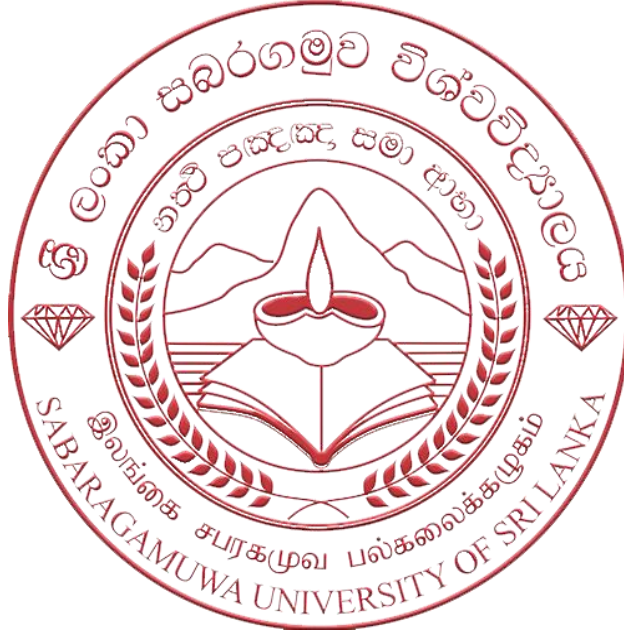


IS2106 - System Analysis & Design



TransferEase – Vehicle Ownership Transfer System GROUP 12

Department of Computing & Information Systems

Faculty of Computing

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1. Introduction

1.1. Purpose

The purpose of this Software Requirement Specification is to present, detailed description of the website. This will explain the purpose and features of the system, all the functions, specifications, design constraints, requirements (functional and non-functional) and other factors that need to provide for a completely comprehensive description of the proposed Website. This document is intended for both the stakeholders and the developers of the system.

1.2. Product Scope

Motor Traffic Department of Sri Lanka is the department that responsible for registering new vehicles and ownership transferring. Still now, transferring ownership of vehicles is happening via a manual process. By filling the forms called MTA 2, MTA 6 and submitting them to the Motor Traffic Department and wait for minimum time duration about 6 months is kind of very long process.

By the website we are going to facilitate owner, buyer and Motor Traffic Department to do the transferring process in three interfaces and make the process easy and secure without letting owner and buyer go to the Motor Traffic Department or it's branches.

2. Overall Description

2.1 Product Perspective

This website which will be developed through this project will assist in preventing long manual processes by implementing an online process to transfer ownership of vehicles. First the buyer has to make an account on this website using the National Identity Card(NIC) number by making an username and a password for the account. After logging into the account, the buyer has to give the relevant vehicle register number to the website and fill the relevant online documents (MTA6 form) with required authentication and online payments. By the database running in the background, the vehicle register number can automatically send a request to the owner of the vehicle after the buyer requests the vehicle by submitting his/her documents. From that request sent by the buyer, the owner has to look for the details and confirm that request. Then they officially like to transfer their vehicle among them. After accepting this request the Department of Motor Traffic also can verify these filled forms and then after DMT can approve this vehicle

owner transfer officially. After that, the number plate will be changed if the owner and the buyer of the vehicle are from two provinces.

Behalf of all these processes, everyone who has an account can see the details of their own registered vehicles, on that website. Also, if someone is having trouble with using this website they can use the user guide manual we provided in the website's help desk. (For more details - 2.6 User Documentation)

2.2. Product Functions

- When the vehicle transfer is processing the D.M.T. can confirm that
- Record vehicle details
- Facilitate transfer of ownership between parties
- Generate and store ownership transfer documents
- Notify involved parties of successful ownership transfer
- Update vehicle registration records

2.3 User Classes and Characteristics

User

- Can access the system with limited privileges
- Can initiate the ownership transfer process
- Receives notifications regarding the status of ownership transfer
- Users can login to their account and see their own registered vehicles

Administrator

- Has administrative access to the system dashboard
- Can oversee and manage ownership transfer processes
- Can verify and authenticate user information

2.4 Operating Environment

Hardware Requirements:

- Computer
- Internet Connection
- Mobile device

Software Requirements:

- Web Browser (Chrome, Firefox, Safari, etc.)
- GitHub (Github Pages)
- Firebase

2.5 Design and Implementation

Access Control: Only authorized users and administrators, have access to specific functionalities within the system.

Individual User Authentication: Each user is required to have a unique user name, password and NIC number for accessing the system, ensuring security and privacy.

2.6 User Documentation

A user manual will be given in the help desk section of this website as a pdf that thoroughly describes all functionalities of the website, how users have to fill their forms and how to do the online payments. Additionally, it includes email addresses and telephone numbers for contact in case of a problem.

3. **System Features**

3.1 Depth of analysis

The system analysis for the TransferEase - vehicle ownership transfer system was conducted by using different variety of techniques and tools for the identification of some system features. This analysis is targeted for the system's purpose. This includes a wide examination of the system's requirements, design constraints and functionalities.

3.2 Analysis tools and techniques

This analysis used several tools and techniques like Use Cases and Entity Relationship (ER) diagrams. For the system's structure and understanding of the relationship between different components, these tools were essential.

3.2.1 Use case

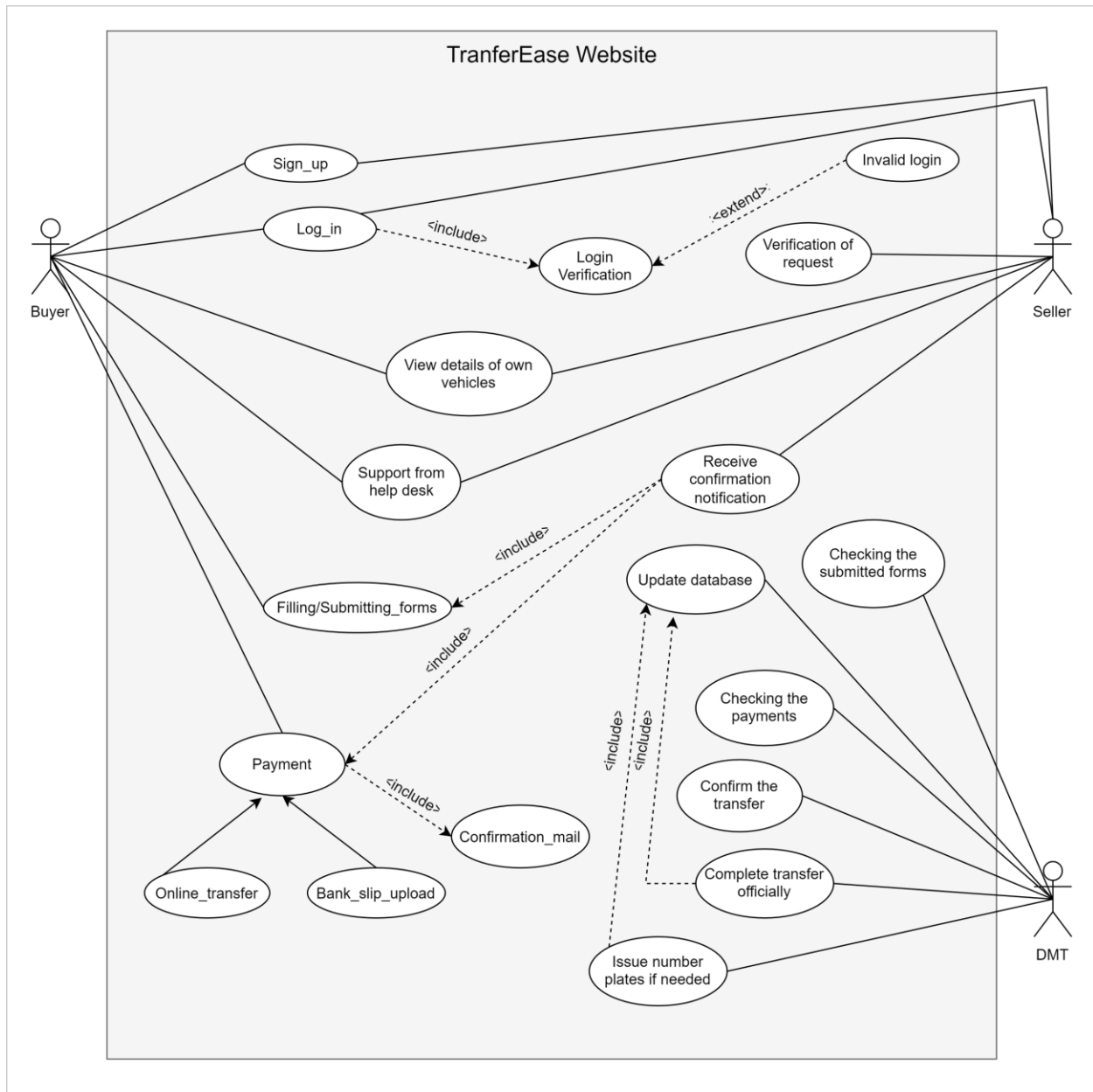


Figure 3.1 – Use case diagram

3.2.2 ER Diagram

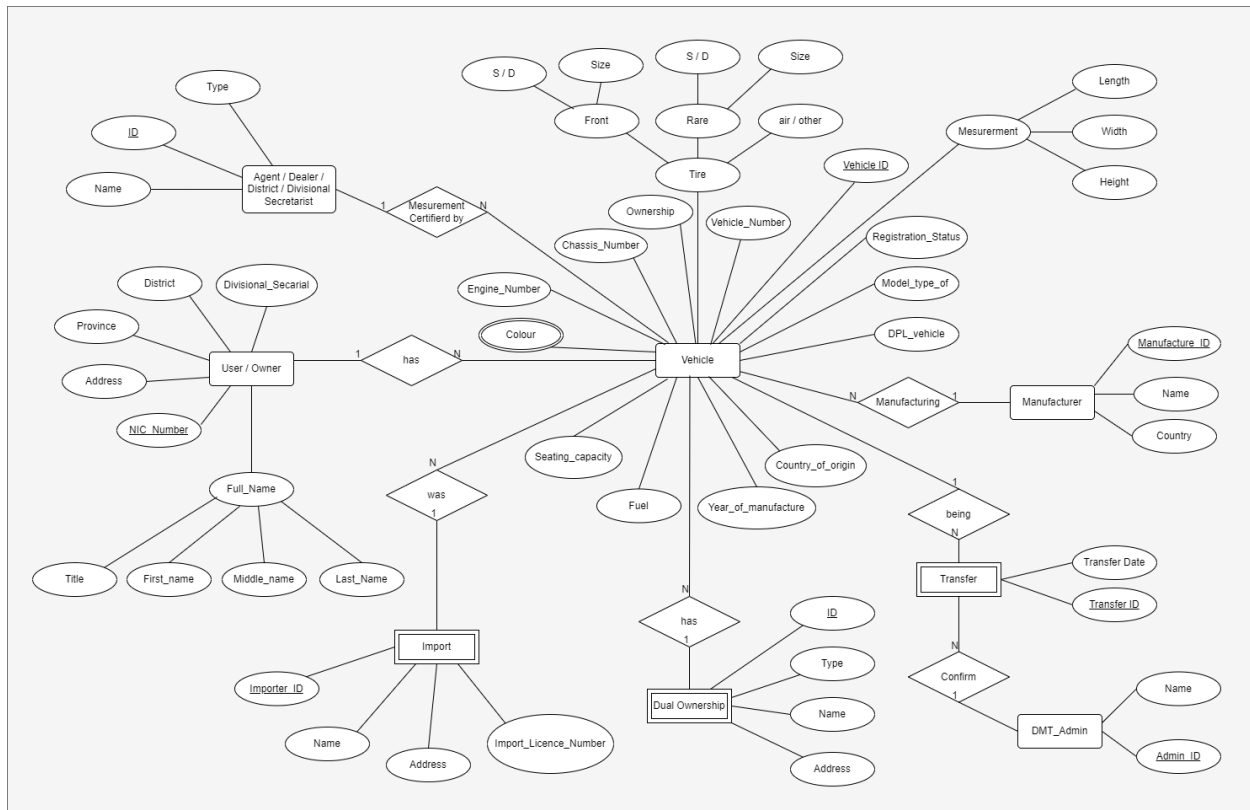


Figure 3.2 – Entity relationship diagram

3.3 System Features

3.3.1 Functional Requirements

Requirement ID	Requirement
R01	Sign-up to an account
R01.1	Users have to sign-up to the account on website by using their National Identity Card (NIC) number and an username
R01.2	During registration, the system has to validate uniqueness of NIC number and username
R01.3	For the account security, system has to enforce strong password policies

Requirement ID	Requirement
R02	Transfer process
R02.1	Buyer must able to input the relevant vehicle registration number to continue transferring process
R02.2	System should facilitate filling and submitting of online documents
R02.3	For any associated fees, system have to facilitate online payments

Requirement ID	Requirement
R03	Verification by seller
R03.1	Through the seller's dashboard, sellers should be able to confirm or reject the request
R03.2	Sellers should verify their identity before confirming the request

Requirement ID	Requirement
R04	Verification by Department of Motor Traffic (DMT)
R04.1	DMT admin and officials should have the access to the submitted forms by the buyer
R04.2	Officials of DMT have to review and approve the ownership transfer of that vehicle by ensuring associated payments and documents

R04.3	DMT should have to update the vehicle ownership registration records officially and issue a new registration certificate
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Requirement ID	Requirements
R05	Cross-Provincial ownership transfer
R05.1	System should facilitate the process that updating number plate of the vehicle if the buyer and seller of the vehicle are from two provinces

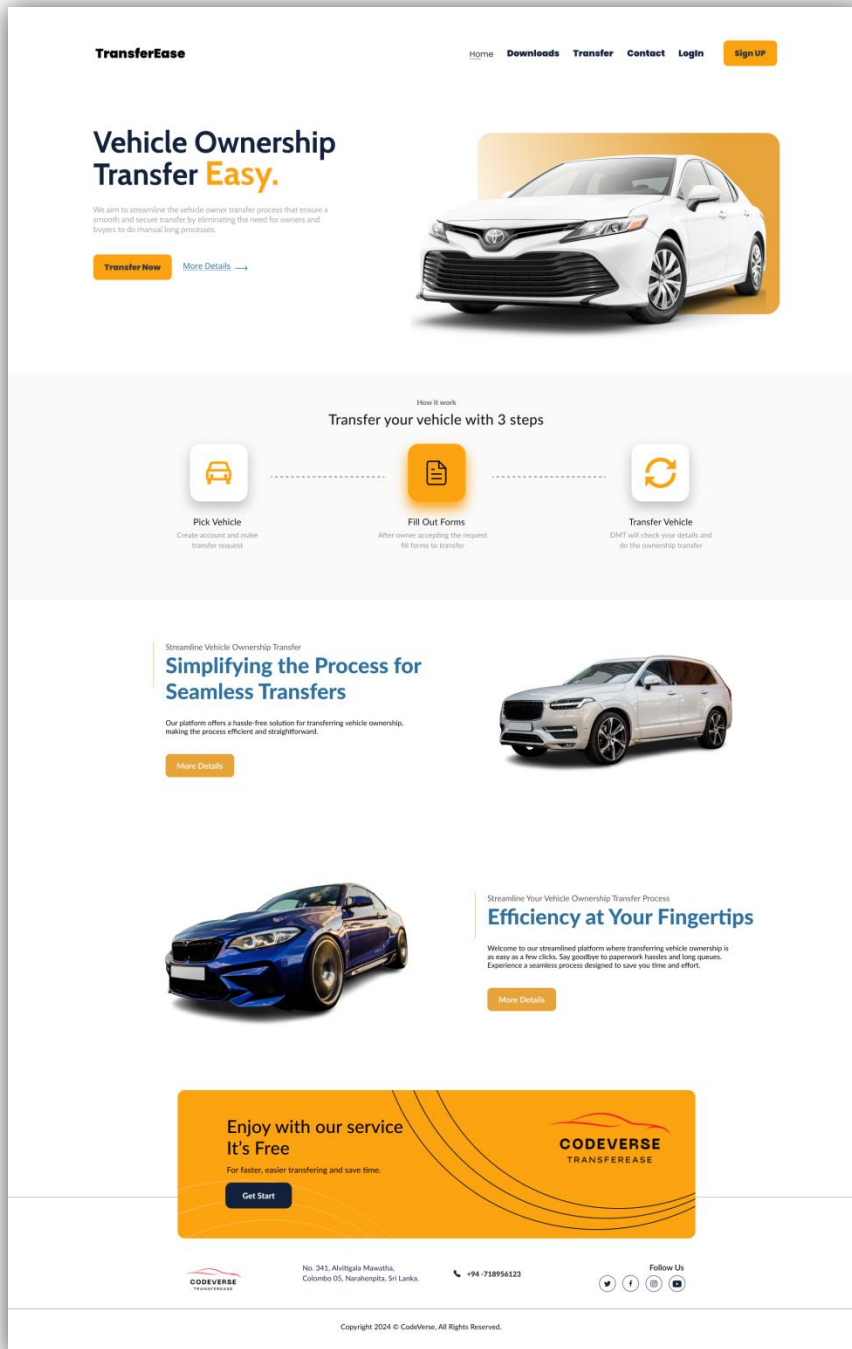
Requirement ID	Requirements
R06	User dashboard
R06.1	Users should have the access to a dashboard that display details of their own registered vehicles and ongoing process of ownership transfer
R06.2	Users should able to update their information and vehicle details in the system

Requirement ID	Requirements
R07	User guide
R07.1	Website have to give a user guide accessible from help desk section that provides step by step guidance for each steps of ownership transfer

4. Interface Requirements

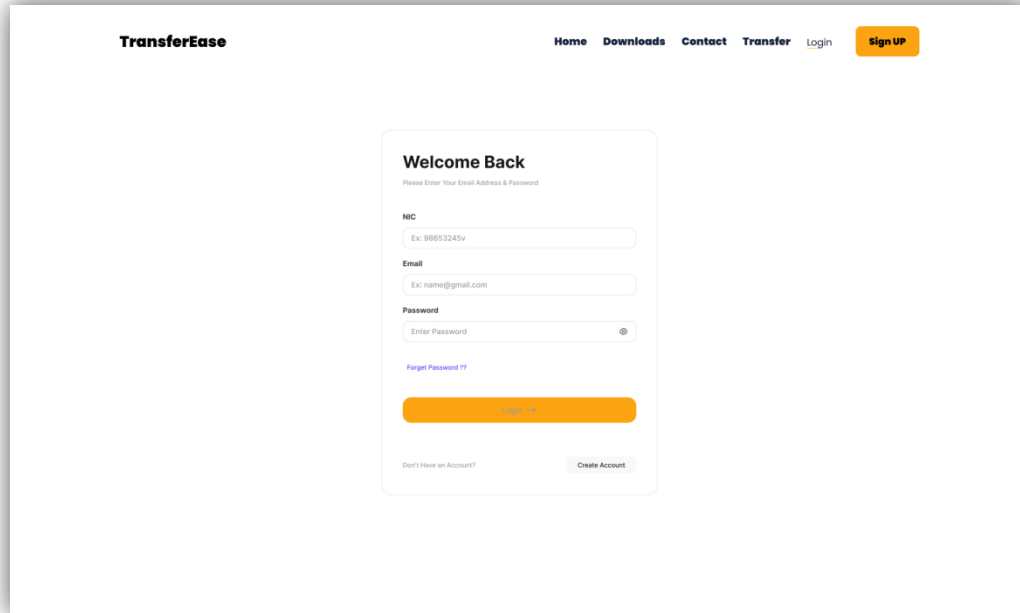
4.1 User Interfaces

Home page



User

Log-in



The log-in form is titled "Welcome Back" and prompts the user to "Please Enter Your Email Address & Password". It features three input fields: "NIC" (with example "98853245v"), "Email" (with example "Ex: name@gmail.com"), and "Password" (with placeholder "Enter Password" and a toggle icon). A "Forgot Password ???" link is positioned below the password field. A large orange "Log-in" button is centered at the bottom of the form. Below the button, there is a link "Don't Have an Account?" and a "Create Account" button.

TransferEase Home Downloads Contact Transfer Login **Sign UP**

Welcome Back

Please Enter Your Email Address & Password

NIC
Ex: 98853245v

Email
Ex: name@gmail.com

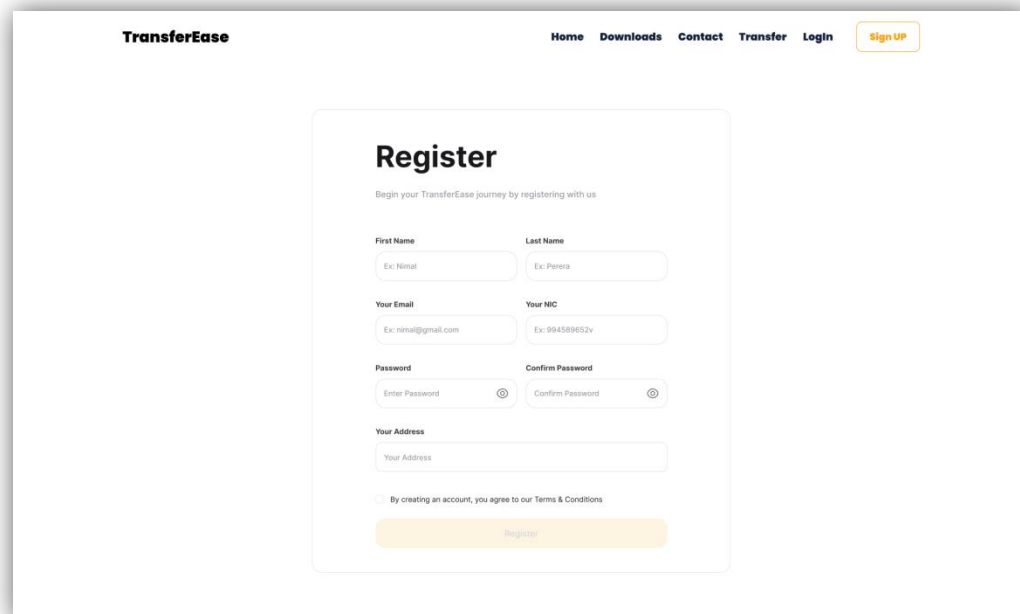
Password
Enter Password

[Forgot Password ??](#)

Log-in

[Don't Have an Account?](#) [Create Account](#)

Sign-in



The register form is titled "Register" and prompts the user to "Begin your TransferEase journey by registering with us.". It contains several input fields: "First Name" (example "Ex: Nimal"), "Last Name" (example "Ex: Pereira"), "Your Email" (example "Ex: nimal@gmail.com"), "Your NIC" (example "Ex: 994589652v"), "Password" (placeholder "Enter Password" with a toggle icon), "Confirm Password" (placeholder "Confirm Password" with a toggle icon), and "Your Address" (placeholder "Your Address"). A checkbox labeled "By creating an account, you agree to our Terms & Conditions" is located above the "Register" button.

TransferEase Home Downloads Contact Transfer Login **Sign UP**

Register

Begin your TransferEase journey by registering with us.

First Name
Ex: Nimal

Last Name
Ex: Pereira

Your Email
Ex: nimal@gmail.com

Your NIC
Ex: 994589652v

Password
Enter Password

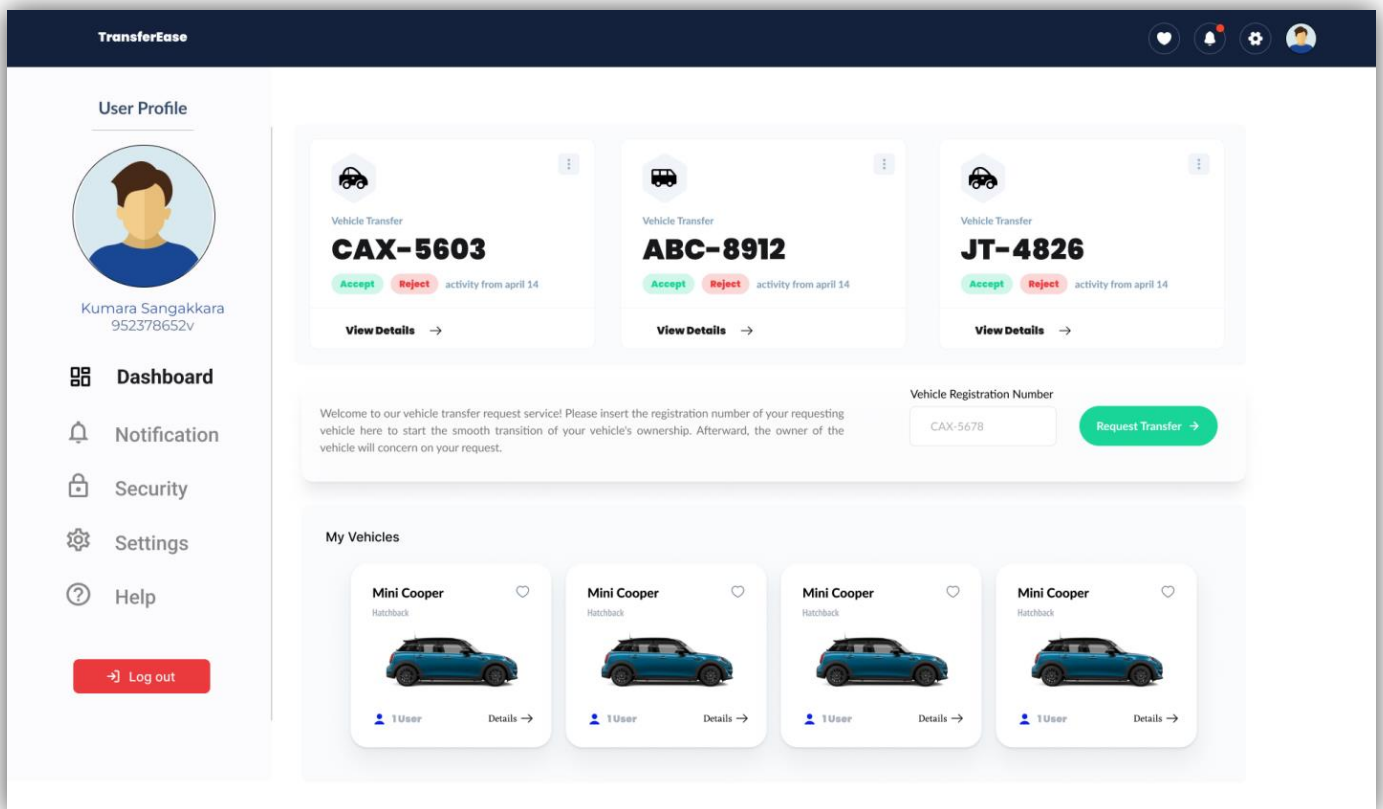
Confirm Password
Confirm Password

Your Address
Your Address

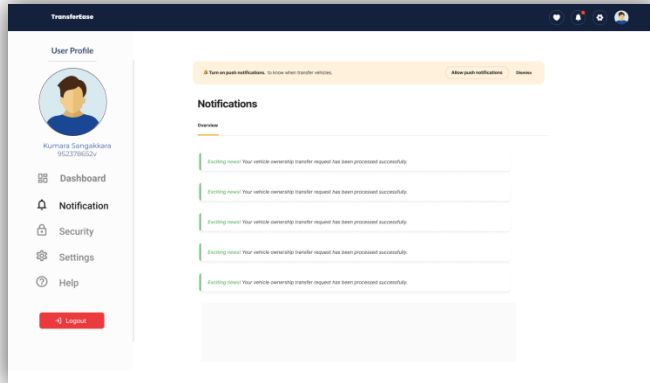
☐ By creating an account, you agree to our Terms & Conditions

Register

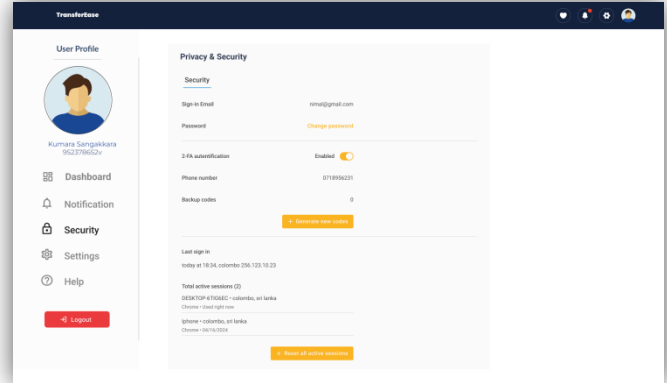
Dashboard



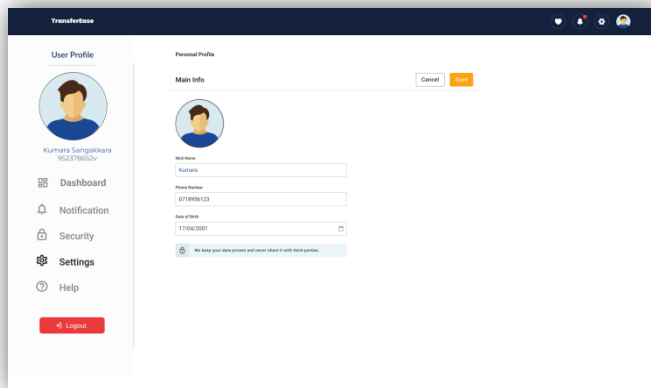
Notifications



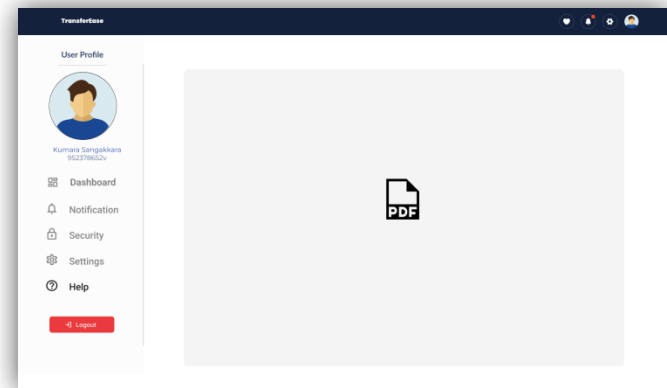
Security



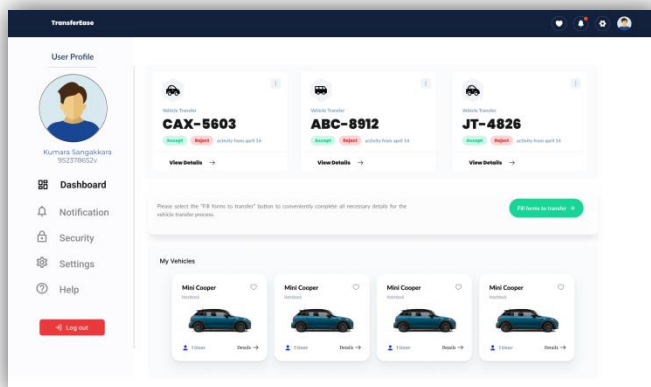
Settings



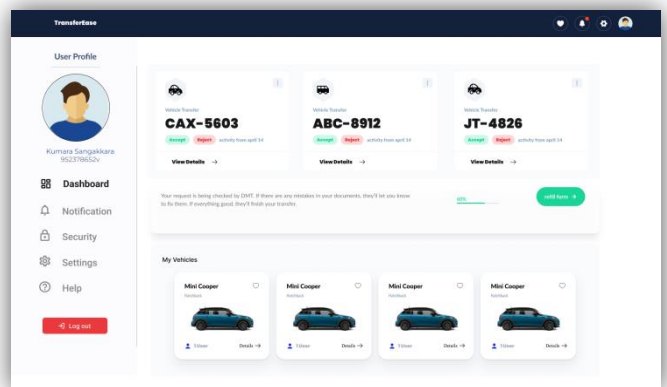
Help



After verification by owner



DMT verify status



Form

The screenshot shows the 'TransferEase' app interface. At the top is a dark blue header with the app name and navigation icons. The main content area is titled 'Vehicle Transfer' with a subtitle: 'Please fill the form below to receive the confirmation by DMT for your vehicle. Feel free to add as much detail as needed.' Below this is a progress bar with four steps; the first step is highlighted in orange. The form is titled 'Contact details' with a subtitle 'Statement of changing the owner of the motor vehicle'. It contains four input fields: 'Name' (with the value 'Nimal Kamal'), 'Email' (with the placeholder 'Email address'), 'Phone Number' (with the value '071 456 7890'), and 'Address' (with the placeholder 'Your Address'). Each field has a corresponding icon (person, envelope, phone, and location pin). At the bottom right of the form is an orange 'Next step' button.

Form completion

The screenshot shows the 'TransferEase' app interface at the completion stage. The header and title are the same as the previous screen. The progress bar now shows all four steps completed, with the first three highlighted in orange. The main content area features a large green checkmark icon. Below it, the text reads: 'The form has been filled out successfully! Please review all the information you previously typed in the past steps, and if all is okay, submit your form to receive a verification email in 24 - 48 hours.' At the bottom center is an orange 'Submit' button. At the bottom left is a 'Previous step' button.

Admin

Log-in

Admin Login

Please Enter Your Email Address & Password

NIC

Ex: 98853245v

Employee ID

EM0013

Email

Ex: name@gmail.com

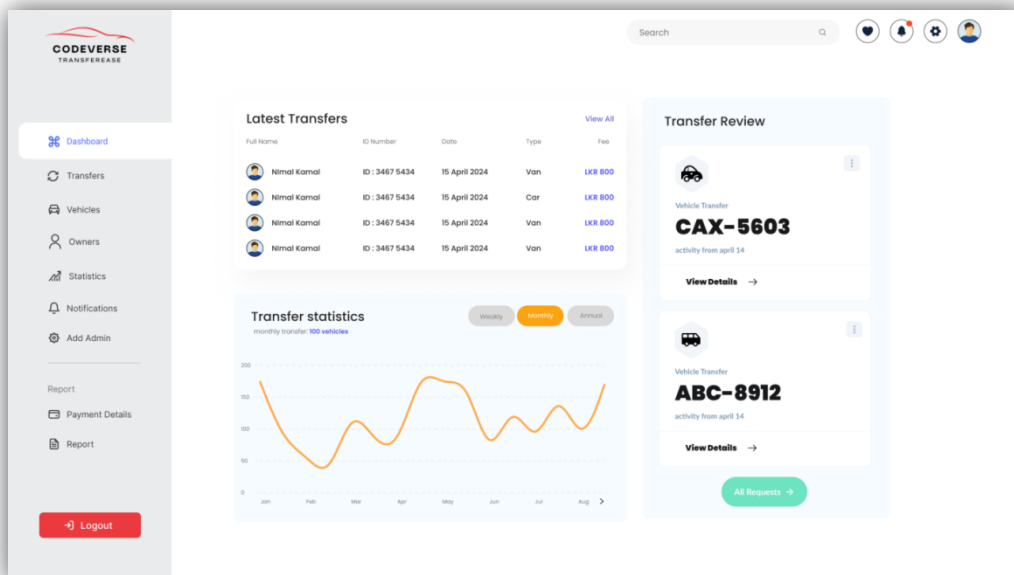
Password

Enter Password

Forgot Password ??

Log In !!

Dashboard



Transfers

Transfer ID	Vehicle Number	TYPE	DATE	STATUS	Transfer Fee
00001	CAR-4569	Car	14 Apr 2024	Pending	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Pending	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800
00001	CAR-4569	Car	14 Apr 2024	Completed	\$1,800

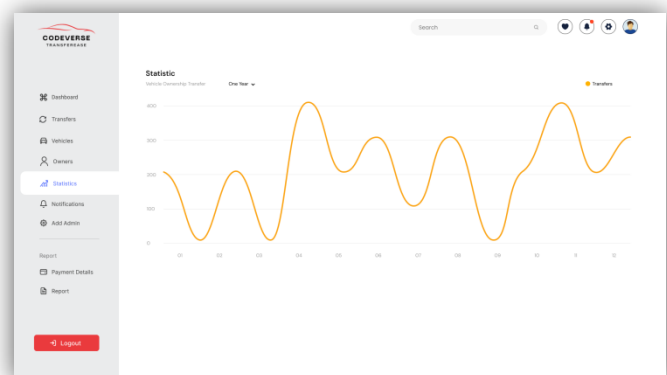
Vehicles

ID	Model	Vehicle Number	DATE	TYPE	STATUS
00001	Hon Carper	CAR-4569	14 Apr 2024	Car	Completed
00002	Hon Carper	CAR-4569	14 Apr 2024	Van	Pending
00003	Hon Carper	CAR-4569	14 Apr 2024	Car	Pending
00004	Hon Carper	CAR-4569	14 Apr 2024	Bus	Completed
00005	Hon Carper	CAR-4569	14 Apr 2024	Car	Pending
00006	Hon Carper	CAR-4569	14 Apr 2024	Car	Pending
00007	Hon Carper	CAR-4569	14 Apr 2024	Car	Pending
00008	Hon Carper	CAR-4569	14 Apr 2024	Car	Completed
00009	Hon Carper	CAR-4569	14 Apr 2024	Car	Completed

Owners

Name	ID Number	Transfer Fee	No. Vehicle	Date
Mohd Kamil	199103402412	\$4,500.00	02	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024
Mohd Kamil	199103402412	\$4,500.00	01	14/04/2024

Statistics



Notifications

Setting

Name	Email	Create Date	Role	Action
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage Admin Accounts	✎ ⚙
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage	✎ ⚙
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage	✎ ⚙
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage Admin Accounts	✎ ⚙
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage	✎ ⚙
Mohd Kamil	mohd.kamil@gmail.com	04 Apr 2024	Manage	✎ ⚙

Please find the link below for accessing the user interface prototype

<https://www.figma.com/community/file/1362701442702232488>

5. Non Functional Requirements

4.1 Performance requirements

Response time – Performance speed of this website is depending on several factors like

- Speed of user's internet connection
- Data extracting time of database

4.2 Security requirements

Security requirements for this website are very essential to protect user data and integrity of the ownership transfer process. This includes implementing strong password policies to protect sensitive data and administrative functions. By protecting security, this website can give a trustful and safe ownership transfer process for the users.

4.3 Software quality attributes

- Reliability – This website will perform accurate and reliably to complete ownership transfer processes are completed without errors or interruptions.
- Usability – This website will be allow users to navigate through the ownership transfer process with ease by making this website user friendly and intuitive.
- Maintainability – The codebase of this website will be well structured, modular, and documented to give easy maintenance and future developments.
- Compatibility – This website will be compatible with different devices, browsers, and operating systems.

