

# PARTS FINDER

IT&C 350 DATABASE DESIGN PROJECT

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## PROJECT OVERVIEW

### OBJECTIVE STATEMENT

Create an app that helps car enthusiasts sort local junkyards for specific makes and models of cars to pull parts from.

### PROJECT STAKEHOLDERS

- Target Users
  - The Parts Finder site will primarily be used by individuals seeking spare car parts from specific car models available at local junkyards. These individuals include car enthusiasts, specialized vehicle owners, and anyone with a need for up-to-date information regarding vehicles available for spare parts.
- Maintenance and Ownership
  - The Purple Company will have ownership and responsibility for the continued development and maintenance over the Parts Finder site.
- Accessible Data
  - Users visiting the Parts Finder site will have access to pages of aggregated car listings collected from multiple junkyards. Each car listing will contain information on a car's make, model, year, and the location of the junkyard it is located within, and Users can filter their view to only include cars with their needed specifications.
- User Features
  - The Parts Finder site provides a centralized and optimized interface for users to browse junkyard cars and view detailed information about each listing. The site features sorting and filtering functionality based on car attributes such as manufacturer, listing date, year, model, make, and location. Account creation and a Favorites list additionally personalize the user experience, differentiating car listings that may match a user's need.
- Supported User Tasks
  - The Parts Finder site aggregates car listings from local junkyards to help users locate vehicle parts. Users can explore available car listings on the site and use keyword-based searches to query the database and find car listings with their specified criteria. Additionally, users will be able create their own accounts and add car listings to their favorites list.

## APP REQUIREMENTS

### FUNCTIONAL REQUIREMENTS

Users can search for vehicles and locate compatible car parts through the Parts Finder site.

While searching for vehicles, users can:

- Browse vehicle listings from local junkyards
- Select a vehicle to view detailed information
- Identify junkyards containing vehicles matching their needs

Users can filter vehicles by categories including:

- Year
- Make
- Model
- Manufacturer

Users can refine search results by:

- Specifying a time period to search for vehicle listings
- Sorting vehicles by their junkyard listing date:
  - Newest to oldest
  - Oldest to newest

### NON-FUNCTIONAL REQUIREMENTS

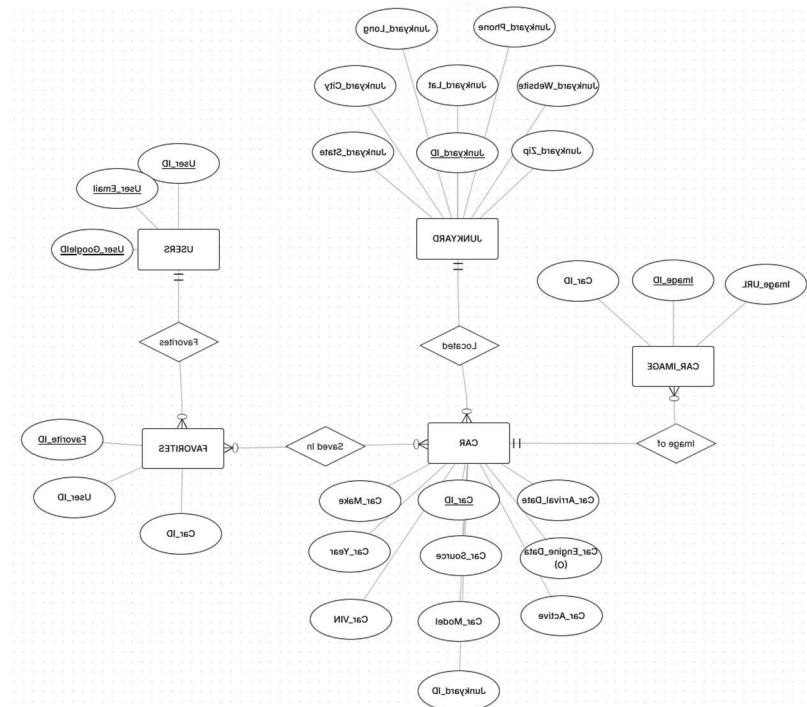
- Security
  - The application will use Google OAuth 2.0 for user authentication, therefore, the database will not store user passwords.
  - Input fields will be protected against malicious injection attacks.
  - Communication between clients and the server will use HTTPS to protect data in transit.
  - Only verified junkyard websites may be scraped and ingested as listing sources.
- Maintainability
  - The site will update to include new listings every 24 hours.
- Reliability
  - The service will be able to handle drive failure.
  - The system will preserve listing references by marking unavailable listings inactive rather than deleting, preserving user favorite lists.
- Performance
  - Clean code allows for fast searches and low response time.

- Availability
  - The site will have 99% uptime.
- Flexibility
  - The site must support 100 concurrent users.
- Usability
  - The site will have a responsive design that is compatible with mobile phones and desktops.
- Scalability
  - The site will be able to be scaled to include larger geographic areas outside of Utah, such as different states.

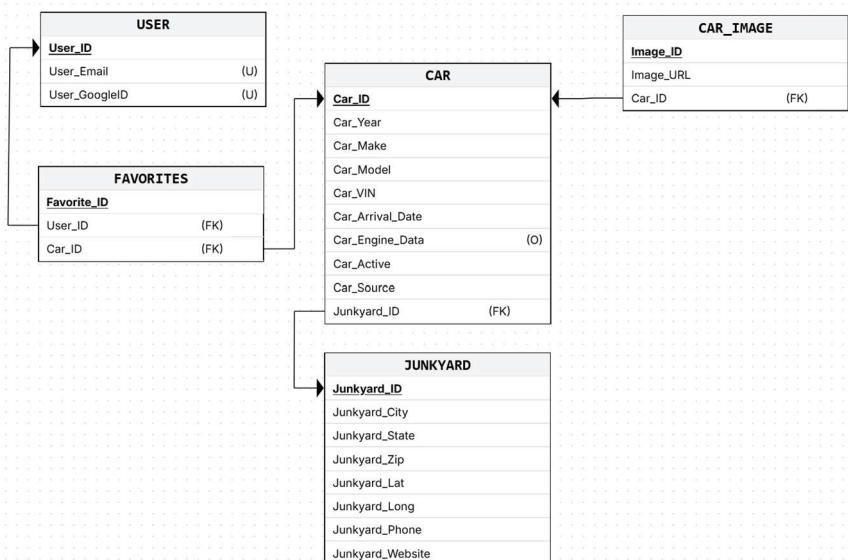
## DATABASE REQUIREMENTS

The following sections outline the components necessary for creating the Parts Finder website. These components are represented in an ER Diagram, Schema Diagram, and list of Business Rules.

### ER DIAGRAM IMAGES



### SCHEMA DIAGRAM



## BUSINESS RULES

### Relational Rules

1. Junkyards and car listings have a one-to-many relationship. One junkyard may contain zero to many car listings, but a car listing must belong to one junkyard.
2. Car listings and car images have a one-to-many relationship. One car listing may include zero to many images, but an image must belong to one car listing.
3. Through the favorites functionality, users and car listings have a many-to-many relationship. One user may have zero to many cars in their favorites, and a car may be within the favorites list of zero to many users.
4. A user cannot favorite the same car listing more than once.

### Field Rules

5. Make and model categories are limited to 1–50 characters.
6. Year range is restricted from 1886 to the current year.
7. Dates are stored in the standard ISO 8601 format (YYYY-MM-DD).
8. Source URL is limited to 1–2048 characters and must be valid URL format.
9. Each junkyard record must store city, state, zip code, latitude, longitude, phone number, website, and junkyard ID.
10. Each car listing record must store car ID, its corresponding junkyard's ID, year, model, make, VIN, junkyard arrival date, and engine data.

### Role-Specific Rules

11. Users can create and delete their application accounts.
12. Users can only view and favorite/unfavorite car listings. For safety reasons, users cannot create or edit listings.
13. Only verified junkyard sources may provide car listings to the database.

### Application Rules

14. The application adds and updates the status of its listings by scraping verified junkyard sources every 24 hours.

15. A junkyard includes information including city, state, zip code, latitude, longitude, phone number, website, and junkyard ID.
16. If a car listing is deleted/disabled from its originating junkyard site, the car listing will be set to inactive within the next 24 hours.
17. Users may search car listings using keywords (e.g., make, model, year) and filters.

## **DATABASE DOCUMENTATION**

## API DOCUMENTATION

## FRONT-END DOCUMENTATION

## APPENDIX 1: LOW-FIDELITY PAPER PROTOTYPES

The images below depict low-fidelity prototypes of the main tabs that will be used in the Parts Finder site.

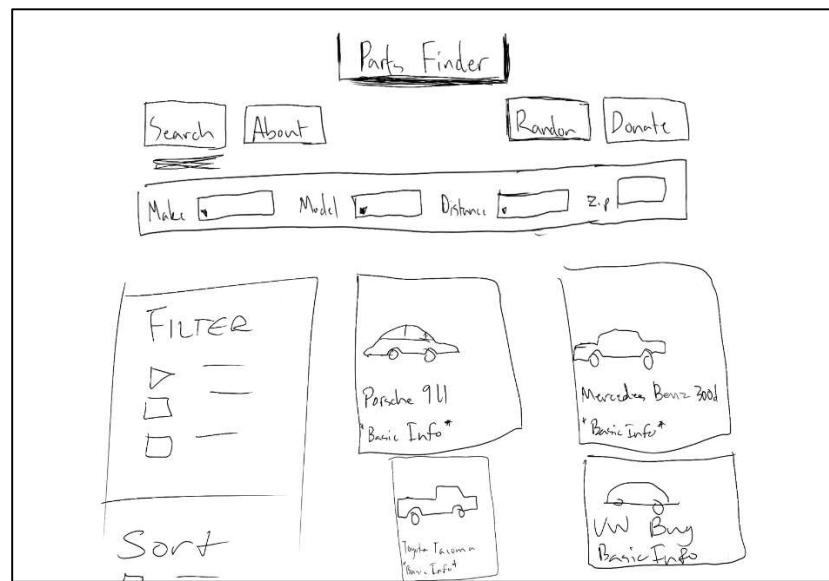


Figure 1) Default search page prototype with search, filter, and sort functions to find specific car listings across junkyards.

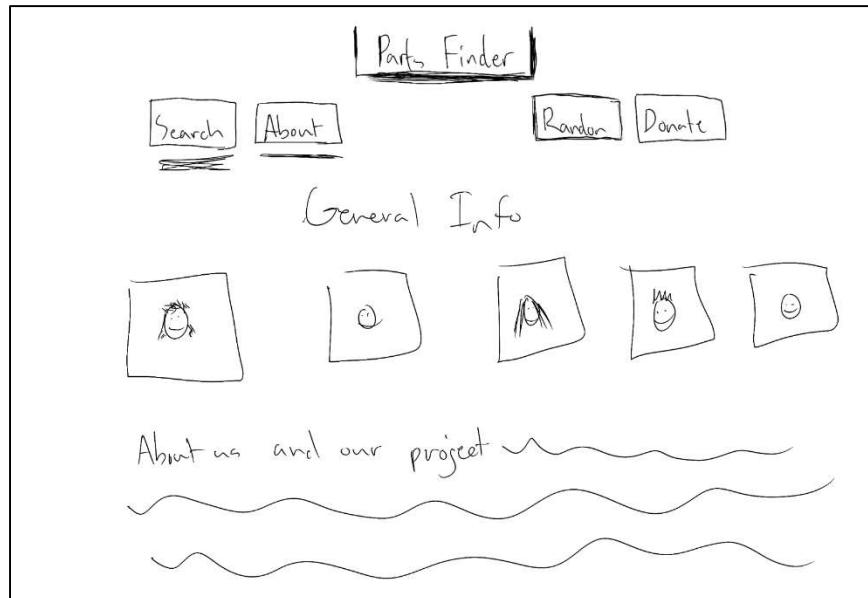


Figure 2) About page prototype displaying information about Purple Team members.

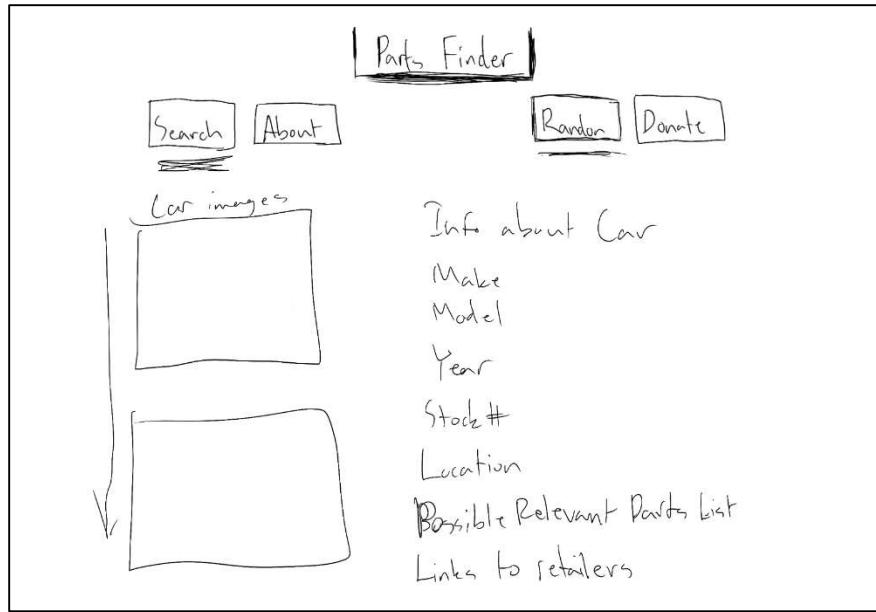


Figure 3) Random listing page prototype showcasing information about a car listed in a local junkyard.

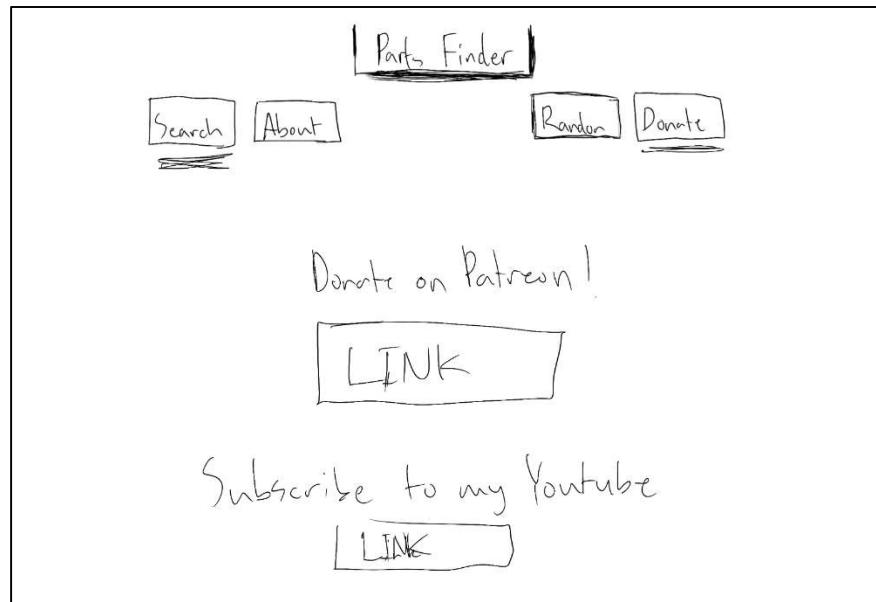


Figure 4) Donation page prototype including external links to support Purple Team's endeavors.

## APPENDIX 2: HIGH-FIDELITY PAPER PROTOTYPES

[images]