RTO MANAGEMENT SYSTEM USING JAVA

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Abstract

With the increasing importance of corruption has become a major factor to be considered as a result the number of vehicles and rapid development of population are growing in our everyday life. The process of developing ERTO Management, Automation of Road Transport Department through Cellular Network has gained major attention by traffic police, RTO officers and public. Now a day's population has become a major factor to be considered as a result the number vehicles are growing with increasing problems of vehicle registration management, license registration, emission, insurance etc for RTO departments and to handle user and vehicle document verification by traffic police officers. Now a day's many people are purchasing two wheelers, four wheelers etc. So the RTO employees having lot of work burden of making registration, License issue, transfer etc., which required lot of paper work. As a result people cannot get the things done in right time, which waste the time, energy. Similarly, the vehicle owner sometimes forgets to carry the license, and forgets the insurance date at the time of enquiry.

Keywords: *E-RTO, Adobe Flex, Cellular Network*

1. Introduction

ERTO is an Automation of Road Transport Department through Cellular Network and our ERTO is a step in the era of Mobile computing by using adobe flex and visual studio which will make it easy for RTO [1] professionals to manage and administrate internal office data and also access it on field during enquiry via Mobile applications. Our paper work allows in office data entry professionals not only to key in the data but to also edit, update, delete and print information via Graphical interactive forms and on mobile flashweb enabled application. It also enables officers to pay fine which generates fine amount automaticallywith status such license type, date, paid or unpaid status forms and display vehicle license, registration, emission details on just a click of the button. On the other hand it also provides the on field officials to access data from the Database on server by just using a php based interface by flash enabledmobile application which will fetch data from a server that is physically present on the server with device and location independence. This means that the user with a mere knowledge of operating a mobile can access information at his fingertips within a few seconds without physically visiting or accessing the data from the RTO database server present on server.

ERTO is an advanced [7] which is designed keeping in view to makethe existing registration and insurance system easier and faster. It includes the entire registration and insurance procedure starting from the initialphase of entering till the results. It is more reliable, accurate, time saving and free from any misuse. The system provides information regarding the RTO application and its status. The tedious jobs such as verifying all the records of the applicant, confirming all the personal details are furnished, submission of qualification documents, driving license, registration details, etc., are done in the most convenient way to the administrator. Also security is being provided in the most proficient way. All the intermediate stages starting from receiving of the application form to revealing the applicant number along with the expiry date of the license are being dealt.

This technology enables the traffic police to be more effective in controlling repeat violators of traffic rules. Traffic Police have the database ofregistration 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 nameand 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. Fake registration plates, if any, would be detected immediately.

2. System Architecture

In this section we will explain the architectureand system modules:

Large systems are always decomposed into sub- systems that provide some related set of services. The initial design process of identifying these sub- systems and establishing a framework for sub- system control and communication is called Architecture design and the output of this design process is a description of the software architecture. The architectural design process is concerned with establishing a basic structural framework for a system. It involves identifying the major components of the system and communications between these components.

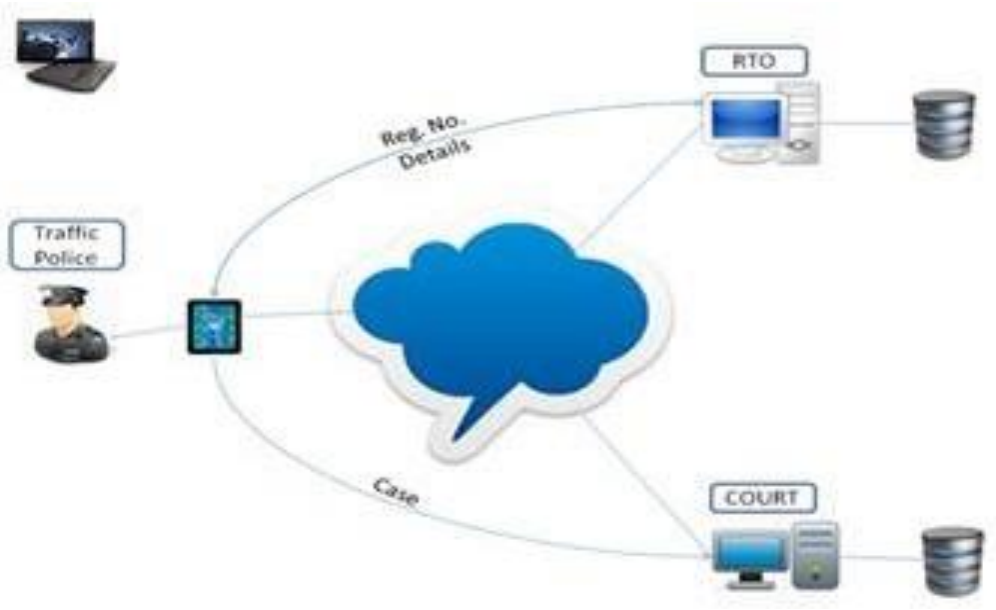

Fig.1: Architecture diagram

"E-RTO Management System" is an Automation of Road Transport Department through Cellular Network. We are proposing a model in which we aim to provide better services through cellular phones.

The architecture mainly consisting three modules:

1. R.T.O module: In this module, it consists of the database [4] of user License, Vehicle information, vehicle Insurance information, & the vehicle Emission information.

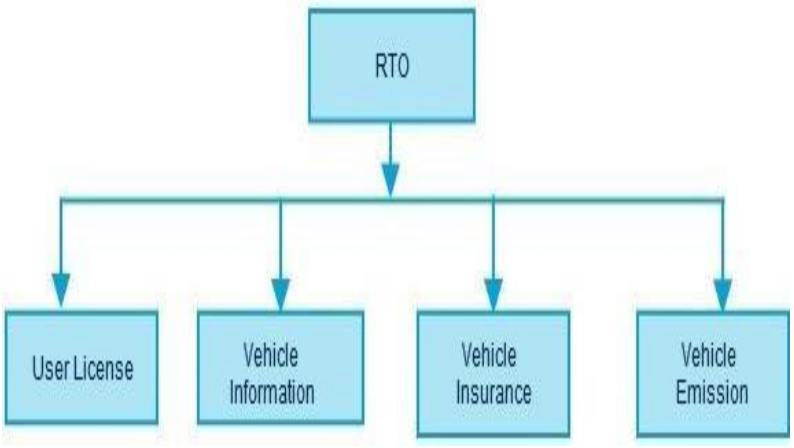

Fig 2: R.T.O Module

2. Flex module: This module is used by the Traffic Police officer [3]; it is mainly used to perform verification of Vehicle and Driver Licenseinformation. It also provides a facility to generate fine on the same system [2].

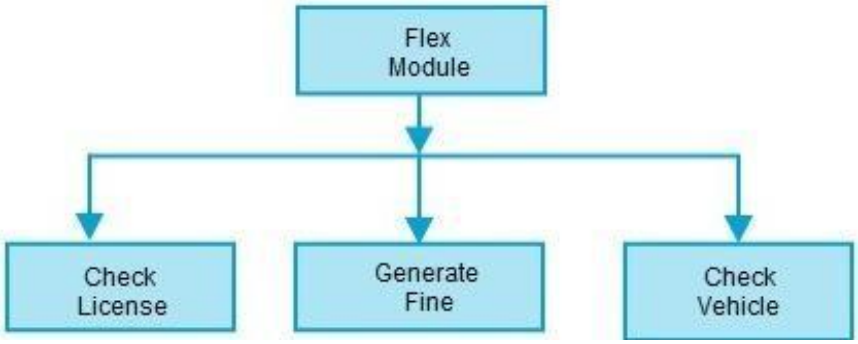

Fig 3: Flex Module

3. Court module: It contains information regarding Officer Id, Date, Vehicle Registration, list of Offences, Fine Amount, and Payment Status.

3. System Modules

A. R.T.O module

This is the first module of our paper. It is mainly used to maintain Vehicle and Driver information. Itcontains information regarding Drivers License, Vehicle Registration, Insurance and Emission information. It is an integration of several modules. It consists of four sub-modules namely License Registration, Vehicle Registration, Insurance andEmission.

It also provides a facility to generate fine on the same system. The main advantage of this module isthat the fine details are stored in the court module immediately when the fine is generated. It also sends an sms to the registered contact no. of the vehicle. It consists of three modules namely Check License, Check Vehicle and Generate Fine.

B. Flex/Mobile application Module

This is the second module of our paper. The mainadvantage of this module is that the fine details are stored in the court module immediately when the fine is generated [5][6]. It also sends a sms to the registered contact no. of the vehicle. It consists of three modules namely Check License, Check Vehicle, and Generate Fine.

- The Check License module takes a License no. as an input and returns the respective License information like Name, Photo, Type of license, License status and Validity of the license. Incase if the record doesn't exist it shows a respective message indicating that a record doesn't exist.
- The Check Vehicle module takes a Vehicle Registration no. as an input and returns the respective Vehicle information like Vehicle Registration no., Manufacturer Name, Model Name, Purchase Date, Fuel Type, Type ofvehicle and so on. It also includes the Vehicle Owner details like Name, Address, Contact no.
- The Generate Fine module mainly focuses ongenerating fines for the offences committed. It provides for selecting a variety of offences froma set of given offences for which the fine amount is auto-generated. The user (R.T.O officer) needsto enter other information related to Officer like Officer id and Other important Vehicle information. This overall process requires internet for data transfer between the client and the server and the data is stored on server.

C. Court Modules

This is the third module of our project. It is mainly used to maintain fine related information. This is the module which receives the information from the flex module. It retrieves the fine related information from the database and it can also be updated. Here we have also provided a facility for payment of fine in Court. After the payment the registered contact number with the associated vehicle registration no. receives an sms of the fine payment from the court through the sms gateway.

4. Results

A. Vehicle Registration Form

In vehicle Registration form the ERTO administrator gets various details of vehicle and to enter vehicle information such as vehicle type asshow below. After entering Registration no such as ka 22 ec 7613 then click search button it gives pop up message found or not found and displays all records in the data grid and it highlight with blue colour on particular record below figure shows record not found

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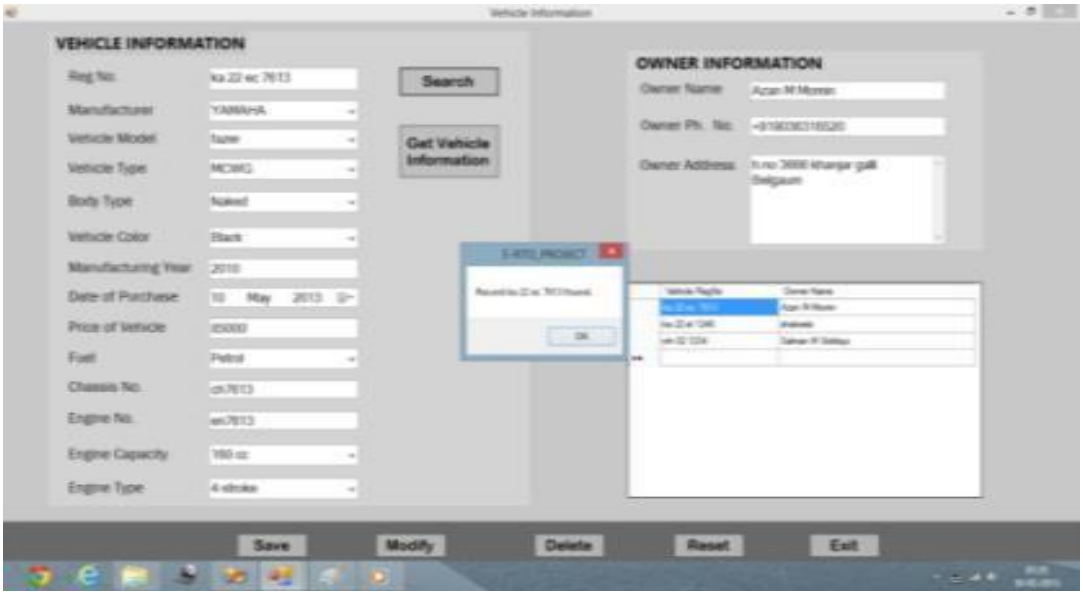


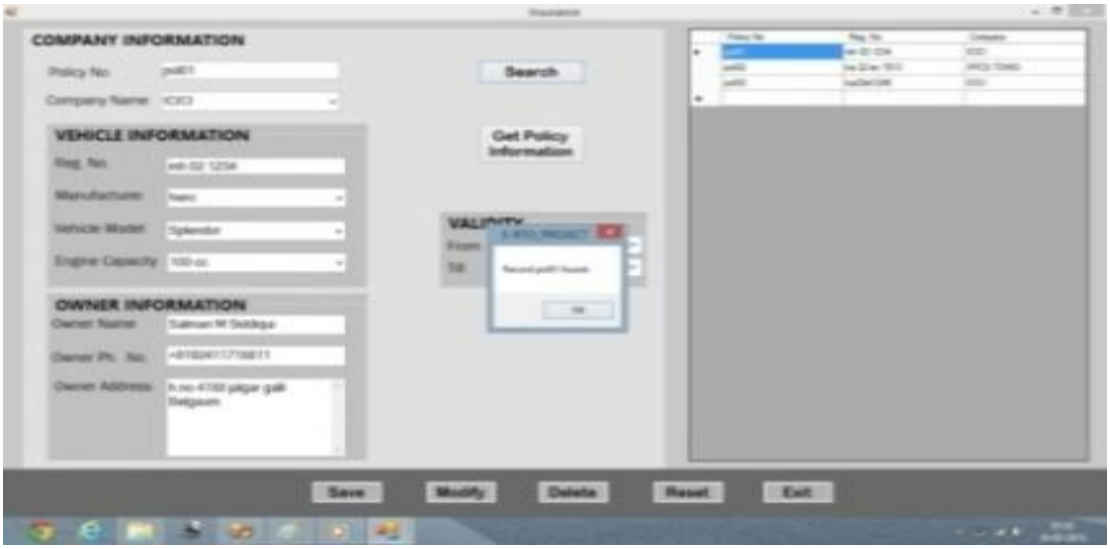
Fig 4: Vehicle Registration form

B. License Registration Form

The below figure shows the user licenseregistration form. This form display information of particular license holder with photo and other details such as name, validity, status, vehicle type.

Fig 5: License Registration Form

C. Insurance Form



D. Fig 6: Insurance Form

E.

In the below figure the administrator needs to enter company information like policy number and company name, Vehicle Information like Reg. No, manufacturer, vehicle model and engine capacity, Owner information like owner name, owner phone number and address. Then we can Search and Validate this Information through the buttons provided as below. We search the insurance formation by using policy no.

F. Vehicle Emission

The emission form consist of centre information like centre Id. No. and Name, vehicle related information like Reg. No, Manufacturer, vehicletype, manufacturer year, fuel and engine type we check it using Id no.

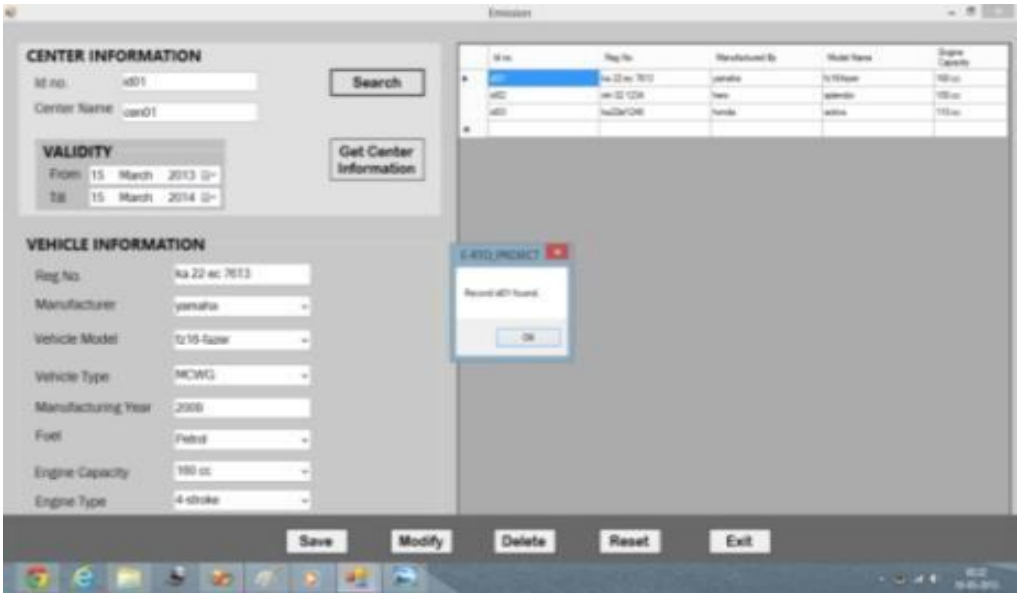


Fig 7: Emission

5. Conclusion

It can be concluded that our project "ERTO Management System" which is an Automation of Road Transport Department through Cellular Network was successfully developed and tested by our team. Our system introduces a facility for the R.T.O Officers to perform verification of the License and Vehicle documents electronically. It will also help the R.T.O officials to maintain records systematically and reduces a lot of paper work and manual efforts. We also identified some general requirements of such a system and tried to meet those requirements as much as possible in the design and implementation of our system.

In future, as per the user's requirement ourwhole Program was designed. It provides a better way of document verification for R.T.O officials. Our system is an integration of several systems thatin present act as a separate system. The future system Maintains detail information of Driving License, Vehicle Registration, Emission and Insurance information of related vehicle. It will also reduce a lot of clerical works and provides better accountability. A separate sms gateway can also provide fine notification messages at the flex module. We can also add a provision to track a stolen vehicle in the future systems either through verification or through GPS tracking.

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