

**CRM System for vehicle Maintenance Centre
Software Requirements Specification**

Version 1.0

Project ID: 14

Group No: 04

Mentor:

- Dr. Buddhika Karunaratne

Group Members:

- CHANDRASEKARA C.A.H.M.P.P 200084L
 - CHATHUNKA W.A.P. 200089G
 - CHINTHANA S.K.G 200093M
-

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

Contributions

- **CHANDRASEKARA C.A.H.M.P.P 200084L**
 - 1.5 Overview
 - 2.1 Product Perspective
 - 2.2 Product Functions
 - 2.5 Assumptions and Dependencies
 - 3.6 Design Constraints
 - 3.7 On-line User Documentation and Help System Requirements
 - 3.8 Purchased Components
 - 3.9.2 Hardware Interfaces
 - 3.9.3 Software Interfaces
 - 3.9.4 Communications Interfaces
 - 3.11 Licensing, Legal, Copyright, and Other Notices
 - 3.9.1.3 Landing Page Figma Design
 - 3.9.1.5 Service Booking Interface for Customers Figma design
 - Finalizing SRS document
- **CHATHUNKA W.A.P. 200089G**
 - 1.2 Scope
 - 2.3 User Characteristics
 - 2.4 Constraints
 - 3.2 Usability
 - 3.3 Reliability
 - 3.9.1.4 Vehicle Registration Page
 - 3.9.1.8 Manufacturer Recommendations Submission Interface
 - 3.9.1.9 Internal Messaging Interface
 - 3.9.1.10 Forum Interface
 - 3.10 Database requirements
 - 3.12 Applicable Standards
- **CHINTHANA S.K.G 200093M**
 - 1.1 Purpose
 - 1.3 Definition, Acronyms, and Abbreviations
 - 1.4 References
 - 2.5 Assumptions and Dependencies
 - 3.1.3 Marketing automation
 - 3.4 Performance and Security
 - 3.5 Supportability
 - 3.9.1.1 Customer Login Page
 - 3.9.1.2 Customer Register Page
 - 3.9.1.6 Customer Dashboard
 - 3.9.1.7 Maintenance Manager Dashboard

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

Revision History

Date	Version	Description	Author
26/08/2023	1.0	Initial version of SRS	<ul style="list-style-type: none"> CHANDRASEKARA C.A.H.M.P.P 200084L CHINTHANA S.K.G 200093M CHATHUNKA W.A.P. 200089G

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

Table of Contents

1.	Introduction	6
1.1	Purpose	6
1.2	Scope	6
1.3	Definitions, Acronyms, and Abbreviations	6
1.4	References	6
1.5	Overview	7
2.	Overall Description	7
2.1	Product Perspective	7
2.2	Product Functions	7
2.3	User Characteristics	7
2.4	Constraints	8
2.5	Assumptions and Dependencies	8
2.5.1	Assumptions	8
2.5.2	Dependencies	8
3.	Specific Requirements	9
3.1	Functionality	9
3.1.1	Registering Customers	9
3.1.2	Register Customer Vehicles	9
3.1.3	Marketing automation	9
3.1.4	Customer service and support	9
3.1.5	Collaboration and Communication	10
3.1.6	Interface for maintenance manager	11
3.2	Usability	11
3.2.1	User Interface	11
3.2.2	Learnability	11
3.2.3	Ease of Use	12
3.3	Reliability	12
3.3.1	Availability:	12
3.3.2	Mean Time Between Failures (MTBF):	12
3.3.3	Mean Time To Repair (MTTR):	12
3.3.4	Accuracy	12
3.3.5	Maximum Bugs or Defect Rate:	12
3.4	Performance and Security	13
3.4.1	Performance	13
3.4.2	Security	13
3.5	Supportability	14
3.5.1	Coding Standards	14
3.5.2	Version Control Management	14
3.6	Design Constraints	14
3.6.1	Database Limitations:	14
3.7	On-line User Documentation and Help System Requirements	14
3.8	Purchased Components	15
3.9	Interfaces	15

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1	User Interfaces	15
3.9.2	Hardware Interfaces	24
3.9.3	Software Interfaces	24
3.9.4	Communications Interfaces	25
3.10	Database Requirements	25
3.11	Licensing, Legal, Copyright, and Other Notices	25
3.12	Applicable Standards	25
4.	Supporting Information	25

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

Software Requirements Specification

1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to provide a comprehensive description of the external behavior, functional and nonfunctional requirements, design constraints, and other essential factors for the development of the CRM (Customer Relationship Management) system for a vehicle maintenance center. The proposed CRM system's features, functions, and characteristics are described in detail in this document. In order to provide a shared understanding of the project's scope, objectives, and specifications, it provides a clear and structured reference for the development team and stakeholders. In order to make sure that a final product meets the needs and expectations of the intended users and contributes to the improvement of customer relationship management within the vehicle maintenance industry, the SRS will facilitate efficient communication, collaboration, and alignment throughout the software development lifecycle.

1.2 Scope

This SRS describes the functionalities of the CRM for Vehicle Maintenance System, focusing on customer relationship management enhancement for vehicle maintenance centers. The system encompasses web and mobile interfaces, catering to roles like Customers, Maintenance Managers, Sales and Marketing Teams. It covers use cases such as customer registration, maintenance scheduling, sales tracking, marketing campaigns and customer support. The software aims to automate notifications, enhance data-driven decisions, and optimize interactions.

1.3 Definitions, Acronyms, and Abbreviations

CRM - Customer Relationship Management
API - Application Programming Interface
REST - Representational State Transfer
SRS - Software Requirement Specification
DB - Database
OAuth - Open Authorization
IEEE - Institute of Electrical and Electronics Engineers
HTTPS - Hypertext Transfer Protocol Secure
HTTP - Hypertext Transfer Protocol

1.4 References

830-1984 - IEEE Guide for Software Requirements Specifications
<https://ieeexplore.ieee.org/document/278253>
IEEE sample SRS template <https://nammco.no/wp-content/uploads/2018/05/o04-software-requirements-draft-specification-for-supersurveyor-programme.pdf>
TOYOTA LANKA web application for periodic maintenance of vehicles
[Periodic Maintenance \(toyota.lk\)](Periodic Maintenance (toyota.lk))

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

1.5 Overview

This SRS is organized to provide a clear and detailed description of the CRM for vehicle management system project for the development team, stakeholders, and any other involved parties of the software development lifecycle. The rest of the document contains detailed explanations of specific requirements including functionality, usability, reliability, most importantly user interface designs, database designs and external but critical factors like Licensing, Legal, Copyright, and Other Notices.

2. Overall Description

2.1 Product Perspective

The CRM for Vehicle Maintenance system is designed to enhance customer relationship management of the vehicle service centers. It provides a almost all in one solution that automates notifications, email marketing, service booking, and level up the customer experience to the next level while making it easier the job of the internal staff including, maintenance managers, sales teams and ultimately business owners. The system operates within the context of automobile service industry while facilitating effective customer communication, maintenance scheduling and extended customer support.

2.2 Product Functions

The key functions of the system involve customer data registration, vehicle information management, email and messaging integration for marketing, customer categorization, support ticket handling, service scheduling, maintenance recommendations, admin dashboard control and communication. Here is a brief introduction to those modules.

Customer Service and Support

Customers can book a service slot as they want. And also, Customer support representatives can access the system to provide timely assistance to customers. It offers a support ticket interface, scheduling of service jobs.

Maintenance Manager

Maintenance managers can record manufacturer-recommended maintenance information, set service intervals, and send push notifications to customers based on these recommendations.

Analytics and Reporting

This submodule allows business owners, sales and marketing teams and other relevant parties to generate reports related to sales performance and marketing performance.

Collaboration and Communication

This module facilitates efficient communication and collaboration among internal staff and customers of the organization through a forum.

2.3 User Characteristics

Maintenance Manager

- Technical Expertise: High
- Frequency of Use: Frequent
- Functionality: Manages customer registration by entering detailed customer and vehicle information. Register manufacturer recommendations to the system.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

Sales Representative

- Technical Expertise: Medium
- Frequency of Use: Frequent
- Functionality: Manages leads, tracks deals, and monitors the sales pipeline.

Customer Support Representative

- Technical Expertise: Medium
- Frequency of Use: Frequent
- Functionality: Accesses customer data, views interaction history, and provides timely and personalized assistance

Vehicle Owner

- Technical Expertise: Low to Moderate
- Frequency of Use: Frequent
- Functionality: Registers through the service center, accesses vehicle maintenance recommendations, and receives timely reminders.

Marketing Team

- Technical Expertise: Medium
- Frequency of Use: Frequent
- Functionality: Executes targeted marketing campaigns, including email marketing and lead nurturing.

2.4 Constraints

Stable internet connectivity is required for seamless system operation and accurate data exchange. Database storage limitations are present.

2.5 Assumptions and Dependencies

2.5.1 Assumptions

- Users will have stable internet connectivity to access and use the system's features seamlessly.
- Users have access to an updated web browser for accessing the web interface and a compatible mobile device for using the mobile app.
- Users are familiar with web and mobile applications up to at least basic level.

2.5.2 Dependencies

- **API Integrations:** Number of APIs will be needed including OAuth API, WhatsApp AP, node mailer API.
- **Database Service:** The connectivity between the application and the MongoDB database is a critical dependency.
- **Third-Party Authentication:** The integration of Google and Facebook authentication services is dependent on the APIs provided by these platforms.
- **Hosting Services:** The proper functioning of the system relies on the hosting services used host the application. Heroku is the proposed web hosting provider.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3. Specific Requirements

3.1 Functionality

3.1.1 Registering Customers

This allows customers to register themselves to the CRM system. And also, it allows the service center to add new customers upon their request. By entering essential details during the registration process, the service center can establish personalized customer profiles for each customer. The registration process grants customers access to their individual accounts, enabling them to log in using their credentials.

3.1.2 Register Customer Vehicles

Customer can register their vehicles through their dashboard. This will allow to manage separate profile for each vehicle. That makes it easier to manage that vehicle information managed.

3.1.3 Marketing automation

3.1.3.1 Integrating Email and WhatsApp Message Sending Service

The CRM system includes an email and WhatsApp message sending service that enables marketing teams to create and send automated email and WhatsApp message campaigns to customers. By giving customers current details, offers, and updates, this integration makes it possible to communicate with them effectively.

3.1.3.2 Categorizing Customers Based on Their Past Behavior

Customers are categorized by the system based on their prior connections action, and preferences. These classifications support the development of marketing initiatives that are specifically targeted at various customer categories. Customers who have specific vehicle care needs and regular customer are just a few examples of these categories.

3.1.3.3 Social Media Campaigns

The CRM system also integrates with social media platforms, making it possible for the marketing team to organize and carry out social media campaigns. These advertisements can feature success stories, client testimonials, and even promote events and limited-time deals. The effectiveness of social media initiatives is monitored, along with how they affect consumer involvement and sales, by the CRM system.

3.1.4 Customer service and support

3.1.4.1 Support ticket

Maintenance managers will have access to a support ticket interface through which they can address customer inquiries. Registered customers will be able to submit support tickets regarding technical issues of their vehicles. The interface will allow them to view and respond to support tickets. Support ticket interface for registered customers.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.1.4.2 Schedule a service job

This functionality enables customers to schedule appointments for vehicle service or repair job through the CRM system. Customers can choose a convenient date and time for their required type of service. The system will then display available time slots and confirm the appointment once scheduled. This feature simplifies the appointment booking process for customers and reduces the need for phone calls or in-person visits to the service center. It also helps the service center to manage its service pipeline in more efficient manner.

3.1.4.3 Service History Report Generation

The CRM system provides customers with the ability to access their vehicle profiles directly from the dashboard. Customers can generate comprehensive service history reports for each of their vehicles through the dashboard, offering insights into past service dates, performed maintenance tasks, mileage at each service, and parts replacements.

3.1.4.4 Send timely recommended service notifications.

With this feature, the CRM system automatically generates and sends notifications to customers regarding recommended maintenance tasks for their vehicles. Based on the vehicle's service history, manufacturer recommendations and current mileage of the vehicle, the system identifies when specific services are due. Customers receive notifications via email, WhatsApp, or in-app messages, informing them about upcoming maintenances. These proactive reminders help customers to forget about their service schedule by handing over it to the system.

3.1.4.5 Collect current mileage through WhatsApp.

The system will collect the current millage of each registered vehicle by sending automated WhatsApp messages to the registered customer on every month-end. This will help to improve usefulness of the system since current milage is the crucial information needed to recommend future maintenance and services.

3.1.5 *Collaboration and Communication*

3.1.5.1 Forum

Users within the system, including customers, maintenance managers, sales and marketing teams, can participate in discussions through a straightforward forum. The forum allows users to initiate discussions, post queries, and share insights related to vehicle maintenance and other relevant topics. The forum supports features such as creating new discussion threads, replying to existing threads. The system also displays essential information about each discussion, including the initiator, the creator of the last post, and the number of replies.

3.1.5.2 Internal Messaging Service

The system offers an internal messaging service that enables seamless communication between users within the platform. Users can send and receive messages to and from other users, enhancing the efficiency of communication among different roles. The messaging service includes features such as composing new messages, viewing message history. This service ensures that relevant parties can easily exchange information, updates, and requests within the context of the CRM system.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.1.6 *Interface for maintenance manager*

3.1.6.1 Register a customer vehicle.

Maintenance managers have the capability to register customers into the system. They will input vehicle details such as make, model, registration number, chassis first code, last service date, fuel type and last service mileage. The system will validate the input data and store it securely in the database.

3.1.6.2 Enter manufacturer recommendation details.

Maintenance managers can enter manufacturer recommendation details for different vehicles. This includes information such as transmission fluid type, coolant type, engine oil type and their respective replacement intervals, wheel alignment interval. The system will provide fields for maintenance managers to input this data accurately. The entered details will be stored in the database for future reference.

3.1.6.3 View recent customer booking details.

The maintenance manager can access the "Recent Bookings" table, which displays essential information about recent service bookings. The table includes columns such as Service ID, Customer Name, Service Description, Status, and Last Update.

3.1.6.4 Customer schedule table

Maintenance managers can effortlessly view customer schedules through a user-friendly calendar interface. The calendar displays scheduled maintenance, appointments, and events using color codes for easy identification.

3.1.6.5 View customer statistics

Maintenance managers have the ability to view a weekly service frequency chart. This chart provides a clear representation of the number of service appointments scheduled each week.

3.2 **Usability**

3.2.1 *User Interface*

The user interface is thoughtfully designed, incorporating commonly used components such as navigation menus, buttons, tables, and form elements. Tooltips are provided for buttons and form fields to enhance user understanding. The color palette (mainly blue and white) and page layouts maintain consistency throughout the application aiming for user-friendliness.

3.2.2 *Learnability*

The system is intuitively designed, requiring minimal training for users across various technical skill levels. For customers, no specialized training is necessary, enabling them to seamlessly navigate and interact with the application. Sales representatives, marketing team and marketing managers may require a brief training session of approximately 1 hour to familiarize themselves with administrative functionalities and the user interface.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.2.3 *Ease of Use*

The system design focuses on accessibility and user-friendliness for individuals that use system with varying levels of technical proficiency. An intuitive and logical user interface enables seamless interactions, minimizing the learning curve. System will provide a comfortable and satisfying user experience for all users.

3.3 **Reliability**

3.3.1 *Availability:*

The system shall maintain availability for at least 99.9% of the time during normal operations, with scheduled maintenance will be communicated in advance to users. Maintenance tasks should be performed between 1.00 am and 4.00 am when the least number of users are expected.

3.3.2 *Mean Time Between Failures (MTBF):*

The calculated MTBF will be set at no less than 10,000 hours, guaranteeing stable operation over extended periods.

3.3.3 *Mean Time To Repair (MTTR):*

The system will be restored to full functionality within a maximum of 4 hours after a failure is reported or detected.

3.3.4 *Accuracy*

The system should exhibit a high degree of accuracy in its output. The system shall provide maintenance information, records, and reports with a precision of at least two decimal places. All maintenance information and data presented by the system shall adhere to industry-standard metrics and measurements. This includes following established guidelines for vehicle maintenance intervals, performance benchmarks, and safety standards.

3.3.5 *Maximum Bugs or Defect Rate:*

Bugs and defects should be detected and avoided as much as possible, and the system will maintain a maximum defect rate of 0.5 bugs per 1000 lines of code (bugs/KLOC).

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.4 Performance and Security

3.4.1 Performance

3.4.1.1 Response Time

- The system shall ensure that the average response time for processing a transaction is less than 2 seconds.
- The maximum response time for processing a transaction shall not exceed 5 seconds under normal operating conditions.
- Response time is defined as the time taken by the system to process a user request and provide a valid response.

3.4.1.2 Concurrent Access

- The system shall support a minimum of 500 concurrent users accessing the system simultaneously without experiencing significant degradation in performance.
- During peak usage periods, the system should maintain acceptable response times for all concurrent users.
- Concurrent access refers to the ability of the system to handle multiple user requests at the same time.

3.4.1.3 Capacity

- The system's capacity shall support a database size of up to 50,000 registered vehicles and their associated maintenance records.
- The system should be able to handle an average of 1000 new vehicle registrations and maintenance updates per day.
- Capacity refers to the system's ability to manage data storage and processing demands efficiently, while ensuring optimal performance.

3.4.2 Security

3.4.2.1 Authentication and Authorization

- The system shall implement user authentication using strong password policies.
- The Customer, Maintenance Manager, Sales Team, Marketing Team, Customer Service Representative, and Top Management are just a few examples of the user roles that need to be specified.
- The system administrator must establish the specific access rights and permissions for each position.

3.4.2.2 Disaster Recovery and Backup

- The data on the system must be regularly and safely backed up.
- A disaster recovery plan shall be established to restore the system and its data in the event of a critical failure or breach.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.4.2.3 Secure Communication

- The server and client applications (web and mobile) must use HTTPS encryption for all communication.
- The system must implement secure API endpoints that use token-based authentication for data transfer.

3.5 Supportability

3.5.1 Coding Standards

The system develops according to coding standards like correct indentations and clear comments. When coding, developers expect to follow the camel case naming convention for variables and functions, the upper-case naming convention for global variables, and the snake case naming convention for data schemas.

- Camel Case: Variables and functions shall use camel case naming convention.
e.g.: customerName, calculateTotal
- Upper Case: Global variables shall use upper case naming convention.
e.g.: MAX_ATTEMPTS, DATABASE_URL
- Snake Case: Data schemas and related identifiers shall use snake case naming convention.
e.g.: user_profile, order_items

3.5.2 Version Control Management

Version Control is used from the very beginning of the system implementation. Git technology is used as the version control and GitHub is used as the practical tool. This will help to keep track of the changes made to the codebase and will also be helpful to automate workflows using GitHub actions.

3.6 Design Constraints

3.6.1 Database Limitations:

It has been proposed to use MongoDB as the primary database of the system. In the initial stage it has been decided to use a shared cluster of the MongoDB Atlas which is a free plan. It has a storage limitation of 512MB. If any case where free plan is not enough as system grows, it is recommended to upgrade to a paid plan.

Full freedom for choosing software languages, libraries, technologies, and developmental tools as per requirement has been given.

3.7 On-line User Documentation and Help System Requirements

Since the system is developed user friendly as much as possible using simple user interfaces, it is assumed that separate on-line documentation is not required at this stage. Nevertheless, tech support email channel will be introduced to get help when it is needed. And also, introductory sessions can be arranged upon request for the staff who face difficulties while using the system.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.8 Purchased Components

No components are proposed to purchase since all tools and technologies which have been proposed are free. And free cloud services will be used for hosting. Furthermore, free subdomain allocated by Heroku will be used as the domain name.

3.9 Interfaces

3.9.1 User Interfaces

3.9.1.1 Customer Login Page

This is the interface for already registered customers to be logged in. Users will be able to login by entering username and password. And also, login with google and Facebook options will be available. Below images are respectively web user interface and mobile app user interface.

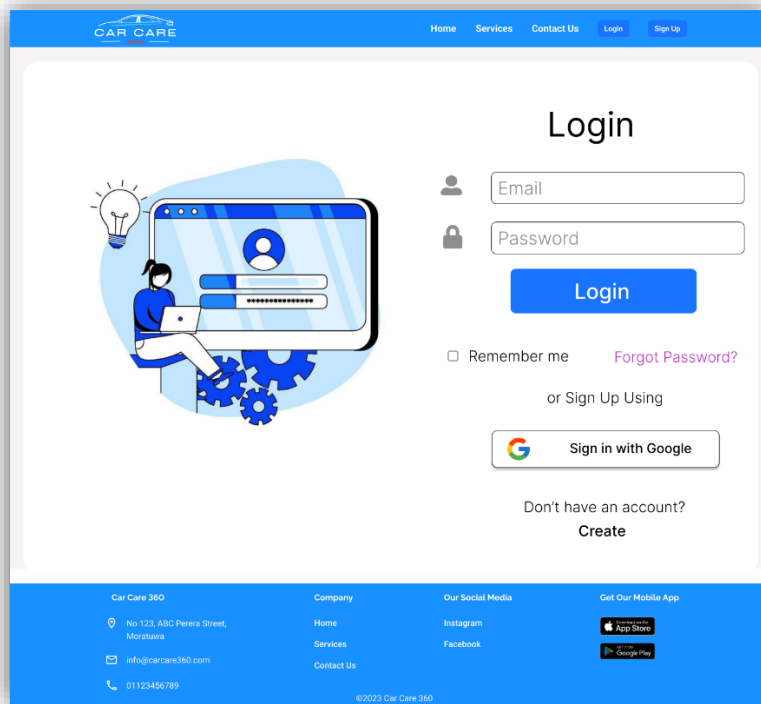


Figure 3.9.1.1-1

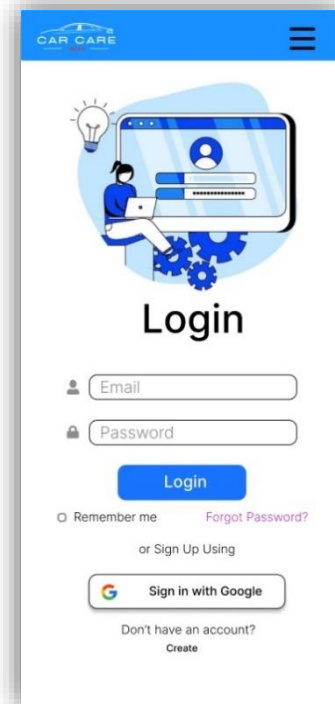


Figure 3.9.1.1-2

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.2 Customer Register Page

This is the interface for the customers who needs to get themselves registered on the system. Users will be able to sign up by entering below details. And also, signup with google and Facebook options will be available. Below images are respectively web user interface and mobile app user interface.

Figure 3.9.1.2-1

Figure 3.9.1.2-2

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.3 Landing Page

Landing page will be shown up when regular user landed on the website. All the pages of the website are proposed to design in a responsive manager in such a way that fit for wide variety of screen sizes.

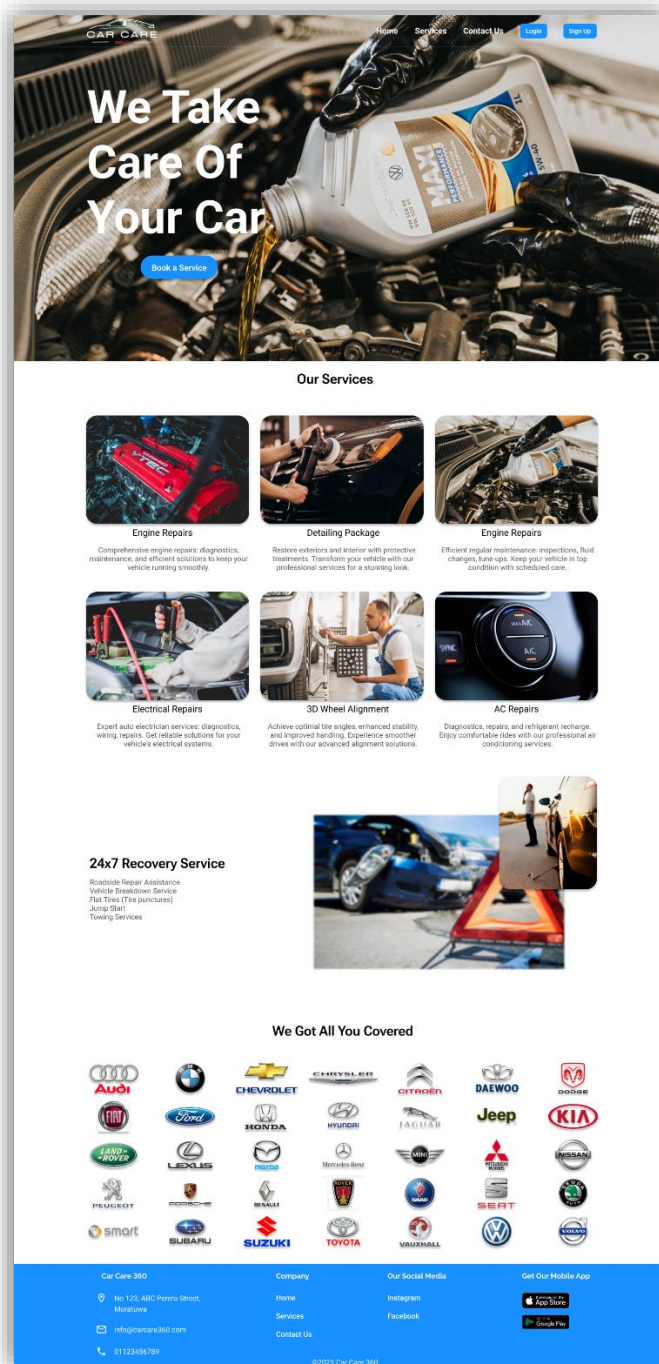
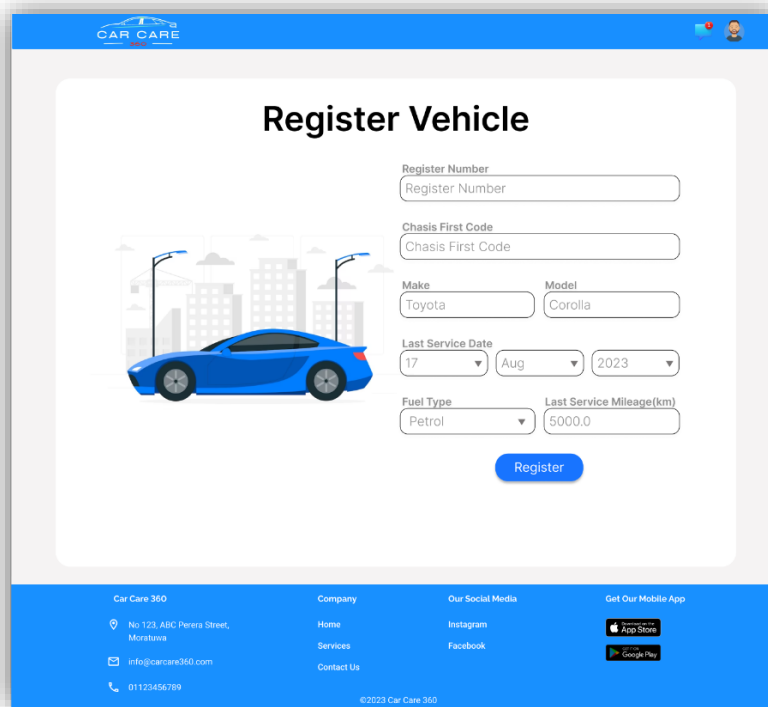


Figure 3.9.1.3

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

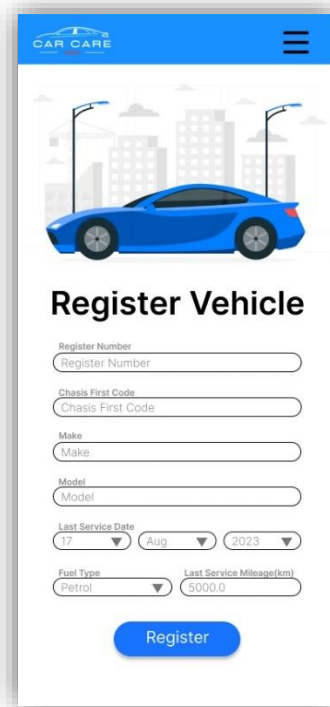
3.9.1.4 Vehicle Registration Page

This is the interface for the customers to register their vehicles on the system. After that they are not required to enter vehicle details again and again to get different services from the system. Maintenance manager also have similar interface to register customer vehicles upon their request. Below images are respectively web user interface and mobile app user interface.



The web interface for vehicle registration features a blue header with the 'CAR CARE' logo. The main content area is titled 'Register Vehicle' and includes a blue car illustration. The registration form contains the following fields: 'Register Number' (text input), 'Chassis First Code' (text input), 'Make' (text input with 'Toyota' selected), 'Model' (text input with 'Corolla' selected), 'Last Service Date' (date picker set to 17 Aug 2023), 'Fuel Type' (dropdown menu with 'Petrol' selected), and 'Last Service Mileage(km)' (text input with '5000.0'). A blue 'Register' button is positioned below the form. The footer is a blue bar containing contact information for 'Car Care 360', social media links for Instagram and Facebook, and app download links for the App Store and Google Play.

Figure 3.9.1.4-1



The mobile app interface for vehicle registration has a blue header with the 'CAR CARE' logo and a hamburger menu icon. It features a blue car illustration and a 'Register Vehicle' title. The form fields are identical to the web version: 'Register Number', 'Chassis First Code', 'Make' (Toyota), 'Model' (Corolla), 'Last Service Date' (17 Aug 2023), 'Fuel Type' (Petrol), and 'Last Service Mileage(km)' (5000.0). A blue 'Register' button is at the bottom. The app interface is more compact than the web version.

Figure 3.9.1.4-2

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.5 Service Booking Interface for Customers

The web interface can be used by anyone to book a service job. But mobile app interface is only for who have logged into the app. For the registered customers relevant fields will be auto filled. Below images are respectively web user interface and mobile app user interface.

The web interface for 'Book a Service' features a blue header with the 'CAR CARE' logo and navigation links: Home, Services, Contact Us, Login, and Sign Up. The main form is titled 'Book a Service' and includes the following fields: Title (dropdown), First Name (text, example: John), Phone Number (text, example: 07xxxxxxx), Email (text, example: John@example.com), Make (text, example: Toyota), Model (text, example: Corolla), Registration Number (text, example: XX-1234), Mileage (text, example:km), Service Type (text, example: oil change/body wash etc), Messages (text), Preferred Date (calendar, showing September 2021 with the 19th selected), and Preferred Time (text). A blue 'Book Now' button is located at the bottom right of the form.

Figure 3.9.1.5-1

The mobile app interface for 'Book a Service' features a blue header with the 'CAR CARE' logo and a hamburger menu icon. The main form is titled 'Book a Service' and includes the following fields: Register number (text), Make (text), Model (text), Mileage (text, example:km), Service type (text, example: oil change/body wash etc), Preferred date (text, example: dd/mm/yyyy), Preferred time (text), and Messages (text). A blue 'Book Now' button is located at the bottom of the form.

Figure 3.9.1.5-2

Continue as a guest option will be available for guest users as below. This is only applicable for web users.

The web interface shows a modal dialog box with the following options: Login, Sign Up, or Continue as a guest (a link). The background is a blurred view of the 'Book a Service' form.

Figure 3.9.1.5-3

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.6 Customer Dashboard

Maintenance manager can submit manufacture recommendations of the vehicles through this interface.

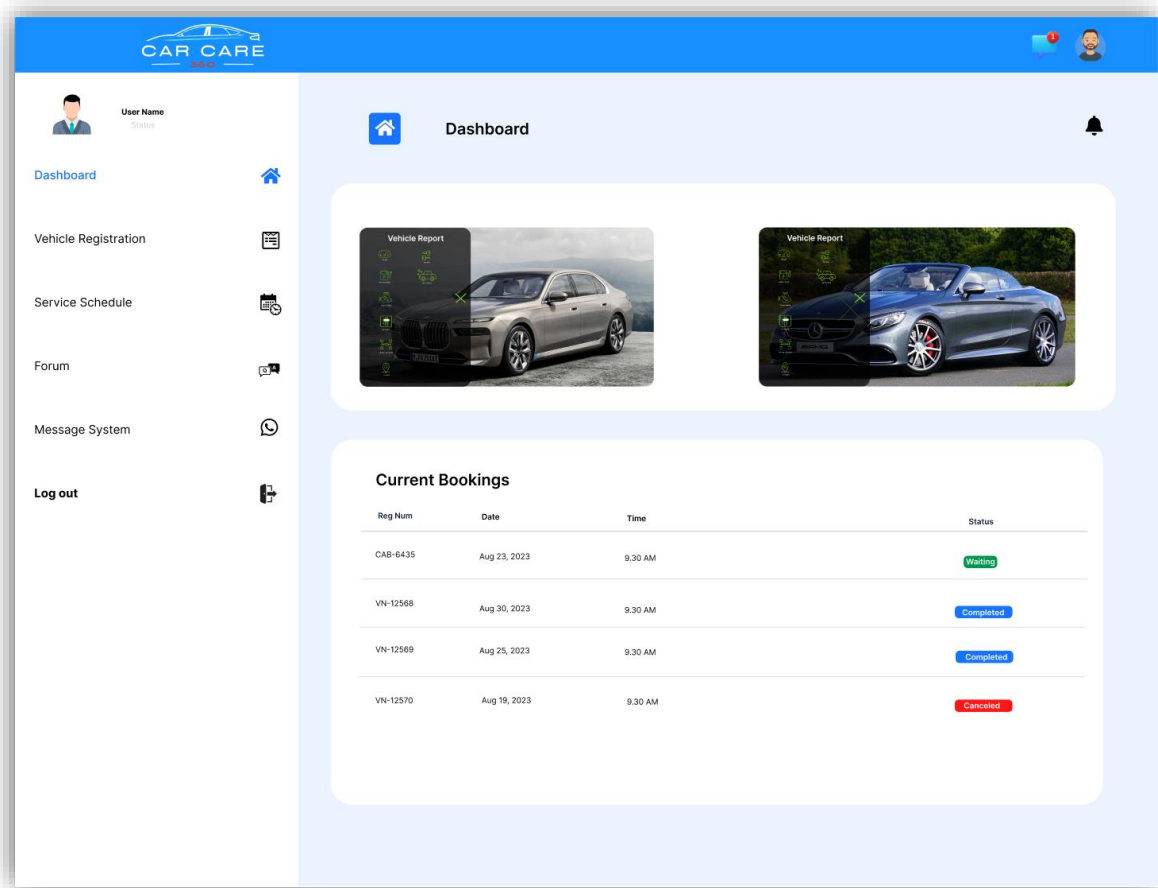


Figure 3.9.1.6

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.7 Maintenance Manager Dashboard

Maintenance manager can add manufacture recommendations for vehicles, register vehicles and manage internal messages. Below images are respectively web user interface and mobile app user interface.

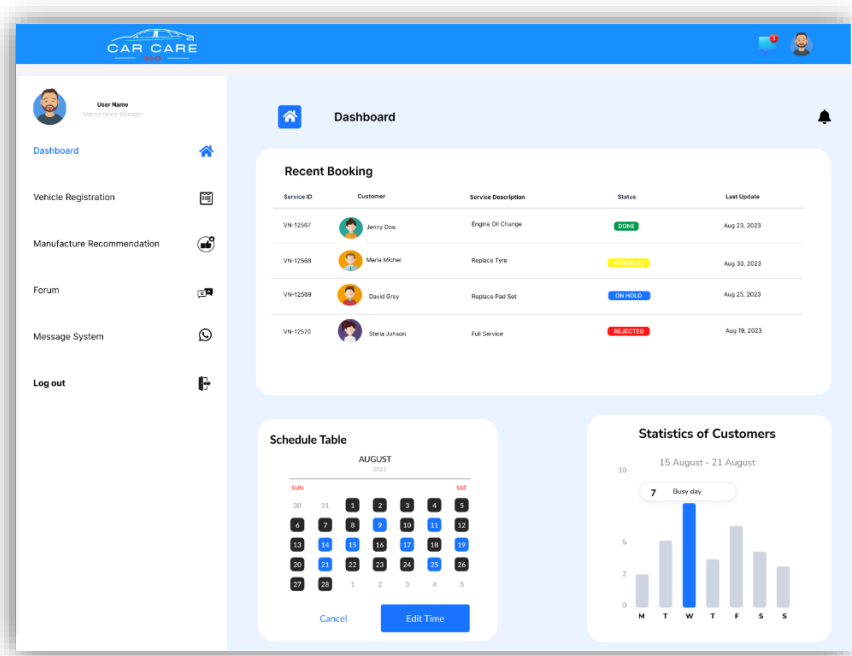


Figure 3.9.1.7-1

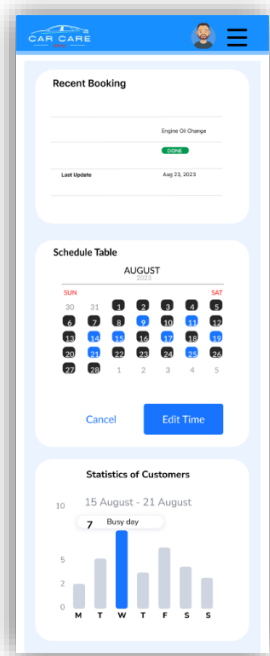
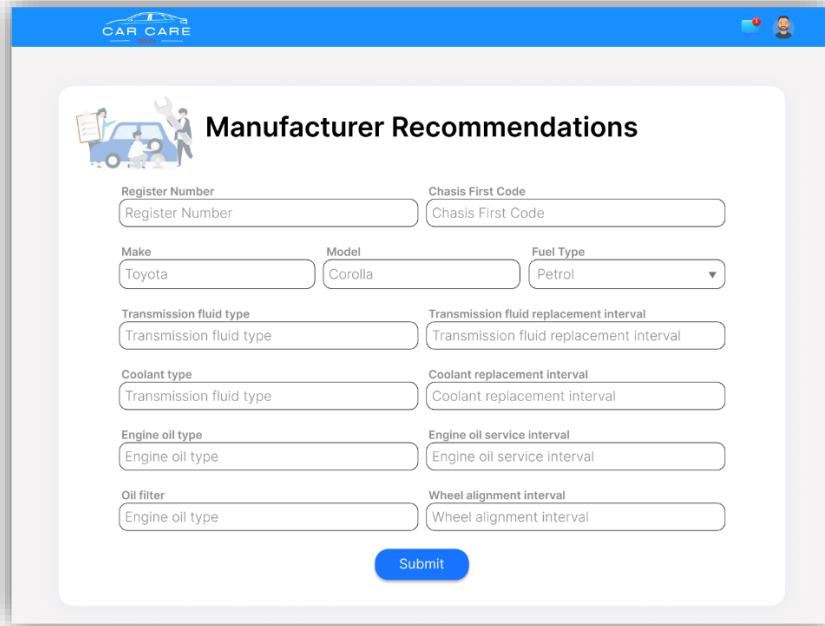


Figure 3.9.1.7-2

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.8 Manufacturer Recommendation Submission Interface

Maintenance manager can submit manufacture recommendations of the vehicles through this interface. Below images are respectively web user interface and mobile app user interface.

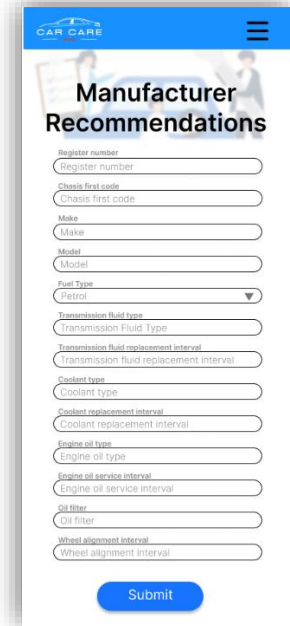


The web interface features a blue header with the 'CAR CARE' logo and a user profile icon. The main content area is titled 'Manufacturer Recommendations' and includes an illustration of a car and a mechanic. The form contains the following fields:

- Register Number (text input)
- Chasis First Code (text input)
- Make (text input, value: Toyota)
- Model (text input, value: Corolla)
- Fuel Type (dropdown menu, value: Petrol)
- Transmission fluid type (text input)
- Transmission fluid replacement interval (text input)
- Coolant type (text input)
- Coolant replacement interval (text input)
- Engine oil type (text input)
- Engine oil service interval (text input)
- Oil filter (text input)
- Wheel alignment interval (text input)

A blue 'Submit' button is located at the bottom center of the form.

Figure 3.9.1.8-1



The mobile app interface has a blue header with the 'CAR CARE' logo and a hamburger menu icon. The title 'Manufacturer Recommendations' is displayed in large, bold text. The form fields are stacked vertically:

- Register number (text input)
- Chassis first code (text input)
- Make (text input)
- Model (text input)
- Fuel Type (dropdown menu)
- Transmission fluid type (text input)
- Transmission fluid replacement interval (text input)
- Coolant type (text input)
- Coolant replacement interval (text input)
- Engine oil type (text input)
- Engine oil service interval (text input)
- Oil filter (text input)
- Wheel alignment interval (text input)

A blue 'Submit' button is positioned at the bottom of the form.

Figure 3.9.1.8-2

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.9 Internal Messaging Interface

Internal users of the organization can use this interface to manage their messages. This interface will be available for all internal users.

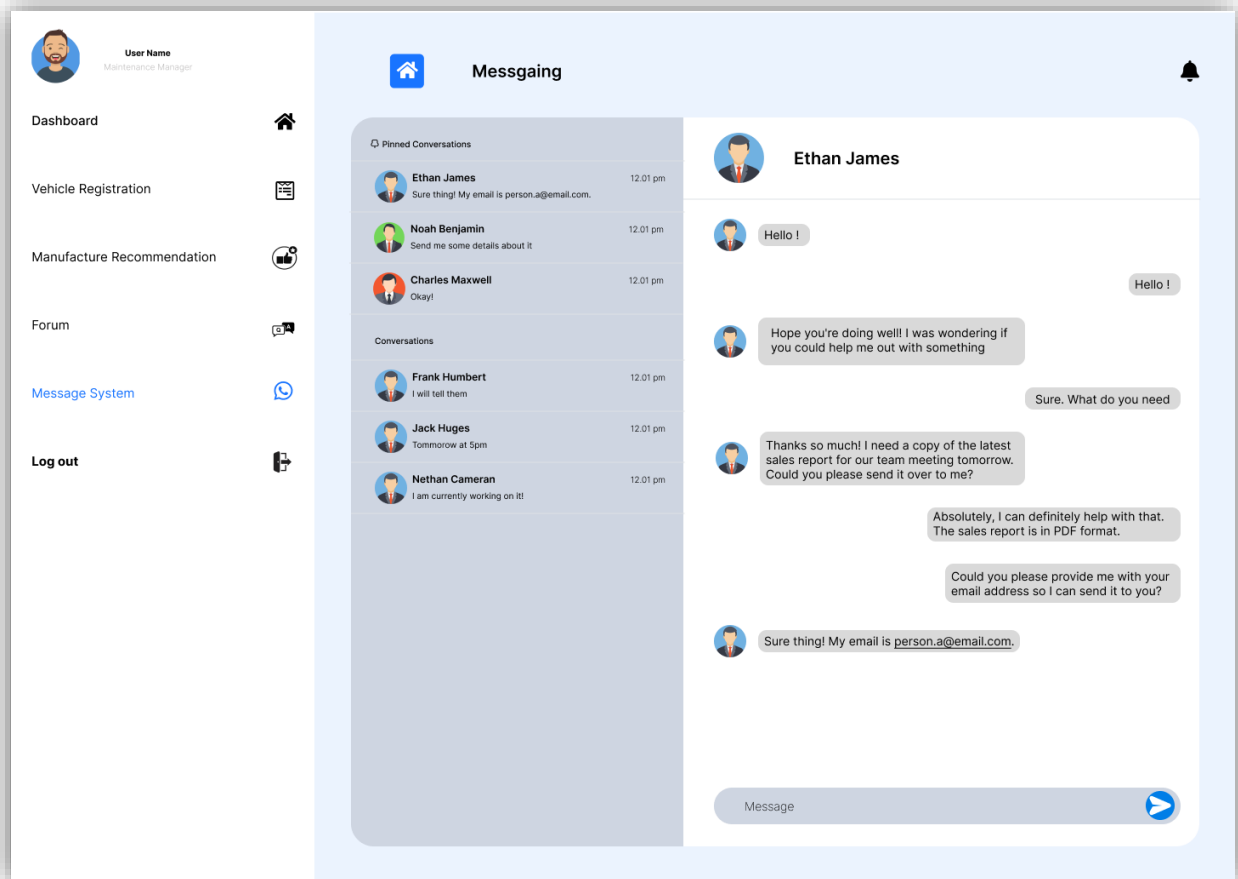


Figure 3.9.1.9-1

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.1.10 Forum Interface

Internal users of the organization can use this forum interface to communicate. This interface will be available for all internal users.

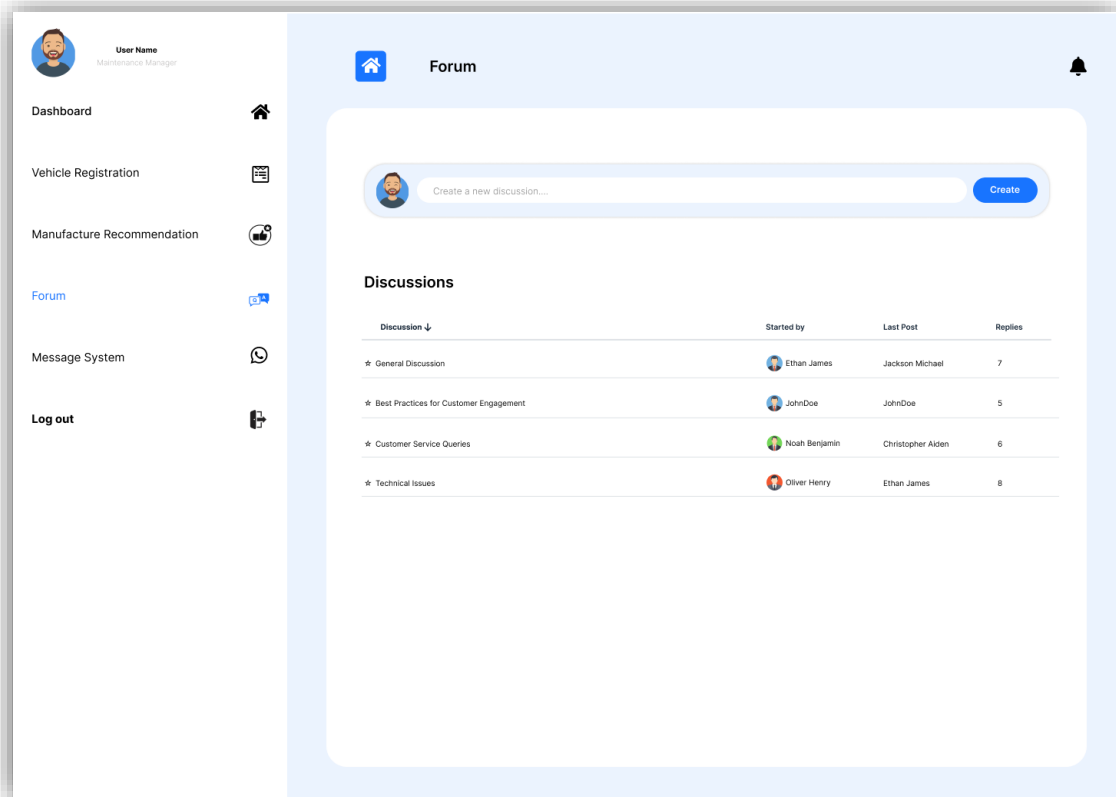


Figure 3.9.1.10-1

3.9.2 Hardware Interfaces

No specially made hardware will be required. System can be accessed via regular PC with internet connection with a up to date browser. An android or iOS mobile phone will be required to get the mobile app installed.

3.9.3 Software Interfaces

- REST API will be used to access back-end services to the web and mobile app.
- MongoDB driver API will be used to connect database.
- For Email Sending: The system will connect with an external email sending service to deliver automated notifications, confirmations, and marketing emails to customers. It is proposed to use Node mailer API.
- Google and Facebook APIs will be used for authentication services.

CRM System for vehicle Maintenance Centre	Version: 1.0
Software Requirements Specification	Date: 24/08/2023
Group-4-SRS-1.0	

3.9.4 Communications Interfaces

The HTTP protocol used for communication between server and client. Also the REST API though HTTP will be used use to communicate data between the different services of the application.

3.10 Database Requirements

The selected database solution for the system is expected to meet the following criteria.

- **Scalability and Performance:** The database should have the capability to efficiently handle and store user data. While the system mainly requires efficient execution of queries.
- **High Availability:** The database must ensure data accessibility with minimal delays whenever users require it.
- **Schema Flexibility:** The database should support storing items with varying attributes and structures.
- **Data Management:** The database should provide mechanisms for data backup to ensure the preservation of data in case of unexpected events, contributing to data safety and system reliability.

3.11 Licensing, Legal, Copyright, and Other Notices

The corresponding product is customized and copyrighted for the sole use of Car Care 360 Pvt. Ltd. The CRM system, including its source code, user interfaces, design assets are the intellectual properties of Car Care 360 Pvt Ltd. All rights, including copyright and ownership, are retained by Car Care 360 Pvt Ltd. Unauthorized reproduction, distribution, or modification of any part of the software or related materials is strictly prohibited without consent from the respective owners.

3.12 Applicable Standards

The system should comply with relevant data security standards to ensure the protection of customer data. The system adheres to relevant industry regulations and guidelines specific to vehicle maintenance and customer relationship management.

- IEEE Std 12207-2008 - provides a common framework for developing and managing software.
- IEEE 830-1998: Software Requirements Specification
- OAuth 2.0: These standards will govern authentication and authorization procedures.

4. Supporting Information