Trans-Seva: E-Challan System using QR-Code

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Abstract:
Nowadays road traffic has become real problem in one-tier and two-tier cities. There are several ways to make travelling safe and one is through the Traffic Police. Responsibility of the traffic Police regarding traffic management includes directing traffic, enforcing traffic rules and regulations and penalizing the driver in case of violating traffic rules. Another way of enforcing traffic discipline is frequent conduction of awareness program, from the Department of Traffic Police, based on the offence data collected. But the existing system do not have centralized repository for storing the penalized data, so the system proposed in this paper is an attempt to develop an android application which will help the traffic police to the penalty information in the centralized repository. Application to be developed will also consist of analysis part of traffic offences based on which higher authorities can take necessary measures regarding traffic discipline. Also, in today's challan issuing system all the work from checking of document till the issuing of challan, everything is manual. This manual system is very much time consuming and also not very effective. In current challan system police checks all the document manually and there is no way to detect that the document is valid or not, and also challan is filled manually this manual filling of challan takes very much time, sometime it may happen that police maintain two challan books and they may issue you fake challan and user will end up thinking that he has paid for genuine challan but ultimately the money will go in personal pocket of police. So the application proposed in this paper will help in reducing the time required to prepare challan.

Keywords: Trans-seva, E-Challan, QR-Code, Traffice offence

I. INTRODUCTION:

In this paper, a method of online service with respect to transport services is being proposed. It is about designing a system to get rid of the problems in the current system. Traffic violation in the form of exceeding speed limit, not using helmet while diving, drink and drive etc. takes place very often on the Indian roads. The traffic police deployed across the country are unable to control these violators due to the unavailability of any connectivity on the field. When caught, the offender gets away by paying the traffic police a minimal amount which leads to corruption and reduces the government earnings. This also may lead to casual approach of vehicle user and result in frequent offenders. Keeping a tab on this activity has become an impending task for the state and central governments. Collecting the data of violators by the traffic police is not possible in the current system, as they are not connected to the database in any way. Malpractices including non-issuance of receipts to the violators or manipulation in the manual spot fine receipts take place on a large scale. Resources are being wasted at each police station on manually updating data at various levels. There is no information about the previous offences committed by the traffic violator. Also, there is no proper track record of the fines collected by policemen. In recent years, the quantity of motor vehicles increases rapidly and the burden of the management of the road traffic are increasingly heavy. There are several ways to make travelling safe and one is through the Traffic Police. Responsibility of the traffic Police regarding traffic management includes enforcing traffic rules and regulations and penalizing the driver in case of violating traffic rule. In today's information-rich society, everything is becoming smart. This paper shows the design and development of smart traffic offence analysis tool with e-payment. To overcome the above stated issues, government of various states have developed and implemented and online solution i.e. e- challan system. Below is the proposed structure and procedure of the system to be designed. The traffic policeman will be given a smart phone/ device, which will be provided by government. App created will be installed on this phone/ device. Every police will have independent login ID and respective password. This app will be created to record the violations committed by the offenders and also the fine imposed for those activities will appear automatically from the database. In this thesis, it is proposed that the data of every vehicle owner will be assigned with a QR code sticked to the vehicle itself. So when the vehicle user violate any set rule and policeman catches, he will scan the QR code with scanner (app) and enter the offense of vehicle user which will be again shored in database against that vehicle user. The record of the same will also be send to the vehicle user email_id. The terminal prints the challan and it will be updated online. Each device will be capable of acting as a payment receiving station for any challan or notice generated by any other device and issue receipt. Moreover, this system will also enable the policemen to know whether the vehicle involved in the traffic rule violation is stolen, the previous history of the vehicle or driver in accidents, and whether any notice from the traffic police is pending against the vehicle. Payment gateway integration is also possible for getting payment through credit/debit card. In this paper, a QR scanner is proposed which will be used to scan the QR code of a vehicle. As soon as the QR code of the vehicle is scanned all the detail information of vehicle will be present on the screen. In the information field a tab will be provided to enter the reason for challan. Deadline will be provided to the offenderso than he can pay challan offline at respective RTO office.

II. SYSTEMARCHITECTURE:

This paper is all about making challan system online to eliminate all the problems with current manual challan system.

E-challan system is similar to the current manual system having difference in record keeping, payment etc. In this paper, it is tried to develop a system for four cities of Maharashtra i.e. Nagpur, Mumbai, Akola and Pune. This system is applicable for all type of vehicles i.e. two wheelers, four wheelers etc.
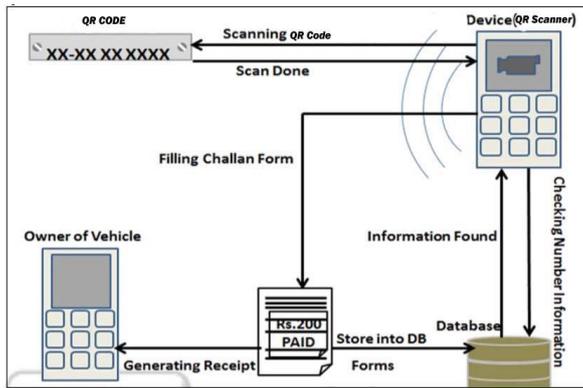

Figure.1. Conceptual Flow of Project

The main elements of this system are:
1. Allotting QR code to every vehicle
2. Design and Development of an Android app and site
3. Creating data base of all vehicles

The above elements are explained in details as follows.

A. Allotting QR Code to Every Vehicle:

The proposed system is based on scanning the QR code allotted to vehicle. So it is very important that every vehicle should have unique QR allotted. QR code shall be allotted to vehicles based on their category as
a. Two wheelers
b. Three wheelers i.e. autos
c. Personal four wheeler
d. Tourist vehicle
e. Heavy vehicles i.e. trucks etc.

Usage of QR Codes in the System:

With the increasing usage of smart phones and wireless network infrastructures, passengers are getting acquainted with obtaining information about timetables, bus arrival time and etc. by means of mobile phones. QR code was created as an information container forming of two-dimensional by Toyota subsidiary, Denso Wave in 1994. Data is encoded in QR optically readable format using QR code generators. So, QR code can be captured and decoded by smart phones. It is capable of handling up to several hundred times more information than the traditional bar codes unlike conventional bar codes are only capable of storing twenty digits. According to different versions of QR code, distinct information storage capacity may be used (see Fig. 2). The cost of information transfer via QR code is extremely low as compared with other technologies where specific hardware is always required Consequently, QR code is the most widely used information container that can be applied to different printed materials (e.g., posters, books or magazines) and places (e.g. *bus* stops,store windows,etc.).

(a)10 alphanumeric characters(b) 100 Alpha numeric characters
Figure.2.QRcodeswithrespecttothenumberofmodulesinsym bolarea.

B. Design And Development Of An Android App And Site :

Developing an app and site is the most important and critical part of this system. Web application is developed with HTML & CSS. The main purpose of web application is to display information of the vehicle with specific QR code referring to the data base. Also it allows offender to make online payment. Web sites generally consisted of a collection of HTML document files. Each page of the site is a separate file. The site is developed using database technologies such as MySQL, and programming languages such as PHP and CSS (Cascading Style Sheets).

C.Creating Data Base of All Vehicles:

Every QR code to be scanned with the help of an android app shall hold all the information of vehicle. The information of vehicle is needed to be stored in data base. For this system, MySQL is used to store initial data of vehicle like vehicle no., area code etc. vehicle owner's name etc. The offence data registered against any vehicle also will be stored in MySQL and whenever another offense is registered against that vehicle, data of past offense shall also have displayed after QR code is scanned.

Encryption and Decryption:

Encryption and Decryption is used to secure all the information of vehicle in database.
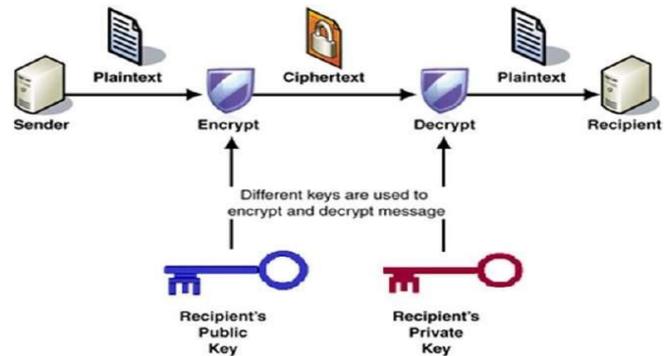

Figure.3. Encryption and Decryption

III. CONCLUSION AND DISCUSSIONS:

By implementing the proposed system using QR scanner, eliminates the time taken in the challan issuing system and also it would remove black money transaction which is present in current challan issuing system. Traffic violation can be controlled in a better way. It will increase the efficiency of traffic police and with the current police strength, traffic can be controlled. It will also help in curbing the corruption; which we feel is the major issue of our country. It will reduce traffic offences drastically.

This will also help in reducing number of accidents; traffic jam which consumes people's precious time.

The proposed application helps traffic police to penalize traffic offences. And helps them in analysing traffic details with centralized data repository stored in the department server. There by generates graphs for the easier analysis by which the traffic police can enforce the traffic discipline. By this application, we can reduce the traffic offences drastically. In this project, an online mode of payment is proposed which will save time of offender and policeman also.
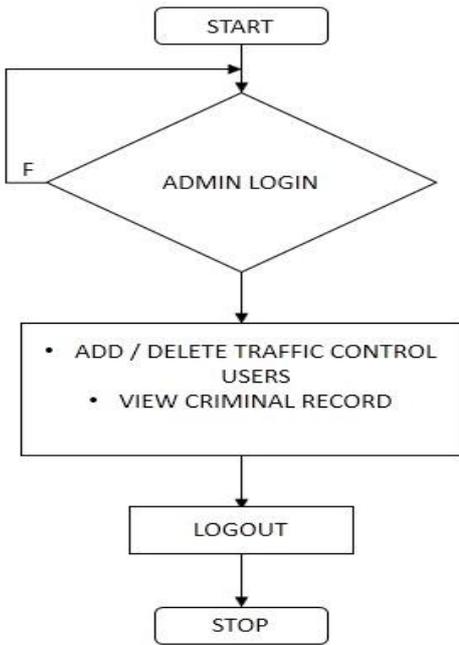
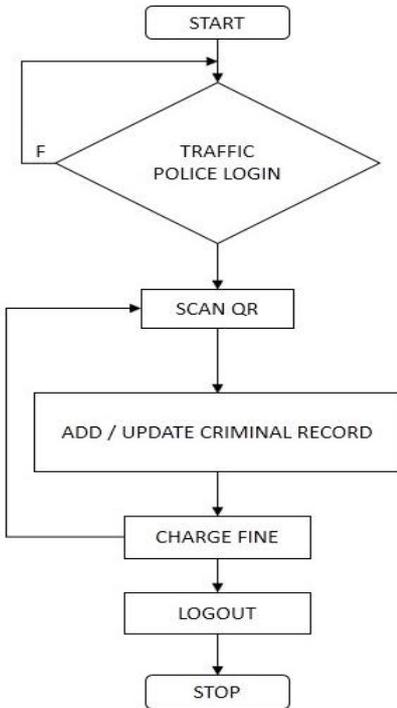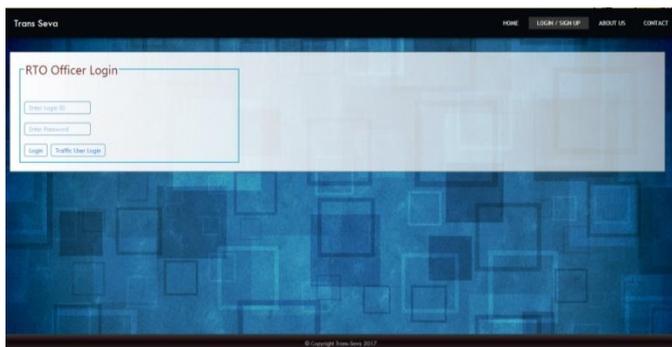**Figure.4. Flow chart of admin user control**

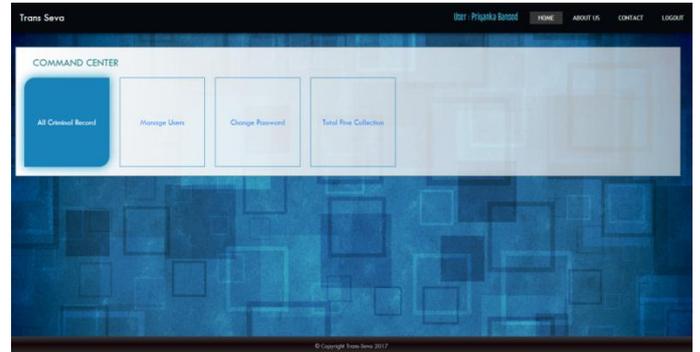**Figure.4. Flow chart working of the system**

IV. RESULTS:

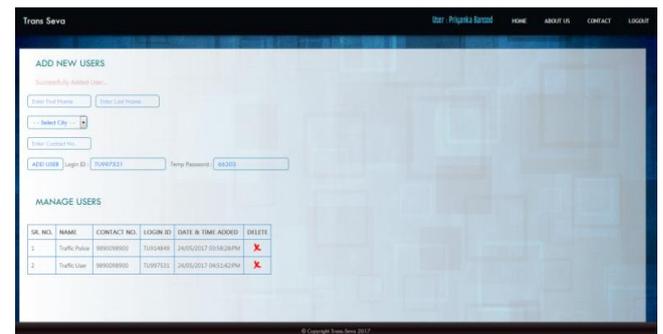**Screenshot 1: RTO Officer Login**
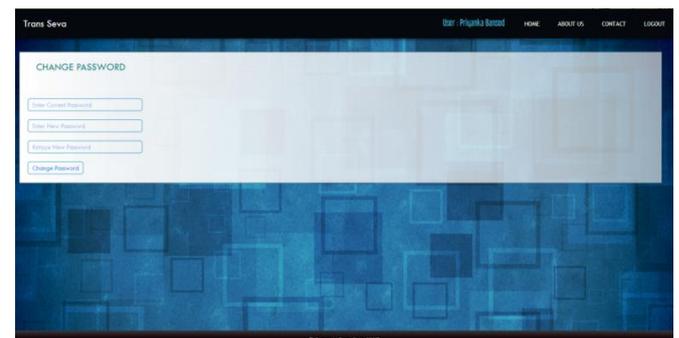

Screenshot 2: Traffic User Login

Screenshot 3: Command Centre
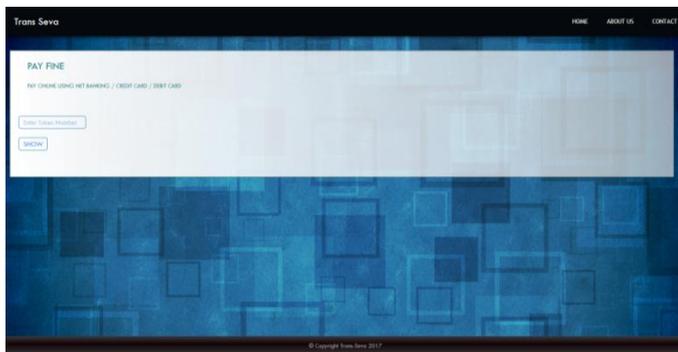

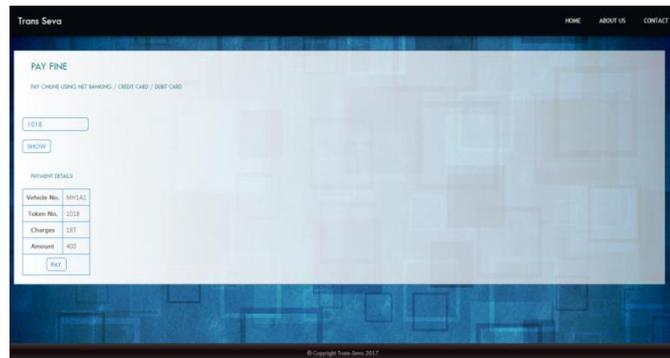
Screenshot 4: All Criminal Record
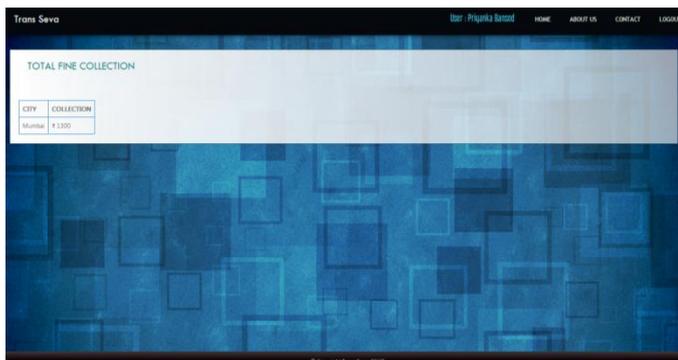

Screenshot 5: Manage User

Screenshot 6: Change Password

Screenshot 7: Pay Fine

Screenshot 8: Pay Fine Details

Screenshot 9: Total Fine Collection

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