RTO MANAGEMENT SYSTEM

(PROJECT REPORT)

Submitted by

Arbaaz Makandar
[Roll No.- 221CS3313]

MTECH 1st SEM

Department of Computer Science & Engineering

National Institute of Technology
Rourkela, Odisha

Table of Contents

1. Introduction

1.1. Objective

Vehicle Registration is complicated process and involves various details to be taken from the user in order to register his vehicle. The RTO Management Project is built to automate the existing RTO Process of Registration of vehicle and to increase its efficiency. This project is aimed at developing a web site for RTO Management to eliminate the tedious and complicated process and the troubles faced by applicants and to make it online. It is of great importance to the vehicle registration applicants. The main objective of this software is to provide a platform for RTO to manage various aspects related to registration of vehicle.

1.2. Motivation

The motivation for developing an RTO Management System comes from the idea to make the vehicle registration process efficient and handy. It helps the RTO as a source of vehicle data management and also helps the applicants to apply for registrations at a single point. Therefore, we can say that RTO Management System acts as a bridge of communication between RTO and applicants. Initially, when many people were unaware of such portals, they used to stand in queues waiting for their turn to come up and then physically present the vehicle for registration. This requires lots of effort and time. So, this gives enough motivation to approach the RTO Management System.

1.3. Purpose

The purpose of this RTO management system is to provide a technological tool for the ease of RTO functions such as Registration of newly purchased vehicle, registration renewal, etc. It will reduce considerably the difficulties faced on existing system, with minimum error and difficulties. RTO Management System is a software that is intended to streamline the workflow and move towards more digitized way of managing things in RTO.

2. Overall Description

2.1 Existing System

Current existing system of RTO Management is completely manual system, which is not using the advantages of internet and the technologies available today. We know the production of vehicles is increasing day by day. Hence the need of RTO Management System which is online is very important to manage complex functions such as Registration of vehicles, etc.

Disadvantages of current existing system

- RTO office performs functions such as registration, and there are certain procedure and formalities required to perform these functions.
- It is essential that the particulars of every vehicle and its owner should be available in the concerned department or office of Government and that the vehicle should be distinguishable from other vehicles by sight.
- Lot of paper work is involved in the registration process which requires qualified staff to manage it, increasing the number of people involved in the process.

2.2 Proposed System

The proposed system is built using **J2EE Framework** using the **MVC architecture**, aimed to automate the major process of registration in the Regional Transport Office (RTO).

2.2.1 Users of Proposed System

- Administrator: Administrator is power user. He has the power to verify the data entered by the user, processing of data and to register the vehicle.
- Registered User: Any person who has registered on the website is a registered user. A registered user should have a username and password to access detailed information from the site excluding for accessing general information in shared, public index page.

2.2.2 Modules of Proposed System

- Registration form for new vehicle

  This form is filled by the registered user after logging in the website. He has to input various data related to his vehicle in the form such has temporary vehicle number issued by RTO, engine number, chassis number, colour of Vehicle , etc. At the end user has to pay amount which includes the Registration fees and Tax payment. New registration of vehicle is done for the period of 15 years.

- Registration Renewal

  This form is also filled by registered user who wants to renew his registration of vehicle after expiry(15 years from new registration). This form requires additional details of vehicle such has PUC Certificate number, odometer reading, previous registration expiry date, etc. At the end user has to pay amount which includes Registration fees only (Vehicle tax is paid only once). Registration renewal is done for the period of 5 years.

- View and process form

  This part is done by the admin. The list of New registrations as well as registration renewals is visible to admin. He can assign a new vehicle number, registration date and its expiry and can update the status on it.

- Check status of registration

  After filling up the form, the user can check the status of the registration here. The status is updated by the admin. He can also view and download the form if approved by the admin.

3. Requirements Specifications

The software and hardware specifications that have been used to develop this RTO Management System are mentioned below.

3.1 Software Requirements

The system is developed using **J2EE framework** and **MVC (Model View Controller) architecture**, which includes JSP pages as view, servlets as controller, and Java Beans and DAO class as Model. The requirements to run the software are as follows.

Operating System	Windows 7, 8, 10, 11
Browser	IE 8, Chrome, Mozilla Firefox
Database	MySQL 8.0
Platform	JSP, Servlets, JDBC, JavaScript, HTML, CSS
Server	Tomcat 9.0

3.2 Hardware Requirements

Processor	Intel Core i3 and above
Speed	Above 2.50 GHz
RAM	Above 8GB
HDD	Above 80GB

4. Data Dictionary

4.1 Admin Table

Column Name	Data type	Field Size	Constraints
ID	int	32	Primary Key
Username	varchar	10	
First_Name	varchar	10	
Last_Name	varchar	10	
Password	varchar	20	
Email	varchar	30	
Phone	int	10	
Address	varchar	50	

4.2 Registered users table

Column Name	Data type	Field Size	Constraints
ID	int	32	Primary Key
Username	varchar	10	
First_Name	varchar	10	
Last_Name	varchar	10	
Password	varchar	20	
Email	varchar	30	
Phone	int	10	
Address	varchar	50	

4.3 New Registrations table

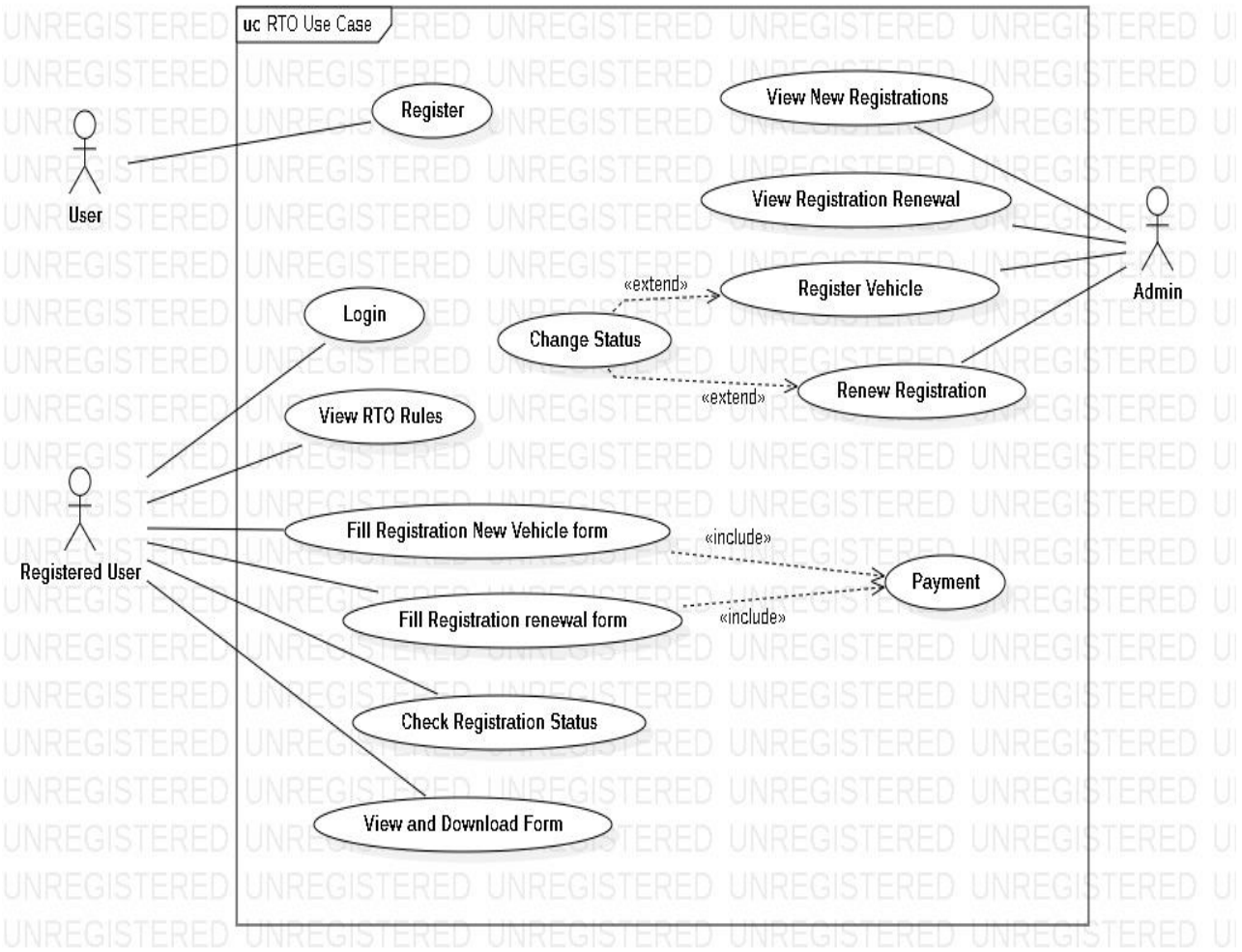
Column Name	Data type	Field Size	Constraints	Description
ID	int	32	Primary key	
Owner_Name	varchar	120		
Aadhar_Num	varchar	12		
Temp_Number	varchar	30		Temporary number issued previously
Vehicle_Type	varchar	30		Hatchback,SUV,etc.
Model_Name	varchar	50		
Manufacturer_Name	varchar	120		
Manufactured_Date	date	8		
Chasis_Num	varchar	20		
Engine_Num	varchar	30		
Color	varchar	10		
Seating_Cap	int	2		
Num_of_wheels	int	2		
Type_of_fuel	varchar	10		
Status	varchar	20		Approved/Decline
insurancePolicyNum	int	30		
insuranceCompany	varchar	30		
Permanent_VehicleNum	varchar	30		
Registration_Date	date	8		
Registration_ExpiryDate	date	8		
amount_paid	int	10		

4.4 Registration renewal table

Column Name	Data type	Field Size	Constraints	Description
ID	int	32	Primary key	
Owner_Name	varchar	120		
Aadhar_Num	varchar	12		
Odometer_Read	int	10		Kilometers the vehicle has ran
Vehicle_Type	varchar	30		Hatchback,SUV,etc.
Model_Name	varchar	50		
Manufacturer_Name	varchar	120		
Manufactured_Date	date	8		
Chasis_Num	varchar	20		
Engine_Num	varchar	30		
Color	varchar	10		
Seating_Cap	int	2		
Num_of_wheels	int	2		
Type_of_fuel	varchar	10		
Status	varchar	20		Approved/Decline
insurancePolicyNum	int	30		
insuranceCompany	varchar	30		
Permanent_VehicleNum	varchar	30		
OldRegistration_ExpiryDate	date	8		
PUC_Num	int	7		
PUC_IssueDate	date	8		
PUC_ExpiryDate	date	8		
New_RegistrationDate	date	8		
New_RegistrationExpiryDate	date	8		
New_PermanentVehicleNum	varchar	30		
amount_paid	int	10		

5. UML Diagrams

5.1 Use Case Diagram



Description:

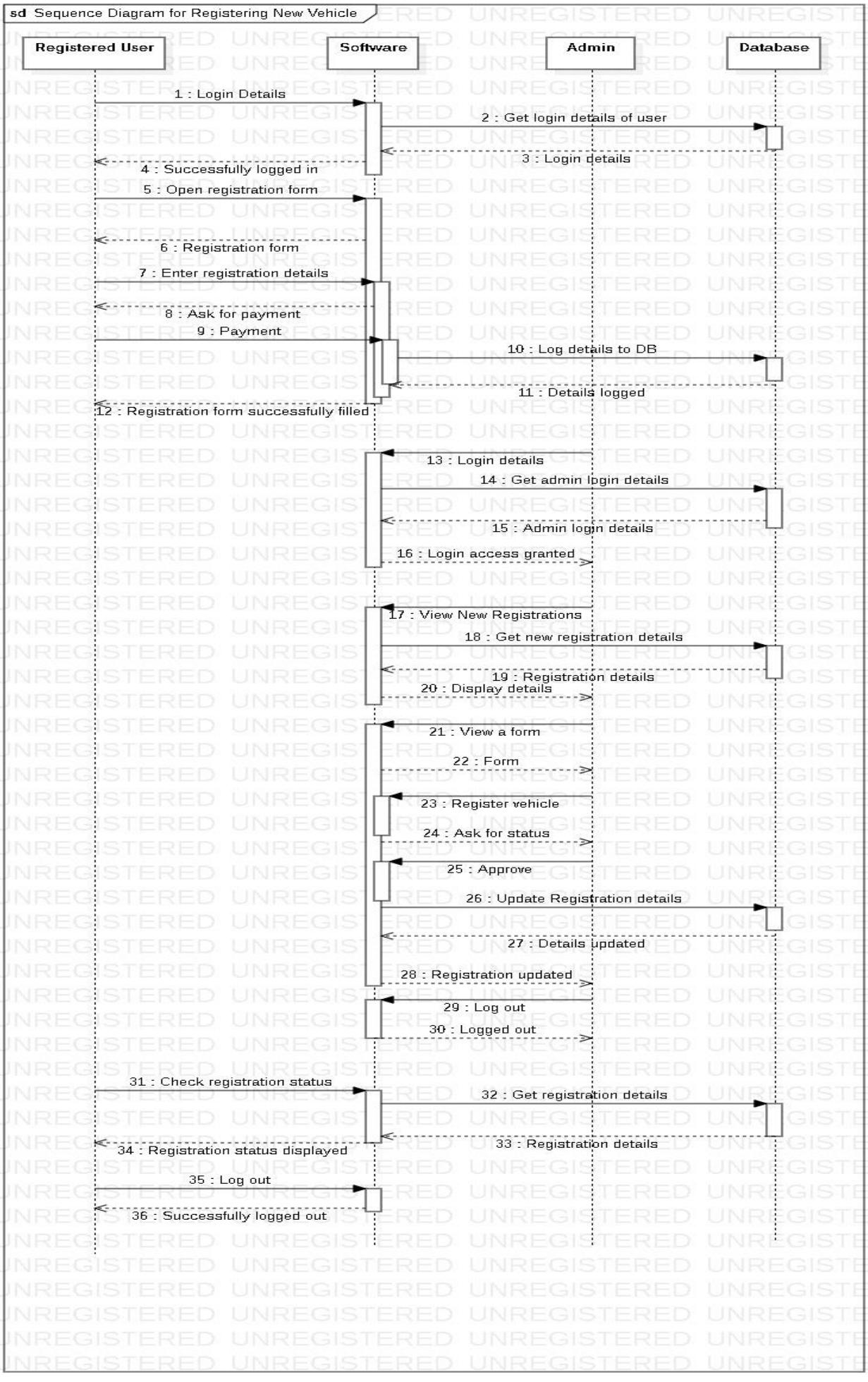
1. The user can register himself and after registering he can login and view RTO Rules, fill forms to register his vehicle, and can check status. After the status been updated by admin, the user is able to view and download the form if approved.
2. The admin can view the registrations and can take the action necessary.

5.2 Sequence Diagram

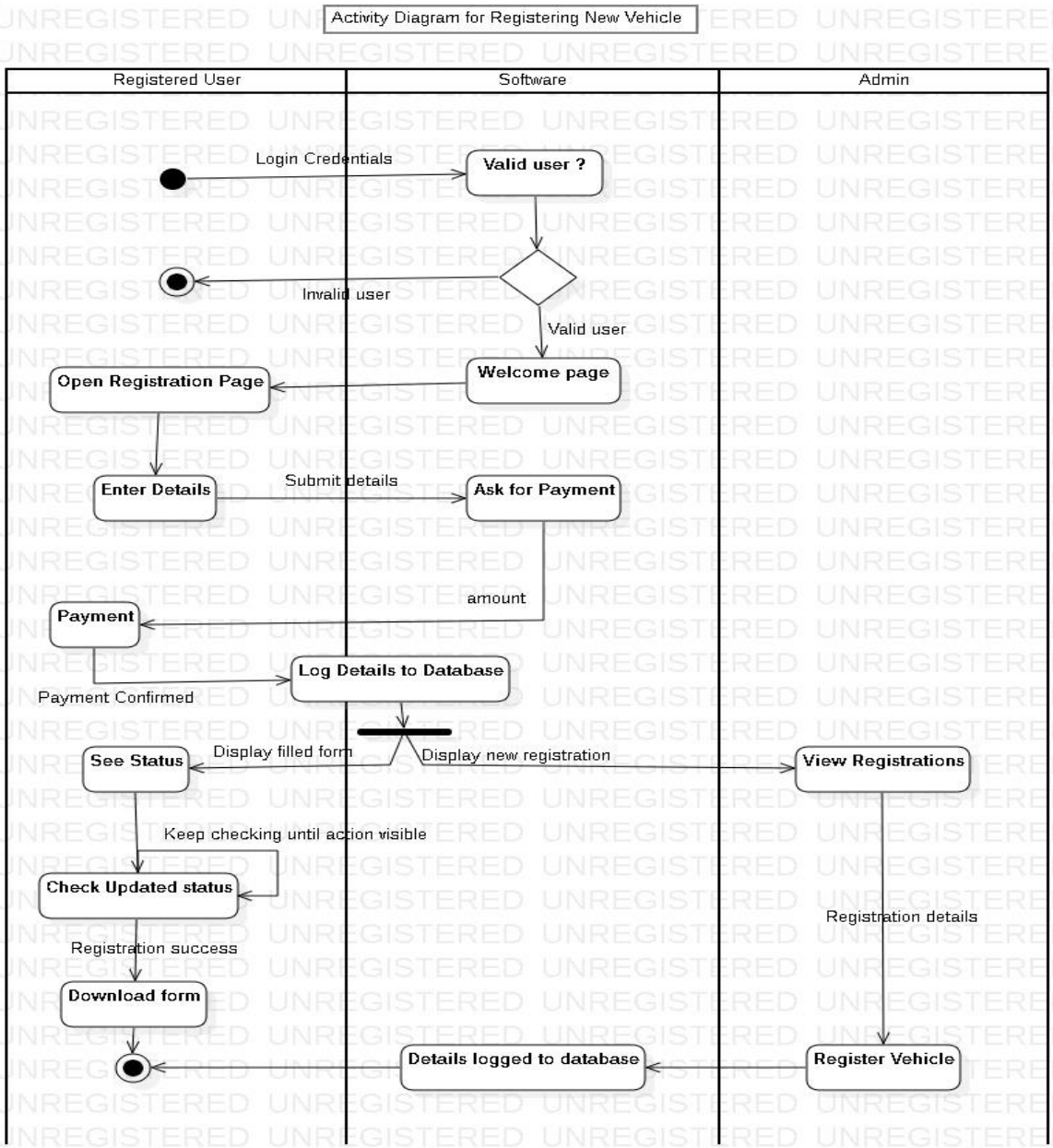
(Due to long diagram, it has been adjusted below description)

Description:

1. The user logs in and registers the vehicle with the details required and pays the amount asked.
2. The details are logged to the database.
3. The admin then views the registration and assigns new vehicle permanent number along with registration date and its expiry and updates the status. The details are updated in database.
4. The user can check the registration status after logging in and can view the form.
5. The form is available for download only after approved status from admin.


sd Sequence Diagram for Registering New Vehicle
Registered User
Software
Admin
Database
1 : Login Details
2 : Get login details of user
3 : Login details
4 : Successfully logged in
5 : Open registration form
6 : Registration form
7 : Enter registration details
8 : Ask for payment
9 : Payment
10 : Log details to DB
11 : Details logged
12 : Registration form successfully filled
13 : Login details
14 : Get admin login details
15 : Admin login details
16 : Login access granted
17 : View New Registrations
18 : Get new registration details
19 : Registration details
20 : Display details
21 : View a form
22 : Form
23 : Register vehicle
24 : Ask for status
25 : Approve
26 : Update Registration details
27 : Details updated
28 : Registration updated
29 : Log out
30 : Logged out
31 : Check registration status
32 : Get registration details
33 : Registration details
34 : Registration status displayed
35 : Log out
36 : Successfully logged out

5.3 Activity Diagram



Description:

1. The registered user logs in and fills the form which is later updated by. Admin.
2. The user can check the updated status and can download the form when approved by admin.