



Automotive Service Management System (PitStopPro)

Document Type: Requirements Specification

Version: 1.0

Date: October 2025

1. Introduction

Purpose:

PitStopPro is a cloud-based vehicle service management platform designed to connect customers, service managers, and mechanics through a seamless digital workflow. The system allows customers to book services, track service progress, and view service history. Service managers can assign work orders and monitor mechanics' activities.

Primary Users:

- **Customer** – Owns vehicles, books service appointments.
 - **Service Manager** – Manages bookings, assigns mechanics, oversees progress.
 - **Mechanic** – Works on assigned jobs, updates work order status.
 - **Admin** – Manages all user accounts and global system configurations.
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2. Functional Requirements

2.1 Customer

- Register / login / logout.
- View profile and edit personal details.
- Add and manage owned vehicles.

- Book vehicle service appointments.
- View booking status and past service records.
- Receive service notifications (email/WhatsApp planned).

2.2 Service Manager

- View all customers and vehicles.
- Approve or reject service requests.
- Assign mechanics to work orders.
- Update service progress and costs.
- Generate work summaries.

2.3 Mechanic

- View assigned work orders.
- Update job status (STARTED, IN_PROGRESS, COMPLETED).
- Log time and notes for each service.

2.4 Admin

- Manage users (add/remove managers, mechanics).
- Monitor service activity logs.
- Configure system-level settings (like garage locations).

3. Non-Functional Requirements

| Category | Requirement |
|----------|-------------|
|----------|-------------|

| | |
|------------------------|----------------------------------------------------------------------------------|
| Performance | The system should support 100+ concurrent users with response times < 3 seconds. |
| Scalability | Deployed as microservices, easily scalable using Eureka and API Gateway. |
| Security | JWT-based authentication, password encryption (BCrypt), HTTPS. |
| Availability | 99% uptime target. |
| Maintainability | Modular microservice architecture, well-documented APIs. |
| Usability | Clean, intuitive web interface using React.js + DaisyUI. |
| Portability | Compatible with all major browsers, deployable on AWS. |
| Data Integrity | Consistent vehicle–work order relationship enforced via JPA and transactions. |

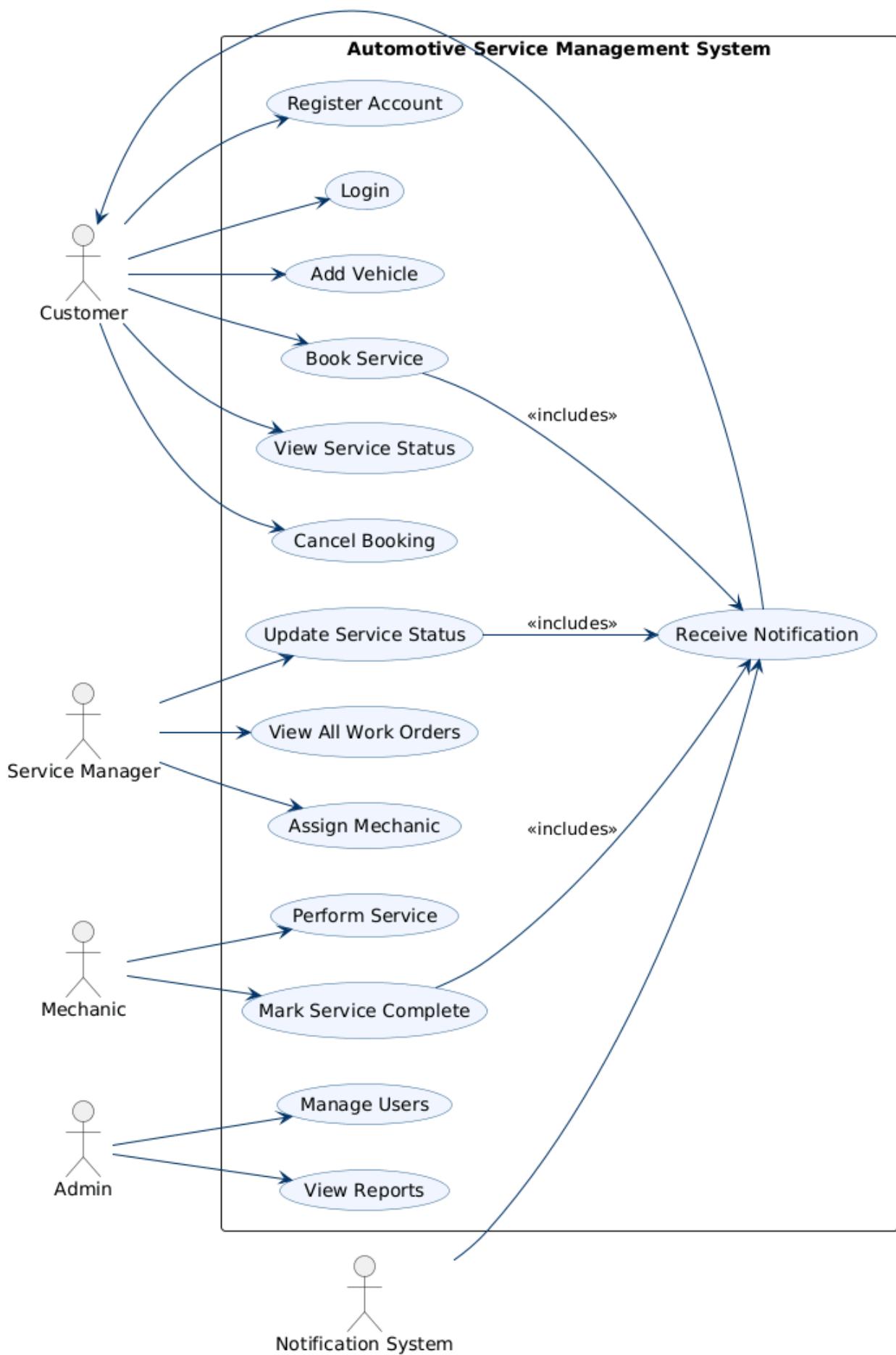
4. User Stories / Use Case Diagrams

4.1 User Stories

Link to the user stories document

 [User Stories Automotive Service Centre](#)

4.2 Use Case Diagram

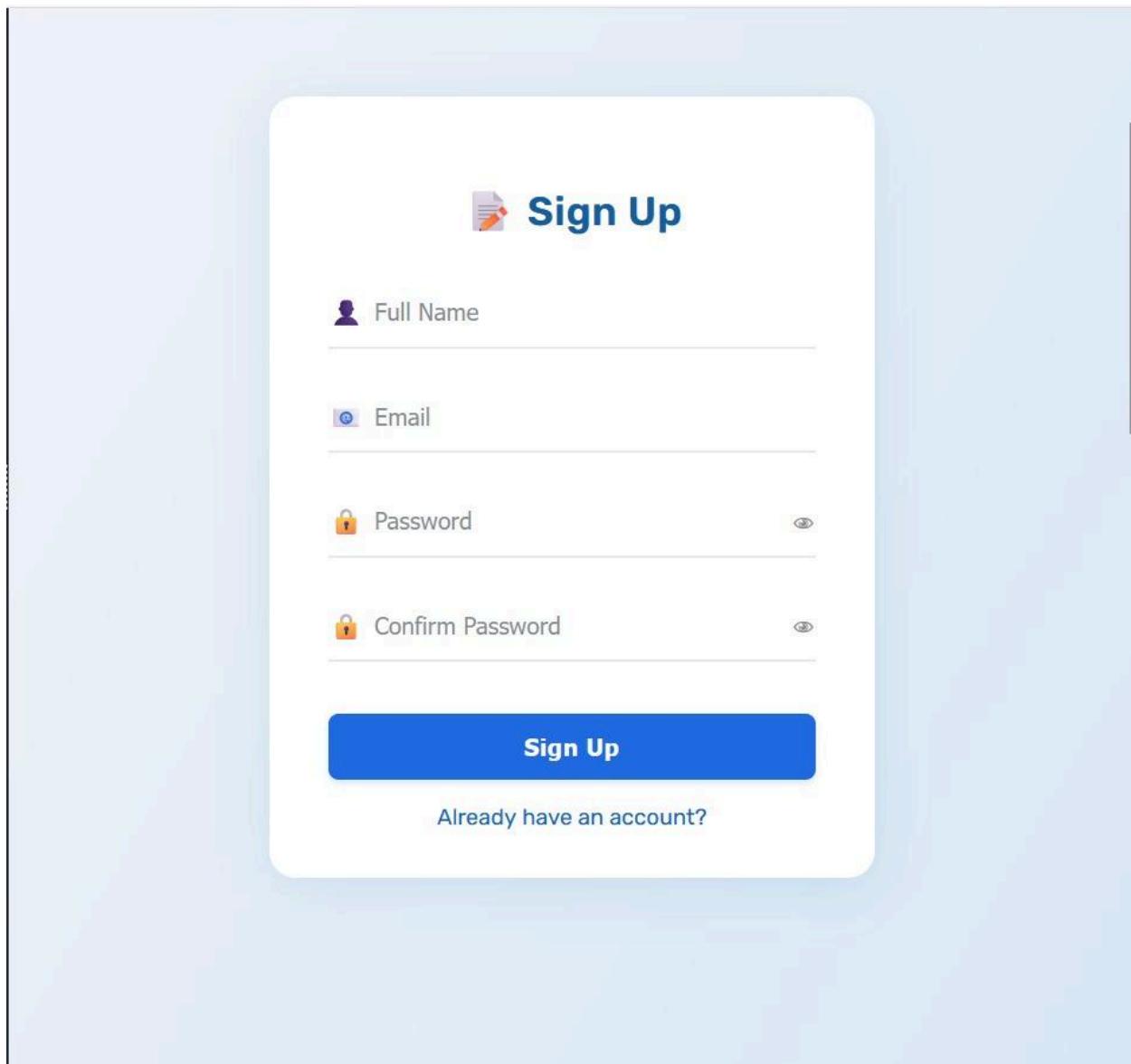


5. Interface Requirements

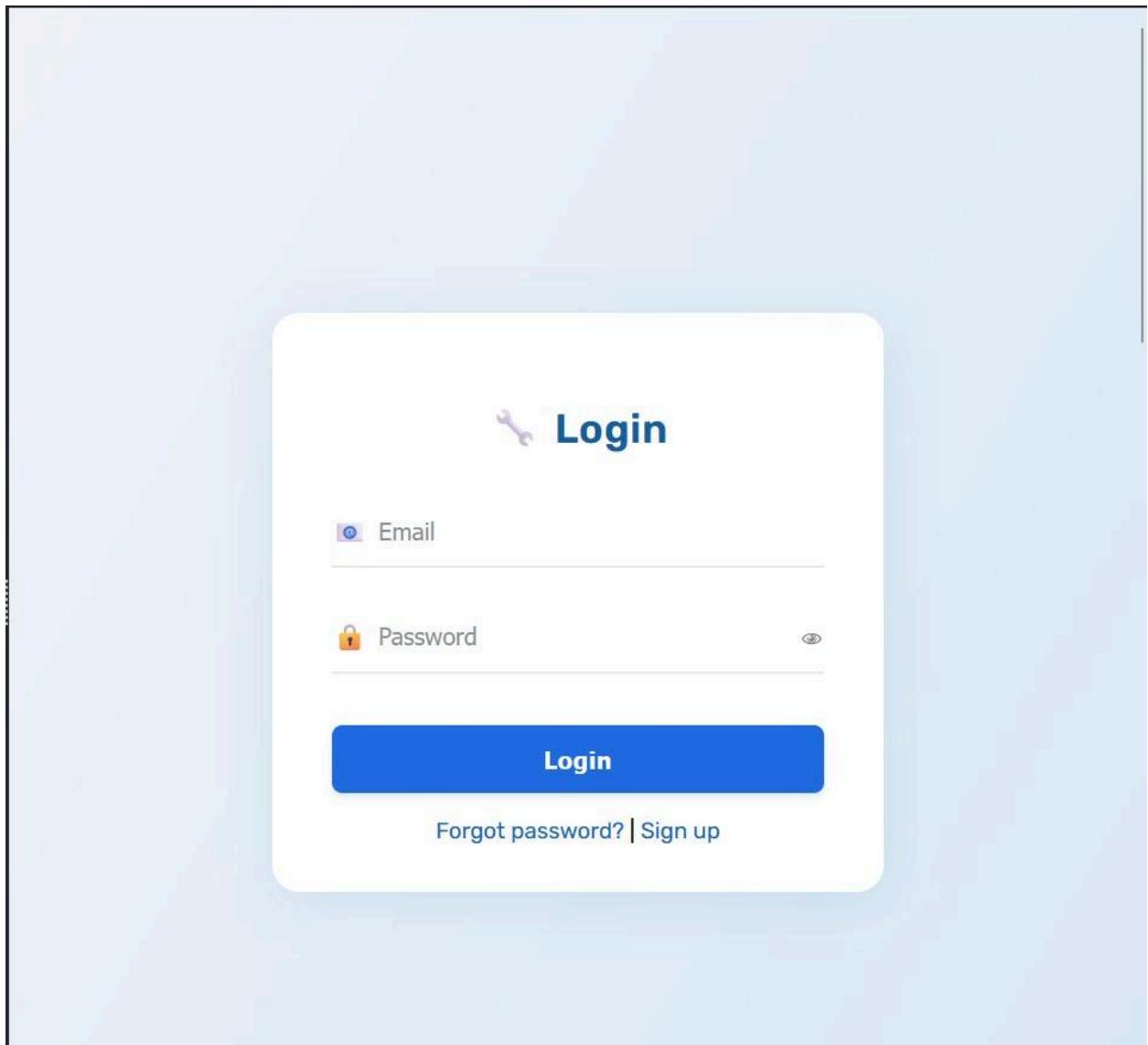
| Interface | Description | Technology |
|-------------------|-----------------------------------------------|-------------------------|
| Frontend | Customer and Manager dashboards | React + DaisyUI |
| Backend API | REST endpoints for all CRUD operations | Spring Boot |
| Database | Vehicle, WorkOrder, User entities | MySQL |
| Email Service | Notification templates for signup and service | Spring Mail + Thymeleaf |
| API Gateway | Unified entry point for all services | Spring Cloud Gateway |
| Service Discovery | Dynamic service registration | Eureka Server |

6. Wireframes / UI Mockups (Initial Draft)

1. Sign-up Page



2. Login



3. Customer Complaint Portal

Write your complaint here...

Submit Complaint

4. Service Manager Main

View Service Bookings

View Service History

About, Terms and Conditions

5. Customer dashboard after login

Manage Vehicles

Download Invoice

Contact Service Centre Helpline

Background image is blurred for better readability.

6. Customer Managed Vehicle Dashboard

Vehicle

Reg: GJ05AB1234

Service Date: 20
Aug 2025

Download Invoice

Vehicle

Reg: MH12XY9876

Service Date: 12 Jul
2025

Download Invoice

7. service manager view bookings



Reg. No: GJ05AB1234 Booking Date: 2025-09-08

Assign Mechanic



Reg. No: MH12CD5678 Booking Date: 2025-09-10

Assign Mechanic

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8. Mechanic Service Dashboard



Reg: MH12AB1234 Date: 05-Sep-2025

Do Service

Complete Service



Reg: GJ05XY5678 Date: 06-Sep-2025

Do Service

Complete Service

About Terms and Conditions

9. Customer Book Service Dashboard



Vehicle

Reg:
GJ05AB1234

Year: 2019

Honda City

[Book Service](#)

Vehicle

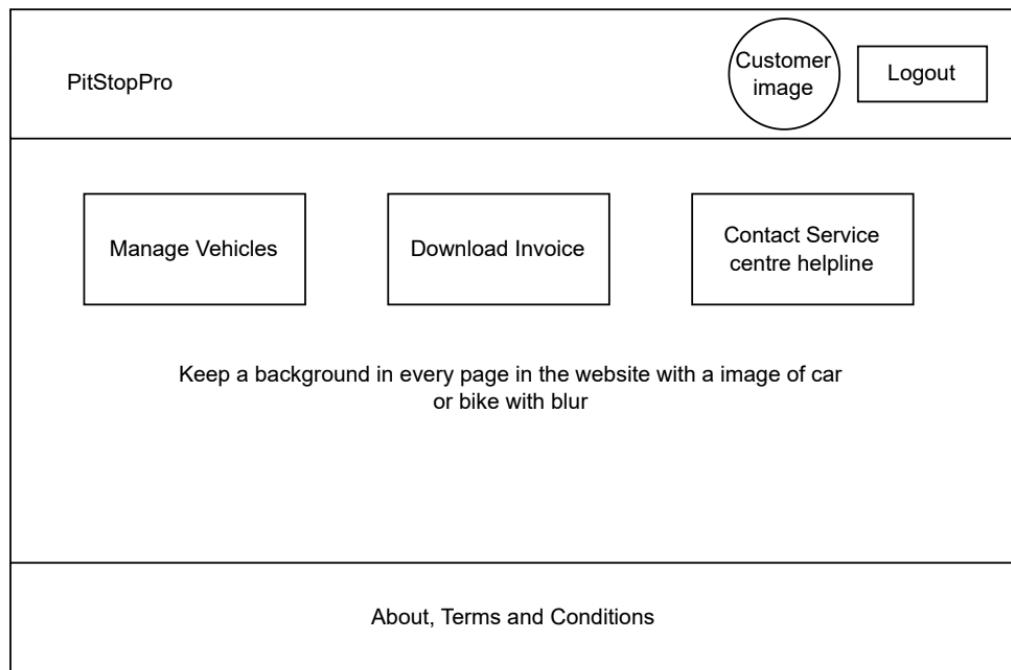
Reg:
MH12XY9876

Year: 2021

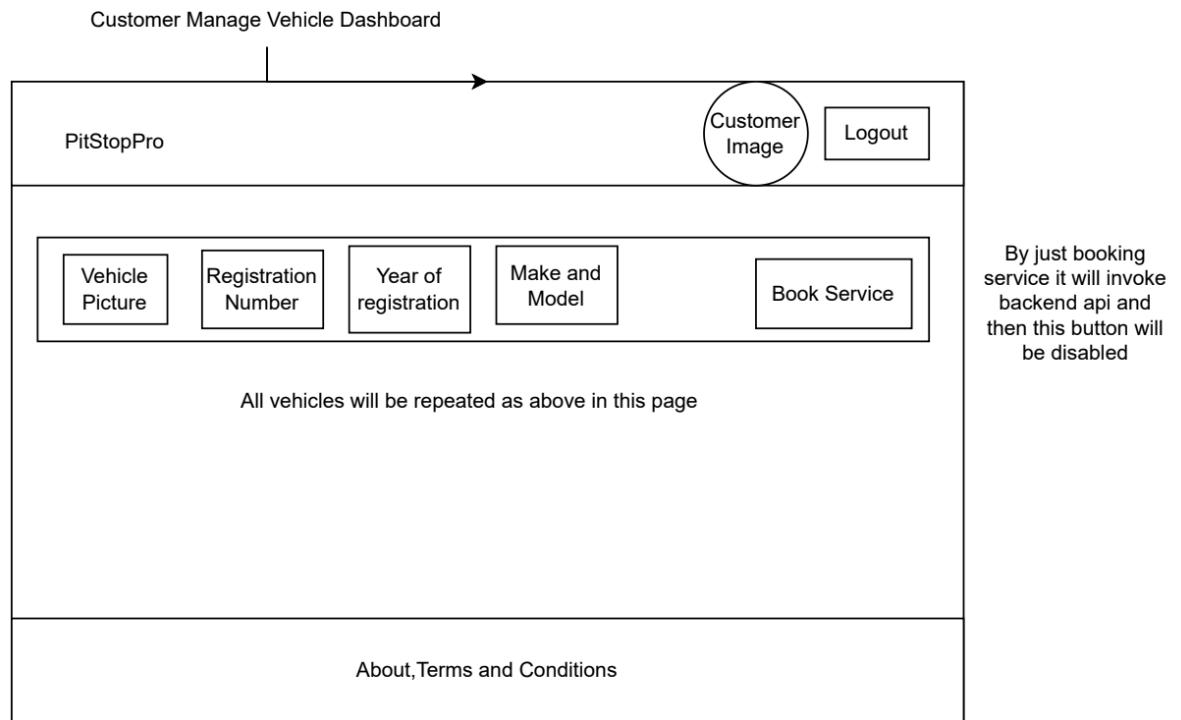
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Classic[Book Service](#)[About, Terms and Conditions](#)

10. Rough Customer Dashboard after login

Customer Dashboard after login



11. Rough Customer Manage Vehicle Dashboard



12. Customer contact service portal rough

Customer contact service centre help portal

| | | |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
| PitStopPro |  | Logout |
| Keep a box here (text area) where customer can write the complaints here | | |
| Submit Complaint | | |
| About Terms and Conditions | | |

13. download invoice page



Vehicle

Reg: GJ05AB1234

Service Date: 20 Aug
2025

Download Invoice

Vehicle

Reg: MH12XY9876

Service Date: 12 Jul
2025

Download Invoice

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7. Acceptance Criteria

| Feature | Acceptance Criteria |
|-----------------------|--------------------------------------------------------------------------------|
| User Registration | New users can register and receive a confirmation email. |
| Vehicle Management | Customers can add/view/delete their vehicles. |
| Service Booking | Customers can book service for a selected vehicle and see it in the dashboard. |
| Work Order Assignment | The manager can assign a mechanic and change status. |
| Notifications | Email sent on successful signup or service booking. |

API Gateway

All microservices accessible through a single base URL.
