



RTO MANAGEMENT SYSTEM

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ABSTRACT

This research report is a review of my study "RTO MANAGEMENT SYSTEM". To make it easier for users to retain information about a registered vehicle, the Road Transport Office developed the RTO Information System as an online information source. Information about insurance, emissions testing, and fines for breaking traffic laws. A QR-Code card is given to the vehicle when it is registered, allowing system users to quickly and easily identify the vehicle. The purpose of this technology is to improve information flow inside the company. RTO offers the ability to view insurance information, information about emission tests, and fine details. It is inefficient to undertake office work for RTO services in this system. It maintains a local data base and involves numerous time-consuming and manual processes. It does not produce accurate reports. After system analysis, the "Road Transport Office Management System" is recommended as a new RTO service to address issues with the current system. The system's goals are to ensure data security and integrity, use less labor, create precise reports and handle details with accuracy.

1 Introduction

"RTO MANAGEMENT SYSTEM" is a web application for maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner.

The current scenario is that when traffic police ask for insurance information, emission test results, etc., the owner of the vehicle is obligated to show all documents relating to the vehicle, but sometimes they are not kept on hand. Additionally, everyone is in a rush these days, therefore we developed a web application that addresses this issue and finds a solution quickly by assessing and taking into account these issues.

We will give a brief overview of our project below given that we are developing a web application for RTO. Allowing the less fortunate user to access this site for work-related RTO reasons will help to create a familiar environment. For instance, under the previous method, before we could provide the RTO office with a user's vehicle number, the user would first need to register on our site and provide us with all the necessary and crucial information about the vehicle. To make this job go more quickly, we offer the option here that a user who buys a new vehicle must first register on our site and fill out all the necessary and vital facts about the vehicle. The administrator controls all operations as well as the RTO database and acts as an authentication mechanism.

2 LITERATURE SURVEY

In India, each motorized road vehicle is identified by a registration or license number. The district level Regional Transport Office (RTO) of the relevant states is responsible for issuing license plate numbers. Even in the case of a police investigation into an accident or crime involving a vehicle, witnesses typically remember the initial Area Code letters, making it very easy to filter down suspicious vehicles to a considerably lower number by checking the Database without needing to know the whole number. Regional Transport Office (RTO) is maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. Because the goal of this survey is to comprehend the wants and requirements of the general population, we searched through numerous websites and applications for the essential data. These data were used in an audit, which helped us come up with new concepts and revise our preparations for the assignment. We arrived at the conclusion that such an application is required and that there has also been a commendable amount of development in this field. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner.

3.OBJECTIVES

- To manage vehicle details by the RTO.
- To maintain a vehicle's insurance information with an insurance provider.

- To manage emission details by emission test center.
- To update fine details by the traffic police
- To give vehicle owners a site where they can update their information
- To send and receive notifications between system users regarding insurance renewal, expiration, emission tests, and past fines.

4. SYSTEM MODULES

1) Admin Module

- Vehicle Registration: The module allows RTO to register a vehicle. After registration a QR Code card is issued which will be used to identify the vehicle.
- Manage Insurance: RTO can add, edit, delete and view vehicle insurance details.
- Manage Emission Test centers: RTO can add, edit, delete and view emission test center details.
- Manage Traffic Police: RTO can add, edit, delete and view traffic police details.
- Generate Report: This module generates two reports:
- Fine Report: Report of fines collected from vehicles by traffic police
- Vehicle Testing: Report of emission test of vehicles.

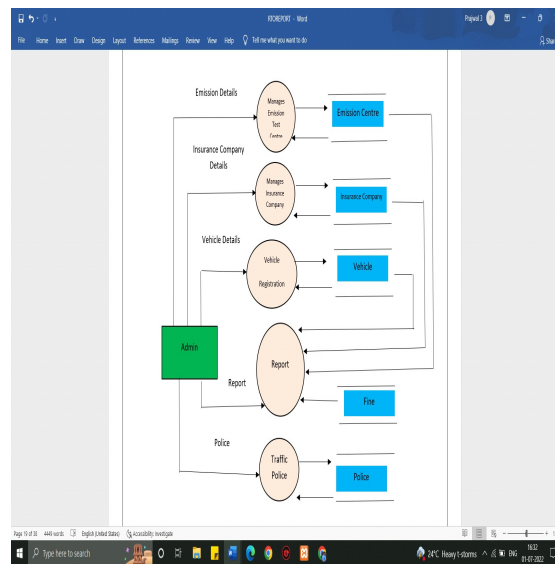


Figure 1: Data Flow Diagram for Admin

- **Insurance Company**
- Login: Insurance Company can login to the system using email and password.
- Insurance Renewal: The module updates insurance renewal details of vehicle
- Information: Provides insurance details about the vehicle
- Expiry: Updates expiry details of insurance for the vehicle
- Notification: Notifies expiry and renewal details of insurance for the vehicle

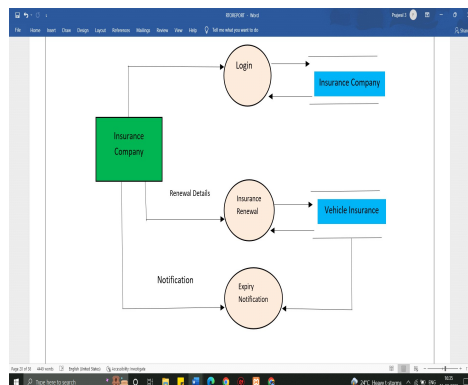


Figure2: Data Flow Diagram for Insurance Company

- **Emission Test Center**
- Login: Emission Center can login to the system using email and password.
- Update Emission Testing: The module updates emission test details of vehicle
- Notification: Notifies emission test details for the vehicle.

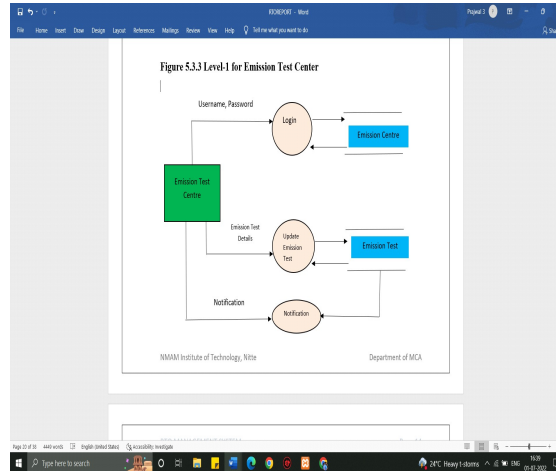


Figure3: Data Flow Diagram for Emission Test Centre

- **Traffic Police**
- Scan and Get History: The module scans the QR Code card of the vehicle and generates history such as fine paid, last emission test done, insurance etc.
- Update Fine: The module updates fine for vehicles violating traffic rules using QR Code card
- Report: Generates report about vehicle, insurance, emission test and fine.

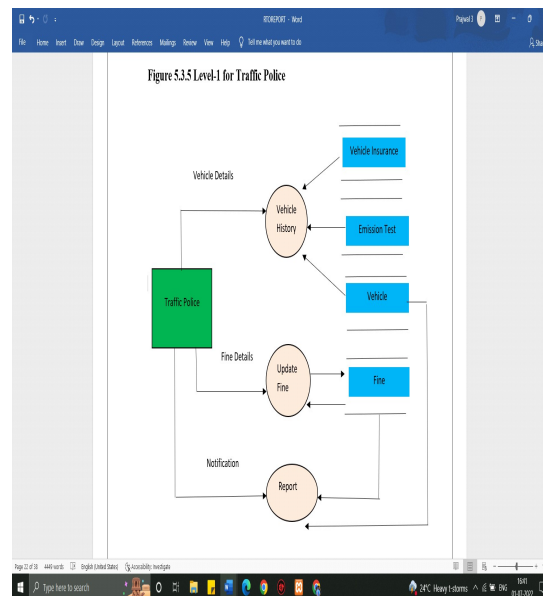


Figure4: Data Flow Diagram for Traffic Police

- **Vehicle Owner**
- Register: The vehicle owner can register his vehicle.
- Manage Vehicle Profile: The module enables the owner to update vehicle information with regards to insurance, emission etc.
- Notification: The owner receives notification about insurance renewal, expiry etc.
- Update driver information: Owner can update his information such as change in phone number, address etc.

- Fine History: The owner can see his fine history for violating traffic rules.

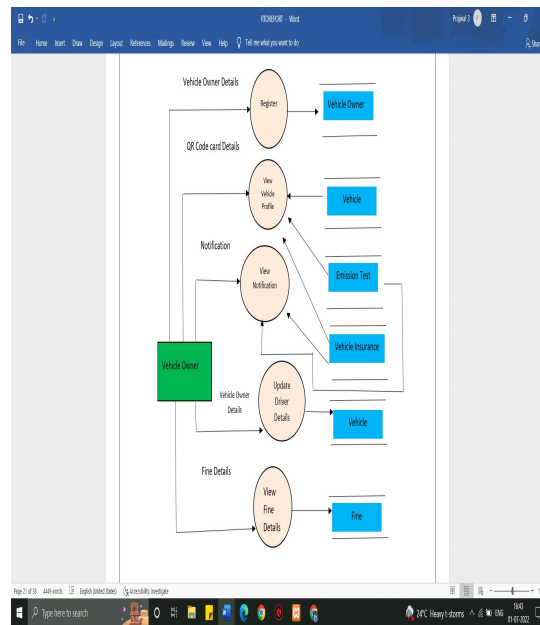


Figure5: Data Flow Diagram for Vehicle Owner

5. METHODOLOGY

The QR code serves as the specific user's account's unique identifier. The driver of a car pulled over by traffic police is asked to scan his QR tag. The history data of that motorist are retrieved on a mobile phone if the identity (serial number of the tag) matches one previously kept in the system. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner. The QR code card given to the vehicle is used by emission test center to verify and update the emission details. Traffic police update fine details after referring to the QR code. Insurance company refer to QR code to update details of insurance expiry and renewal. Vehicle owner can view all information about emission, fine details, insurance details using QR code. RTO manages the whole system. RTO can add and modify details of traffic police, emission center, insurance company and vehicle owners. Insurance company is responsible for updating insurance renewal and expiry details. Emission Test center is responsible for updating and notifying emission details of vehicle. Traffic Police can scan QR code card and view fine history about a vehicle. Traffic Police can also fine details for a vehicle. Vehicle owner can update driver and vehicle information. Vehicle owner can also view notification about vehicle emission details, insurance renewal and expiry details and also fine details.

6. SOFTWARE REQUIREMENT SPECIFICATIONS

A document known as a software requirements specification (SRS) contains a detailed description of how the system is supposed to function. At the conclusion of the requirements engineering phase, it is often approved. The foundation for a contract between clients and vendors or contractors for how the software product should operate is established by the software requirements specification. Prior to the more detailed system design stages, software requirements specification conducts a thorough review of the requirements with the intention of minimizing subsequent redesign.

“RTO” is a web application for maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. On registration the vehicle is provided with a QR Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner.

The SRS outlines the system's requirements. It will serve as the foundation for validating the finished supplied system and is intended for use by the developer. Future modifications to the requirement must go via the proper process for change approval. This document includes a thorough explanation of how the RTO web application works. “RTO” is a web application which maintains details of a registered vehicle.

The QR code card given to the vehicle is used by emission test center to verify and update the emission details. Traffic police update fine details after referring to the QR code. Insurance company refer to QR code to update details of insurance expiry and renewal. Vehicle owner can view all information about emission, fine details, insurance details using QR code.

This document entirely outlines what the suggested system should accomplish without outlining the specifics of how it would do it. This explains both the system's goal and its entire behavior. The document began with a general overview of the suggested system and then examined all of its features and functions.

System Requirements

In order for users to easily use the system, the web application supplied a good graphical user interface for the frontend of the system. A login page is provided for the users for authentication. On successful authentication, the permission to use the web application is provided. The system works with the help of internet connection. The application is linked to the database maintained in the server.

- Hardware Interface:
- Processor: 133-MHz Intel Pentium-class processor or higher
- RAM: 4GB and above
- Hard disk Utilization: 80GB and above
- Input Devices: Mouse, Keyboard
- Output Devices: Monitor, Printer
- Software Interface
- Browser: Internet Explorer, Google chrome, Mozilla Firefox.
- Application Server: XAMP Server.
- Other Software: Visual Studio Code.
- Language: PHP 5.4
- Front End:HTML5, CSS3, JavaScript
- Operating system: Windows XP or above
- Database (Back End): My SQL
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7. SYSTEM DESIGN

The software development activity is mostly covered by software analysis and system design. How precisely the website will function is described in the "RTO" design paper. It contains ER Diagrams, Data Flow Diagrams, and Context Flow Diagrams. Context flow diagrams show the interactions and functionalities between a programmed and its user. The sequence diagram shows the data flow between the components, while the architecture describes the system's overall functionality.

System Architecture

We will describe the architecture and system modules in this section. Large systems are always broken down into smaller systems that offer various related services. The software development activity is mostly covered by software analysis and system design. How precisely the website will function is described in the "RTO" design paper. It contains ER Diagrams, Data Flow Diagrams, and Context Flow Diagrams. Context flow diagrams show the interactions and functionalities between a programmed and its user. The sequence diagram shows the data flow between the components, while the architecture describes the system's overall functionality.

The architecture mainly consisting five modules:

- Admin: Manages the whole system.
- Traffic Police: Scans QR code card and views vehicle details and fine history.
- Insurance Company: Updates insurance renewal and expiry details.
- Emission Test center: Updates emission details of vehicle.
- Vehicle Owner: Views information about vehicle such as fine details, insurance renewals and expiry details, emission details. They can also update vehicle information and driver profile.

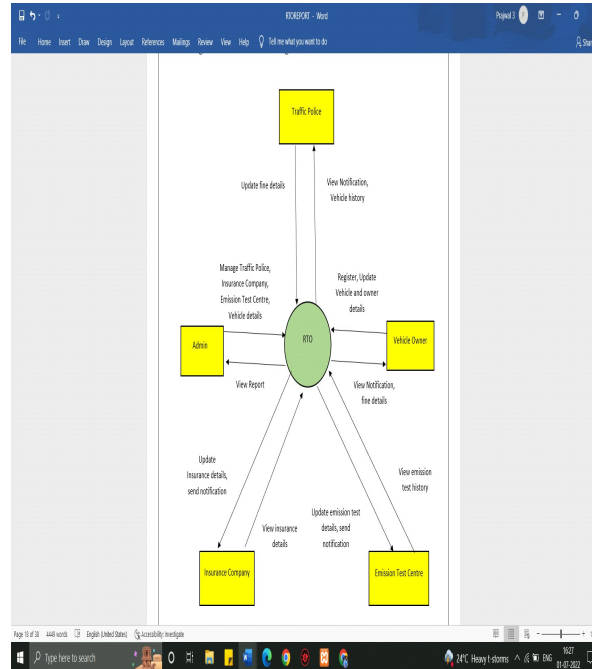


Figure 6: Context Flow Diagram for RTO

8. DETAILED DESIGN

The proposed system is a web application for maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner.

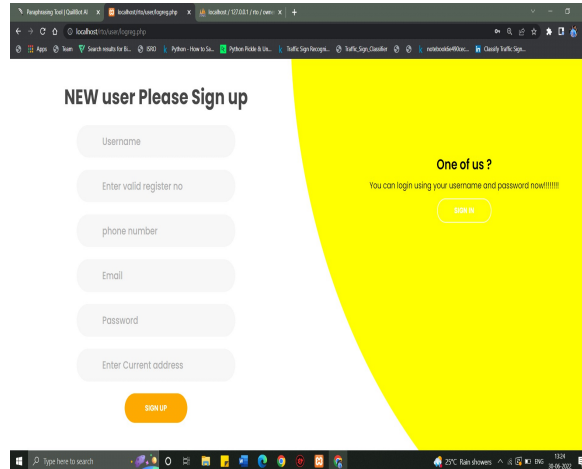
In order to complete this task more quickly, we provide the option for users who buy new vehicles to first register on our website and fill out all the necessary and significant details about the car before we transmit these details straight to the RTO office.

A QR Code card is given to the vehicle when it is registered, allowing system users to quickly and easily identify the vehicle. The emission test center updates and verifies the emission details using the QR code card that was provided to the vehicle. Police who handle traffic updates specifics after consulting the QR Code. When updating information on insurance expiration and renewal, insurance companies use QR Codes. Vehicle owner can view all information about emission, fine details, insurance details using QR code.

9. EXPERIMENTAL RESULTS

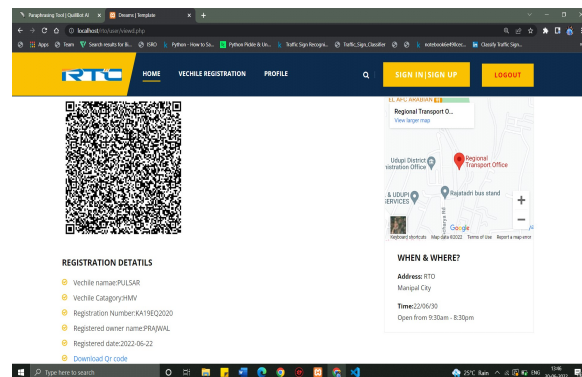
- *Vehicle Registration Form:*

In Vehicle Owner Registration form the RTO admin gets various details of vehicle owner and to each information such as vehicle registration number and user information after successfully submit the form by entering the valid details.



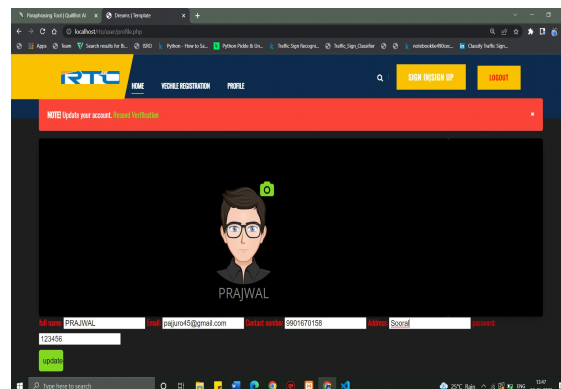
B: Vehicle Details Page:

In this page, the registered vehicle owner views his vehicle details and he can also know his vehicle details by scanning QR Code.



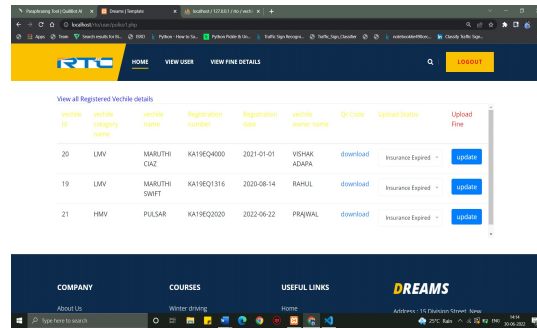
C: User Profile Page:

This form displays the information of particular vehicle owner with photo and other details such as name, email, phone number, address and password. The existing user can update his details by filling updated valid details.



D: Traffic Police's View User Page:

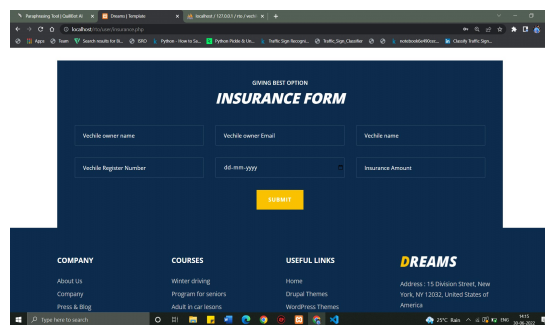
This form displays the details of all registered vehicle owner of the system. The details include vehicle owner details, emission details and insurance details of the particular vehicle owner. By viewing this details Traffic Police can take the fine amount from the particular vehicle owner about insurance expiry, emission test required etc.



SNo	Operator	Operator Category	Vehicle Name	Registration Number	Registration Date	Vehicle Owner Name	QR Code	Upload Status	Update Fine
20	LMV	MARUTI	CAZ	KAT19EQ4000	2021-01-01	VISHAK ADAPA	download	Insurance Expired	update
19	LMV	MARUTI	SAIFT	KAT19EQ1316	2020-08-14	RAHUL	download	Insurance Expired	update
21	HMV	PULSAR		KAT19EQ2020	2022-06-22	PRAJWAL	download	Insurance Expired	update

E: Insurance Form:

In this form, the particular insurance company agent can enter the details like vehicle owner's name, vehicle registration number, email, insurance expiry date, insurance amount etc. After submitting the details, email notification sent to the particular vehicle owner about insurance renewal required, insurance renewed and insurance amount not paid.



GIVING BEST OPTION
INSURANCE FORM

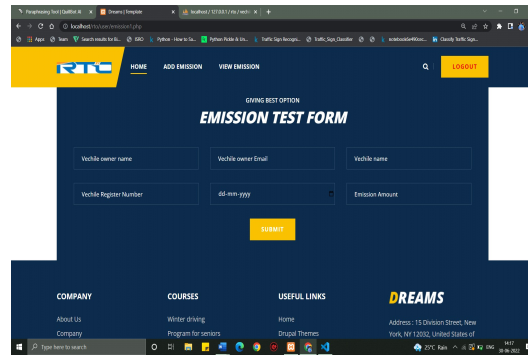
Vehicle owner name: Vehicle owner Email: Vehicle name:

Vehicle Register Number: Insurance Amount:

SUBMIT

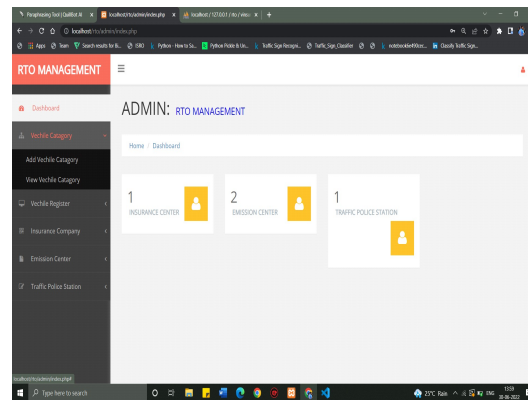
F: Emission Test Form:

In this form, the particular emission test center's agent can enter the details like vehicle owner's name, vehicle registration number, email, emission test expiry date, emission amount etc. After submitting the details, email notification sent to the particular vehicle owner about emission test renewal required, emission test is expired etc.



G: Admin Home Page:

This is the admin home page, here admin can view the all users of the system. The various users are vehicle owner, insurance company, emission test center, traffic police center etc. Admin can add and view the vehicle category and he can also able to edit and delete it. Admin can add the vehicle by filling the details like vehicle registration number, vehicle owner name, vehicle name etc. and admin can also view all vehicle details. Admin can edit the existing particular vehicle details and he can also able to delete it. This action is same to the insurance company, emission test center and traffic police center of the system which is also managed by admin.



9. CONCLUSION AND FUTURE SCOPE

"RTO" is a web application for maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. All of the organization's users have praised the project. Given that it makes use of the GUI offered in the user dialogue, it is simple to utilize. Screens that are easy to use are offered. Software utilization reduces work while increasing efficiency. It has been successfully used as a project management tool.

This application's layout makes it simple to make any additional improvements. The system allows for simple system integration. Existing systems can easily be expanded with new modules.

This report makes an effort to provide a brief overview of the project's goals, technologies employed, databases used, primary purpose for which the system is being developed, and technical requirements for project functionality. Here we are developing such types of the module which help to save the time of the user.

The current "RTO management system" should be improved by giving users access to more features in order to save time.

Following enhancements can be made to the project in future:

- 1) Develop the web application as android application that can be downloaded to mobiles
- 2) Online Chat application between RTO, traffic police, emission center and insurance company.

In the future, the entire program was created with the user's needs in mind. For R.T.O. officials, it offers a better method of document verification.

Our system combines a number of systems that currently function independently. The upcoming system keeps detailed records of driver's license, car registration, emissions data, and insurance data for associated vehicles. Additionally, it will cut down on a lot of administrative tasks and improve accountability. Fine notification messages can also be delivered to the flex module using a different SMS gateway. We can also include a feature that allows us to trace a stolen car using future systems, either through verification or GPS tracking.

10.LIMITATIONS

- It is not efficient in performing office work in RTO services.

- It includes much manual process and time consuming.
- It is not user friendly.
- Maintains local data base.
- It is not Generating Accurate Reports.

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