

**PROJECT I: TRANSPORTATION SERVICES**  
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**BUS APPLICATION SOLUTION**

# PROJECT I: TRANSPORTATION SERVICES INTRODUCTION

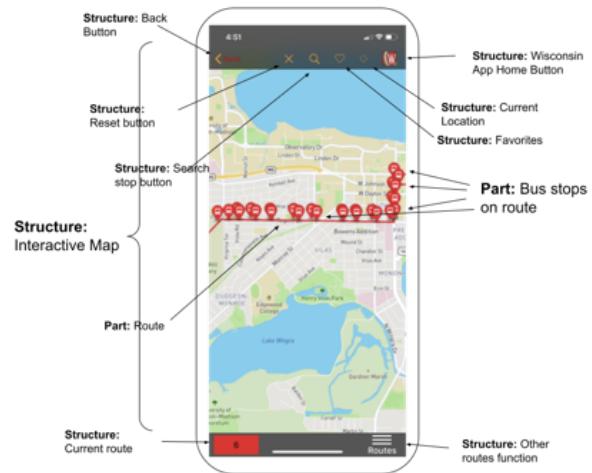
For our project we decided to evaluate the use of the transit applications within the student body on campus, specifically the Wisconsin Bus Transportation Application. We observed three participants each using the application for varying purposes but found similar underlying issues with the application during our studies.

In all three interviews, the users encountered a myriad of bugs. The most significant issue was frequent crashing. Crashes occurred in various stages of usage; using the sequence diagrams, we were able to classify where and how often they occurred. The crashes would occur when finding bus routes, viewing real-time data, and loading a bus stop's data.

Apart from crashes, there were a few more issues with the app. The user had to be extremely well-versed with all the buses and their stops to find the path to the destination. The user cannot manually search for a destination and find out how to get there. The bus stops could only be searched with a 4-digit code that we are still unable to figure out how to find. There was trouble viewing favorites and there was not an option to save a schedule.

There is a lot of potential for this app with its unique features, which is why many people still use it even with its flaws. A mobile application is the best medium to deliver this data; what needs to improve, however, is its implementation and addition of new features.

Wisconsin Bus App Current Interface:



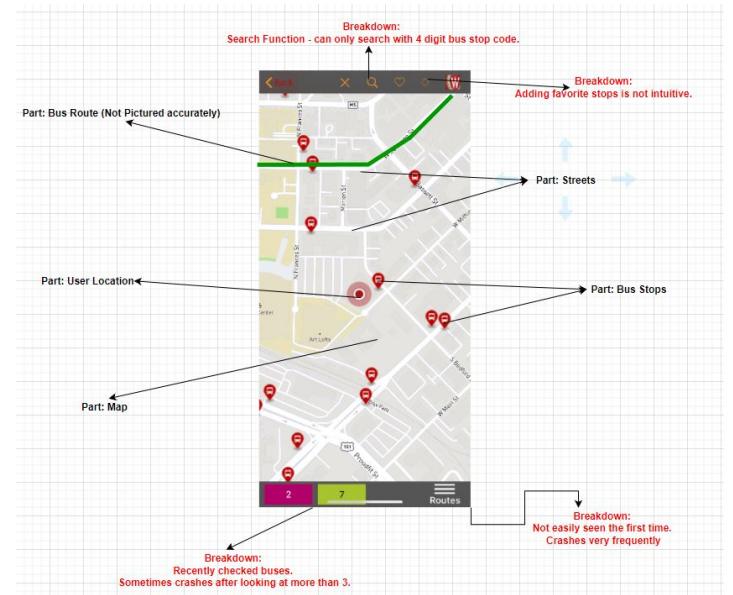
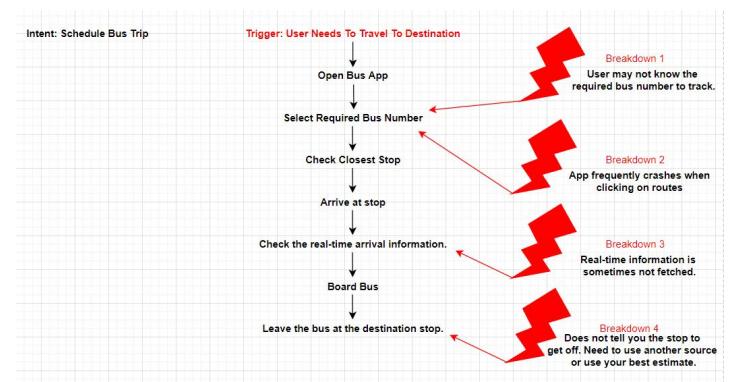
# PROJECT I: TRANSPORTATION SERVICES UNDERSTANDING

In our contextual inquiry, we followed 3 participants on their way to the bus stop using the Wisconsin Bus Transportation Application.

All the interviewed participants were college students and that indicates that they do not have a lot of free time which means transportation should be efficient. Even when one is on their way to the mall, as was the case for two of the interviews, it is preferred to not spend too much time or effort on simply getting there. This is where the findings of the sequence models become troublesome. The sequence models show that there are multiple breakdowns while trying to use the app to plan a trip.

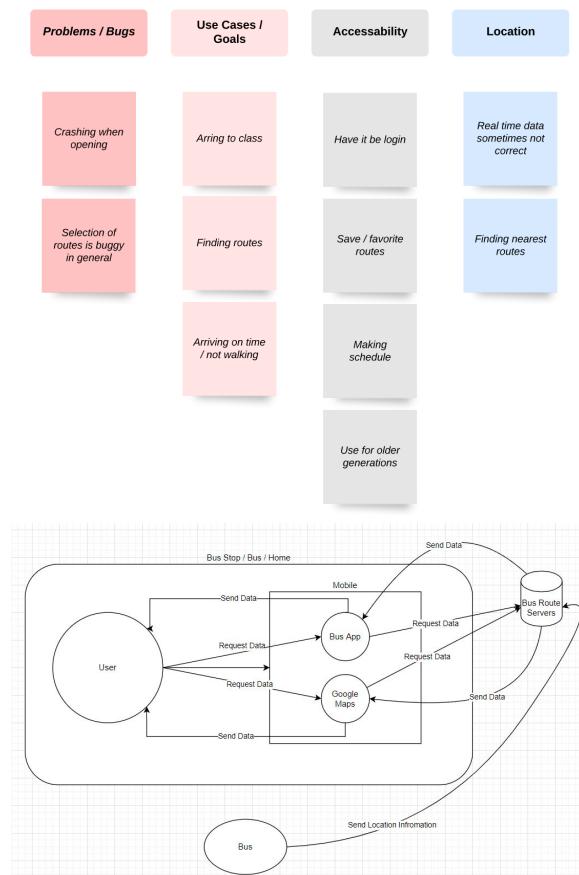
A common breakdown that can be seen in the sequence and artifact models is the routes feature. Upon first use, the routes feature almost always causes the application to crash. While this is normally resolved by just closing out of and reopening the app, sometimes the app continues to crash and experience loading difficulties.

From these models we concluded that first and foremost, the bugs need to be worked on so there is significantly less crashing. We believe being able to save favorite routes and find routes closer will allow for easier accessibility for these college students. There needs to be many improvements, but this is just the start.



# PROJECT I: TRANSPORTATION SERVICES IDEATION

For our sketching, we referred to previous models and our lo-fi prototype listed in the next section. These were helpful in creating our design ideas, such as from our affinity diagram creating a login to save routes. We also have the nearest bus stop load automatically, which is another feature shown in our lo-fi prototypes and models.



During our TAP testing, we came to multiple design improvements.

For participant one, we decided to start basic with just having them find the next stop for bus 13 as a concurrent think aloud task. Although this is something that seems simple to the average person, having better user accessibility in all aspects of the design was a huge focus of ours and we wanted to test if the user saw improvements. The participant

right away was very pleased with the usability of the application and finding bus stop 13 was very easy for them. They commented on how after finding the bus stop, they now needed to find the next one and it was very easy to find by clicking “13”. They were able to conclude that the next stop for bus 13 is N Mills & University (SB). Their retrospective think aloud task was finding what bus stop bus 13 was going to stop at closest to them. The user seemed to be confused by having University & N Lake (WB) listed up top, and then again as a next stop, but were able to conclude that it was stopping at University & N Lake (WB) and it was just listed twice.

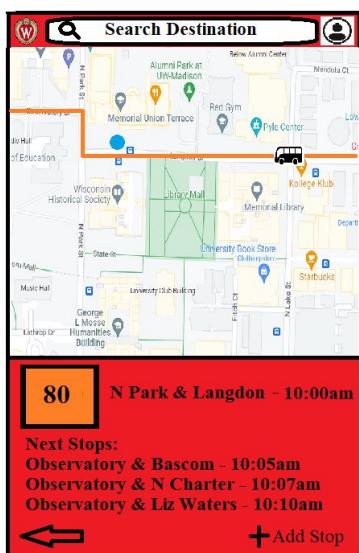
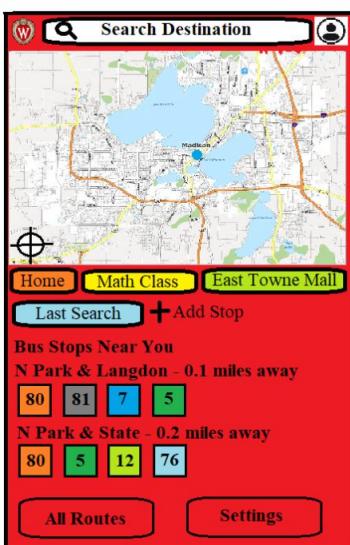
The second participant began the process by trying to find the bus disruption notification settings. The participant found the settings button easily and from there was able to find the notification settings. The second task that the participant had to perform was finding out when bus 13 would reach W Johnson & N Mills. The participant quickly moved on to the second task and they were able to navigate to the home screen easily. From there they found the button labeled “13” and pressed it. This opened the list of upcoming stops where the user was able to find W Johnson & N Mills. They verified that the bus would reach that stop at 9:54 am.

For participant three the first task was to make a profile. The participant was able to find the profile button immediately. From there they went to create an account. This part wasn't functional in the prototype, so they stopped there. The participant hit the back button in the upper left. They then found the button labeled “13”. This made the bus and route pop up on the map and they were able to indicate where the bus was at that moment.

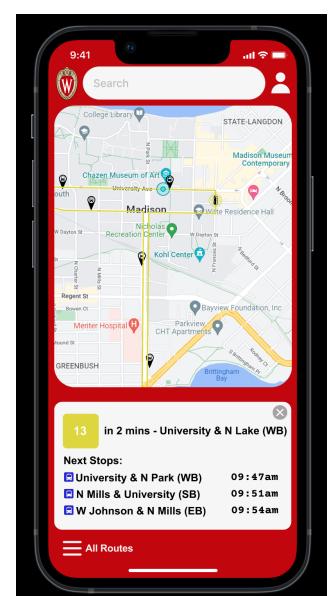
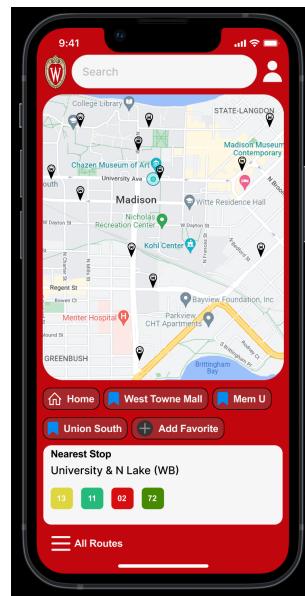
# PROJECT I: WEB-BASED SERVICES EVALUATION

Our lo-fi prototype took the design ideas from our sketches and produced them. We specifically included:

1. Saved bus stops
2. Nearest stops
3. Login page
4. Next stops available
5. Smaller map / less of UI
6. Search destination for routes

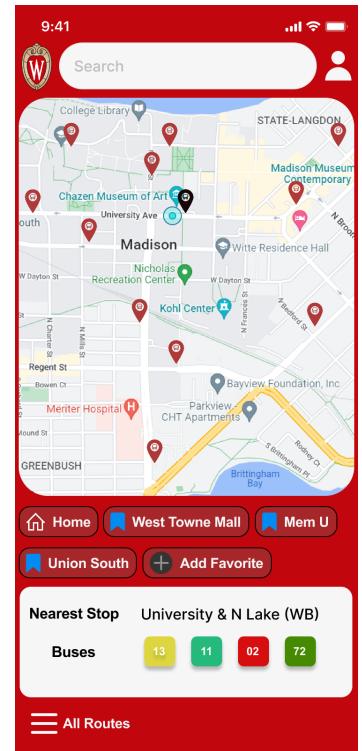


We took this lo-fi prototype and created our draft hi-fi prototype before performing TAP with our 3 participants:



After TAP we were able to make the finishing touches on our hi-fi prototype, making these significant improvements:

1. Changed various coloring for user clarity
2. Added more functional bus routes
3. Removed confusion of next route from our TAP findings
4. Adding a bookmark example



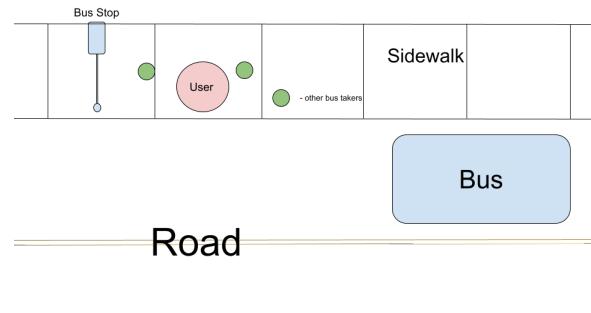
## PROJECT I: TRANSPORTATION SERVICES EVALUATION

The different sketches and prototypes employed all aspects of the process prior to TAP testing. They were created using data from our contextual inquiry, especially the affinity diagrams, and flow models.

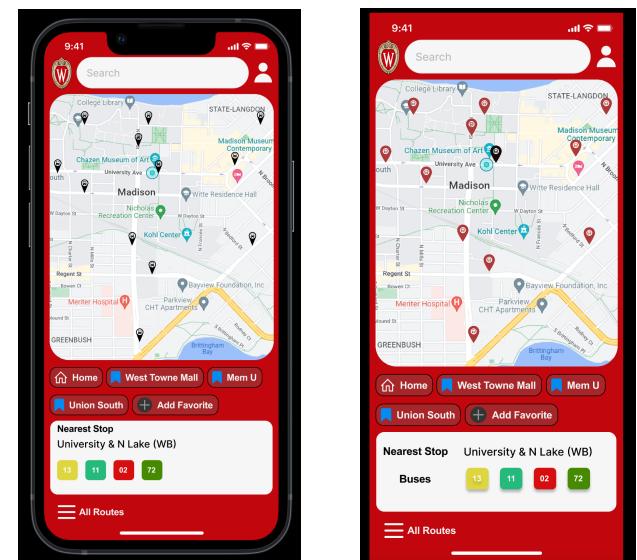
The lo-fi prototypes were partially based on the Wisconsin bus app. They were created using Microsoft Paint. The idea was to improve this application, so it was a good starting point. From there, the affinity diagrams and flow models were used to add some improvements.

The first figma prototype was meant to be an improvement from that first lo-fi prototype. This prototype had a better color scheme and more cohesive icons. Different areas were separated more clearly by grouping within shapes.

In our final hi-fi prototype, we focused on the feedback we received from TAP and tried to make the user interface have more clarity and understanding regarding the flow. We changed the bus stops from black to red to make sure they popped and made only the closest bus stop black to make sure the user could easily see that it is the closest. We also changed the wording in some areas of our application, like when opening a specific bus, we did not repeat the bus stop so that the user could clearly identify the next stop. We added more functionality to our prototype, allowing use of the bookmarks, and all the bus stops available for the closest bus route.



Road



# PROJECT I: TRANSPORTATION SERVICES FINAL SOLUTION

Our final solution brings focuses from our contextual inquiry, sketching, models, affinity diagramming, and prototyping into one to create a better transportation application for users. Our application wants to primarily focus on these solutions for our users:

1. Location services and nearest routes available
2. User accessibility and clarity
3. Saving to a profile favorite routes and common schedules
4. Thorough debugging of common crashes typically caused by the large amount of data input
5. Accurate and updated data and information

From our first hi-fi prototype, we made sure to change how clear our interface was from the feedback we received during our TAP interviews. This included creating some small differences within the interface, and then as a whole continuing to make it more functional. This included adding the bookmarks, all the stops, and all the different maps and routs highlighted in their specific colors.

Overall, we feel that this much better serves users and is much easier to use than the original Wisconsin Bus Transportation Application. The ability to create a profile and save commonly used bus routes is essential to saving time, the option to search destinations and find buses routed there helps with planning, and providing the nearest stop is another way that allows users more connivence using the application.

<https://www.figma.com/file/hZoUdMeDOQ7ipwGGyhBRZs/Figma-After?node-id=0%3A1>

