

Automotive Service Management System (PitStopPro)

Document Type: Requirements Specification

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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.

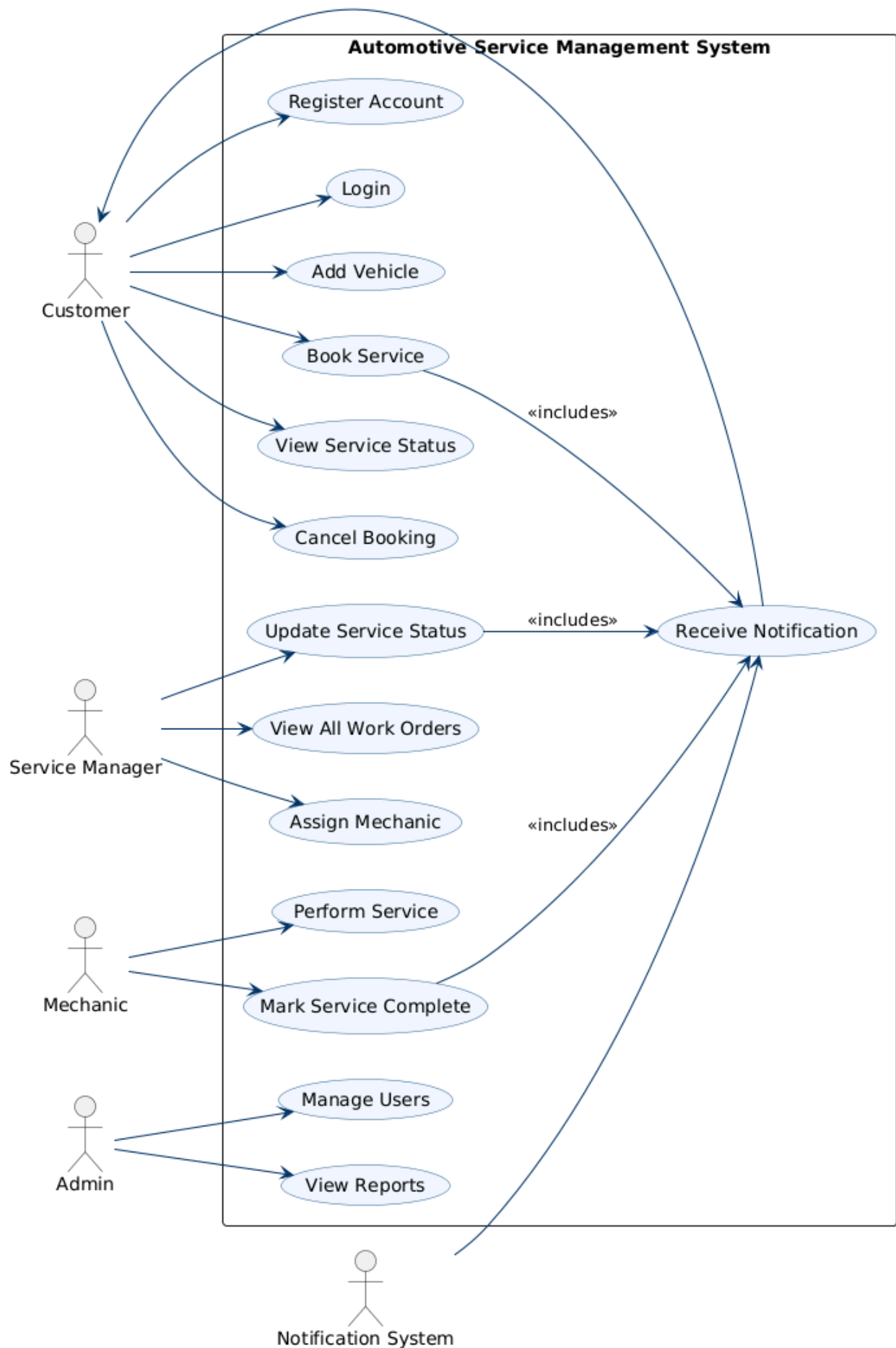
4. User Stories / Use Case Diagrams

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


 **Sign Up**


 Full Name

 Email

 Password



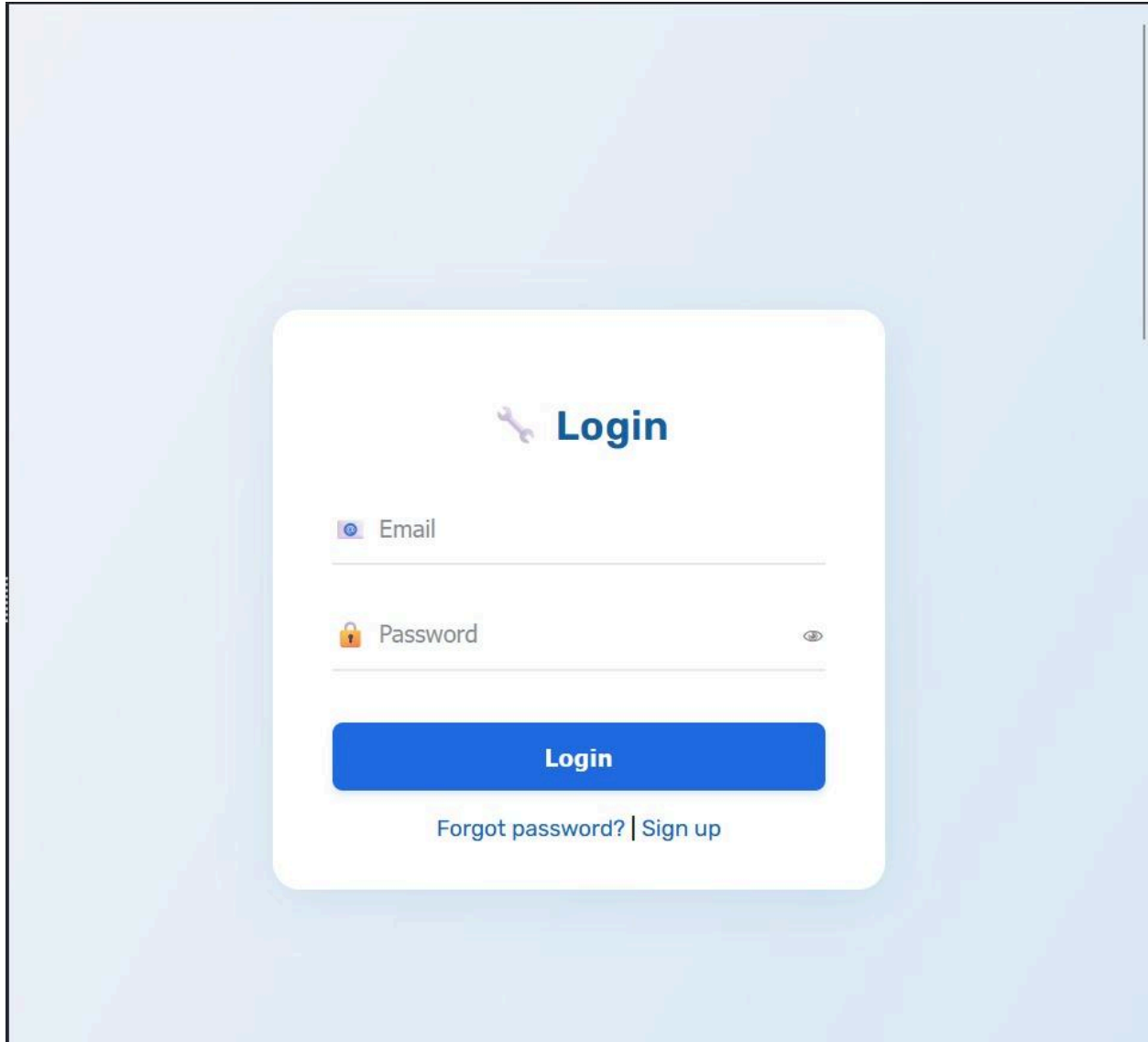
 Confirm Password



Sign Up

[Already have an account?](#)

2. Login

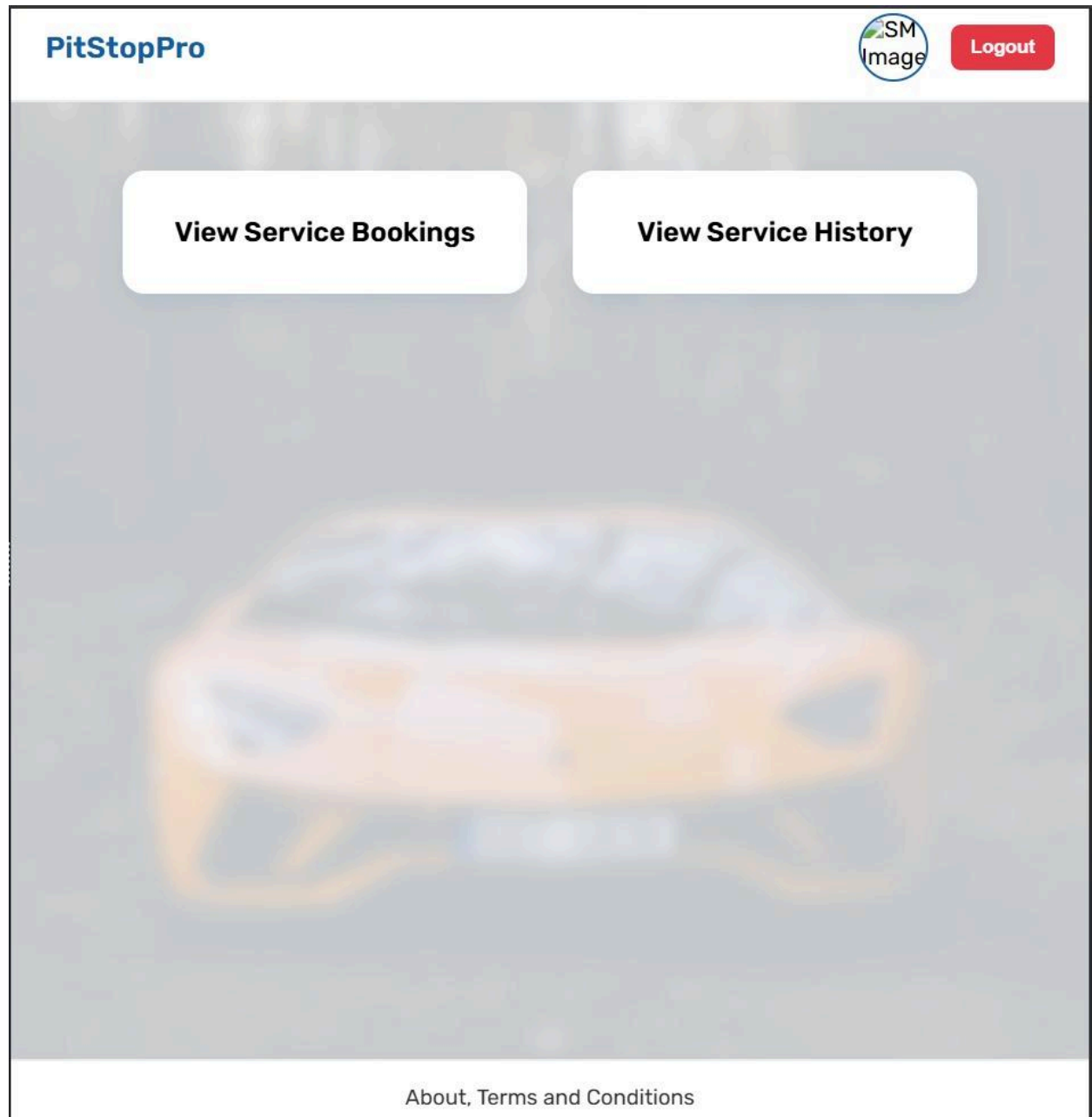


3. Customer Complaint Portal

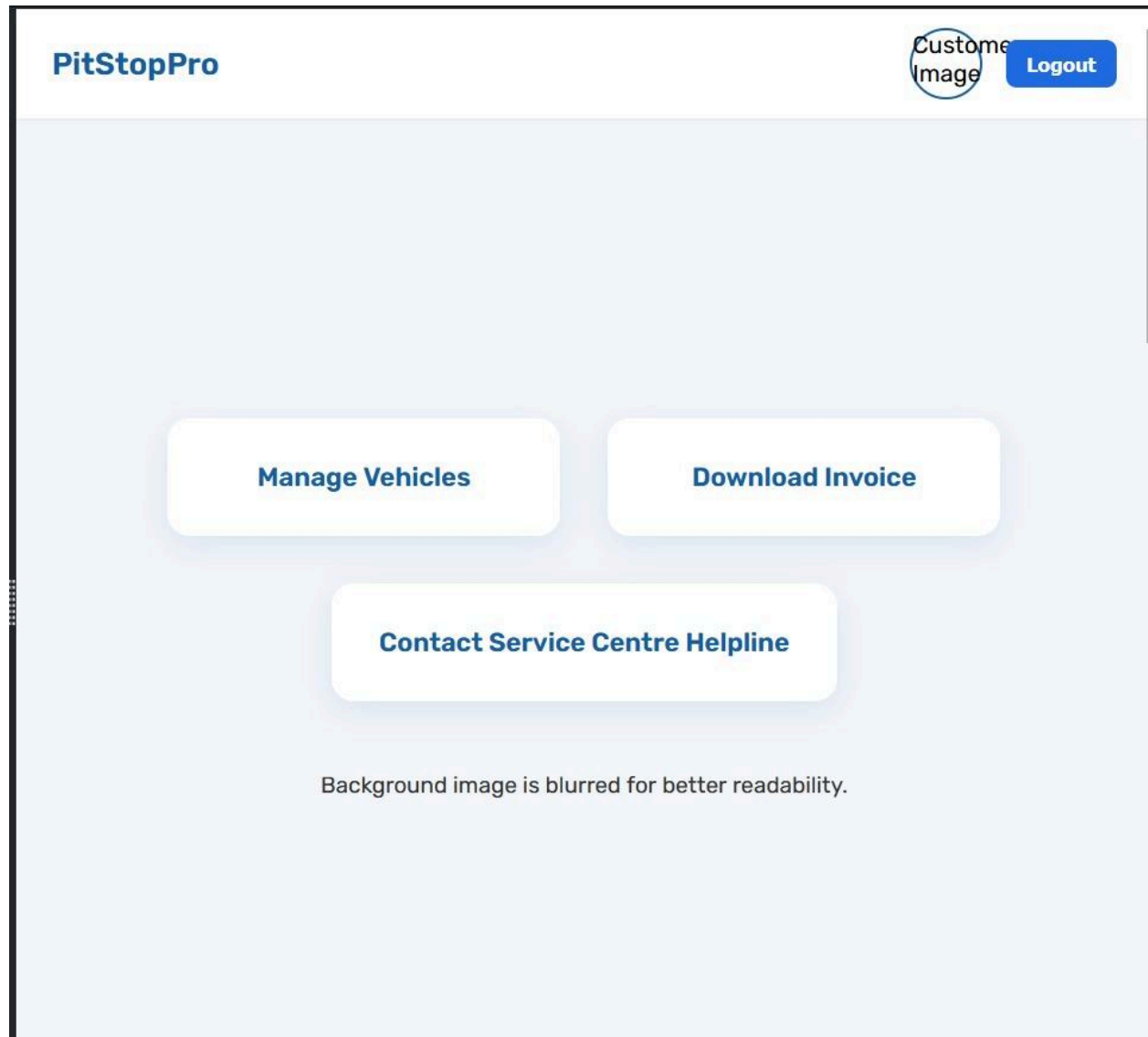
Write your complaint here...

Submit Complaint

4. Service Manager Main



5. Customer dashboard after login



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

PitStopPro

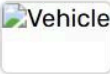


Logout

Vehicle

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

Assign Mechanic

Vehicle

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

Assign Mechanic

[About, Terms and Conditions](#)

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

Royal Enfield
Classic

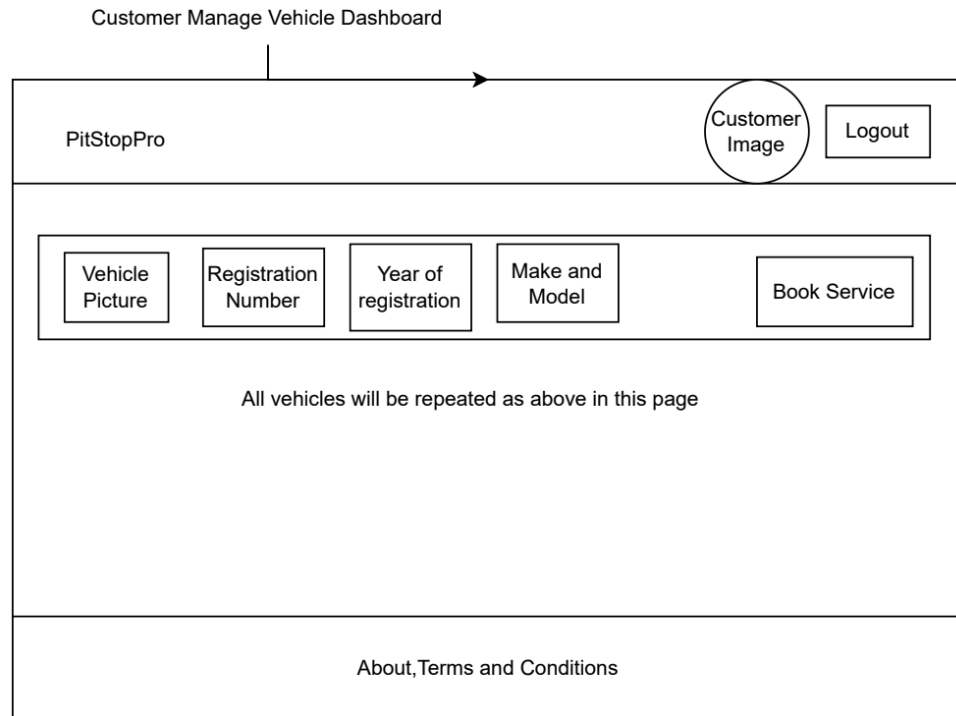
Book Service

10. Rough Customer Dashboard after login

Customer Dashboard after login

PitStopPro			<div>Customer image</div>	<div>Logout</div>
<div>Manage Vehicles</div>	<div>Download Invoice</div>	<div>Contact Service centre helpline</div>		
<div>Keep a background in every page in the website with a image of car or bike with blur</div>				
<div>About, Terms and Conditions</div>				


11. Rough Customer Manage Vehicle Dashboard



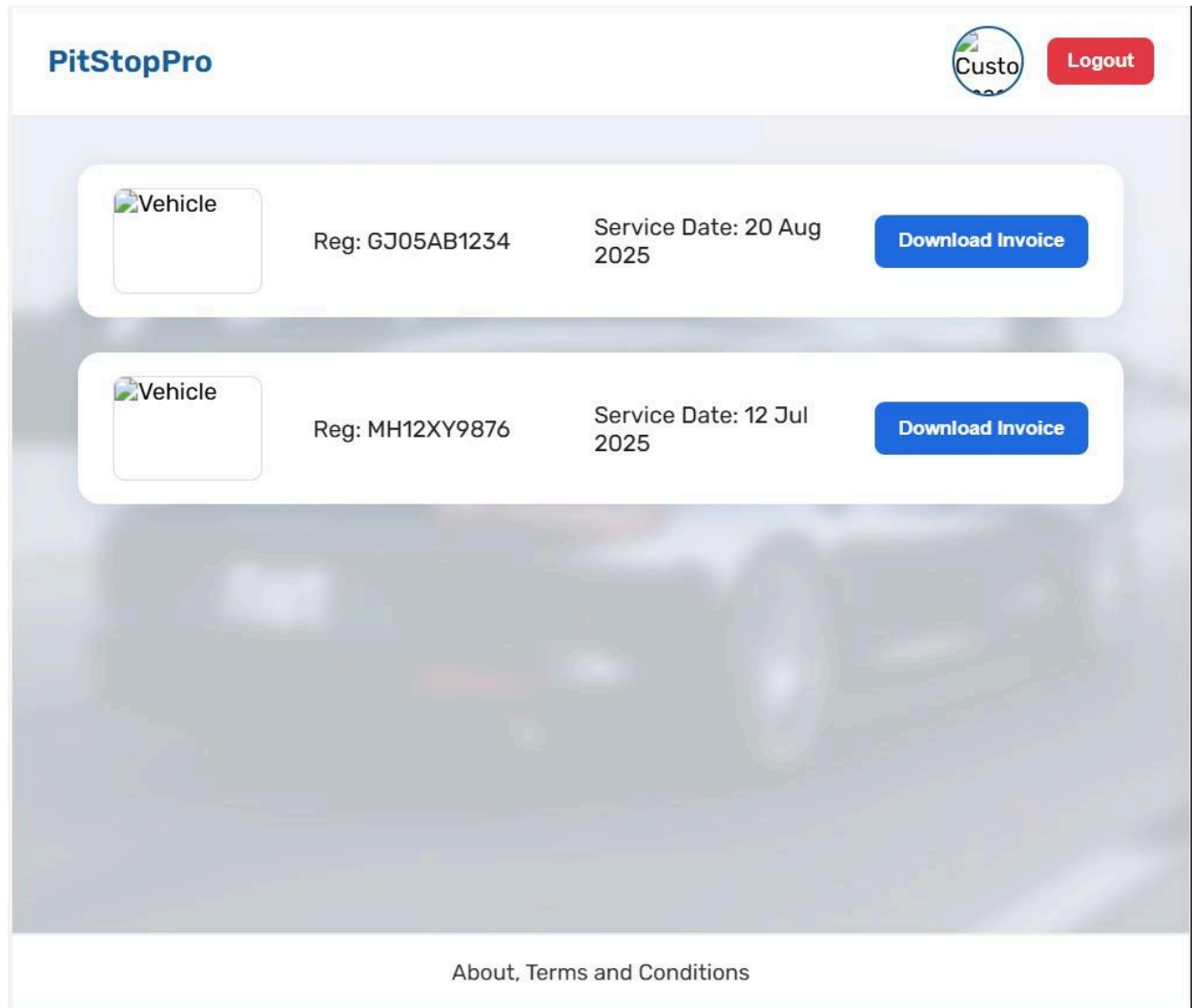
By just booking service it will invoke backend api and then this button will be disabled

12. Customer contact service portal rough

Customer contact service centre help portal

PitStopPro		Logout
<div>Keep a box here (text area) where customer can write the complaints here</div> <div>Submit Complaint</div>		
About Terms and Conditions		

13. download invoice page



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.
