BRD	MotoMoto
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Submission Date	October 6, 2021
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Executive Summary

Document Summary

This document contains our business objectives as well as limitations and how we plan to address them. Our delivery outline is scheduled to reach and complete every milestone and retrospective by the end of the semester: December 10th. We also outline every feature and their respective functional and non-functional requirements.

Business Objectives

- Provide a consolidated platform of car builds, parts, events, and interaction.
- Offer part compatibility features to lessen user's time spent.
- Assist users in price analyses and finding popular parts.
- Help users connect with other users interested in similar products or events.

Constraints

- Resources : Budget and time will be limited because of the clients mandated due date in May of 2022
- We limit the availability to California, U.S. as our current region.
- Our application will default to the measurements provided on affiliate programs, Imperial System of measurement and the SI metric system.
- The site will support the American English language.
- MotoMoto specializes in car parts, not whole vehicles nor the purchase of such.
- This product may have information and network latency delay due to third party maintenance.
- Since there are only 5 team members, we will be constrained on outside help we can receive because of the group limit.

Scope

1. Project Scope

MotoMoto provides link resources on the web application and does not manufacture, sell, or ship parts listed on the website. The product will ensure compatibility with the future version of Google Chrome by the end of product development, May of 2022. This product will include sources to external vendors for potential payment where information may be used by such parties for research purposes.

2. In-Scope
   a. Initial System
        i. Single-page-application web application
   b. Initial Browser Support
        i. Google Chrome version 94.0.4606.71 or later
   c. Data to be collected from the user during registration process
        i. Name
        ii. Email address
        iii. Username
        iv. Password
   d. User Registration
        i. MotoMoto user account
        ii. MotoMoto Event user account
   e. Login and Logout
   f. Community Board
   g. Car Builder
   h. Part Flagging
   i. Event List
   j. Part Price Analysis
   k. Notification System

3. Page Speed
   a. Google's Pagespeed Insights will be used to measure the performance of each individual web page in this web application. A score greater than 80 is acceptable.

Features

Community Board

- **Abstract:** The Community Board will contain prevalent information to the user. This will allow users to post, subscribe, and explore car builds and user accounts of different topics.
    - <u>Preconditions:</u> A user must be registered for an account
    - <u>Postconditions:</u> A user is able to subscribe to an account, post, and parts while also having the capabilities to upvote, create a post, and/or comment on a post.
- **Functional Requirements**
    - Registered Users may select from a drop down menu of available community boards to view the posts within them.
        - Each community board will be selectable from the dropdown where users can scroll and select a community.
        - If there are 100 community boards, the user must be able to select at least one of the 100 by scrolling down through the page itself.
            - More community boards may be created by the systems programmers and will not be limited to initial released communities.
        - Logged in users will able to post to a selected community board where a post will be limited to 1-1500 characters
            - Titles will be limited from 15-75 characters to ensure that post can be identified easily.
            - Users will be able to post images pertaining to their post and/or users will be able to post their saved vehicle builds.
            - Users will not be able to add comments to their post during the creation of their post and only add comments once the post is posted onto a community board
    - All logged in users are able to comment and upvote on posts
        - Upvoting will be represented by a button where all registered users will be able to click to upvote.
            - A new view will update within the display, not allowing for multiple up-vote clicks on one profile post or parts list.
        - If 100 comments are written on a post, all users must be able to see all 100 comments through scrolling in comments section.

Features

Community Board Continued...

- **Functional Requirements Continued...**
  - If 100 upvotes are given to a post. The post must show that it has 100 upvotes.
    - Number of upvotes will be tracked next to the upvote button to ensure that users know how many people liked/enjoyed a post or vehicle part.
  - Users may subscribe to other profiles to see new posts released by the subscribed profiles
    - Both user and event profiles may be subscribed to.
      - Users will get in-app notifications on new profiles posts
    - Specific community boards may be entered to subscribe to posts not seen before.
  - Registered users will be able to post multiple of comments to a post
    - A registered user will not be able to post a message if a comments' length is less than 1 character or more than 1000 characters.
      - Users will no longer be able to type if they enter the limit of characters
      - Users will not be allowed to post if they don't type.
    - Each user will be able to post multiple of times to either comment on a post or ask questions to the original user who created the post.
      - This allows for users to engage in an active community and share ideas and thoughts.
- **Non-Functional Requirements**
  - Community boards will be updated upon new posts in them.
    - Users will be able to scroll down to view events where all events will be on the same page.
    - Users will be able to view posts based on their screen size and will be able to view more if the resolution of their computer is higher (Pixels Per Inch must be higher for user to view more content at once).
    - If the applications community board is unreachable due to host issues.
      - Users will be refreshed with a new instance of the page where errors will be noted and handled by the host.

Features

Community Board Continued...

- **Non-Functional Requirements Continued...**
  - Subscriptions made in these community boards will show new posts or updates on a user's main feed
    - If a user is subscribed to community board posts a new post it must appear in their subscriber's feed once the system picks up new activity and posts.
      - New posts will be updated onto a community board within 30 seconds to at most 5 minutes.
      - If the post is not viewable to all users after 30 seconds of the post request, the system will display the error message to the user and the system failure notification will be sent to the admin.
  - Users are limited to one upvote per post
    - A user will not be able to upvote a post or product more than once to limit spamming.
  - Users can only subscribe to one profile at a time and is not limited to a number of subscriptions
  - Notifications will be set in-app for users to be notified on specific profiles
    - If users enable notifications for a subscribed profile, and the profile makes 100 posts, the user will receive 100 notifications from that profile.
  - All user posts can upload images and vehicle builds
    - All uploaded images will be converted to a jpeg image and must not exceed 1MB as a jpeg image
      - Users will be allowed to upload up to 5 images per post at a time as long as the each image does not exceed 1MB.
    - A users post to a community board will only accept one vehicle build per post.
      - Vehicle uploads should not exceed 30 seconds as our goal will be to conduct business logic as quickly as possible to ensure quality user experience.

Features

Community Board: Main Feed

- **Abstract:** This section will contain information according to user subscriptions. Main feed will be updated upon new subscription posts. The feed will present user account and car builds of which users have subscribed to.
    - Available subscriptions are for user accounts and parts for the purpose of receiving notifications and updates to their feed.
  - <u>Preconditions</u>: Users must be logged into a valid registered account
  - <u>Postconditions</u>: Users will be presented with subscribed content which will be posted in their main feed.
- **Functional Requirements**
  - The main feed will present user account posts and car builds posts of which users are subscribed to
    - If no subscriptions were made (i.e. new user) then the feed will contain posts of highest popularity based on upvotes
      - Popularity is determined by at least 100 upvotes
    - User accounts can be subscribed to by selecting the profile and selecting the subscribe button
      - Subscribed accounts will allow a user to access in-app notifications for a profile to keep them up to date with the latest released content (see more from notifications).
    - Parts can be subscribed to by selecting them in the parts lists of posts and selecting the subscribe button
  - Users will be able to place one single upvote on a post and be able to comment on their favorite car builds in the application.
  - Posts can be selected to reveal more information
    - Posts will have descriptions up to 1500 characters
  - If a user is subscribed to 100 accounts, recent posts from those 100 accounts will appear in the user's main feed.
    - Recent posts averaging from as early as 1 week to as far as 3 months.
  - Other user profiles may be accessed while viewing an account by clicking on.

Features

Community Board: Main Feed

- **Non-Functional Requirements**
  - Main feed will be updated upon new subscription posts
    - Updates will happen in a rough timeline from 3 to 5 minutes once a subscription has taken place to ensure that users are confirmed with their choice of subscription.
    - With minimum resolution (800x600 dpi) on a user's monitor a user should be able to view at least 10 posts at a time and may be more due to resolution changes done to a users monitor.
  - Each comment posted on a car build or user posts can range from a minimum of 1 character to 1000 characters
    - Users will be able to comment multiple times if they exceed the 1000 character limit
    - Post comments will not be limited and users are free to post as long as they meet the requirements of posting.

Features

Car Builder

- **Abstract:** The Car Builder allows a user to select their vehicle by VIN number or stock vehicle, consisting of all original manufacturer parts, and customize it with OEM or Aftermarket parts.
    - <u>Preconditions</u>: All users will be able to modify and discard car builds.
    - <u>Postconditions</u>: Registered Users will be able to save their vehicle build based on login or will be discarded after the user leaves the car builder. All non-registered users car builds discard after exiting car builder.
- **Functional Requirements**
    - User should be able to choose the car year, make, and model OR type in the VIN of their car to generate the car they want
        - Year consists of four digits (####)
            - Our goal will be to ensure that all vehicles registered after Jan 1, 1950 will be applicable to car builder but we will not guarantee that all parts will have available modifiable parts
        - When car make is chosen, there will be another drop down menu with all the models for that make and year
        - If the user choose to type in the VIN:
            - VIN must be 17 characters long
        - If vehicle does not exist within the modifiable list a refresh will take the user back to the beginning of car builder.
    - The car is then saved to a logged in profile, with a maximum of 10 saved cars
    - User can then choose from a list of OEM or Aftermarket parts to add to their virtual car.
        - List of available parts will vary based on availability from third party vendors.
        - When a main component is selected in the builders parts list, there will be a number of categories (which may vary between parts) that will appear.
            - Each sub category is selectable to provide specific parts, where the number of parts may vary based on brand and price

Features

Car Builder

- **Functional Requirements Continued …**
  - Part title (name of a brand specific part) will be clickable to compare prices to other vendors or be comparable on a price standpoint with other branded parts (see part price analysis for more details).
  - The application will retrieve information on these parts from the following sources:

Source Name	Website Hyperlinks	OEM	Aftermarket	Status
Web Scraping	-	✓	✓	Temporary
NHTSA (Gov)	NHTSA	✓		Awaiting Approval
CarMD	CarMD	✓		Awaiting Approval
Amazon Services LLC Associates Program	Amazon	✓	✓	Awaiting Approval
Autozone Affiliate Program	Autozone	✓	✓	Awaiting Approval
Demon-tweeks Affiliate Program	Demon		✓	Awaiting Approval
Jegs Affiliate Marketing Program	Jegs		✓	Awaiting Approval

Features

Car Builder

- **Non-Functional Requirements**
  - The application's relational database management system holds every stock car available in the United States.
  - Will display 5 makes at a time from a drop down menu and the user can scroll through every car make
  - The application's relational database management system will ensure through the server side that all VIN transactions match the car a user owns.
  - The application's relational database management system will ensure that all vendors OEM parts and aftermarket parts can be shared with users during vehicle builds or if users want to view a specific part.
  - The application's service databases holds various aftermarket parts used for different modifications.

Features

Part Flagging

- **Abstract:** Flags are indicators of modification compatibility and only appear as suggestions to the user in the Car Builder customizing session or car build posts.
  - <u>Preconditions:</u> All users will be able to use part flagging
  - <u>Postconditions</u>: Users will be able to add parts to their respective vehicle builds based on their choice but will be notified on compatible and non-recommended parts.
- **Functional Requirements**
  - Users see flags are tagged onto modifications relative to the selected vehicle and have labels: Compatible or Non-Recommended
    - Parts will show as non-recommended only after receiving 100 incompatibility flags from users.
  - When users put incompatible parts into their online build, they are notified with a warning that their part is not recommended for their selected vehicle
  - When users view car build posts, flags may appear in the parts lists set by the posting user
    - Users can select flags, when selected they will present a review set by the specific user in view and a rating based on other users' upvotes
  - Users can place new flags on parts they believe to be incompatible.
- **Non-Functional Requirements**
  - Flags are tagged onto modifications relative to the selected vehicle and have labels: Compatible or Non-Recommended
    - The Compatible label means that a part, OEM or Aftermarket, is manufactured to be installed with the selected car
    - The Non-Recommended label means that a part is considered potentially incompatible which we do not recommend purchasing
    - This label includes interactable user vehicle posts that contain the part, user reviews, and ratings
  - The flag database will update upon every new flag set given that a user provides the necessary information
  - Flags' credibility are improved by part assembly in vehicle posts, user reviews, and ratings

Features

Event List

- **Abstract:** This section contains all events being hosted in a specified area. Users can select events to view details about them or to register to them to attend.
    - Preconditions: All users will be able to view events
    - Postconditions: Only registered users will be able to register to attend car events
- **Functional Requirements**
    - When users select the post it will expand details and reveal a register button for which a logged in user can confirm or cancel their intention of attending an event
        - Address, City, State, and Zip code will be provided
    - When users access the Event Feed they will be prompted to input a zip code to discover events in that area OR users can search for specific events by event title or event account.
    - Users may input filters: most popular based on upvotes, car type, new or old based on time of post, radial distance relative to the zip code, and date intervals
    - Users can make event accounts to create an event
- **Non-Functional Requirements**
    - Event list will be updated once in the beginning of the week and once in the middle of the week
    - Each event post requires the following: event title, location, time, and date
        - Event title has a maximum 100 characters
        - Date will appear ##/##/####
        - Time will show for whatever time zone the user is in
    - All uploaded images will be converted to a jpeg image and must not exceed 1MB as a jpeg image
    - An Event Account is limited to one event post per day
    - Activity includes all users that have registered for the event and when a new registered user appears

Features

Part Price Analysis

- **Abstract:** The Part Price Analysis will be a page that gives detailed price points (in USD) and a price graph of an brand specific part where comparisons are made from vendors who sell the same part.
  - <u>Preconditions:</u> All users will be able to use the part price analysis without a validated profile
  - <u>Postconditions:</u> Users will be able to either compare prices with supported vendors or can compare the cheapest prices of a specific type of car part with other brand specific parts.
- **Functional Requirements**
  - Users can browse a large assortment of car parts where brand specific parts are listed with all other parts.
  - When users choose a car part they are immediately notified if it is or is not compatible with their current vehicle
  - Users may subscribe to a part to be notified of part price updates
  - Users can compare different brand specific parts
  - Users can pick the link to where they'd like to buy from on the part price page
    - Part prices will be listed in USD
  - Users will be able to hover over a vendors line on the graph to see price points of previous or current prices of the item itself
  - Part price page will have a table where each vendors price is listed and a compare button to allow comparison of prices with other brand specific parts of the same type.
  - Every vendor will have selectable icons that will link a user to the part to purchase (links will be embedded with vendors icons)
    - Part prices will be sorted on the table from lowest to highest where linked icons will be available for users next to prices
  - Product price page will contain a line graph that has all vendors and their price of the brand specific part over the past 6 months, thus will be updated every week to ensure that part price steals/discounts, missed out on are shown.

Features

Part Price Analysis

- **Non-Functional Requirements**
  - Updates on new part prices will be updated accordingly based on our affiliate program data sources
  - Prices can be ordered by lowest price to highest price or ratings
    - Prices listed will be determined by the current lowest price of a brand specific part (prices will be listed by USD)
    - Prices will be formatted as USD $####.##
      - Prices will be listed in basic USD pricing system. All digit slots will be filled where every penny be shown for each vendor.
    - Ratings will determined by upvotes
  - Specific Part titles will be able to be selected by the user to retrieve a full in depth view of a brand specific part.
    - Titles will not be restricted due to information fetching from the outsourced vendors which our application will be flexible towards each vendor.
  - All vendor icons of a specific part will have the ability to be selected by the user to be sent to a vendors website where the brand specific part is sold (restrictions and separate accounts may be necessary to purchase)
    - Vendor icons do not exceed 1MB, and will be scaled to fit the needs of the price table.

Features

Notification System

- **Abstract** : The Notification System will notify users on any subscription activity inside and outside the application depending on the type of notification.
  - <u>Preconditions:</u> Users must be logged into a valid registered account
  - <u>Postconditions:</u> Logged in users will be able to receive notifications based on their subscriptions to accounts, posts, two-factor authenticator, or vehicle parts.
- **Functional Requirements**
  - Out-app notifications
    - Deliver to user's email inbox
    - Notification activities will include:
      - New events posted by a subscribed event account
      - Upcoming registered events within one and a half to the date of event
    - Email notifications will be delivered Monday and Wednesday every 3PM PST containing all the updates that happened in the previous 24 hours.
      - All event accounts will be aware of sudden last minute changes and no notifications will be sent to users after messages are delivered.
    - Unsubscribe option is available: the users may opt-out from receiving notification emails
  - In-app notifications
    - Push an instant notification to the users account inbox when they are logged in the application upon new subscription activity.
    - All updates on new vehicle builds will be posted in-app
    - In-app notifications will be sent to a virtual inbox within the application and will consist of all subscription activity:
      - Price drops of a subscribed part.
      - New posts or events from a subscribed account.
      - Upcoming registered events based on date.
      - Updates to a registered event details.
  - Users have the option to unsubscribe to any notification they want

Features

Notification System

- **Non-Functional Requirements**
  - In-app notifications will be sent to a virtual inbox within the application and will consist of all subscription activity
    - An in-app notification will contain:
      - A message allowing the user to understand the reason of notifying.
      - A notification summary of each subscribed activity or accounts.
      - Every summary will present the type of activity, user profile name, and date of occurrence.
      - When a summary is selected the user will be redirected to the origin of the notification (e.g. a part price drop will redirect to the part in Part Price Analysis).
  - Out-app notifications will be sent to a user's email inbox that was used during sign-up and will only consist of registered vehicle events and two factor notification.
    - Every out-app notification summary will present the type of event, date of occurrence, and location of an event.
    - If changes to the event were made, the email message will present the new post and a link redirecting to the specific post
      - A summary will be in the range of 1-1000 characters based on the message that will be sent to the user.
    - If an event has already passed, then users will not receive any new information on a former event
      - Notification of an event will stop the day it starts to ensure that users will no longer receive notifications once an event has past
    - Two factor notifications will present a random generated 5 digit code where users can validate themselves within the program.