

Energy Moguls: FuelUp

CSCC10: Human-Computer Interaction

Phase III

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Interactive Prototype

Our team decided to use Figma to create our interactive prototype. This prototype covers our 3 main tasks of Setting Preferences, Exploring and Comparing Fuel Prices, and Discovering Amenities. The pages of our application concerning these features have been designed and are observable [here](#).

Description of Tasks

Log in (Subtask):

Users can log in directly if they already have an account. If not, they need to create an account by entering a valid name, email, and password. Once they have created an account, they will receive a confirmation email and they can log in using their valid credentials.

Task 1: Set Preferences

This task allows users to customize their language, accessibility options, and set preferences for desired gas stations.

After logging in, the Map View will open, and users can click the OPTIONS button located in the bottom right corner to access the preferences settings. The options page will appear, where users can modify their language preferences and enable accessibility features such as high contrast, bold text, zoomed view, and reduced motion.

Furthermore, users can refine their search by clicking the filter icon in the top right corner on the map view. This will bring up a filter options page, allowing users to set restrictions on gas types, maximum gas prices, and the maximum range. To save these changes, the user will then click on “Apply.”

Task 2: Explore and Compare Fuel Prices

This task enables users to browse and compare fuel prices at different gas stations, helping them choose their preferred options.

After logging in, the Map View will open, and users can intuitively navigate the map by scrolling around to explore various locations and discover different gas stations.

By clicking on the icon representing a gas station on the map, users can view detailed information about that particular station, including its fuel prices for different fuel types. This enables users to compare prices between different types of fuel as well as between different gas stations.

Task 3: Discover Amenities

This task enables users to explore the available amenities at different gas stations, helping them decide which stations to visit.

The initial steps are the same as in the "Explore and Compare Fuel Prices" task. However, after clicking on the gas station icon, users should then click the "View Station" button. This will provide further details about the gas station, such as available conveniences, ATMs, washrooms, car wash services, etc.

Log out (Subtask):

To log out, users can simply click the OPTIONS button located in the bottom right corner of the Map View page. This will display the options page, where users can find a green "Log out" button at the bottom of the screen. By one click, they can successfully log out.

Prototype Evaluation

The evaluation of the high-fidelity prototype for the next phase of our project will be conducted with two criterias in mind: how well the application's features accurately fulfill the main tasks in the descriptions above, and the general user activity on the mobile application. These criterias will be evaluated using Jakob Nielsen's Heuristic Evaluation, and will have three to five independent evaluators.

With respect to the application's features, the evaluation will center around, but not be limited to, topics 2, 3, and 4 of Nielsen's Heuristic Evaluation. These topics were chosen as they align with how accurately the application's features satisfy the chosen main tasks. For example, the task of exploring and comparing fuel prices allows users to select different fuel stations on a map-like interface, viewing the available fuel types and respective prices of each fuel station. The features for this task can be evaluated with topic 2—match between system and real world—through how well the user interface displays information that follow real-world conventions; different fuel types such as 87 gas and charging stations, fuel pricing ratios (e.g. \$1.27/L), and fuel station brand names like Shell and Chevron should be recognizable and informative to users. Additionally, topics 3 and 4—user freedom and control, as well as consistency and standards, respectfully—can be used to evaluate the task of setting preferences. For topic 3, users should be able to freely apply and undo filters for fuel stations they are interested in through using the filters “OPTIONS” button at the bottom right of the map interface. These filters will then alter the map UI, highlighting the filtered fuel stations and providing visual feedback for the user. In following topic 4, the display of the filters, as well as the fuel station icons on the map UI, should be consistent (e.g. same colour and format) and standard (e.g. green fuel stations icon for stations that match the filters, gray icons for fuel stations that don't match).

In regards to the user activity for the next phase of our project, we want to also evaluate retention rate alongside the reception of popular features. The retention rate of users can be evaluated through topics 1 and 6. Topic 1 emphasizes that the system's status is constantly visible, and in our application, any gas station clicked on will provide all pertinent information on one information card. This way the user does not have to scroll or search around for necessary information. Retention rate can also be evaluated through topic 6, as users' past/preferred gas stations will be able to be viewed on their profile, and they are not required to memorize which previous stations they have visited, what gas prices they have filled up for, or what locations were most convenient to them. Providing this convenience to users will improve their experience with the application and relieve them memory overload.

To evaluate our popular features and how they're being received, we can consider topics 7. Our users will be more drawn to features that are not peppered with error messages interfering with their usage. Our application is carefully crafted to avoid errors by users, and by making it easy to undo mistakes e.g. can easily click and unclick unwanted filters, if a user accidentally

switches to the options tab, they can switch back to the map tab without their progress being erased. This easy fix provides users with the room to make mistakes fearlessly.