Electronic Secure Vehicle Verification System using Advanced RTO System

Prof. C. S. Pagar[1], Riya R. Singh[2], Rutika K. Jadhav[3], Pratiksha V. Nagane[4], Revati U. Salunkhe[5]

[1]Assistant Professor, Department of Information Technology, SKNSITS, Kusgaon, Maharashtra, India
[2]B. E. Student, Department of Information Technology, SKNSITS, Kusgaon, Maharashtra, India
[3]B. E. Student, Department of Information Technology, SKNSITS, Kusgaon, Maharashtra, India
[4]B. E. Student, Department of Information Technology, SKNSITS, Kusgaon, Maharashtra, India
[5]B. E. Student, Department of Information Technology, SKNSITS, Kusgaon, Maharashtra, India

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Abstract - *Collecting information of violators through the location visitor's police is not viable within the contemporary system, as they're not linked to the database in any way. Malpractices collectively with non-issuance of receipts to the violators or manipulation inside the guide spot exceptional receipts existing itself on an outsized scale. Resources vicinity unit being wasted at each police workplace on manually exchange understanding at several levels. There are no records about the preceding offenses dedicated by way of the visitor's violator. Also, there's no ideal music file of the fines accumulated by way of policemen within the proposed gadget whenever citizen's files get expired at that point it'll ship notification alert. This machine will assist in saving a large quantity of your time. To stay far away from the intrusion of voters unique documents, as a result hissing QR-code are accustomed to provide privacy.*

Key Words: QR-code, OCR, AES, RTO, GPS, Scanner.

1. INTRODUCTION

RTO System is that the code aimed toward providing a good vary of access to the administrator in managing and observance the need registered by the users concerning the issues, they face in accessing the connections extended by the police challan. E-Challan System is associate degree interaction between Police and User simply through the app. This project describes, however, challan becomes straightforward for the user by keeping it on-line. This project contains 2 classes particularly Police and User through that users will simply move with the remainder of the module. In recent years, the number of cars will increase quickly and also the burden of the management of road traffic is more and more serious. There unit of measurement some ways that to create movement safely and one is through the Traffic Police. Responsibility of the traffic Police with reference to traffic management includes imposing traffic rules and laws and penalizing the drive simply just in case of violating traffic rules. In today's information-rich society, everything is turning into good. This project shows the planning and development of good traffic of- fence analysis tool with payment. Traffic offense management could be a major concern in cities around the world.

Mobilized Traffic Offence System could be a powerful mobile-based application that records all the traffic offenses committed abroad. The appliance helps the traffic police keep adequate data on all traffic offenses that are committed by road users and conjointly maintain the databases of the motive force and vehicle details. We've several existing mechanical man applications that facilitate the vehicle driver to envision his challan standing and he will pay the penalty on-line while not the intervention of traffic police. But our application focuses on traffic police as a user and he will punish the one who commits the traffic offense and might collect the penalty quantity on spot exploitation e-payment .with the knowledge keeps within the information the upper authorities will take applicable measures. Differently of implementing traffic discipline is that the frequent conductivity of awareness programs, from the Department of Traffic Police, supported the offense information collected.

RTO (REGIONAL TRANSPORT OFFICE) could be a government bureau that is answerable for the registration for vehicles and problems with driver licenses in Bharat. The aim of this project is to form an associate degree application for RTO services. This application provides registration for the license, vehicle registrations, and alternative documentation. During this application investigation functions like checking of a license, documents, etc. for the assistance of RTO officers square measure provided. By exploitation, this mechanical man application traffic police will verify the entire details of person and vehicle. RTO management is having loads of labor concerning registration of vehicles and also the issue of driver's license insurance. Similarly, the vehicle owner generally forgets to hold the license at the time of inquiry. To resolve such issues that square measure by storing all the knowledge associated with vehicle and driver at the information by RTO administrator.

This project targets to store the knowledge associated with vehicles like insurance, license, emission testing details, personal details of the applier, and registration date. This application would be put in on the mechanical man phones of traffic police. And it'll give input fields to Traffic police to enter the vehicle range moreover as an identification number to retrieve the knowledge associated with vehicle and license from the information. Within the case of civil police, an online page is provided

wherever he will update the purloined standing of the vehicle to the information to catch the malefactor. This application conjointly generates the fine and purloined standing of the vehicle. Thus it's a totally service-oriented application. This application uses JSP at the server-side and the mechanical man application is employed on the client-side. To create the JSP application this paper uses NetBeans IDE seven.2.1, server Wamp (Windows Apache MySQL processor), and Macromedia Dreamweaver and MS Expression code. Equally just in case of mechanical man application uses ECLIPSE with ADT (Android Development Tool) Plugin, mechanical man soul tools.

2. LITERATURE SURVEY

Mr. Niteen Surv & Mrs. JayshreeKatti introduced the different algorithm which provides security but in comparison AES algorithm which gives the more powerful and more secure for storing the data on a cloud server. In cryptography, AES is the latest algorithm which the fastest speed to encrypt the number of documents and it is advanced algorithm DES which has lots of capacity to secretly storing the data.[1]

Lokesh S. Khedekar & Prajakta S. Kale proposed paper which shows the strength of QRcode which eliminate the weakness of password. The main strength of QR code has lots of capacity to hold the data in securing form.[2]

David Lorenzia et.al says survey on QR code can be used on smart mobile phone because it has more capacity to hold data and also it may possible to carry the QR-code image in portable devices using DES algorithm. [3]

Wengang Hou introduces Images have big volume and no longer are use as compared to text data, AES algorithm secure against brute force attack, so it has high speed and securely encrypts the images by comparing the DES algorithm.[4]

Qiu Zhang says the third party can exposure details from QR code and sometimes QR code images can corrupt that time to provide security to QR code image use the chaotic algorithms.[5]
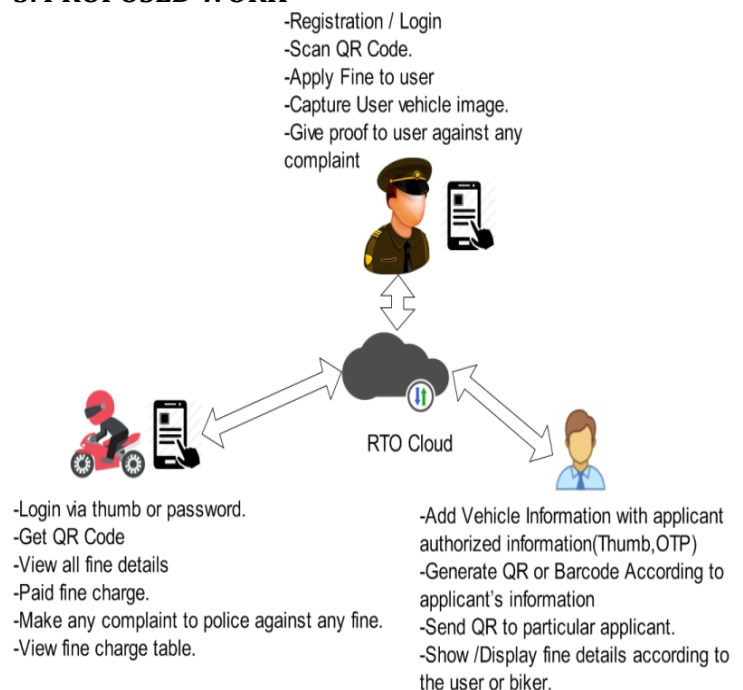
3. PROPOSED WORK

Fig -1: Architecture Diagram

The main purposed of QR code in proposed system which Generates the QR code image in secure format i.e. QR image generate on citizens mobile application whenever the verifier authority verifies the documents they will be scan the QR code of citizens from his/ her mobile application and access the documents of citizens from RTO server that time to provide security for QR code from third party i.e. Attackers to avoid the intrusion we using chaotic algorithm they provide more security and privacy to QR code image. Whenever it generate noisy QR-code for security purpose and avoiding to corrupting the QR code.

The architecture design style explains the general operating method of this paper here the larger system is rotten into sub systems. That has some connected set of services. This paper proposes 3 modules. During which we have a tendency to aim to supply higher services. Through automaton phones which needs net for the info transfer. As portrayed in Fig. 1 the design we can see that a replacement applier will give his document's text forms to the administrator of RTO. This data is keep in info at server through on-line registration. And server aspect finish is in JSP. On consumer aspect android application are provided to police. Once police work into the system will retrieve vehicle and license connected data from the RTO info. If authentication fails the data or the information is provided to the police to hear else information concerning the user is displayed.

In proposed system consist of mainly 3 modules:

- Admin(Web Application)

1. Add Vehicle Information with applicant authorized information(Thumb, OTP).
2. Generate QR or Barcode According to applicant's information.
3. Send QR to particular applicant.
4. Show /Display fine details according to the user or biker.

- Police(Android Application)

1. Registration / Login.
2. Scan QR Code.
3. Apply Fine to user.
4. Capture User vehicle image.
5. Give proof to user against any complaint.

- User/Citizen(Android Application)

1. Login via thumb or password.
2. Get QR Code.
3. View all fine details.
4. Paid fine charge.
5. Make any complaint to police against any fine.
6. View fine charge table.

This application works simply by submitting your vehicle number or challan number to get the challan details. This flow of it is mentioned as below:

- Unique challan number Offense Date and Time of the challan got generated.

- The fine amount or Challan amount.

- Payment status of generated challan.

- Total no. of paid and unpaid challan with the total amount which is got generated against your vehicle till the date.

You don't need to check the official website 100 times a day to see the challan we are displaying in this application.

Advantages

• Reduce the corruption in transport department.

• Keep the license documents safely.

 • In case of accident it helps to spot the burned person and conjointly helps to seek out out taken vehicle effective.

• Traffic police will verify the full details of person and vehicle.

• No have to be compelled to carry the license.

Disadvantages

• Traffic police ought to have net association on mobile.

• Traffic police ought to have sensible phone.

• User should keep in mind his identification or license number, insurance range.

Existing System Disadvantages

• There is not any centralized info that saves the full data of auto and owner.

 • Toll automation isn't gift in current system.

 • GPS module isn't enforced in current vehicles to trace them.

4. ALGORITHM

4.1 OCR

OCR consists of the many phases like Scanning of image, Pre-processing, Segmentation, Feature Extraction, Classifications and Recognition, Post process. The task of preprocessing relates to the removal of noise and variation within the image [3]. In scanning step the image is non-heritable. The quality of image depends extremely on the scanner getting used. In sensible applications, the scanned pictures don't seem to be excellent there could also be some noise thanks to some unneeded details in the image that will cause an intermission within the detection of the characters within the image. Preprocessing involves removal of noise (applying filters like Gaussian filter, physicist filter etc.) and correct conversion of image like a coloured image is regenerate into grey scale or binary image for additional process of image. Feature extraction involves recognizing the feature needed. Classifications and Recognition part is the extraction part of the method. Once finishing the OCR method many post process steps square measure necessary counting on the appliance, e.g. tagging the documents with meta-data (author, year, etc.) or proof-reading the documents for correcting OCR errors and orthography mistakes [4]. OCR continues to be in analysis and far advancement have to be compelled to be created during this technology. The long run scope of this is often OCR in mobile devices, handwriting recognition, recognition of assorted languages except English (like Arabic, Devanagari, Telugu text), extraction and process of pictures from video, process and restoration of previous documents and lots more.

4.2 QR Code:

QRCode Generation Algorithms: (GenQR)
STEP 1: Start
STEP 2: Input the source file(infile)
STEP 3: Call GenSig(infile)
STEP 4: Compress 'suepk','sig' and 'infile' into 'test.zip' file
STEP 5: Create an empty string data STEP 6: Convert 'test.zip' into string and store in 'data'
STEP 7: Input the image format and resolution of the QR Code to be generated
STEP 8: Input Error Correction Level
STEP 9: Using zxing[1] library method convert 'data' into a BitMatrix object 'bitmatrix'
STEP 10: Write bitmatrix to an image STEP 11: End
N.B- BitMatrix represents a 2D matrix of bits.

QRCode Decoding Algorithm: (Decode_QR)
STEP 1: Start
STEP 2: Input QR Code image
STEP 3: Construct a Binary Bitmap object 'bitmap' from source image
STEP 4: Using zxing library method decode the 'bitmap' and store it in the object 'result'
STEP 5: Convert 'result' into string and write it to 'result.zip'.
STEP 6: Extract result.zip
STEP 7: If requested by user call VerSig('supek','sig',infile)
STEP 6: End

5. RESULT AND DISCUSSION
In this system following are screenshot are given below:

5.1 Web Application(Admin)

- Web Home Page
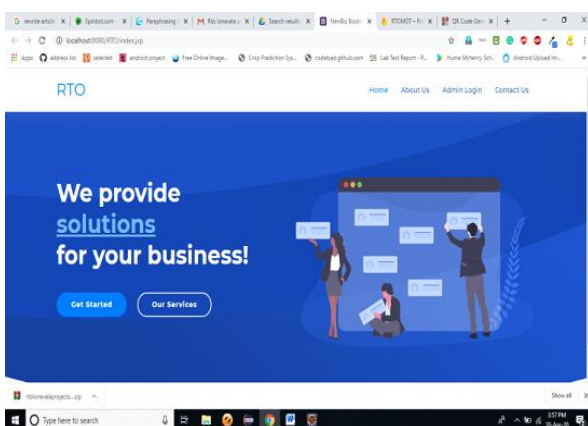
The web home page, is the page to be used by the admins i.e., the people working at the RTO. In this web page the admin being the user can login to put in the information in the database. This page also has "ABOUT US" and "CONTACT US" which would let the people know about the webpage and the application and the people would contact the admin for any queries.
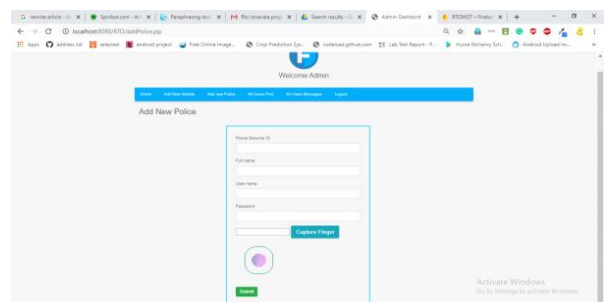
- Admin Login Screen
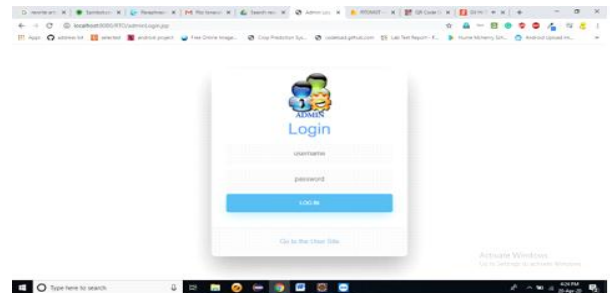
The admin login page will show the above page for the admins to log in to their accounts for the ones who are already registered with us.
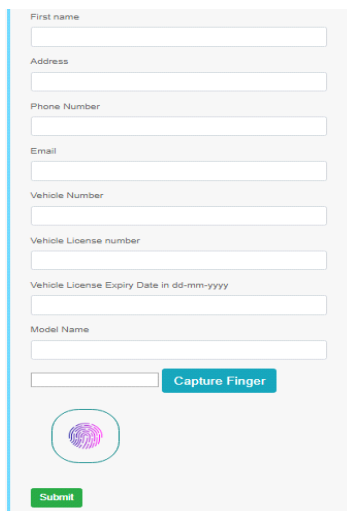
- Admin Home Page
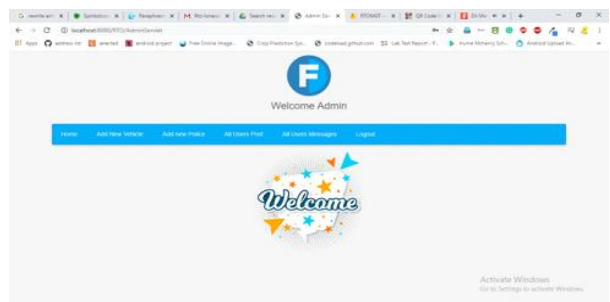
This page can be seen to the admin users who have logged into their accounts using their registered username and password.

- Admin Add Police Data

The admins also adds the data of the registered police working, so that the police can then use the application to view the data of the users or the common people.
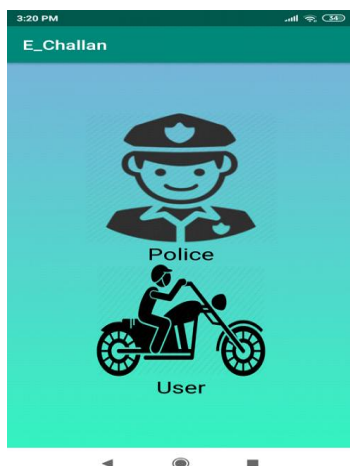
- Admin Add Vehicle Details

This page is seen to the admin to enter in the vehicle details of the users or the common people. After entering their vehicle details, which gets saved into their database, they generate a QR code for the users to use whenever needed.
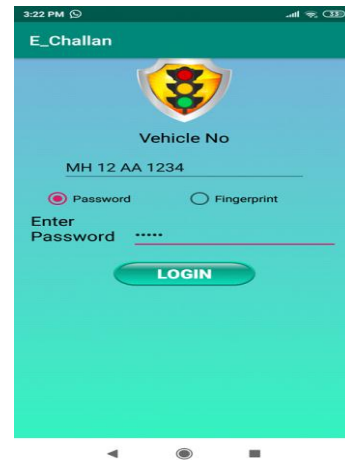
5.2 Android Application(User)
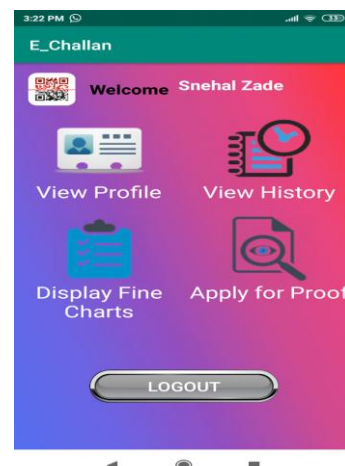
- Select User

This is the first page of the application. Here, on this page one can select if they would want to login as the "POLICE" or the "USER" which is the common people using this application.

- Login Screen

This is the login screen where one can enter the vehicle number and enter their passwords or use their fingerprint to login.

- User Home Page

This the page that the user can see once they login using their vehicle number and password. From here they can navigate to the details they need like viewing their own profile, viewing their previous histories , see their payments charts and applying for proof if they are charged with any fines.

- User QR code

This is the QR code that the user can show to the police officers if asked for. This QR code is different for every vehicle registered by the RTO admin.

- Challan History
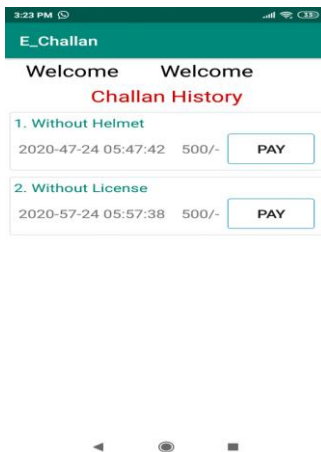
Here the user can view their challan history with the amount to be paid and for what offence.

- Proof details send

Here, the user can apply for the proof for which offence they have been charged. Like they can get the image captured by the police as a proof.
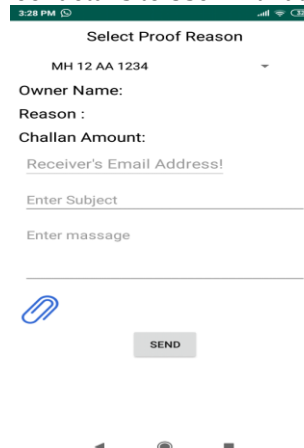
- Police Home Page

Here, this is the page seen by the police after they login. From here they can navigate onto the different services provided to the police.

- User Details by QR Code

This is the details the police can see if they have scanned anyone's QR code.

- Send Proof details to User with attachment

Here is how the police can send the proof to the users if they are been asked. Here the police can also attach any photos or other attachments as the proof to the users.

6. CONCLUSION

Advanced RTO scheme is employed for vehicle verification mechanism for fixing the real-time trouble which takes secure custody of the required files like Driving License, PUC, Insurance, RC Book etc. which Verify the Vehicle User Electronically, so outcome during a heap extra transparency, authenticity, and additionally minimize corruption of pretend archives and additionally reduces the administration overhead of RTO Admin with the help of minimizing the employment of papers. In future work the one new characteristic are including which is pockets device when the first-rate penalty are required, it'll reduce the number of transaction from consumer android utility wallet, offers exceptional penalty details for a novel consumer thru two GPS to RTO cloud server. The essential advantage of future work is to place off frauds.

7. FUTURE SCOPE

This system can enhance the applying by linking it to the Aadhar Card database so as to retrieve more details of the license/vehicle owner. In future work the one new feature will be adding which is wallet system when the fine penalty will be required, it will cut the amount of transaction from user android application wallet, gives fine penalty details for a particular user through GPS to RTO cloud server. The main benefit of future work is to remove frauds.

ACKNOWLEDGEMENT

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