BestFuel

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The project proposed is a gas-economy tracking app. Most online/ mobile apps offer gas locations with the cheapest price, but they do not consider fuel economy when offering directions. Most either locate the cheapest price of gasoline within a range or the closest gas station. Our app combines both to offer the most economical place to purchase gas. When driving on the highway, fuel is an important consideration of where you can go. By being able to dynamically locate the most cost-effective source for fuel, you can save money by going where it's efficient to purchase and not over-spend fuel getting there. By having this as a mobile application, we can provide access to fuel information while the person is driving, thereby saving time and fuel by not stopping and asking directions.

Our application will have the following capabilities:

1. Display the best place to get gas for the user given their location, destination, and fuel supply
2. Be able to calculate for both single and multiple vehicles
3. Record and store vehicle profiles
4. Record gas prices for recent gas station visits
5. Compare prices at visited locations.
6. Use APIs from Gasbuddy.com and the CarQueryApi.com while using Google Maps for location queries
7. Use GPS data to find position for query system
8. Use Facebook or Twitter to log in to the service (optional)
9. Save trip data when planning a route (optional)
10. Offer roadside assistance (very optional)
11. Take a picture of current vehicle (optional)
12. Allow the user to prioritize stations by brand/ like factor (optional)
13. Show trends in gas prices at nearby/ visited locations

Scenario 1: at home

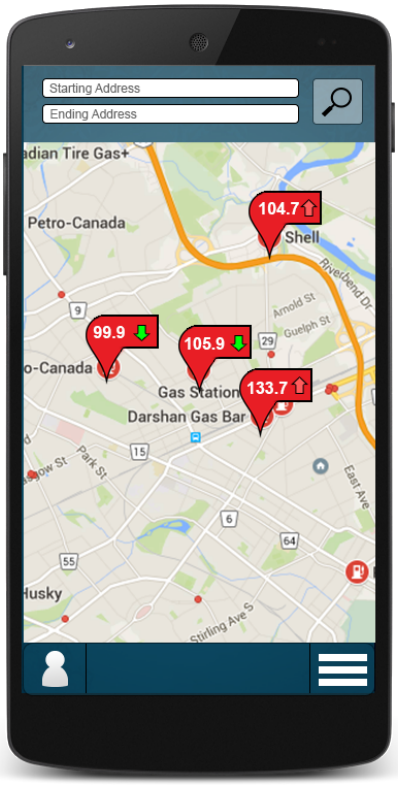
The user is at home preparing for a short road trip. While looking up route information, he/she also wants to know where it would be best on her route to fill her car's tank. Using our application, she can enter her destination, and our algorithm would be able to select the most efficient and price given her route using property 1. The benefits are that instead of using 2 or 3 sites to gather the information, all of this is collected within a single location. We reduce the planning time for the trip significantly and save him/her some cash from used gasoline. What if the person changes vehicles? Using property 2, the app can calculate for the new vehicle profile the user has placed on her phone (property 3).

Scenario 2: on the road

The low fuel indicator just turned on, and your usual gas station is too far away. Where do you go to get fuel? Conventional wisdom is diverting from your destination to fill up at the nearest gas station. However, that plan is sometimes not the best. The station gasoline prices may be too high for your budget. So, our app uses property 1 to find the best location for gasoline. If the user is still undecided about which station to visit, the app can compare visited stations to help act for price comparison (properties 4 & 5).

The system needs to support multiple non-functional properties such as security , efficiency, adaptability, scalability, and dependability. Security is a priority, as we are recording and storing user's gas consumption and location data. While fuel consumption is not as high a priority, location and vehicle model can be used against in the form of planned carjackings and online stalking For efficiency, the algorithm must complete its calculations quickly and display it efficiently. Otherwise the app will be no better than stopping and asking for directions. It must also be efficient in data transmission, so that it does not cost the users in their data bill. The app must also work for multiple Android platforms and/or Blackberry. Further adaptability can include

a port for iOS. Scalability can be generalized into 3 categories: app features, data storage, and range of planning. The app can have new features such as support for Google+ or social networks or offer other features relating to fuel economy later on. Range of planning can include improved storage for trip data on the device and/or support for multiple makes and models. Multiple trips and distances could also be included. Off-phone storage is also a problem, as we could receive an influx of app users and have to scale both database and services to accommodate the new users. Dependability is a must; the system must be consistent in its service delivery time, the results must be consistent given varying location but similar destinations, and the app must be available should the other databases/ APIs go down. Should the service experience fault or server errors, then the system should be able to fail safely, without harm to the users' data and/or services.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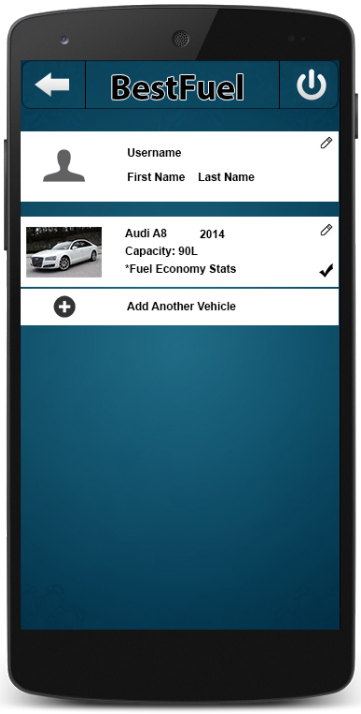
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