

AutoHub Project Proposal

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Open Window, School of Fundamentals

Interactive Development 200

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Table of Contents

Client Conceptualisation & Problem Statement.....	3
System Architecture.....	4
Feature Requirements & Scope.....	4
Scope Includes:	4
Data Planning	6
Entity-Relationship Diagram (ERD):.....	6
Wireframes & UI/UX Considerations.....	8
Project Timeline & Workflow.....	12
Risks, Challenges & Conclusion.....	13

Client Conceptualisation & Problem Statement

Overview:

AutoHub is a CRUD-based web application built for the car enthusiast community. It serves as a digital hub where users can create profiles, showcase their vehicles, share modification updates, browse other car builds, and buy/sell car parts or vehicles via a marketplace.

Problem Statement:

The car enthusiast community lacks a centralised, community-driven platform tailored to their niche needs. Currently, users depend on scattered Facebook groups, forums, or generic marketplaces which lack car-specific features like mod logs or custom build profiles.

Necessity:

AutoHub offers a dedicated digital space with features specifically designed for petrolheads: vehicle galleries, community feeds, and a marketplace. This software will promote connection, expression, and secure trading within the car community.

Constraints:

- Image uploads must be optimised to reduce cloud storage costs.
- Content moderation system will be minimal for MVP.

Brand Identity:

- **App Name:** AutoHub
- **Logo:**



System Architecture

High-Level Architecture Diagram Includes:

- **Frontend:** React (TypeScript)
- **Backend:** Node.js with Express.js
- **Database:** MySQL (hosted on cloud service)

Interactions:

- React sends HTTP requests to Express API
- Express handles routing, authentication, and validation
- MySQL stores all persistent data

Technology Justification:

- **React:** Ideal for fast, responsive UIs and reusable components.
- **Node.js/Express:** Lightweight, asynchronous, and ideal for CRUD REST APIs.
- **MySQL:** A relational database suited for managing structured, related data like users, vehicles, and marketplace listings.

Feature Requirements & Scope

Scope Includes:

- Authentication (JWT-based login/signup)
- User Profiles with car galleries
- Vehicle CRUD
- Community Post CRUD
- Marketplace Listings CRUD
- Admin dashboard

Scope Excludes:

- Real-time messaging
- Payment gateway integration

SMART Objectives:

- Develop an MVP by Week 10 with all CRUD operations functional
- Deploy on at least one cloud provider by Week 11
- Achieve responsive layout across devices by Week 8

Feature Prioritisation:

- **MVP:** Authentication, Profile Management, Vehicle Management, Marketplace
- **Nice-to-Have:** Post reactions (likes), Image cropping
- **Future Considerations:** Chat system, Car meet events

User Roles:

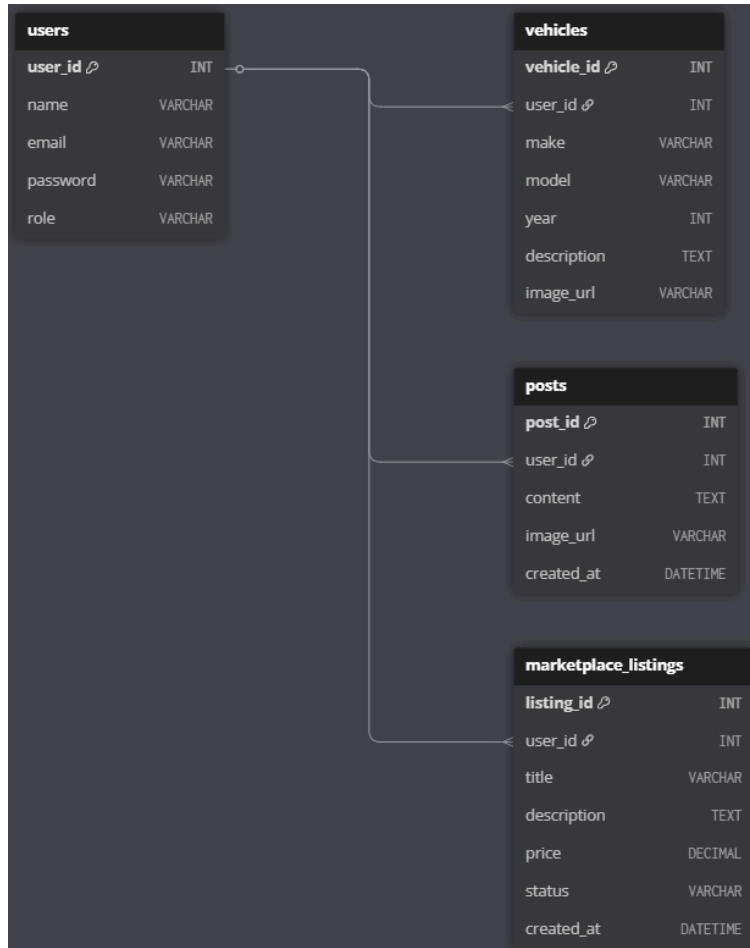
- **Standard User:** Full access to profile, cars, and marketplace
- **Admin:** Content moderation & user management

User Stories:

- As a user, I want to add a new vehicle with images so I can showcase my build
- As an admin, I want to delete inappropriate listings
- As a visitor, I want to browse public profiles without logging in

Data Planning

Entity-Relationship Diagram (ERD):



Explanation:

The ER diagram illustrates the relationships between users, vehicles, posts, and marketplace listings. Each entity is connected through foreign keys referencing **user_id** to ensure integrity.

Key Tables:

- **users** (user_id, name, email, password, role)
- **vehicles** (vehicle_id, user_id, make, model, year, description, image_url)
- **posts** (post_id, user_id, content, image_url, created_at)
- **marketplace_listings** (listing_id, user_id, title, description, price, status, created_at)

Constraints:

- **Unique:** email
- **Foreign keys:** vehicles, posts, and listings link to users
- **Enum:** user roles and listing status

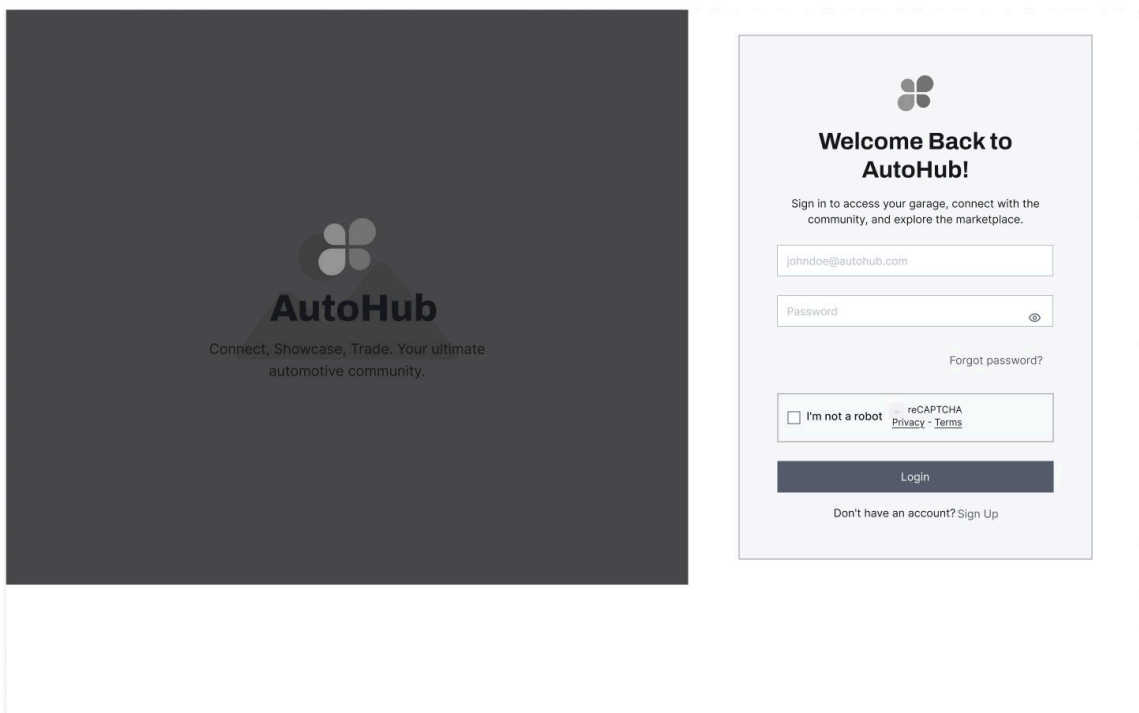
Wireframes & UI/UX Considerations

Moodboard:

- Dark theme with metallic accents inspired by car interiors
- Fonts: Eurostile or Roboto
- Visual style: Techy, clean, modern with hints of racing aesthetics

Wireframes:

- Login Page
- Dashboard (User Home)
- Vehicle Management Page
- Marketplace
- Post Feed



AutoHubCommunityMarketplaceMy Garage

Search for cars, parts, or users

Explore Communities

All Discussions

Build Logs

Marketplace Deals

Upcoming Events

Tips & Tricks

Member Spotlight

Start a new discussion or share an update

Motor_Meat_Mike

7 hours ago

15,000

2,345

Just finished installing the new fuses on my Sundt Th power delivery is mind-blowing. Can't wait to hit the dyno next week! What's everyone else working on this weekend?

Share

Trending Posts

The 10 Best Cars of 2023

Get Detailed Guide for Beginners

Review New Performance Tires

How to Choose Your First Project Car

Rally Queen, Mike

5 minutes ago

What a blast at the local autocross event! My Subaru WRX performed flawlessly. Managed to share all 10 seconds from my previous best time and got tips for improving cornering speed!

Share

Classic_Rider_Ken

2 hours ago

Restoring this vintage Ford Mustang Fastback. Found some original parts today! It's a slow process but incredibly rewarding. Any other classic car restorers out there?

Share

EV_Enthusiast_Zoe

10 min ago

Just picked up my new electric sports car! The instant torque is addictive. Excited to join the EV community here on AutoHub. Any charging tips for long road trips?

Share

Drift_King_Jake

1 hour ago

Practicing some tandem drifts with the crew tonight. Setting timer at transitional Always learning. Check out the drone footage from last session!

Share

Custom_Paint_Olivia

2 weeks ago

New custom paint job on a client's show car! This metallic blue really pops in the sun. What are your favorite custom paint colors?

Share

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My Garage

8

Total Vehicles

2

Featured

3

Upcoming Events

Add New Vehicle

Showcase your ride by adding a new car profile to your garage. Include stunning images and detailed descriptions.

Drag & drop your vehicle image here, or click to browse

Make

Model

Year

Color

Description

Tell us about your vehicle...

+ Save New Vehicle

Nissan Skyline R31 GT5

Nissan Skyline R31 GT5 (1994)

Legendary JDM icon, a true tuner's dream with AWD and twin-turbo power. Known for

View Details

Porsche 911 GT3 (1997)

Porsche 911 GT3 (1997)

Track-focused perfection with a naturally aspirated flat-six and sublime handling.

View Details

Ford Mustang Shelby GT500

Ford Shelby GT500 (2013)

American muscle redefined, supercharged V8 delivering immense power and

View Details

Toyota Supra MK4

Toyota Supra MK4 (1998)

The timeless Japanese legend, highly tunable 2JZ engine and iconic design. A

View Details

BMW M3 E90

BMW M3 E90 (2008)

Precision Bavarian engineering, combining daily usability with track capability. A

View Details

Honda NSX (NA1)

Honda NSX (NA1) (1994)

The Japanese Ferrari, a mid-engine marvel known for its reliability and handling

View Details

Mazda RX-7 (FD3S)

Mazda RX-7 (FD3S) (2001)

A rotary engine masterpiece, offering unique driving dynamics and a distinct,

View Details

Audi R8 V10

Audi R8 V10 (2020)

Everyday supercar with a glorious V10 engine, combining luxury with thrilling

View Details

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Search for cars, parts, or more...

Custom 2020 Honda Civic Type R - Heavily Modified

R 745,494.63

UsedHonda2020

Description

This meticulously maintained 2020 Honda Civic Type R is a true enthusiast's dream, boasting an extensive list of high-performance modifications and a stunning exterior. With only one owner and a clean title, this car has been lapped and regularly serviced. It's built for both track performance and daily driving comfort, delivering an exhilarating experience every time. The engine has been professionally tuned and all modifications were installed by certified technicians. Ready for its next adventure, whether it's conquering winding roads or turning heads at car meets.

Specifications

Make
Model
Year
Mileage
Engine
Transmission
Location

About the Seller

Alex "Dearhead" Chen
@ Cape Town, South Africa

R 745,494.63

Message Seller

Add to Watchlist

Share Listing

More Listings You Might Like

2022 Ford Mustang GT Premium
R 684,083.41
View Details

2018 Porsche 911 Carrera S
R 1,490,989.25
View Details

2021 BMW M3 Competition
R 1,262,955.60
View Details

2017 Nissan GT-R Black Edition
R 1,666,399.75
View Details

1991 Mazda RX-7 FC3S
R 491,149.40
View Details

2023 Audi RS7 Sportback
R 2,017,220.75
View Details

2020 Mercedes-AMG C63 S
R 1,192,791.40
View Details

2022 Subaru WRX STI Limited
R 798,117.78
View Details

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AutoHubCommunityMarketplaceMy Garage

Search for cars, parts, or more...

Marketplace

Featured Listings

1969 Ford Mustang Fastback
Sport classic muscle car, meticulously restored with a powerful V8 engine. A true head-turner.
R 1,315,578.75
View Details

Toyota Supra MK4 Turbo
Legendary JDM sports car, highly sought after by collectors and tuners. Immaculate condition.
R 1,098,315.63
View Details

Jeep Wrangler Rubicon Unlimited
Fully customized off-road beast with lifted suspension and new tires. Ready for any
R 857,757.35
View Details

Audi R8 V10 plus
Exquisite hypercar with a 5.2L V10 engine, combining luxury & performance.
R 1,719,022.90
View Details

Shop by Category

Cars

Trucks

Motorcycles

Performance Parts

Exterior

Interior

Wheels & Tires

Tools & Equipment

All Listings

Search listings...

Category

Condition

Make

Sort By

Newest

Min Price

Max Price

Apply Filters

Clear Filters

Forged Alloy Racing Wheels (Set of 4)
R 49,114.94
@ Durban, South Africa
Used - Excellent
New
A SpeedDemon Parts

Recaro Sportster CS Seats (Pair)
R 28,311.58
@ Durban, South Africa
Used - Excellent
A TrackDay Gear

Garrett GT35R Turbo Kit
R 21,049.26
@ Pretoria, South Africa
Used - Good
A BoostUp Performance

Audi S5 OEM LED Headlights (Pair)
R 18,064.00
@ Chicago, IL
New
A LuxuryCar Parts

Borla Cat-Back Exhaust System
R 13,692.02
@ Fort Lauderdale, South Africa
Used - Minor Scratches
A SoundWave Motors

Carbon Fiber Rear Spoiler
R 7,693.47
@ Western Cape, South Africa
New
A AeroDynamics

Brembo GT Brake Kit Front
R 56,131.36
@ Johannesburg, South Africa
Used - Good
A StopFast Racing

Ohlins Road & Track Coilovers
R 36,836.21
@ Pretoria, South Africa
New
A RideComfort Tuning

MOMO Racing Steering Wheel
R 5,262.32
@ Cape Town, South Africa
Used - Like New
A ErgoRacing

Haltech Elite 2500 ECU
R 31,573.89
@ Johannesburg, South Africa
New
A EngineLab Tech

BlackVue DR900X Plus Dashcam
R 6,139.37
@ Pretoria, South Africa
New
A RoadGuard Safety

JL Audio 12Wv3 Subwoofer
R 10,524.63
@ Western Cape, South Africa
Used - Excellent
A Soundheads Audio

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UI Framework Justification:

- **React:** Component-driven, allows efficient UI reuse (e.g., Card for Vehicle vs Listing)

Accessibility:

- High-contrast design
- Tab navigation
- ALT tags on all images

Project Timeline & Workflow

Week	Milestone
1	Finalise planning document + ERD
2-3	Set up database schema and Express.js API structure
4-5	Implement authentication and user CRUD
6-7	Build vehicle and post features
8	Add marketplace listing functionality
9	UI/UX polish, responsive layout adjustments
10	Begin cloud deployment (Vercel, Railway)
11	Device testing, bug fixing, accessibility pass
12	Final documentation and submission

Tools:

- GitHub (version control)
- Postman (API testing)

Risks, Challenges & Conclusion

Risks:

- **Image upload issues:** May exceed file size limits
- **Cloud configuration:** Learning curve for deploying MySQL alongside Express
- **User data privacy:** Risk if proper security is not enforced

Mitigation Strategies:

- Limit image sizes and compress before upload
- Start cloud deployment trials early (Week 10)
- Use environment variables and hashed passwords for security

Conclusion:

AutoHub is a purpose-built application designed to solve real needs in the car enthusiast space. It offers targeted features, a scalable stack, and a clear development plan that aligns with DV200's full-stack, CRUD-focused requirements.