

DESIGN PROJECT REPORT ON DRIVER AUTHENTICATION SYSTEM

Submitted By

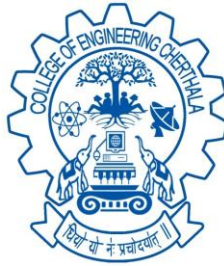
SALU K L, (CEC17CS048)

under the esteemed guidance of

Ms. MARINA CROMPTON

Assistant Professor

Computer Science & Engineering



NOVEMBER 2019

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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In partial fulfillment of the requirements for the award of the degree

of

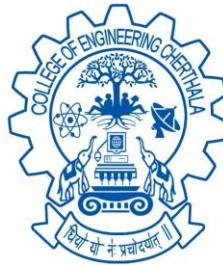
Bachelor of Technology

in

Computer Science and Engineering

of

A P J Abdul Kalam Technological University



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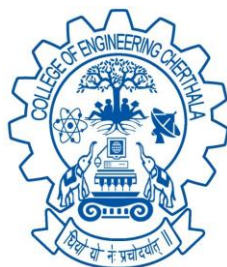
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C E R T I F I C A T E

This is to certify that, the design project report titled ***DRIVER AUTHENTICATION SYSTEM*** is a bonafide record of the **DESIGN PROJECT** presented by **SALU K L** (CEC17CS048) Fifth Semester B. Tech. Computer Science & Engineering student, under our guidance and supervision, in partial fulfillment of the requirements for the award of the degree, **B. Tech. Computer Science & Engineering** of **A P J Abdul Kalam Technological University**.

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I would like to thank **Dr. Mini M G**, The Principal, who has provided with the best facilities and atmosphere for the design project completion and presentation. I would also like to thank HoD **Dr. Preetha Theresa Joy** (Professor, Computer Science and Engineering), our project coordinator **Mr. Muhammed Ilyas H** (Assistant Professor, Computer Science and Engineering) and our project guide **Ms. Marina Crompton** (Assistant Professor, Computer Science and Engineering) for the help extended and also for the encouragement and support are given to us while doing the project.

I would like to thank our dear friends for extending their cooperation and encouragement throughout the project work, without which we would never have completed the project this well. Thank you all for your love and also for being very understanding.

ABSTRACT

Now a day's population has become a major factor to be considered. As a result, the number of vehicles is growing by increasing problems of vehicle registration, license registration, emission testing and insurance validity for RTO departments and vehicle-related documents verification by traffic police. RTO employees having a lot of work burden of making registration, license issue, transfer, etc., which requires a lot of paperwork. As a result, people can't get things done at the right time, which is a waste of time and energy. Similarly, the vehicle owner sometimes forgets to carry the license and forgets the insurance at the time of inquiry. This paper proposed an approach to solving such problems that are by storing all the information related to vehicle and driver at the database by RTO administrator. And an android application is provided to traffic police to retrieve vehicle and license information. A provision to track a stolen vehicle in this case civil police plays an important role since a web page will be provided to civil police to update the stolen status to the RTO database. This approach is also useful to penalize the offenders, who violate the traffic rules. The proposed system overcomes these issues in the current scenario by implementing a web server which uses a database to store, update and access the above-mentioned documents with a user-friendly front end android application, tailored to the needs of the appropriate users. The application also allows users to report a stolen vehicle and check unpaid offenses on his vehicle, all in the click of a button. The application for the police allows him to review earlier driving offenses by the rider and also report any current offense committed by him. The police's application generates a digital receipt avoiding any kind of unwanted tampering with the process. The system also allows integration with emission test centers and insurance companies who can upload verified emission test documents.

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Chapter 1

CURRENT SYSTEM

The current system of traffic management and RTO management generally lies in the paper works, where everything including the works of transfers, changes, and updations are done directly in between the officials and public. So the current system is technically tiresome and is a long process including verifications and checking.

Now considering the digital concept of traffic management, there exists a website administered by RTO where entry of the license number will retrieve the details of the vehicle and respective individuals.

In the concept of penalties and violations, either the officials directly give the users the receipts for the fine included or the penalty details will be included in the website where the user should check the site for details. They should contact the officials for tracking the status. If he fails to check this website regularly, he may not be aware of any pending traffic violations on his vehicles as no notifications are provided.

In case of complaint lodging, the public should visit the nearby police station and to get the updates, it might include the same process of visiting. The process to lodge a complaint and subsequent response is slow and inefficient.

The key issue faced by commuters while traveling is to deal with the inefficiency and discrepancy in the traffic system and the people involved in managing the same. On being caught by the police, the commuter must submit his/her driving license, RC Book and/or other vehicle documents for verification. In case the commuter forgets/misplaces the documents, he/she is unnecessarily fined.

1.1 PROBLEMS REGARDING THE CURRENT SYSTEM

- Need to carry a long list of certificates while traveling, and misplacement or missing of the certificates during the travel might lead to unnecessary fines.
- Corruption in both official and user level, where officials can get the bribe from public or might even be corruptions while receiving the penalties, considering the users, they might engage in face document usage whatever the purpose be it is cheating under the law.
- Considering the lodging of the complaints, visiting, registering and tracking is tiresome and even might be a long process.
- Taking to the facts that the current websites only will allow retrieval of information on the entry of license number, it does not provide details to the users unless checked, that is they will not be updated frequently. By considering the system, the current concept is tiresome and needs to be a lot systematic for the users as well as the officials as they need to maintain a long list of documents up to date.

Chapter 2

PROPOSED SYSTEM

In this age of science and technology, where the internet is in the palm of everyone's hands, a better system for managing the above process can be set up which would greatly reduce the burden on the daily commuters as well as the traffic police.

The proposed system overcomes the issues in the current scenario by implementing a web server which uses a database to store, update and access the documents with a user-friendly front end android application, tailored to the needs of the appropriate users. The application also allows users to report a stolen vehicle and check unpaid offenses on his vehicle, all in the click of a button. The application for the police allows him to review earlier driving offenses by the rider and also report any current offense committed by him. The police's application generates a digital receipt avoiding any kind of unwanted tampering with the process. The system also allows integration with emission test centers and insurance companies who can upload verified emission test documents and insurance details directly onto the database.

This application is a document authentication system using Android Applications, Web Server and Mysql. This paper proposed an approach to solving such problems that are by storing all the information related to vehicle and driver at the database by RTO administrator. This application is a service-oriented Android application specifically designed for the transport department which allows efficiently managing and verifying the documents related to vehicle and license. The proposed system has an android application designed using JAVA and XML with dedicated user interfaces for each of the actors on the scene. The android application connects to a web server by making an HTTP request so that when the android application is executed. It connects the android device to the PHP script. This encoded data is then parsed

and displayed on the android device that we propose.

- The application is influenced by the E-RTO management system.
- No need to carry documents by the vehicle driver. Police directly fetch information through the app.
- RTO provides a unique id to the user, while users upload documents and RTO verifies and permits them.

On the client-side, an android application will be provided to the police and the public. After police logs into the system can retrieve the vehicle and license related information from the RTO database, while user can upload informations. Thus, it provides a method of abstraction as only shows what needed to be viewed.

2.1 SYSTEM ARCHITECTURE



The overall working process states here the larger system is decomposed into subsystems. That provides some related set of services. This system proposes three modules in which better services are provided. Through android phones and that requires internet for the data transfer. The architecture we can see that a new user will be provided with the unique id by RTO officials and users will insert the documents into the site which in turn is verified and permitted by the officials. This information is stored in the database at the server through online registration. And the server-side end is in JSP. On the client-side, an android application will be provided to the police. After police logging into the system can retrieve the 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 user is displayed. The architecture mainly consists of three modules.

- A. RTO Module
- B. Police Module
- C. General User Module

2.2 STEPS INVOLVED

(a)RTO / Emission Test and Insurance Companies

- RTO registers the users with a driving license and provides a unique user id.
- They verify the document inserted by the users and permits authorization.

(b)General User

- User signs in through the android application using the user id provided to him.
- User can upload and view all the latest documents such as driving license, owned vehicle details, RC Book, latest emission test certificate, insurance copy, etc. on his profile page.
- User can report the stolen vehicle to notify the nearest police.

(c)Police

- Signs in through the android application using the user id provided to him as authentication.
- Officials can enter a vehicle number to view the owner's or vehicle's documents.
- Officials can generate fines or track vehicles as needed.

2.3 A. RTO Module

This module is specifically designed for the RTO administrator and it consists of information related to the user license and vehicle. This information will be stored in the database where they maintain the data after the users upload them and they verify and permits the users insertions and approves for the usage. Apart from the maintenance, RTO administrators are the ones who provide the credentials for both the police officials and applied users. This is the module where it is mainly used to maintain the vehicle and driver's information. It consists of two sub-modules namely

- 1) Vehicle info module

- 2) License info module

- Vehicle info module: This vehicle information includes the details like vehicle's number, name, type, owner's name, their address, contact number, vehicle emission date, insurance date, model name, chassis number, registration date and also it can be responsible for inserting, editing and managing the vehicle-related information into the database.
- License info module: This license module consists of information regarding drivers personal details like license holder name, its number, type, DOB (Date of birth), DOI (Date of issue), gender, license vehicle date, license holder blood group, address, age, contact number these all records have to be maintained in the database and also can be editable and manageable by the RTO administrator.

2.4 B. Police Module

This is the second module of this system. The main advantage of this module is that it helps to generate fine and retrieve the vehicle and license information. This includes sub-modules.

- 1) Checks license.

- 2) Checks vehicle.

- 3) Generate fine.

- 4) Checks and tracks complaints

- **Checks license:** This module takes a license number as input and returns the license information which all are stored in the database like name, photo, and type of license, license number, vehicle type, gender, DOB, DOI and so on. In case if records don't exist it shows the respective message that indicates the record doesn't exist.
- **Checks vehicle:** Here in this module to check the vehicle-related information one must have to give the vehicle number as an input, then all related records which are stored in the database will be displayed like vehicle name, number, type, owner's name, their address, contact number, vehicle emission date, insurance date, model name, chassis number and so on. Else in case of records doesn't exist it shows the respective message that indicates the record doesn't exist.
- **Generate fine:** This module helps the traffic police officer in generating fines for offenses committed and this includes the fields like vehicle number, fine type, amount and reasons for fine.
- **Checks and tracks complaints:** This module includes a web page to update the stolen status of the vehicle and also information like vehicle number, complaint number, complaint details, and complainer contact number. This overall process requires the internet for data transfer between the client and server and data that are stored in the server.

2.5 C. General User Module

- Signs in through the android application using the user id provided to him.
- He/She can insert and view all the latest documents such as driving license, owned vehicle details, RC Book, latest emission test certificate, insurance copy, etc. on his profile page after approved by the RTO officials.
- He/She can report the stolen vehicle to notify the nearest police.
- The user can check any unpaid violations or penalties on his vehicle.

2.6 ADVANTAGES

- Less corruption: As here the generation of digital certificates takes place and documents are also placed digitally after permitted by the officials, thereby reduces the chance of corruption.
- Push notifications allow easy updates and reminders: Similar to the applications provide notifications by the method of google cloud messaging.
- Easy tracking of stolen vehicles.
- Helps the RTO officials and users to maintain records systematically and reduces a lot of paperwork and manual efforts.
- Security and protection: No misplacing and losing of documents. Avoids faking or corruption.
- Data abstraction: As each sector can see what they need to see thereby reducing complexity and enhancing efficiency.

2.7 FUTURE SCOPE

- The proposed system can be further enhanced and greatly improved by adding new functionalities and in-app services. By integrating this system with the location tracking (GPS) can be enabled and integrated into the system which would open up a plethora of possibilities to expand the application, with traffic updates and location-based vehicle tracking being a few.
- Additional services may be added such as in-app service for ambulance assistance where accidents can be quickly reported which would allow both the police and ambulance drivers to respond to the emergency more efficiently. Emergency contact alerts could be added where a user in distress could notify his near and dear ones about an emergency from within the application.
- By linking it to the Aadhar Card database to retrieve more details of the license/vehicle owner.

Chapter 3

SYSTEM DESIGN

3.1 BLOCK DIAGRAM

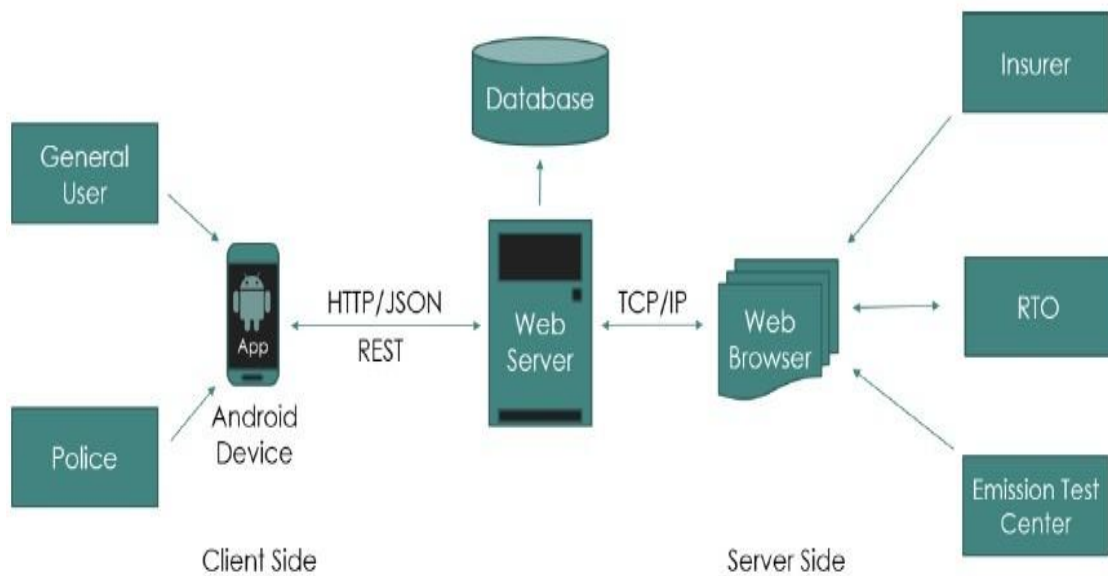


Figure 1: Methodology

As specified, there are 3 modules: general users, police and RTO module. There are two ways to access the information stored in the webserver which is managed by RTO as administrators. The police and general users access this information through android application and RTO admins access this through their PCs.

The whole system is a collection of web server, database and android application intertwined together and is designed in such a way that the core function of RTO is taken online and the general public can access this very easily. The server acts as a bridge between the database and clients.

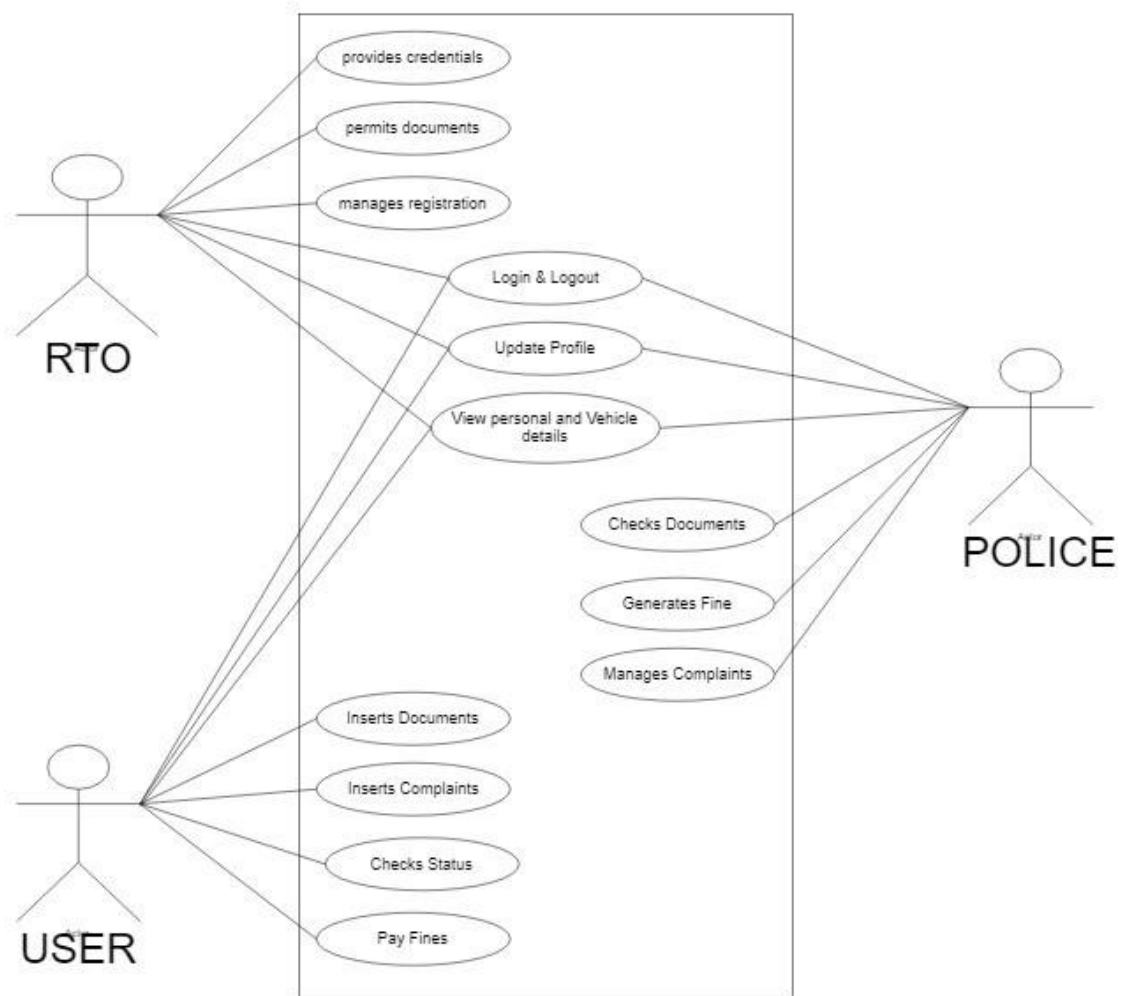
The proposed system has an android application designed using JAVA and XML with dedicated user interfaces for each of the actors on the scene. The android application connects to a web server by making an HTTP request so that when the android application is executed, it connects the android device to the PHP script. The PHP script fetches the data from the database, which is then encoded and sent to the device. This encoded data is then parsed and displayed on the android device.

3.2 USE CASE DIAGRAM

The use case diagram has mainly 3 components. In that, there are three users: RTO, User, and Police. And there are different cases for each user which is defined as follows:

The RTO has access to provide credentials. They manage registration among the user as well as the officials. They verify the documents provided by the user and the police and if they are legal then it will be uploaded to the corresponding profile of the user.

Police is another user who has the following cases which includes viewing, tracking, complaint registrations and so on. They also has the access to generate fine and also they can manage complaints. They can check the documents of the user module simply by entering the license/vehicle number.



'User' is the main actor in the use case diagram. They can insert documents, check the status, file complaints and also pay fine. They access the android application using the unique id provided by the RTO. They can insert documents related to the driving and the documents related to the personal details, and the users will get the push notifications, unlike the current system where they will get the details about the fines and violations.

All the users can log in and logout from the applications similar to the other applications and RTO acts as the administrator where they provide the credentials to other users and manage the application and database.

3.3 FLOWCHART

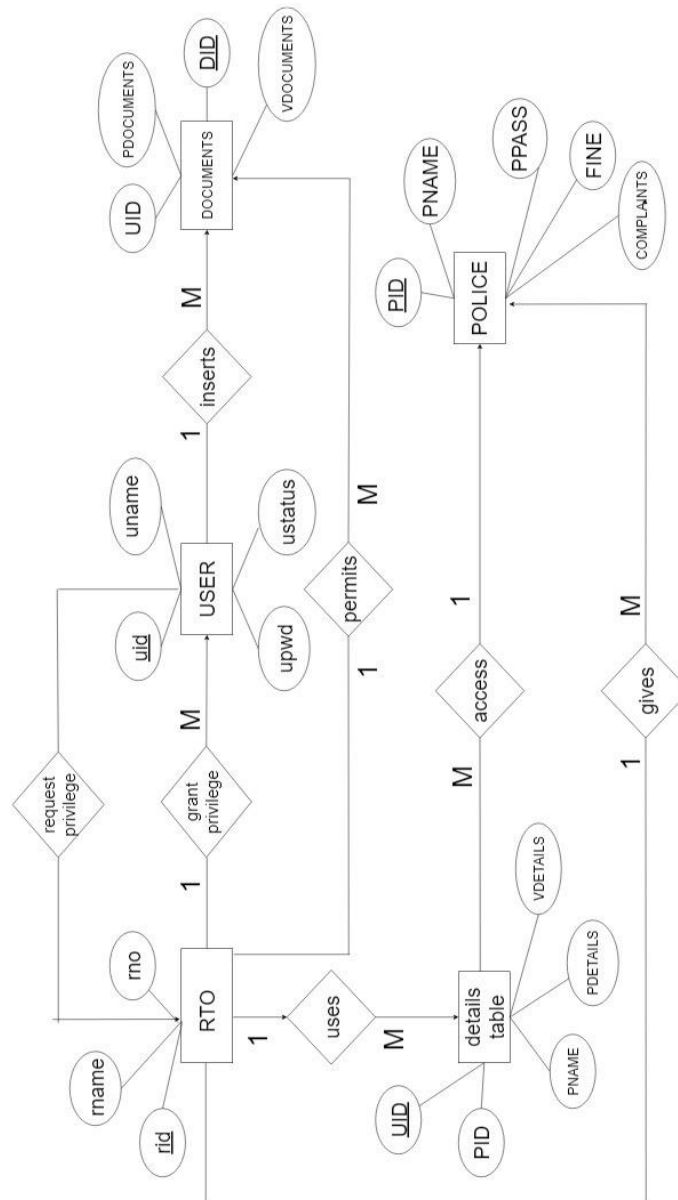


The above-mentioned fig. is the flowchart of our proposed system. It starts with the login ID which is to be entered by the user. If that login id is wrong, then the user has to enter the id until it comes to true. When the correct id is entered, it will go for the privilege. There are 3 privileges for 3 categories namely Public, Police, and RTO.

The first category is public. They can view the personal and vehicle details, their compliant status and the traffic penalties. They also have access to enter the documents that will be verified by the RTO. The next category is the Police. They can view the personal and vehicle details of the user and can also generate fine and can update the stolen status of the vehicle just by entering the Vehicle or the License number.

The last and the most important category is the RTO. The RTO Provides unique id to users and officials. The Users insert data and RTO officials verify and permit data inserted thereby adds the information. RTO is the one who manages the records. Administration module of the database and has the whole control of the database. In the end, all the 3 categories can logout from there account.

3.4 ENTITY RELATIONSHIP DIAGRAM



The figure shown above is the Entity Relationship Diagram of our project. So the diagram mainly constitutes

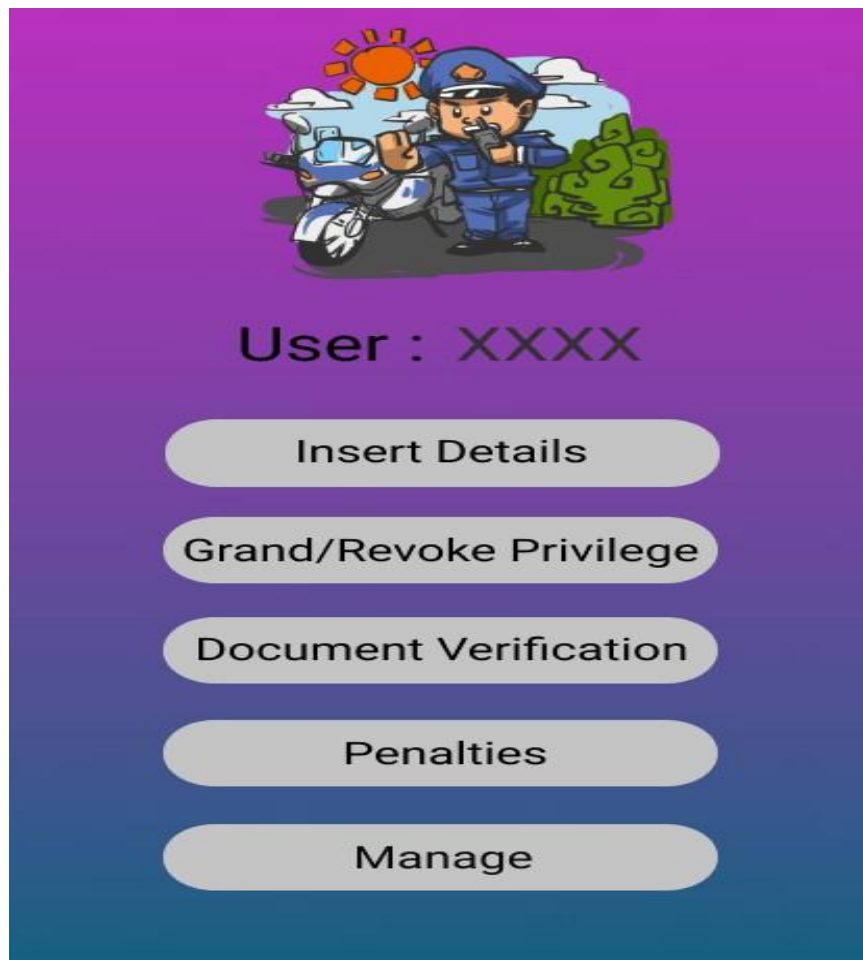
1. RTO
2. User
3. Documents
4. Police and
5. Public.

The main and most important entity is the RTO. It mainly consists of 3 attributes namely RID, RName, and RNo. The next entity constitutes UID, password, UName, and status. And these are the attributes of the user. The next entity is the Documents that contain UID, documents, Complaints and DID as its attributes. the public is the next entity. UID, PID, name, details, details are its attributes. And the last entity is the Police and it constitutes PID, name, password, fine details, CompliantDetails as its attributes.

RTO is that entity that provides or grant all the rights to the user. The users with their provided credentials insert the necessary documents to the RTO. RTO checks these documents and permits this if they are valid. The RTO then upload this information to the corresponding profile of the users. This information is stored in the database of the RTO and that information is stored as a collection which is in the Public. It includes the personal and vehicle details of the user and these are that information that can be accessed by the Police. Police can also generate fine and can update the stolen status of the vehicle. RTO is the one that provides the access permission to the Police.

Chapter 4

SCREENSHOTS



RTO Module

A screenshot of a software interface for a police module. At the top, there is a cartoon illustration of a white police car with a blue and red light bar on its roof, and a police officer in a dark blue uniform with a peaked cap, saluting. The background is a dark blue gradient with a subtle grid pattern. Below the illustration, the text "Licence/Vehicle Number :" is displayed in white. Underneath this text is a light gray, rounded rectangular input field. Below the input field is a red, rounded rectangular button with the word "Search" in white. Below the "Search" button is a yellow, rounded rectangular button with the text "Stolen Status" in black. At the bottom is a green, rounded rectangular button with the text "Generate Fine" in black.

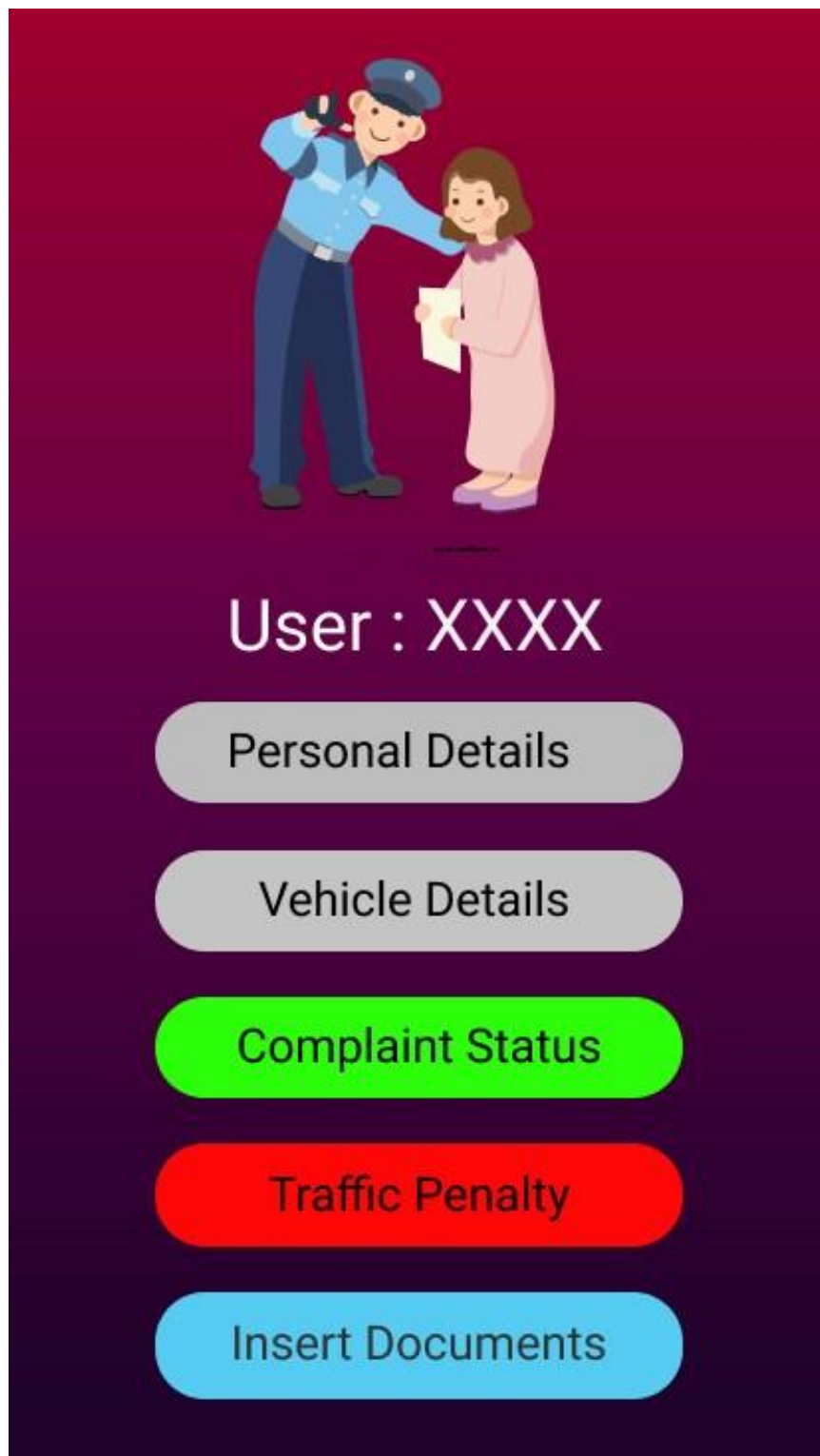
Licence/Vehicle Number :

Search

Stolen Status

Generate Fine

Police Module



Public User Module

Chapter 5

CONCLUSION

This system also enables a simplified system for users to handle various vehicle documents as they now no longer have to worry about managing the hard copies of each. With every important document present as a soft copy in their mobiles, the commuters can now just show these to the police for verification. Along with all of the above-mentioned benefits, the system now greatly helps vehicle owners lodge a stolen vehicle report from within the app. This can help notify the police in the nearby locality faster and help track the vehicle more efficiently. This integrated system greatly improves efficiency and makes way for a better approach to manage the work of the traffic department. Thus, the major expected outcome of this project is to improve public welfare using the latest technologies. Our proposed system is an efficient method as it provides a systematic arrangement of the documents digitally which provides less burden for both the officials as well as the users. In the case of the users, they do not need to carry the certificates everywhere while in the case of the officials, they can store all the data digitally and hence reduces a lot of burden for storing the data manually as well as all the other requirements. It allows to track down the details of the vehicles very easily either by tracking down the vehicles as well as for the case of penalties, due to the effectiveness of the pushdown notifications, it works similar to any apps and it reminds the users the duties that they need to perform. So it can be concluded that our proposed system effectively.

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