Use Cases

for

Charge

Version 0.1

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Use Case List

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| ID | Primary Actor | Use Case Title |
| 1.0 | Navigator | Route a distance greater than EV range |
| 2.0 | Searcher | Zoom in on map to show charge stations in given area |
| 3.0 | Vehicle Owner | Zoom on current location |
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Case 1.0

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| Use Case ID: | 1.0 | | |
| Use Case Name: | Route a distance greater than EV range | | |
| Created By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | Last Updated By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister |
| Date Created: | 02/22/2016 | Date Last Updated: | 4/28/16 |

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| Actors: | Navigator |
| Description: | Since EV’s have limited range and charging stations are relatively sparse and poorly advertised, the user should be able to enter an origin, a destination, and the range of their vehicle and receive a Google Maps-style route including stops for recharging |
| Trigger: | Navigator requests a route to destination |
| Preconditions: | 1. User has network connection 2. User should have EV |
| Postconditions: | 1. If destination is unreachable within range, prompt user 2. Else provide route on map and listed directions |
| Normal Flow: | 1. User loads web page 2. User is prompted to allow website to access current location 3. User enters starting and ending location 4. A route with charge stations along the way is displayed, and user may click on Charge stations to make these appear within the route and within the directions 5. User follows displayed route and directions to destination |
| Alternative Flows: | 1. User loads web page 2. User denies access to current location 3. User provides both origin and destination 4. User may input their own Charge stations if they know of one which is not displayed on the map, and they would like access to it 5. A route with charge stations, including the one the user just entered, along the way is displayed, and user may click on Charge stations to make these appear within the route and within the directions 6. User follows displayed route and directions to destination |
| Exceptions: | 1. Destination is not reachable by car range (provide alternatives, i.e. car rental) 2. Invalid destination (Prompt user to re-enter field) |
| Includes: | 2.0. Mapping charge stations on map |
| Priority: | Top priority!! This is the whole point. |
| Frequency of Use: | Predictably once/week or on extended trips including business trips or vacations. Likely use during free time or long trips, due to likelihood that trips outside free time will likely be along known routes. |
| Business Rules: | Remind users that if charge station in use, they may need to account for this in trip duration |
| Special Requirements: | 1. Zoom map to maximize size of route in window   Possibilities:  2. Account for traffic if data is available |
| Assumptions: | 1. User has EV 2. User has connected device |
| Notes and Issues: | 1. Performance affected by connection 2. Keep crashes to a minimum 3. Route should provide cushion for range to lower likelihood of depleted charge 4. Still need to implement the following:  * Include stops for recharging * If destination is unreachable within range, prompt user * Remind users that if charge station in use, they may need to account for this in trip duration |

Case 2.0

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| Use Case ID: | 2.0 | | |
| Use Case Name: | Zoom in on map to show charge stations in current location | | |
| Created By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | Last Updated By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister |
| Date Created: | 02/22/2016 | Date Last Updated: | 4/28/16 |

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| Actors: | User |
| Description: | If users search one location rather than directions, they should be shown a zoomed in view of that area with stations plotted on it. |
| Trigger: | Searcher searches for a location |
| Preconditions: | 1. User has network connection 2. User should have EV |
| Postconditions: | 1. Zoom in on location & provide map 2. Plot any existing stations |
| Normal Flow: | 1. User logs in 2. User searches location 3. User views map |
| Alternative Flows: | 1. N/A |
| Exceptions: | 1. If no stations in range of the location, show a message |
| Includes: | 1. N/A |
| Priority: | High priority! |
| Frequency of Use: | Predictably once/week or on extended trips including business trips or vacations. Likely use during free time or long trips, due to likelihood that trips outside free time will likely be along known routes. |
| Business Rules: | Remind users that if charge station in use, they may need to account for this in trip duration |
| Special Requirements: | 1. Map zooms to range of car/3 from location, to allow reaching destination and returning to charge, with a buffer.   Possibilities:  2. Account for traffic if data is available |
| Assumptions: | 1. User has EV 2. User has connected device 3. User has e-mail address/facebook for authentication 4. User can verify vehicle information |
| Notes and Issues: | 1. Performance affected by connection 2. Keep crashes to a minimum 3. Route should provide cushion for range to lower likelihood of depleted charge 4. NOTE: Use case still under construction |

Case 3.0

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| Use Case ID: | 3.0 | | |
| Use Case Name: | Zoom on current location | | |
| Created By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | Last Updated By: | Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister |
| Date Created: | 03/02/2016 | Date Last Updated: | 4/28/16 |

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| Actors: | Vehicle Owner |
| Description: | Similar to the 2nd case, but rather than searching a location, the user could select to use their current location using gps (on mobile) or address location services |
| Trigger: | Owner searches current location |
| Preconditions: | 1. User has network connection 2. User must allow current location on device 3. User should have EV |
| Postconditions: | 1. Zoom in on location & provide map 2. Plot any existing stations |
| Normal Flow: | 1. User selects current location 2. (User allows location services access) 3. User views map |
| Alternative Flows: | 1. User selects current location 2. (User refuses location services access) 3. User is notified of function failure |
| Exceptions: | 1. If no stations in range of the location, show a message |
| Includes: | 2.0. Mapping charge stations on map |
| Priority: | High priority! |
| Frequency of Use: | Predictably once/week or on extended trips including business trips or vacations. Likely use during free time or long trips, due to likelihood that trips outside free time will likely be along known routes. |
| Business Rules: | Remind users that if charge station in use, they may need to account for this in trip duration |
| Special Requirements: | 1. Map zooms to range of car/3 from location, to allow reaching destination and returning to charge, with a buffer.   Possibilities:  2. Account for traffic if data is available |
| Assumptions: | 1. User has EV 2. User can verify vehicle information |
| Notes and Issues: | 1. Performance affected by connection 2. Keep crashes to a minimum 3. Route should provide cushion for range to lower likelihood of depleted charge 4. Still need to implement the following:  * User is notified of function failure if they do not allow our webpage to access their current location * If no stations in range of the location, show a message * Remind users that if charge station in use, they may need to account for this in trip duration * Map zooms to range of car/3 from location, to allow reaching destination and returning to charge, with a buffer. * Account for traffic if data is available |

Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | 02/22/2016 | Initial commit | 0.0 |
| Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | 03/02/2016 | Add Cases 2 and 3 | 0.1 |
| Zachary Ganger, Bianca Annoscia, Daniel Lipovsky,  Zachary Lister | 4/28/16 | Update use cases | 0.2 |