
**ware Engineering**

# *CARBAZAR*

**Submitted By:**

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**Supervised By:**

**Mirza Ahsan Ullah**

# DECLARATION

I certify that project title **CARBAZAR** is under my supervision with students of **BS Software Engineering**, Faculty of Computing & Information Technology, University of Gujrat, Pakistan, worked under my supervision.

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Dated: September 26, 2025

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# Final Year Project Proposal

# Abstract

***CARBAZAR*** is a mobile and web-based platform dedicated to revolutionizing the automobile marketplace by integrating e-commerce with real-time vehicle auctions. The system will allow users to sign up as buyers or sellers, providing secure profile management features such as Google login, multi-factor authentication, and account settings. Sellers can showcase their vehicles for sale or auction by uploading descriptions, images, documents, and verified ownership links from government excise portals, ensuring trust and transparency. Buyers can browse through vehicles, use category filters, view auctions with countdown timers, bid live, and verify seller authenticity. The application includes wishlist functionality, seller ratings, map-based location visits, and direct chat options to enhance trustworthiness. An admin panel, developed in React, ensures full platform governance, including user verification, fraud prevention, and auction oversight. By providing a secure, transparent, and interactive marketplace, ***CARBAZAR*** aims to minimize fraud in automobile transactions and establish itself as a reliable digital hub for vehicle buying and selling.**CARBAZAR** is a hybrid automobile auction and sales platform designed to digitize vehicle trading while ensuring trust, transparency, and convenience. The system provides buyers and sellers with a secure marketplace where vehicles can be listed, auctioned, or sold directly. Core features include real-time auctions with countdown timers, detailed vehicle pages with images/documents, wishlist functionality, secure user roles (buyer/seller), and government excise portal integration for vehicle verification. Sellers can add business information and showroom details, while buyers benefit from profile personalization, live auction updates, and chat/contact with sellers. To minimize fraud, all users are verified through admin oversight with ID checks. The system comprises a **Flutter Android App** for buyers and sellers, and a **React-based Admin Panel** for system management.

## *1.1 Introduction*

The automobile industry is one of the most significant markets worldwide, yet traditional vehicle buying and selling still faces challenges such as fraud, lack of transparency, and inefficiency in auctions. **CARBAZAR** is designed to digitize this ecosystem by offering a mobile application built with Flutter and an admin dashboard in React.

The platform allows sellers to list cars for sale or auction while ensuring authenticity through official government excise portals. Buyers benefit from real-time auctions with live bidding, vehicle document verification, and seller ratings, creating trust and reducing fraud. The system also integrates advanced features like wishlist saving, city-based filtering, direct chat, and analytics for sellers to track vehicle visibility and engagement. By combining a modern e-commerce-like interface with robust administrative controls, **CARBAZAR** seeks to address the challenges of fraudulent activities and build a reliable, user-friendly digital automobile marketplace.

## *1.2. Project Title:*

The title of the project is *"**CARBAZAR**"*

## *1.3. Project Overview statement:*

The ***CARBAZAR*** project aims to create a digital automobile marketplace that merges e-commerce functionality with vehicle-specific requirements such as auctions, government verification, and real-time user interaction. Sellers can provide their business information, including garage/showroom details, office location, and verified documents, while buyers can participate in transparent bidding processes, explore vehicle listings, and save preferences.

Core innovations include:

- **Vehicle Auctions:** Real-time bidding with live updates and countdown timers.
- **E-commerce UI:** Category filters, price updates, and city-based searches.
- **Buyer-Seller Features:** Direct chat, comments, ratings, and wishlist.
- **Admin Security:** ID verification, fraud monitoring, and user management.
- **Recommendation System:** AI-based vehicle suggestions from user preferences.
- **Notification System:** Real-time push and email alerts for auctions and bids.
- **Seller Analytics:** Graphs, engagement metrics, and market insights.

## Project Overview Statement Template:

Project Title: ***CARBAZAR***

Project Members:

| Name | Registration # | Email Address |
| --- | --- | --- |
| Nouman Amjad | 22011598-160 | 22011598-160 @uog.edu.pk |

Project Goal: The goal of the CARBAZAR project is to provide a **secure, transparent, and user-friendly digital automobile marketplace** where buyers and sellers can connect, participate in real-time vehicle auctions, and ensure authenticity through government verification, reducing fraud and inefficiency in traditional car trading.

Objectives: The goal of the CARBAZAR project is to provide a **secure, transparent, and user-friendly digital automobile marketplace** where buyers and sellers can connect, participate in real-time vehicle auctions, and ensure authenticity through government verification, reducing fraud and inefficiency in traditional car trading.

Sr.#

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| --- | --- |
| 1 | Provide secure access to the automobile marketplace digitally. |
| 2 | AI-based vehicle suggestions from user preferences. |
| 3 | Reduce fraudulent activities by ensuring authenticity through official excise portals. |
| 4 | Save buyers' time and cost with digital filters, wishlist, and direct chat. |

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| --- | --- |
| 5 | Facilitate admin authorities to monitor fraud, verify users, and ensure transparency. |
| 6 | Provide dealers and businesses with analytics and visibility to expand their reach. |

Project Success criteria:

User adoption and retention.
Accessibility of real-time vehicle data.
Smooth user experience via mobile and web platforms.
Cost and time savings for both buyers and sellers.
Customer satisfaction through trust and verified data.
Wide market coverage with city and category-based searches.

Assumptions, Risks and Obstacles:

**Risks**

- Regulatory and legal compliance regarding government data integration.
- Technical challenges in real-time auctions and verification APIs.
- Risk of cyber threats or fraudulent user attempts.

**Assumptions**

- Market expansion as digital adoption increases.
- Secure storage of user and vehicle data.
- Continuous support from government excise portals for verification.

**Obstacles**

- Strong competition from existing platforms.
- Market verification challenges in some regions.
- Resistance to shift from traditional buying/selling methods.

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| Type of project: | Research | ✔ Development |

Target End users:

- Car Buyers
- Car Sellers (individuals, garages, showrooms)
- Car Enthusiasts
- Dealers/Businesses
- Institutions with fleets
- Admin Authorities

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| Development Technology: | ✔ Object Oriented | Structured |
| Platform: | ✔ Web based | Distributed ✔ App |

Approved By: Respected Mirza Ihsan Ullah

Date: 23 September 2025

## *1.4. Project Goals & Objectives:*

**Goals:**

1. Establish a secure and transparent digital automobile marketplace.
2. Enable real-time vehicle auctions with interactive bidding.
3. Build user trust through government data integration and seller verification.

4. Provide buyers with enhanced decision-making tools (filters, wishlist, ratings).
5. Ensure fraud prevention and accountability via a strong admin panel.

**Objectives:**

1. Develop a Flutter-based mobile app for buyers and sellers.
2. Build a React-based admin panel for system management.
3. Integrate Google authentication, multi-factor login, and profile settings.
4. Implement auction functionality with live bidding and countdown timers.
5. AI-based vehicle suggestions from user preferences.
6. Enable map embedding for location-based selling and visiting.
7. Launch wishlist, seller analytics, and rating systems.
8. Deploy fraud prevention measures with admin oversight.

## *1.5. High-level system components:*

The CARBAZAR platform is composed of several high-level functional units that collectively provide a secure, transparent, and interactive automobile marketplace. Each component contributes to the overall system mission by handling specific inputs, processes, outputs, and stored data. The main high-level components are as follows:

**1. User Management Component**

- **Inputs:** User credentials, authentication tokens, profile details, verification documents.
- **Processes:** Google sign-in, multi-factor authentication, role assignment (buyer/seller), profile updates, and document validation.
- **Outputs:** Authenticated user sessions, verified user identities, personalized dashboards.
- **Stored Data:** User profiles, authentication logs, verification records.

**2. Vehicle Listing & Auction Component**

- **Inputs:** Vehicle details (descriptions, images, documents, showroom info), auction setup data (start time, base price, countdown).
- **Processes:** Vehicle listing creation, auction scheduling, real-time bidding, and status updates.

- **Outputs:** Public listings of vehicles, live auction feeds, bid notifications, winner announcements.
- **Stored Data:** Vehicle records, auction details, bidding history.

**3. Buyer Interaction Component**

- **Inputs:** Buyer search queries, wishlist additions, chat messages, ratings/reviews.
- **Processes:** Filtering/searching vehicles by brand, price, or city; wishlist management; direct chat with sellers; providing ratings.
- **Outputs:** Search results, wishlist updates, communication threads, rating feedback.
- **Stored Data:** Buyer preferences, chat history, rating logs.

**4. Admin Panel Component**

- **Inputs:** User verification requests, fraud alerts, system monitoring logs.
- **Processes:** Reviewing and approving/verifying users, monitoring auctions, detecting/reporting fraudulent activity, managing listings.
- **Outputs:** Verified user accounts, blocked accounts in case of fraud, compliance reports.
- **Stored Data:** Admin logs, fraud detection data, system audit records.

**5. System Infrastructure Component**

- **Inputs:** API requests from mobile and web clients, authentication calls, database queries.
- **Processes:** Backend services (Node.js/Express) handling requests, Firebase storage and authentication, real-time updates.
- **Outputs:** RESTful API responses, real-time auction updates, secure data transactions.
- **Stored Data:** Centralized user/vehicle/auction database, authentication tokens, analytics data.

## *1.6. Application Architecture:*

- **Client Layer (Frontend):**
    - Technology: Flutter (mobile), React (admin panel)
    - Components:
    - Mobile UI for browsing, auctions, and profiles
    - State management (Provider/Bloc for Flutter, Redux for React)
- **Application Layer (Backend):**

- Technology: Node.js with Express
- Components:
  - RESTful APIs for auctions, users, and vehicles
  - Authentication (JWT, OAuth for Google sign-in)
  - Business logic for bidding, seller verification

- **Database Layer:**

- Technology: FireBase
- Components:
  - Users, vehicles, auctions, bids, chats, ratings

- **Admin Panel:**

- Technology: React + Node.js
- Components:
  - User verification via ID documents
  - Vehicle listing monitoring
  - Fraud detection and reporting tools

## *1.7. Gantt chart for CARBAZAR Project (Sept 30, 2025 - June 2026)*

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| 1. Project Kickoff | Sep 29, 2025 | Oct 1, 2025 | 3 days |
| 2. Requirements Gathering | Oct 2, 2025 | Oct 15, 2025 | 14 days |

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| 3. System Design | Oct 16, 2025 | Oct 29, 2025 | 14 days |
| 4. Development Phase 1 (Basic Features – Signup/Login, Profiles) | Oct 30, 2025 | Nov 26, 2025 | 28 days |
| 5. Development Phase 2 (Vehicle Listings, Filters, Sale Features) | Nov 27, 2025 | Dec 24, 2025 | 28 days |
| 6. Development Phase 3 (Auctions, Government Verification, Chat, Maps) | Dec 25, 2025 | Jan 21, 2026 | 28 days |
| 7. Testing Phase | Jan 22, 2026 | Feb 18, 2026 | 28 days |
| 8. Deployment | Feb 19, 2026 | Feb 25, 2026 | 7 days |
| 9. Training & Support | Feb 26, 2026 | Mar 4, 2026 | 7 days |
| 10. Project Closure | Mar 5, 2026 | Mar 11, 2026 | 7 days |

## *1.8. Hardware and Software Specification:*

**Hardware:**

- Processor: Intel i5 or higher (x64)
- RAM: 8 GB minimum
- Storage: 256 GB SSD

**Software:**

- OS: Windows 10 / Ubuntu 24.04
- Frontend: Flutter, React
- Backend: Node.js, Express
- Database: MongoDB
- Tools: GitHub, Android Studio, VS Code

## *1.9 Estimated Cost:*

The estimated cost of ***CARBAZAR*** development (design, development, hosting, testing, and maintenance) is approximately **PKR 70,000**.

## *1.10 Project milestones and deliverables*

- Proposal submission
- UI design & prototyping
- Frontend (mobile app) development
- Backend development & database integration
- Auction feature implementation
- Admin panel completion
- Testing & bug fixing
- Final deployment

## *1.11 Project division*

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| 1 | Nouman Amjad | Frontend, Backend Development, Admin Pannel, Integration & Testing |