:

The fig.1 describes will view the approved lists and generate the toll card with passport size photo of the candidate and encrypt the other details in QR Code. An unique code will be generated for every card. If any user wants a duplicate copy the code will be changed and indicate that it is a duplicate one.

E. COMPILED REPORT GENERATION MODULE:

The fig.1 describes the all the reports will be generated monthly or yearly to the admin.

F. TOLL GATES MODULE:

All the toll gates will be created fromThe fig.1. All billings will be calculated in this module. Each toll has the unique id. They can login and maintain all data from this module. When the monthly report generated, automatically billing report for each and every pass will be sent via sms to their mobiles.

G. ADMINISTRATOR MODULE:

The fig.1 describes the admin to have the overall control of the website. Admin can allow the group permission, authorization, enable articles, send mail to groups, etc. Admin can customize the design and also manage the templates through the template module. The pages can be published whenever the admin make ready the page to be published on the site. Template with xml file should be enabled and published by the administrator. Admin can see all the feedback sent by the user's.

V.RESULT AND CONCLUSION

The implementation screenshots of detecting automated toll card and vehicle comparison using image steganography is given below from fig 2-8.
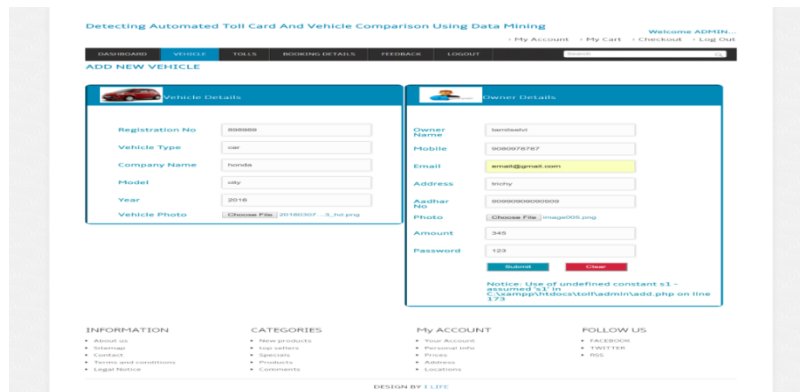
Fig 2. Implemented Add details
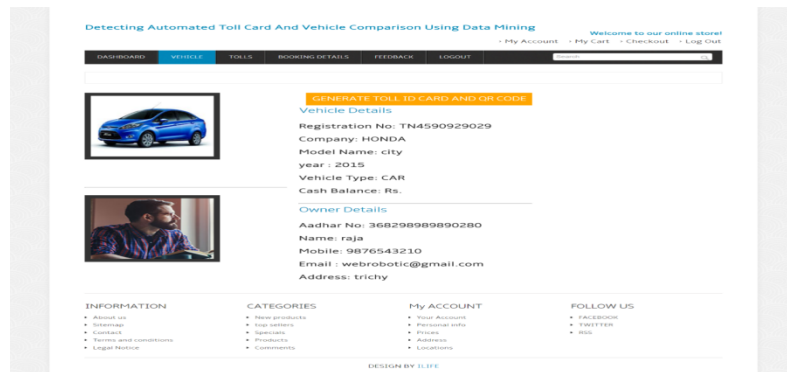
Fig 3. Implemented View Vehicle and Owner Details

Fig 4. Implemented Generate Toll Card
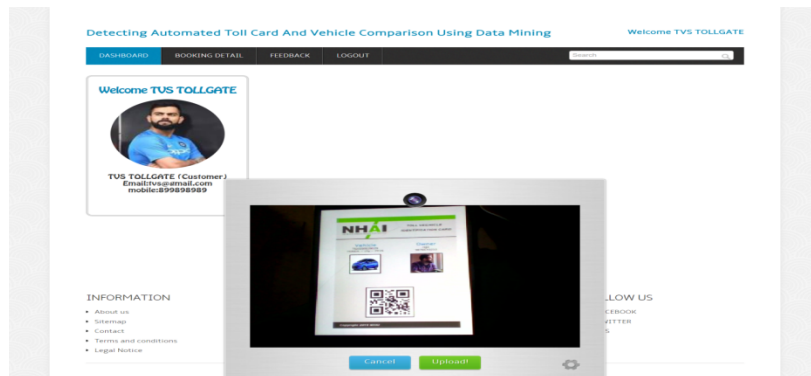
Fig 5. Implemented Camera capture toll card scanner
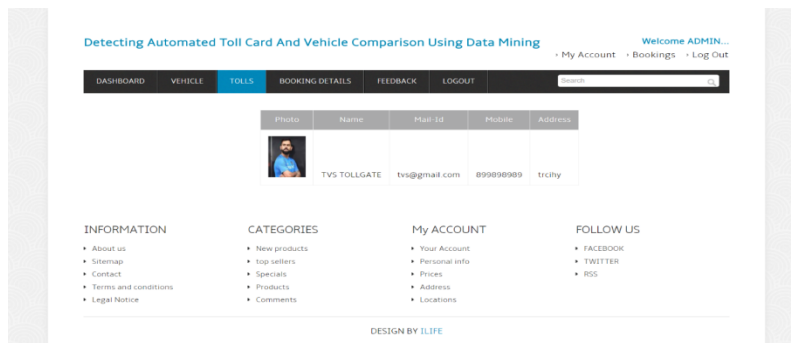
Fig 6. Implemented Toll details

Fig 7. Implemented Vehicle crossing details

Fig 8.Implemented Feedback

Our system is a user friendly toll fee method this can save time and reduce traffic congestion at toll gates and provide solution for users to reach their destination without wastage of time. It gives the toll authorities the flexibility to set variable pricing for toll services and thus a fair policy of tax collection can be followed. This way there is no loss incurred by a person carrying a vacant vehicle.. Here there is nos cash transaction for the toll lanes, so cash handling is reduced. Thus difficulties with cash handling are eliminated and this way aid in enhanced audit control by centralizing user accounts. Information such as vehicle count over the time of the day, date, time etc., can be obtained due to the deployment of this technology. This helps in making decisions regarding the pricing strategies for the toll providers. It also helps planner to estimate the travel time that aid in designing decisions.

VI. FUTURE ENCHANCEMENT

In future it can be implemented as automatic vehicle detection using sensor cam to identify the vehicle and other details in sensor networks based system. Also it can be released as mobile application for the users to manage bills for toll.

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