

Tab 1

# Bus Commuting App Think-Aloud Testing

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## Purpose

This document evaluates our app using think-aloud testing. During the testing, participants identified usability issues, thus creating UARs and proposed solutions based on their feedback to enhance the user experience. The identified issues are grouped by similarities for clarity.

## Content Outline

- **Executive Summary** – An overview of the results summarizing key problems and the potential solutions.
- **Introduction** - An introduction to the app and its main features as well as each participant's user profile and the tasks given to each participant to test the interface.
- **Problems:**
  - **Navigation Issues** - Group of problem UARs that focus on navigating through the app.
  - **Button Response Failures** - Group of problem UARs that focus on functions of the app not properly operating.
  - **Appearance/Crowding** - Group of problem UARs that focus on suboptimal appearance causing usability issues.
  - **Identifying Bus Stops** - Group of problems UARs that stem from users not be informed of bus stop names
- **Conclusion** - A summary of the problems and solution discussed
- **Reflection** - Reflection of the process of conducting the think aloud testing as well as potential future changes
- **Appendix** - Additional links necessary

## **Executive summary**

It could be inferred from the think-aloud testing on the new TransLoc app that it has some good usability features alongside its setbacks. The notification unit was praised, as from great ease of access and clarity; thus, joggers should get delays or changes. However, there were some major problems regarding navigating the app, consistency of interaction, and the clarity of information especially for first-timers. The problems are regarding vague labeling of menus, inconsistent navigation design across screens, and buttons that are missing or nonfunctional which interrupted flow of users and led to frustrating experience. Poor color contrast and also very crowded information screens together with unlabeled bus stops on the maps made it difficult for users to locate vital information. The app needs clearer labeling and separation in features, a consistent design of navigation and interaction, improvement of color contrast, and better labeling for map elements to make up for those issues. Further, an introductory tutorial could further help new users adapt to the benefits of using such applications. By these changes, the app will be made more intuitive and accessible and highly effective for larger populations across the user spectrum.

## **Introduction**

This redesigned TransLoc app focuses on simplicity and user accessibility. The homepage acts as a central hub with a clean map interface displaying bus routes (Yellow, Cyan, and Red). Users can immediately view routes and access essential options like schedules and information pages. This approach ensures that even first-time users can easily find their way around.

The app offers detailed route pages for each bus line, complete with live tracking and refresh options to update bus locations in real-time. Clicking on a specific route reveals the closest bus stop, estimated arrival times, and bus capacity, helping users plan their commute with precision. Additional features include a dedicated information page with schedules for each route and FAQs to address common user concerns. The notification system highlights updates like delays or route changes, ensuring users stay informed. This redesigned interface emphasizes clarity and functionality, making navigation seamless for all users.

For the think aloud testing the tasks that the user was expected to complete consisted of find what time the bus is scheduled to arrive at the College of Business, to find the bus ETA to the stop closest to the Raising Cane's on the map, find out how full that bus is, and the check for any potential route delays.

The users that participated in the think aloud testing consist of:

1. User 1 is a 23 year old man. He works as a full time barista. He is well versed in computers, less in phone usage, but has grown up around devices his whole life. He has used Transloc previously, although not a frequent user of it, but has not used it within the last year.
2. User 2 is a 24 year old woman. She works in the medical field. She does not have a car so she would find this app useful. She has a basic understanding of computer knowledge considering what she does. She has no prior experience with the TransLoc app.
3. User 3 is a 23 year old man. He is a full time student who does not have a car and takes the CATbus to commute everyday. He is very tech savvy. He is very familiar with the Transloc app.
4. User 4 is a 21 year old man. He is a full time student who has a car but takes the bus occasionally when they want to. He has basic computer knowledge and says they know how to use a bus app
5. User 5 is a 23 year old woman. She is a full time employee at the NIH and used to use the Transloc app everyday in Clemson during her undergraduate. She is a science major so has limited knowledge of technology.

## Problems

### Navigation Issues:

The first group of problems target any issues that the user had when attempting to navigate through the prototype. Navigation problems include problems that stem from a lack of understanding of icon information or under which icon a specific item would be located within. This group also includes inconsistencies with the bottom menu navigation bar. As navigating through the app is a necessary function for usage, these problems should be addressed immediately to allow new users to more easily navigate through the app.

Some solutions devised to combat these issues would be to rethink icon choices to be more specific and clear to the intended purpose. It will also be beneficial to standardize the bottom navigation menu for consistency of use for the users. Another solution would be to introduce a usage tutorial upon first opening the app so the user has an understanding of the purposes of the icons and labeling, and also the app should include a help page to access the tutorial at any time if the user needs a refresh.

| No. AH - 01, JS - 01, HH - 01 | Problem |
|-------------------------------|---------|
| Name:                         |         |

Unclear on how to find bus information

**Evidence:**

1) User was searching around for the college of business and clicking all the routes, not checking the information page.

2) During testing, a first-time user attempted to find a bus schedule. They navigated through several menu options and commented, "Where can I find the bus times? I see no direct button or link for schedules." The system provided no clear guidance, leading the user to open random tabs hoping to find route or schedule info.

**Interface aspect:** The main menu and navigation tabs at the bottom of the homepage. These are supposed to guide users to different content areas but lack any label or icon that clearly indicates bus schedules.

**Criterion for critical incident/good aspect:** user takes too long to finish a certain step and user has a negative reaction

**Explanation:**

The information tab is clearly labeled for information "i" but it is not clear that schedule information would also be under information, therefore it took the user a while to navigate to the information tab. The problem arises because the menu labels use unclear or generic terms.

**Severity Rating:** 3 - Major problem

**Justification (Frequency, Impact, Persistence):**

*Frequency:* Common problem as many users may struggle to find the info page, but only affects new users as once it is found once, it is easily understood

*Impact:* Easy to overcome as you keep pressing buttons, does waste much time. Has a significant impact as without finding bus schedules, users cannot complete their primary goal, leading to frustration.

*Persistence:* Only occurs once, once user finds it, it is no longer a problem unless user is looking for a new bus schedule

*How I weighed the factors:* The problem can be an annoyance for users, but can be overcome and has no negative impact aside from wasting some time. As it causes difficulty in accessing an important feature of the app, it is considered a major problem.

Possible solution and/or trade-offs:

add a separate button for schedules, have the FAQ be its own info button; has potential of crowding the bottom menu

Relationships: n/a

| No. JM - 01   | Problem |
|---|---------|
| <b>Name: Lack of Consistent Navigation Bar</b>  |         |
| <p><b>Evidence:</b> The navigation bar at the bottom has icons that are unclear in their function, and the bar's design is inconsistent across screens (e.g., some screens have a "Refresh" button near the routes, while others don't). Users may find it confusing to locate common actions or navigate between sections.</p> <p><b>Interface aspect:</b> The bottom navigation bar and its inconsistencies across different screens.</p> <p><b>Criterion for critical incident/good aspect:</b> Consistency and Standards</p> <p><b>Explanation:</b> The inconsistent navigation bar disrupts the user's experience and makes navigation unpredictable. Users expect the same elements in navigation bars to appear consistently across screens.</p> |         |

|   |
|---|
| <p><b>Severity Rating:</b> Rating: 3 – major problem</p> <p><b>Justification (Frequency, Impact, Persistence):</b></p> <p><i>Frequency:</i> Likely to be encountered by every user navigating multiple pages.</p> <p><i>Impact:</i> High, as users may struggle to find navigation options or grow frustrated with unpredictable behavior.</p> <p><i>Persistence:</i> Persistent, as the issue occurs throughout the app design.</p> <p><i>How I weighed the factors:</i> High frequency and impact with persistent frustration justify the severity rating of 3.</p> |
| <p><b>Possible solution and/or trade-offs:</b> Standardize the navigation bar across all screens and include consistent labeling/icons for clarity. This may limit the screen-specific features but enhances usability.</p>   |
| <p><b>Relationships:</b> n/a</p>  |

| No. JM - 03   | Problem |
|---|---------|
| <b>Name:</b> Inconsistent Map Interactions  |         |
| <p><b>Evidence:</b> The map screens for different routes (Red, Yellow, Cyan) show inconsistent button placements (e.g., "Refresh Routes") and interactions when selecting stops.</p> <p><b>Interface aspect:</b> The map screens for different route pages.</p> <p><b>Criterion for critical incident/good aspect:</b> Consistency and Standards</p> <p><b>Explanation:</b> Inconsistent interaction design makes it harder for users to predict how to interact with maps or what to expect when selecting a stop.</p> |         |

**Severity Rating: Rating: 3 – major problem**

**Justification (Frequency, Impact, Persistence):**

*Frequency: Likely to occur often as users explore different routes.*

*Impact: High, as it disrupts the user's ability to navigate.*

*Persistence: Persistent, as it affects all route maps.*

*How I weighted the factors: High impact and frequency justify the major problem rating.*

**Possible solution and/or trade-offs: Standardize map interactions across all routes, ensuring buttons and interactions remain in the same position. This might limit route-specific features but improves usability.**

**Relationships:**

| No. JS - 02  | Problem |
|--|---------|
| <p><b>Name:</b></p> <p>Hard to navigate for first-time user</p>  |         |
| <p><b>Evidence:</b> A new user opened the app and said, "I'm not sure where to start" and "It's confusing; I'm not sure which icon leads to what." They tapped multiple icons in trial-and-error fashion.</p> <p><b>Interface aspect:</b> The main menu and navigation tabs at the bottom of the homepage. These are supposed to guide users to different content areas but lack any label or icon that clearly indicates what they are looking for</p> <p><b>Criterion for critical incident/good aspect:</b> User has a negative reaction</p> <p><b>Explanation:</b></p> |         |



The problem arises because the menu labels use unclear or generic terms. The navigation structure uses some vague labels, causing confusion for newcomers who do not know the app's structure

**Severity Rating:** 3 - major problem (a problem that should definitely be solved with high priority)

**Justification (Frequency, Impact, Persistence):**

*Frequency:* Common, users all of experience are likely to have this problem

*Impact:* Users must understand navigation to accomplish any goal.

*Persistence:* Every new user encounter involves initial confusion unless redesigned or supplemented with onboarding

*How I weighted the factors:* This confusion impedes fundamental use, so it's major.

**Possible solution and/or trade-offs:**

Implement a brief onboarding tutorial or clearer labeling and categorization. Add help page in FAQ so users can access the tutorial at any time. Trade-off: Additional onboarding steps might make initial use longer, but it improves clarity.

**Relationships:**

## Button Response Failures:

This group of problems is regarding the functionality of the app. Issues discussed in this section are regarding issues with the prototype not responding the way the user expects it to. This includes issues such as back buttons not working properly, navigation buttons not working properly, the settings page not being implemented, and the FAQ answers not being implemented.

The solution for these problems is to properly implement and link all the aspects together. The settings page should be finalized and accessible as well as the FAQ answers. Further testing should be done by the developers to make sure button functionality is operating well before more testing by users is conducted.

| No. AH - 02  | Problem |
|--|---------|
| <p><b>Name:</b> Navigation button not working</p>  |         |
| <p><b>Evidence:</b> navigation button not fully linked and interactive</p> <p><b>Interface aspect:</b> Navigation button on bottom menu did not take user back to the navigation screen</p> <p><b>Criterion for critical incident/good aspect:</b> User has a negative reaction</p> <p><b>Explanation:</b></p> <p>Because button was not working, user had to find roundabout ways to get back to main navigation window</p>   |         |
| <p><b>Severity Rating:</b> 3 – major problem (a problem that should definitely be solved with high priority)</p> <p><b>Justification (Frequency, Impact, Persistence):</b></p> <p><i>Frequency:</i> Common, users all of experience are likely to have this problem</p> <p><i>Impact:</i> Easy to overcome as there is a lot of other ways to get back to the navigation screen</p> <p><i>Persistence:</i> Will persist as users can use the navigation button on other screens and may want to use it again</p> <p><i>How I weighted the factors:</i> Major problem because of how common and persistent the issue is, but not a 4 because there are still ways to overcome the problem</p> |         |
| <p><b>Possible solution and/or trade-offs:</b></p> <p>Fix the prototype to allow that button to work</p>   |         |

Relationships:

| No. AH - 03  | Problem |
|--|---------|
| <p><b>Name:</b></p> <p>Back button didn't work</p>   |         |
| <p><b>Evidence:</b> back buttons not fully linked and interactive</p> <p><b>Interface aspect:</b> On yellow route screen the back button on bottom menu did not take user back to the navigation screen</p> <p><b>Criterion for critical incident/good aspect:</b> User has a negative reaction</p> <p><b>Explanation:</b></p> <p>Because button was not working, user had to find roundabout ways to get back to main navigation window</p>   |         |
| <p><b>Severity Rating:</b> 3 - major problem (a problem that should definitely be solved with high priority)</p> <p><b>Justification (Frequency, Impact, Persistence):</b></p> <p><i>Frequency:</i> Common, users all of experience are likely to have this problem</p> <p><i>Impact:</i> Easy to overcome as there is a lot of other ways to get back to the navigation screen</p> <p><i>Persistence:</i> Will persist as users can use the navigation button on other screens and may want to use it again</p> <p><i>How I weighted the factors:</i> Major problem because of how common and persistent the issue is, but not a 4 because there are still ways to overcome the problem</p> |         |
| <p><b>Possible solution and/or trade-offs:</b></p> <p>Fix the prototype to allow that button to work</p>   |         |

Relationships:

| No. JS - 03, DS - 03  | Problem |
|---|---------|
| <p>Name:</p> <p>Settings does not work</p>  |         |
| <p>Evidence: The user tapped the “Settings” icon multiple times and said, “Nothing happens when I try to open settings.” The app did not load the expected settings page.</p> <p>Interface aspect: The “Settings” button in the main navigation or a dedicated settings icon. This should lead to a configurable options page but currently does nothing.</p> <p>Criterion for critical incident/good aspect: User control and freedom; error prevention/recovery.</p> <p>Explanation:</p> <p>With the settings function broken, users cannot customize the app or fix issues like language settings. This undermines trust and can stop users from effectively using the app to meet their personal needs.</p> |         |
| <p>Severity Rating: 4 – usability catastrophe (a problem that should definitely be solved with high priority)</p> <p>Justification (Frequency, Impact, Persistence):</p> <p><i>Frequency: High. Any user attempting to change settings will encounter it.</i></p> <p><i>Impact: High. Key customizations are unavailable. In some cases, users may need these settings to use the app effectively</i></p> <p><i>Persistence: The problem occurs every time until fixed.</i></p> <p><i>How I weighted the factors: A basic expected function (settings) is completely non-functional. This represents a critical failure.</i></p>  |         |

Possible solution and/or trade-offs:

Fix the settings link to load the appropriate settings page.

Relationships: Could relate to UAR #2 (navigation) if accessing settings is considered part of the user's initial attempts to customize the app to their needs.

| No. <u>  DS - 04  </u>   | Problem/Good Aspect Problem |
|--|-----------------------------|
| <p>Name:</p> <p>FAQs dropdown doesn't work</p>   |                             |
| <p>Evidence: FAQ answers don't work when user tries to see what is the last bus time</p> <p>Interface aspect: Transition not available for FAQ question</p> <p>Criterion for critical incident/good aspect: User control and freedom</p> <p>Explanation:</p> <p>User cannot see the answer to any FAQ</p>  |                             |
| <p>Severity or Benefit:</p> <p>Rating: 3 Major Problem</p> <p>Justification (Frequency, Impact, Persistence):</p> <p><i>Frequency:</i> This problem only happens once in a while as new users only use FAQ frequently</p> <p><i>Impact:</i> Add a popup or dropdown which states the answer to the FAQ.</p> <p><i>Persistence:</i> The user cannot go around this problem to fix it. It will occur multiple times.</p> |                             |

**How I weighted the factors : The frequency is low but the impact might cause user frustration**

**Possible solution and/or trade-offs:**

**Link a dropdown or page to display the answer**

**Relationships: n/a**

## **Appearance/Crowding:**

The following UARs are regarding problems identified with the app's appearance and clarity of its presentation. The problems in this group addressed are the color contrast and overwhelming presentation of information in the schedule, notification, and navigation screens. Color choices can directly affect the visibility of information provided on the screen. The information being cluttered causes visual strain and a struggle to search and identify the desired information.

The first solution addressing the colors would be to switch the color scheme to a more contrasting one, such as more black icons rather than teal. To combat the information being presented in a cluttered manner, more white space should be used, scrolling functions can be utilized, and include grouping by prioritization/categorization so the user can choose what information they want to be displayed to them rather than all of the information being displayed and overloading the user. Information within the notifications and schedules can also be color coded for easier searching. To remove

crowding in the navigation screen, users should be able to select specifically what routes they want to have visible.

| <b>No.</b> JS - 04  | <b>Problem</b> |
|---|----------------|
| <p><b>Name:</b></p> <p>Does not like color of the app</p>   |                |
| <p><b>Evidence:</b> A new user opened the app and they reported difficulty distinguishing active tabs because the background and foreground colors lacked enough contrast.</p> <p><b>Interface aspect:</b> Overall app color palette and its use in text, background, and highlight elements. Poor contrast affects readability and recognition.</p> <p><b>Criterion for critical incident/good aspect:</b> Aesthetic and minimalist design; readability and visual clarity.</p> <p><b>Explanation:</b></p> <p>Users disliked the chosen color scheme, and poor contrast made text harder to read. While not completely preventing use, it reduces overall usability and user satisfaction.</p> |                |
| <p><b>Severity Rating:</b> 2 - minor problem (a problem that should definitely be solved with high priority)</p> <p><b>Justification (Frequency, Impact, Persistence):</b></p> <p><i>Frequency:</i> Users with visual sensitivity or who dislike certain colors are more affected.</p> <p><i>Impact:</i> Lower than navigation problems; users can still proceed, though less comfortably.</p> <p><i>Persistence:</i>The issue persists on all pages throughout use.</p> <p><i>How I weighed the factors:</i> Color preference is subjective and does not fully block tasks. However, poor contrast is a usability issue. The problem is less severe than critical navigation issues.</p>       |                |

Possible solution and/or trade-offs:

Adjust the color scheme to improve contrast and aesthetics. Change icons to be black, rather than light blue. Trade-off: Changing the palette could conflict with branding guidelines or require rework of UI elements.

Relationships: n/a

No. DS - 02

Problem/Good Aspect Problem

Name: Can't turn off certain routes

Evidence: The user couldn't hide the routes that they didn't want to see. This led to overlapping of multiple routes and confusion

Interface aspect: The map selection bar is flawed which has the route options

Criterion for critical incident/good aspect: Minimalist design

Explanation:

The user wanted to see just the red route from the top, but couldn't hide the rest

Severity or Benefit:

Rating: 3 - major problem

Justification (Frequency, Impact, Persistence):

*Frequency:* High frequency as it would cause problems every time the user wants to focus on a route

*Impact:* It is easy to overcome. Just need to remove other routes

*Persistence:* Repeated problem for the user at different times of day

*How I weighed the factors:* Due to high frequency and impact, i rated it a 3 severity rating



Possible solution and/or trade-offs:

Have a check box menu that users can check off if they do not want to see the specific route but wish to see others

Relationships: n/a

| No. JM - 02, HH -03   | Problem |
|---|---------|
| <p>Name: Overwhelming Alert Screen</p>  |         |
| <p>Evidence: The user expressed a hard time understanding the notifications info. The "All Notifications" screen lists all alerts without any categorization or visual hierarchy. Users could feel overwhelmed trying to identify critical alerts.</p> <p>Interface aspect: The "All Notifications" screen, particularly the presentation of alerts.</p> <p>Criterion for critical incident/good aspect: Aesthetic and Minimalist Design</p> <p>Explanation: The lack of prioritization or grouping makes it hard for users to process information quickly. A cluttered alert screen could lead to important alerts being missed.</p> |         |
| <p>Severity Rating: Rating: 2 – minor problem</p> <p>Justification (Frequency, Impact, Persistence):</p> <p><i>Frequency: Common, as all users will likely check alerts.</i></p> <p><i>Impact: users can still read the alerts, but it takes additional effort.</i></p> <p><i>Persistence: Persistent, as it affects all notifications.</i></p> <p><i>How I weighted the factors: Moderate impact and persistence justify the minor problem rating.</i></p>   |         |

Possible solution and/or trade-offs: Introduce categorization or prioritization (e.g., "Critical Alerts," "Schedule Changes") and use visual indicators (e.g., color-coding). This may require more screen space but improves clarity.

Relationships:

No. JM - 04, HH - 02

Problem

Name: Overloaded Schedule Screens

Evidence: The schedule screens for routes show a dense table of timings with no grouping or quick filters. Users might struggle to find the information relevant to their current context.

Interface aspect: The route schedule screens (Red, Yellow, Cyan).

Criterion for critical incident/good aspect: Recognition Rather Than Recall

Explanation: Presenting all information at once forces users to search manually. Grouping by time of day or allowing filters would help reduce cognitive load.

Severity Rating: Rating: 2 - minor problem

Justification (Frequency, Impact, Persistence):

*Frequency:* Common for users checking schedules.

*Impact:* Moderate, as it increases effort to find relevant information.

*Persistence:* Persistent, as it affects all schedules.

*How I weighed the factors:* Moderate impact and persistence justify the minor problem rating.

Possible solution and/or trade-offs: Introduce grouping (e.g., "Morning," "Afternoon") or filters (e.g., "Next Bus"). This requires extra development but improves usability. Perhaps adding more whitespace on the page or separate the page into two page but the tradeoff could be that the user would potentially have to go back and forth in this situation

**Relationships:**

## **Identifying Bus Stops:**

The problems in this group are regarding issues that the users ran into that are all regarding labeled bus stops. The lack of labeling on stops caused a halt in task completion for multiple users at unique areas during their testing. The areas of testing impeded where when users were trying to find ETA to a stop and then when the user was trying to find the schedule, both cases the user was unable to identify the desired stop. During real-world application of using the app, it would be necessary to understand which stop is which for arrival and destination purposes.

Having bus stops be labeled on the map interface and having the name of the stop shown when the stop is selected are potential solutions to fixing the problem of users struggling to identify stops. The name of the stop needs to be implemented somewhere on the screen as it is currently not present anywhere.

| <b>No. AH - 04</b>   | <b>Problem</b> |
|--|----------------|
| <p><b>Name:</b></p> <p>Couldn't find bus stop name on the map</p>  |                |
| <p><b>Evidence:</b> Task one "find what time bus is scheduled to arrive at the College of Business" took time for the user because he was exploring the map trying to find where the college of business is on the map and then find the arrival time from there, instead of checking the schedule.</p> <p><b>Interface aspect:</b> Map</p> <p><b>Criterion for critical incident/good aspect:</b> User tries several times before finding the right action</p> <p><b>Explanation:</b></p> <p>The user had difficulty with the first task "what time is the bus scheduled to arrive at the College of Business" because he was looking for the college of business on the map. After finding the scheduled time as the task requests, he still was unable to find which node on the map is for the College of Business</p> |                |

Severity Rating: 3 – major problem (a problem that should definitely be solved with high priority)

Justification (Frequency, Impact, Persistence):

*Frequency:* Common problem that all users are likely to experience as long as they are looking for a specific stop name and cannot find information about the stop

*Impact:* Difficult to overcome if you don't know what you're looking for, wastes a lot of time looking at different maps to find the location of things and then returning to the commute app to find bus location

*Persistence:* Users can be repeatedly bothered by it when looking at routes and stops they are not already familiar with. If the user is already familiar with the location, then it is not a persistent issue

*How I weighed the factors:* This problem is not app-breaking as the user can still find bus locations and ETAs, however it makes it much more ineffective to use the app if the user is not already familiar with the area

Possible solution and/or trade-offs:

Have the bus stop names on the map and also a link to the schedule page for each route within the stop information. Trade-off is that it can over crowd the map

Relationships:

|   |                             |
|---|-----------------------------|
| No. <u>  _DS - 01  </u>                   | Problem/Good Aspect Problem |
| Name:<br><br>Name of the stop not defined |                             |

**Evidence:** The user did not know the name of the stop when they tapped on one of the stops

**Interface aspect:** The map part for the route is flawed as it doesn't show the bus stop name when it is tapped in the navigation page.

**Criterion for critical incident/good aspect:** Consistency and standards

**Explanation:**

The user has used the app before and knows that in the real app, it shows the name of the stop, but in this case, it doesn't

**Severity or Benefit:**

**Rating:** 3 Major Problem

**Justification (Frequency, Impact, Persistence):**

*Frequency:* This problem can occur multiple times as looking for the bus stop without a name can be very difficult

*Impact:* It is an easy fix with adding names to each stop. This problem can cause major problems to the user as they cannot navigate without the bus stop names.

*Persistence:* The user cannot go around this problem to fix it. It will occur multiple times.

*How I weighted the factors:* A high severity and frequency and impact might cause user frustration.

**Possible solution and/or trade-offs:**

One solution is to include names in a placeholder when a stop is selected

**Relationships:**

|  |                                    |
|--|------------------------------------|
| <b>No. HH - 04</b>   | <b>Problem/Good Aspect Problem</b> |
| <b>Name:</b><br><b>Concealer Bus Stops</b>   |                                    |
| <p>The user had a hard time locating the rasing canes stop</p> <p>Interface aspect: the stops were not labeled on the map</p> <p>Criterion for critical incident/good aspect: User failed to locate the stop multiple times before locating the right stop</p> <p>Explanation:</p> <p>The user had a hard time location the stop and become frustrated</p>   |                                    |
| <p>Severity Rating: 3 - major problem</p> <p>Justification (Frequency, Impact, Persistence):</p> <p><i>Frequency:</i> The user tried serval times to locate the stop</p> <p><i>Impact:</i> It impacts the user by not knowing which stop is which quickly</p> <p><i>Persistence:</i> It will persist until the stops are memorized by the user</p> <p><i>How I weighted the factors:</i> I weighted by the negative reaction by the user and frustration while locating the stop and</p> |                                    |

**Possible solution and/or trade-offs:**

**Adding clear and noticeable labels for each stop, but the trade off would be the the map might become cluttered with all the labels**

## **Conclusion**

The think-aloud test revealed many major usability issues with the TransLoc application, including those associated with navigation, consistency of interaction, appearance, and information presentation . Ambiguous menu labels and unrelated features being nested together, like schedules and FAQs, contained vital information that users had difficulty searching for. An inconsistent navigation bar layout and buttons like back and settings that do not work also harm the experience. An additional aspect was poor color contrast, congestion in information screens, and map displays without visible and labeled bus stops. All these factors contributed to an experience that did not support using the app to complete the tasks provided to the users.

Clearer, more understandable labeling and icons must be provided by the app and also the grouping of features could be compartmentalized into specific tabs to prevent crowding. Proper prioritization and labeling is important to making compartmentalization functional. A common navigation bar across all screens would also enhance the app significantly. More obvious color contrast, grouping or filtering closely packed information, and clear labels on map elements would improve usability. A new-user tutorial could also ease one's transition to these functionalities in the application. The changes will make the app more accessible, clearer, and enhance the user experience as a whole.

## **Reflection**

- **How many problems did you find? How many of them were duplicates?**

Twenty problems were identified, nine of the problems were duplicates.

- **Do you think you found all the problems, or do you think you could have found more by testing with more users?**

While we identified several significant issues during testing, it's likely that more problems could be uncovered by testing with a larger and more diverse group of users. Different users may have unique experiences based on their familiarity with similar apps, their specific needs, or the devices they use.

- **How much time did you spend on each of the steps?**

Finishing the prototyping took about 2-3 hours, practicing the test took 30 minutes while conducting the actual test and writing the UARs took about 1 hour. To synthesize and write the report as a group it took about 4 hours.

- **How would you improve the process if you had to do the same assignment again?**

Tests with a broader user base including users with varying levels of tech proficiency, age, and accessibility needs would provide a more comprehensive view of potential issues.

Including more structured user tasks can also benefit the process.

Providing users with more detailed and specific tasks to complete could help identify more targeted usability issues.

## Appendix

### Task Descriptions:

1. Find what time the bus is scheduled to arrive at the College of Business
  - i. Objective is to navigate to the information -> schedule tab to find the planned schedule and be able to read the stop names to find the scheduled time
2. Find the bus ETA to the stop closest to the Raising Cane's on the map
  - a. Find out how full that bus is
    - i. Objective is to operate the home-screen map to find world landmarks (in this case Raising Canes) and then operate the stop and bus information relating to the landmark
3. Check for any potential route delays
  - i. Objective is to navigate to the notification section and comprehend the information provided (current or old delay? Delay or route closure?)

### Prototype: [Link to Prototype](#)

Amelia Hall test video:

[https://drive.google.com/file/d/1SznogvNgsMsasR05aO6PDch2aRi0O\\_C/view?usp=sharing](https://drive.google.com/file/d/1SznogvNgsMsasR05aO6PDch2aRi0O_C/view?usp=sharing)

Joshua Swanier Think-A-Loud Video

[Video1453855869.mp4](#)

Dev Shah's Think Aloud video:

[video1039542492.mp4](#)



Harrison Holt's test video

[Harrison test video.mp4](#)

Jack Meyer unable to provide video