

RTO Automation Using QR Code

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Abstract- As population is growing the number of vehicles is increasing. Keeping the valid license and vehicle papers is mandatory. It is very tedious to keep all this documents with us always and also it is difficult and time consuming to traffic police to check and verify these documents and maintaining the challan regarding the vehicles. Therefore, we proposed a system in which the work of traffic police and driver (user) is simplified. In this system the driver will register to RTO services and the login credentials will be provided to driver to login. The driver will generate a QR code for his RTO driving license therefore it is not necessary to him to carry hard copy driving license with him also the rulebook will be provided to driver regarding fine details. At RTO traffic police end the police will scan the QR code in the application and the data from server will be fetched and license details will be shown. Also, traffic police can enter the vehicle registration number to get details of PUC, Insurance and vehicle papers for verification. The traffic police will be able to find the lost vehicles also as the lost vehicles data will be given in the application. The traffic police will be able to generate the challan through the application and it will be linked to the vehicle and the driver has to pay the challan online. This application provides services to driver (user) and traffic police.

Index terms- QR Code, RTO Automation, Traffic Police Application, Pay Challan, Identifying Lost Vehicles, Maintain Copy of PUC & Insurance

1. INTRODUCTION

In this project we have different modules in which they store different information & having different service. In RTO it has process for registration of vehicle, their documents data all are stored in database in which they access from here. In maintenance or service provider they have whole document & information about location in which vehicle owner who face problem, they give service to them. This new system also provides feature for detection of lost vehicle.

Administrator has the power to verify the data entered by the user, processing of data and provide appropriate solutions. Any person who has been authorized by the administrator can use this system. An authorized user should have a user name and password to access detailed information from the site excluding for accessing general information in shared, public pages. User is the person who gets the all benefits of this application. Registration of vehicle through online gives unique id no to all vehicles [1]. Here we are using QR code for license identification and vehicle number is used to retrieve the PUC, RC book and insurance.

The proposed system is of RTO Administrator, user and traffic police android application. The database of users is stored on central database of the RTO system. The administrator can register the new users for service by verifying all documents. Administrator can view and manage the database of user as well as traffic police. The lost vehicle database is also registered by the administrator. The registered user can retrieve the driving license in the form of QR code. The traffic police can login to the android application and scan the QR code of the user from his mobile application and the driving license will be fetched from the server. If the traffic police want to check the driver's vehicle documents, RC book, insurance then he/she have to insert the vehicle number of the driver then all the documents are viewed here. Also, after inserting the vehicle number it will show that whether the vehicle is registered for lost vehicle case or not. Traffic police can apply the challan if driver has violated some rules and the amount of the challan will be debited from his account. The traffic police can see the history of fine individual driver. The overall database is updated to the central database server.

Admin Website:

Admin Login- Login on website using username and password.

Manage Users- Manages end users who are carrying a car or a bike with their login credentials.

Manage Traffic Police- Admin manages traffic police with their login credentials.

Manage Fine Amount Admin can manage offence with their fine amount.

Manage lost Vehicles- Admin can manage lost vehicle in this module.

QR code Generation- QR code will be generated for each citizen based on the documents uploaded.

Performance Prediction- The data stored on server will be analyzed and performance of officer will be judged.

Traffic Police Android:

Login- Traffic police login on Android application using the credentials provided by the admin.

Open QR code, Offline QR code Store- View and show QR code to the traffic police to proceed further.

View Rule Book- User can view or download pdf of the rule book to avoid offences.

Traffic police Scanner- In this application there is a scanner which will scan the QR code of the customer. Once the QR Code get scanned it will store all the information of client with current catalogue and fine type on server.

View User Past History- Traffic police can track user specific fine history.

Car Plate Number Based Info Retrieval- Traffic police can search a car information based on car plate number.

User Android Application:

Login- User login on Android app using credentials provided by the admin.

Open QR code, Offline QR code Store- view and show QR code to the traffic police to proceed further.

View Rule Book- User can view or download pdf of the rule book to avoid offences.

Upload PUC & Insurance from mobile User can update latest PUC and insurance copy using Android application.

2. LITERATURE SURVEY

In [1], there were different modules in which they store different information & having different service. In RTO it had process for registration of

vehicle, their documents data all were stored in database in which they access from here. In maintenance or service provider they had whole document & information about location in which vehicle owner who face problem, they give service to them. This system also provided feature for detection of lost vehicle. Administrator had rights to verify the data entered by the user, processing of data and provide appropriate solutions. Any person who has been authorized by the administrator could use this system. An authorized user should have a user name and password to access detailed information from the site excluding for accessing general information in shared, public pages.

In “Smart RTO Web and Android Application” [2] it describes smart RTO & web application consist of web application for RTO administrator and the android application for the user. The user has to register for the services like insurance, license & RC book. If the traffic police caught the driver and asks for the license, insurance and vehicle documents the driver had to tell him the license number, insurance number manually and the traffic police will enter the details in his mobile app and the data stored on the server will be fetched regarding the documents. It influenced by RTO management system. This information was stored in database at server through on inline registration and server-side end is in PHP. On client side an android application was provided to police.

After police logins into the system was able retrieve vehicle and license related information from the RTO database. If authentication fails, the information is provided to the police to retry else information about the use is displayed.

In “E-RTO management system” [3] describes E-RTO is an advanced “E-RTO management System” which is design keeping in a view to make the existing registration and insurance system easier and faster. It included the entire registration and insurance procedure starting from the initial phase of entering till the result. Also, security was provided in the intermediate stages starting from the receiving of the application form to revealing the applicant number along with the expiry date of license are being dealt. Administrator was provided for authentication purpose as well as it could handle all the database of E-RTO and manage all the process. He had rights to approve learning license number,

permanent license number, pass the vehicle registration number, offer insurance details to the user, etc. Facilities were provided by administrator. In [4], it showed the authentication of vehicle using RFID which was an advanced “ERTO Management System”. It was designed keeping in view to make the existing registration and insurance system easier and faster. It included the entire registration and insurance procedure starting from the initial phase of entering till the results. All the intermediate stages starting from receiving of the application form to revealing the applicant number along with the expiry date of the license were dealt. This technology enabled the traffic police to be more effective in controlling repeat violators of traffic rules. Traffic Police had the database of registration numbers as well as the history of driving license holders. When a traffic policeman would enter the details of any vehicle caught violating traffic rules, it would give the complete details of that particular vehicle including the name and address of owner and the make, model and other details of the vehicle. Not only this, the details of the driving license holder would also be available. Therefore, enhanced penalties would be imposed for repetition of violation of traffic rules. Also, the RFID tag is used to identify the vehicle independently.

In “RTO AUTOMATION SYSTEM USING NFC” [6] describes automation system is basically a digital system to overcome the manual task. The single NFC cheap need to be attached to the license of driver. The NFC chip stores a unique combination of numbers. This ID could be read by the smartphone and the NFC to web application with the underlying NFC technology and uniquely associated with the driver's master data in the web application. A mobile application, database and NFC technology was developed that enabled the exchange of data between different devices over distances. In this project, the smartphones equipped with NFC was used and it could be paired with NFC tags or stickers which could be programmed by NFC apps to automate this task. A new system for RTO using Android app which included Near Field Communication was introduced in this paper. The microchip contains memory to store a unique data and to receive and send data back to the reader. These tags were powered by the electromagnetic signal received from a reader. Development in technology bring digital

world to be border-less. It's proven through a developed technology, when trade and transaction can be done not only using real money but also virtual one. NFC (Near Field Communication) technology provided both way interaction between two electronic devices and makes it secure and digital. It communicates at speed of 106kbit/s.

3. SYSTEM ARCHITECTURE

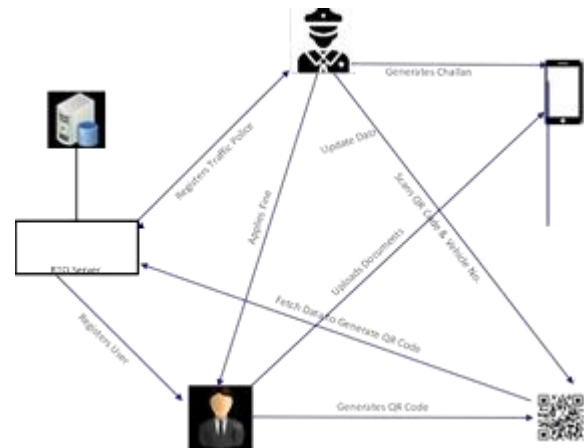


Figure 1

The system consists of three main modules i.e. admin, traffic police & user. The user registers at admin for the service and admin verifies the user and registers the user's information in RTO database. The traffic police are also registered by the admin. After registering the user logs in to the user app and generates QR code for the license. The QR code is fetched from the RTO server. The traffic police scan QR code and enter vehicle number to check the license and all vehicle documents. The traffic police determine the challan and apply it to the driver and the challan data will be updated to the RTO database. The admin has all the rights to view update and insert data into the RTO database.

4. RESULTS

Here, Figure 2 shows the user login to the app using the credentials given by the RTO administrator. After logging in to the app the user will see the QR code is automatically generated. Then this QR code can be used by the traffic police to see all the profile of driver. The user login has an option to update insurance and PUC and can check rulebook also.



Figure 2

Here, Figure 3 represents output is from the traffic police android application module. After scanning the QR code of a user the details of the user will be shown and at the same time the user history can be viewed and also the fine can be applied.

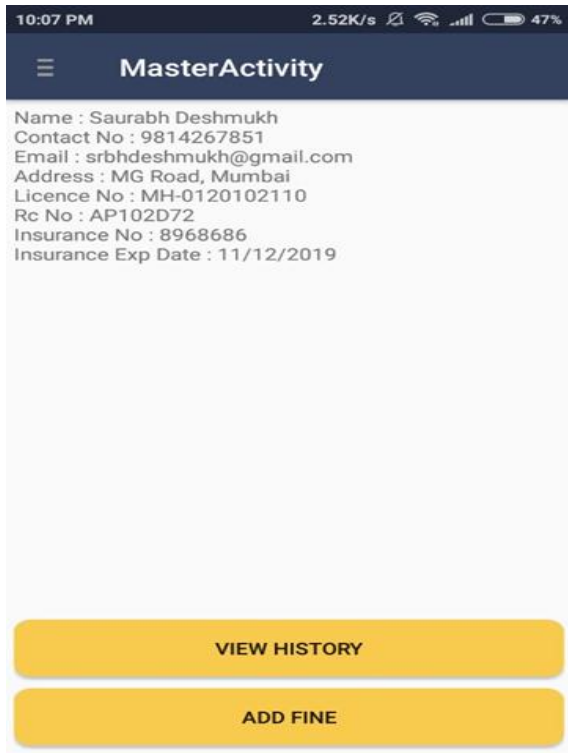


Figure 3

Figure 4 shows the admin module, Here the administrator has all the rights to view and manage all the database of user as well as traffic police. Lost vehicle database can also be registered here and rulebook can be updated.

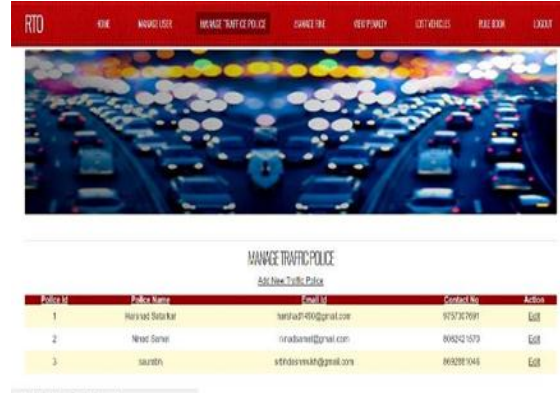


Figure 4

5. CONCLUSION

Using this system most of the manual work of RTO system is being reduced. The user doesn't have to carry the documents with him/her. He/she has to keep mobile phone installed with this application to show the documents. The QR code provides the faster way to retrieve documents. Traffic police also have to just scan QR code to see the license. By entering the vehicle number, the traffic police will get the vehicle documents and he can determine whether there is any missing complains of the respective vehicle and if any rule is violated then fine is applied. The admin portal can manage both traffic police and user. Hence the overall system simplifies the RTO work and optimizes work efficiency.

6. FUTURE SCOPE

In future, this system can be implemented to see the sensitive areas where most of the rule violations occur. The speed violation can be implemented in such a way that if the driver exceeds the speed limit of particular road then automatically the fine will be applied to him. This system can be integrated with Aadhar Card.

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