

CS5760 & CS4760: Usability Test Report

Trip Tracker

Team6 - Rohith Challapalli

Introduction:

Team-6 has been developing an app called Trip Tracker, which records the trip between an origin and a destination. Both students and the professor will utilize it in a transportation engineering undergraduate course. Students can choose a path to follow at a leaving time from the origin, choose the destination activity or trip purpose, and mode of transportation (e.g., vehicle, bike, walk, or bus) by selecting a journey from an origin and destination on a map.

At a frequency of 0.1 or 0.2 seconds, the app will record detailed trip details like timestamp, speed, etc. Their student's name and MTU email address and trip information like origin, destination, departure date/time, purpose, and mode will be recorded by the App. The information about the trip will be uploaded to a server by the students.

There are two additional users in the application: Moderator and Admin. Both of these users may access the app and examine all of the trip information, as well as filter the trips by date. The data contains the student's email address, origin, destination, time stamp, and location, among other things, with the option to download it as a CSV file for further analysis of the collected student data.

The Admin assigns roles to users and the path they are going to take as part of the trip so that they can take different paths to the same destination.

Usability testing was carried out to identify any issues that may have gone unnoticed as well as to assess the UI's performance. Usability testing consisted of four test scenarios, each with general questions afterward and a post-test questionnaire at the conclusion. After that, the participants were asked to complete each scenario before being asked a few generic post-scenario questions.

The administrator and members of the development team kept track of various metrics after each scenario. Finally, after the testing, a post-test questionnaire was used to quantify participant evaluations as well as collect any remaining feedback.

Here's a link to the initial design document: <http://www.csl.mtu.edu/group6/> Final design changes: <http://www.csl.mtu.edu/group6/>

Testing Information:

For this process, eight usability testing sessions have been organized. Rohith Challapalli (UX Consultant) and two or three members of Team 6 will run each session. The following are the session dates and times along with the development team attendees:

1. April 10th, 2022 10:00 AM to 11:00 AM (EST)
Developers: Alec Brinker, Jade Wang, Jordan Gunning
2. April 10th, 2022 11:00 AM to 12:00 PM (EST)
Developers: Alec Brinker, Jade Wang, Jordan Gunning
3. April 11th, 2022 10:00 AM to 11:00 AM (EST)
Developers: : Alec Brinker, Jade Wang
4. April 11th, 2022 11:00 AM to 12:00 PM (EST)
Developers: : Alec Brinker, Jade Wang
5. April 11th, 2022 12:00 PM to 1:00 PM (EST)
Developers: : Alec Brinker, Jade Wang
6. April 14th, 2022 10:00 AM to 11:00 AM (EST)
Developers: Jordan Gunning, Alec Brinker
7. April 14th, 2022 11:00 AM to 12:00 PM (EST)
Developers: Jordan Gunning, Alec Brinker
8. April 14th, 2022 12:00 PM to 1:00 PM (EST)
Developers: Jordan Gunning, Alec Brinker

All sessions will be conducted remotely using Zoom as the testing platform. Participants will not be given access to the application until the testing begins, at which point a link to the application will be distributed in the Zoom chat. The administrator, assisting development team members, and the participant are all required to have access to the following:

1. A Computer / Laptop / Tablet
2. Strong Internet Connectivity
3. latest version of Zoom
4. Working Microphone and Speaker
5. Working Camera (optional)

The administrator and assisting development team members will further require access to the following:

- A copy of the bug report form.
- A copy of the testing challenges form.
- A time recorder (stopwatch, clock app, etc.).

Testing Process:

The testing process will then proceed as follows:

Initially,

1. A Zoom meeting will be set up, and the corresponding link will be sent to the participant one or two days prior to the scheduled testing session. The email lets participants know that the session will be recorded.
2. The development team members and the administrator will also be provided with the zoom link 2 days prior to the scheduled session. The email will include information regarding their roles and their tasks.
3. The administrator and assisting development team members are required to arrive at the testing session at least 5 mins before to ensure the testing can begin as soon as the participant joins the meeting.
4. A check will be conducted by the administrator to ensure that the session is being recorded and that the screen sharing option is enabled for all participants.
5. Once the participant joins the meeting, the administrator will explain the project briefly and the procedure of the testing.
6. The administrator will obtain the participant's verbal authorization to participate. The remaining procedures will proceed assuming continued permission from this point forward. The participant may cancel consent at any time, and the testing session would be effectively ended.
7. Now the participants are provided with the link to the application. Now they must start the screen sharing.
8. The participant will then attempt to complete the scenario as described to the best of their ability and will be encouraged to think aloud throughout.
9. After every scenario a list of questions is sent to the participant and their responses are recorded.
10. This repeats for all the scenarios and if that is not the last scenario the participant will be asked to close the application and reopen it again.
11. Finally, after finishing all the scenarios the participant is provided with a post-test questionnaire and the responses are recorded.
12. Now the participants can leave the session and the meeting will be concluded in a few minutes.

Testing Scenarios:

Test Scenario 1

1. Test Scenario Name: Accessing the website and creating a new account
2. Goals: Observe participants create a new account.
3. Required Equipment and Software: Zoom Conferencing Software, web browser, internet connection.
4. Quantitative Measurements:
 - (a) Different ways the participants try to finish the task.
 - (b) Time taken to finish the task
5. Scenario Description:

This application will be used by Michigan Tech students to track and record their trips. You will be using this to record a short trip by creating an. Now, I will send the link that redirects you to the Trip Tracker Application. You can create a new account by using your Michigan tech email id.
6. Task List:
 - (a) Go to the link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/>
 - (b) Click the login button.
 - (c) Click the create new account button.
 - (d) Enter Tech username (MTU email Id without @mtu.edu).
 - (e) Verify Email Id, by entering the validation code.
 - (f) Enter and verify your password.
 - (g) Click on create new account button.
7. Qualitative Measurements:
 - (a) The scenarios that are not clear for the participants.
 - (b) Errors did by the participant during the process.
 - (c) What questions do the participants ask?
 - (d) If participants have finished the task given in each scenario?
8. Test Setup Details: The participants can open the trip tracker in their browser, using this link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/> and share their screen on Zoom.

Test Scenario 2

1. Test Scenario Name: Login to the application
2. Goals: See how the participants try to log in.
3. Required Equipment and Software: Zoom Conferencing Software, web browser, internet connection.
4. Quantitative Measurements:
 - (a) Different ways the participants try to finish the task.
 - (b) Time taken to finish the task
5. Scenario Description:

In this scenario you will log in to the Application using the credentials used when creating the account.
6. Task List:
 - (a) Go to the link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/>
 - (b) Click the login button.
 - (c) Enter Username.
 - (d) Enter Password.
 - (e) Click the Login button.
7. Qualitative Measurements:
 - (a) The scenarios that are not clear for the participants.
 - (b) Errors did by the participant during the process.
 - (c) What questions do the participants ask?
 - (d) If participants have finished the task given in each scenario?
8. Test Setup Details: The participants can open the trip tracker in their browser, using this link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/> and share their screen on Zoom.

Test Scenario 3

1. Test Scenario Name: Record a trip.
2. Goals: Observe that the participants can record a trip.
3. Required Equipment and Software: Zoom Conferencing Software, web browser, internet connection, Smartphone.
4. Quantitative Measurements:
 - (a) Different ways the participants try to finish the task.
 - (b) Time taken to finish the task
5. Scenario Description:

In this scenario, you will record a short 30-second trip by selecting origin and destination and then stop the recording. At the end upload the trip.
6. Task List:
 - (a) The user should open this link on a smartphone: <https://hci-dev.cs.mtu.edu:8149/TripTracker/>
 - (b) Login using the given credentials.
 - (c) Enter an origin and destination.
 - (d) Record a short 30-second trip.
 - (e) Stop the recording and upload the trip.
7. Qualitative Measurements:
 - (a) The scenarios that are not clear for the participants.
 - (b) Errors did by the participant during the process.
 - (c) What questions do the participants ask?
 - (d) If participants have finished the task given in each scenario?
8. Test Setup Details: The participants can open the trip tracker in their browser, using this link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/> and share their screen on Zoom.

Test Scenario 4

1. Test Scenario Name: View/Delete previous trips
2. Goals: Observe that the participants can view their trip history and delete a trip if necessary.
3. Required Equipment and Software: Zoom Conferencing Software, web browser, internet connection.
4. Quantitative Measurements:
 - (a) Different ways the participants try to finish the task.
 - (b) Time taken to finish the task
5. Scenario Description:

In this scenario, you will be logging into the application clicking on View/Download a trip, and then deleting the trip that was recorded before.
6. Task List:
 - (a) Go to the link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/>
 - (b) Login using the given test credentials
 - (c) Click on View/Download a trip.
 - (d) Click the delete button next to a trip and delete the trip.
7. Qualitative Measurements:
 - (a) The scenarios that are not clear for the participants.
 - (b) Errors did by the participant during the process.
 - (c) What questions do the participants ask?
 - (d) If participants have finished the task given in each scenario?
8. Test Setup Details: The participants can open the trip tracker in their browser, using this link: <https://hci-dev.cs.mtu.edu:8149/TripTracker/> and share their screen on Zoom.

Post-Test Questionnaire:

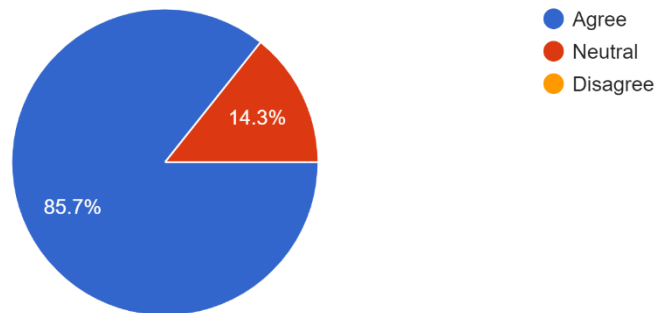
Link: <https://forms.gle/1KagTqCMyRX3YWH39>

1. Overall, User Interface of Application is simple and easy to use
 - (a) Agree
 - (b) Neutral
 - (c) Disagree
2. The Application is flexible and has a quick load time.
 - (a) Agree
 - (b) Neutral
 - (c) Disagree
3. The navigation across different pages is available and easy.
 - (a) Agree
 - (b) Neutral
 - (c) Disagree
4. Overall performance of the application is good.
 - (a) Agree
 - (b) Neutral
 - (c) Disagree

Results:

Overall, User Interface of Application is simple and easy to use*

7 responses

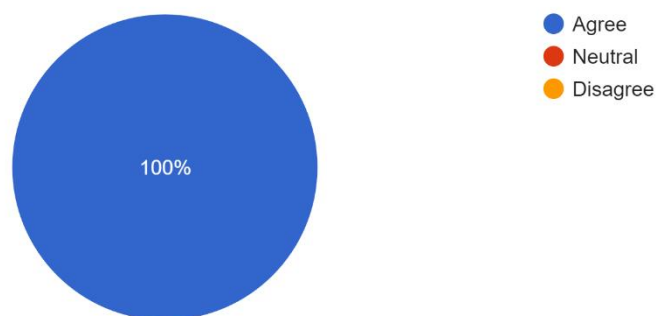


After each scenario and after the whole testing process the participants and the users were asked general questions regarding the User Interface and navigation through each page and if they had any issues or difficulty understanding a particular option.

The overall response we got regarding the user interface as it was simple and easy to navigate and the color combinations are complimenting and matching the MTU representative colors.

The Application is flexible and has quick load-time

7 responses

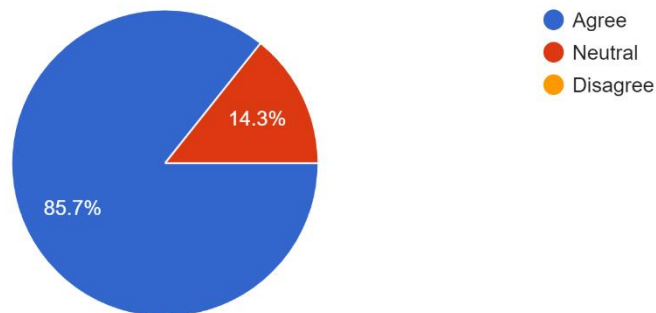


When the participants were asked to access the application through the link given to them they were asked a few general questions regarding the loading of the pages and how fast they were loading without excluding any icons or functionalities.

The response we got was supportive and all the participants had no issue here and the above chart shows the result.

The navigation across different pages is available and easy

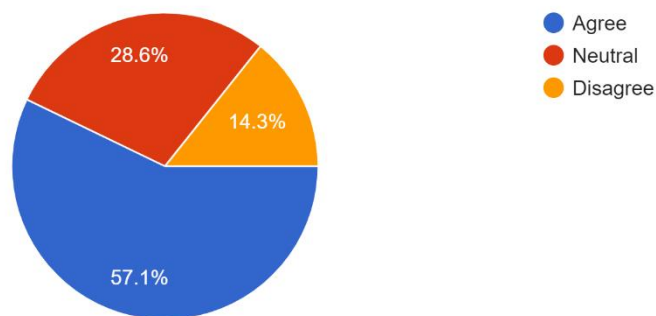
7 responses



The navigation across different pages was easy and no issues transitioning. The above chart shows the result for the navigation. Most of the participants seems to agree that the navigation was available across different pages.

Overall performance of the application is good

7 responses



More than half of the participants think that the overall performance of the application is good and they seem to understand the purpose of the application clearly and how the application is working.

Conclusion

Suggestions for Improvement:

Here I am just adding the major repeated improvements expected by the participants and the relevant ones.

1. Highlight the options on the navigation bar when the cursor is placed on a specific option.
2. Autofill feature while filling in the destination address and start address will be helpful if they are traveling to the same location multiple times or when they try to add a lengthy address.
3. Color changes for the state of the tracking. When a participant tries to start the trip after filling in all the details the status changes to walking but the color doesn't change. It would look great if the color changes based on the state (e.g., idle, walking, trip stopped.)
4. End time in the trip history is not being recorded which can be included and recorded.

All the participants were successful in completing the tasks for each scenario. All the core functions were working, however, there were a few small bugs/errors that needed to be addressed. Overall, all the participants enjoyed testing the app, and they thought it was user-friendly and simple to operate.

Appendix A:

Participant Attendance:

Testing date and time	Location	Participant	Attendance
04/10/2022 10:00 AM	Zoom	Sebastian Adams	No
04/10/2022 11:00 AM	Zoom	Alek Ekstrand	Yes
04/11/2022 10:00 AM	Zoom	William Borucki	No
04/11/2022 11:00 AM	Zoom	Alex Gilleylen	Yes
04/11/2022 12:00 PM	Zoom	Luke Vidlund	Yes
04/14/2022 10:00 AM	Zoom	Michael Riccobono	No
04/14/2022 11:00 AM	Zoom	Brendan Marshall	Yes
04/14/2022 12:00 PM	Zoom	Hollis Aitkens	Yes

Appendix – B

Bug Report

Bug Number	Bug Name	Priority	Bug Description
1	Password Mismatch	Urgent	Did not show all the unmatched requirements for the password. It only shows one missing requirement when multiple requirements are not met
2	Inconsistency	Urgent	Inconsistency in the user interface and the navigation bar
3	Username	Partially Urgent	The username in the navigation bar is in the wrong location and has no functionality
4	Navigation Buttons	Urgent	No navigation buttons are found in the pages.
5	Validation Code	Not Urgent	Need a validation code notification sent to the participant.

Appendix – C

Testing Challenges:

No testing challenges were found during the usability test.

Challenge Number	Challenge Name	Challenge Description