

# Connectr: Lo-Fi Testing

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## Value Proposition

Making public transit easier through connection

## Mission Statement

Our product aims to make public transit more usable and accessible. We want to reduce the stress of interacting with a transit system by providing visual aids, user-friendly information services, and community-based support. We also hope to help people find the joy in public transit by introducing features that increase social interaction and spontaneity. Our product unites other public transit information services to create a singular platform for all transit needs.

## Problem/Solution Overview

American transit systems are difficult to use and require multiple applications to navigate. In most cases, transit systems are decentralized and unreliable. No product has been developed that sufficiently improves upon the flaws in American public transit. Public transit users often look at two to three apps just to navigate their daily route. However, public transit provides incredible benefits to the community it serves. It's affordable, sustainable, safer, democratizing and low-stress. Our product addresses the flaws in the transit system through community knowledge and integrates this knowledge with mapping services. We understand that communities know their transit systems better than anyone else and will leverage this knowledge to build a more accurate knowledge base for public transit systems.

## Concept Sketches

### Widget Style

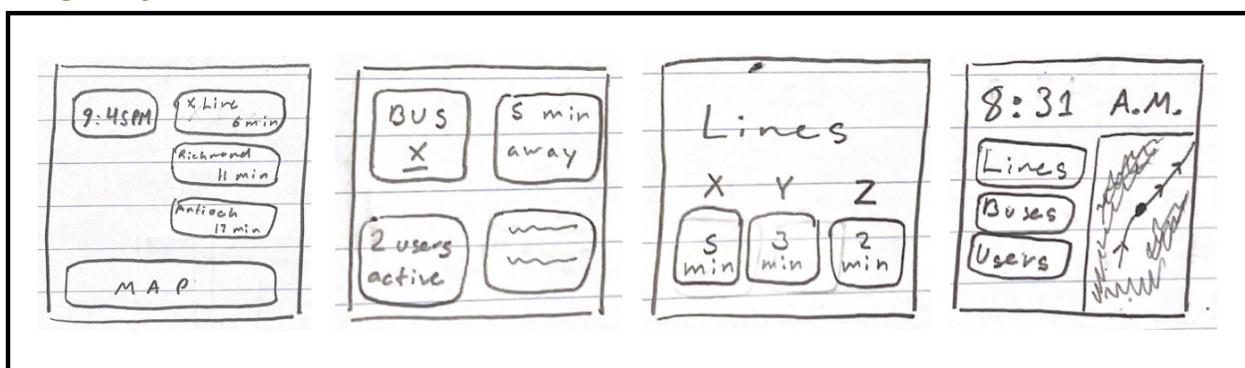


Figure 1: Widget styling for native watch or smaller UI apps

Pros	Cons
Lots of information at once	Crowded
Organized information	Hard to find what you're looking for
Allows users to compare different kinds of information (ie. delays & how crowded a bus is)	

### Map-Based, Panel-Style

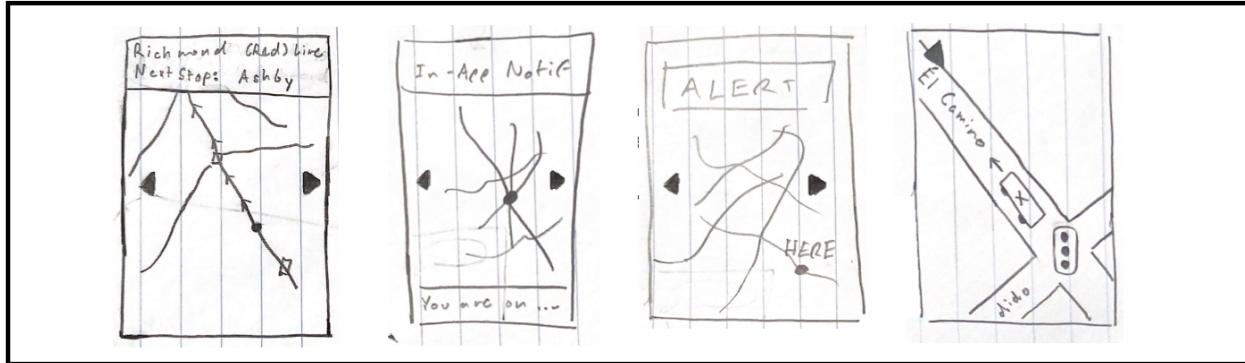


Figure 2: Panel styling of a map-based UI for native tablet or larger UI apps

### Audio-Based

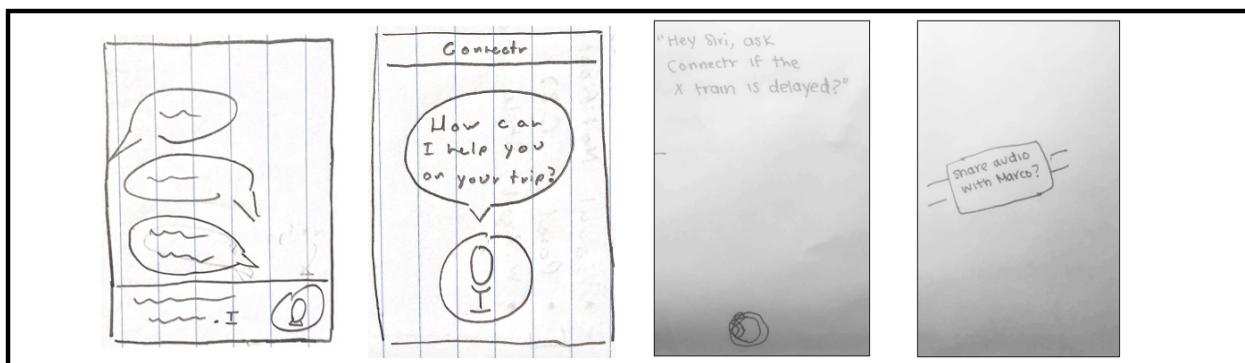


Figure 3: Audio-based native mobile app for users with less physical access to device (in a rush or on the go)

### Chat-Based

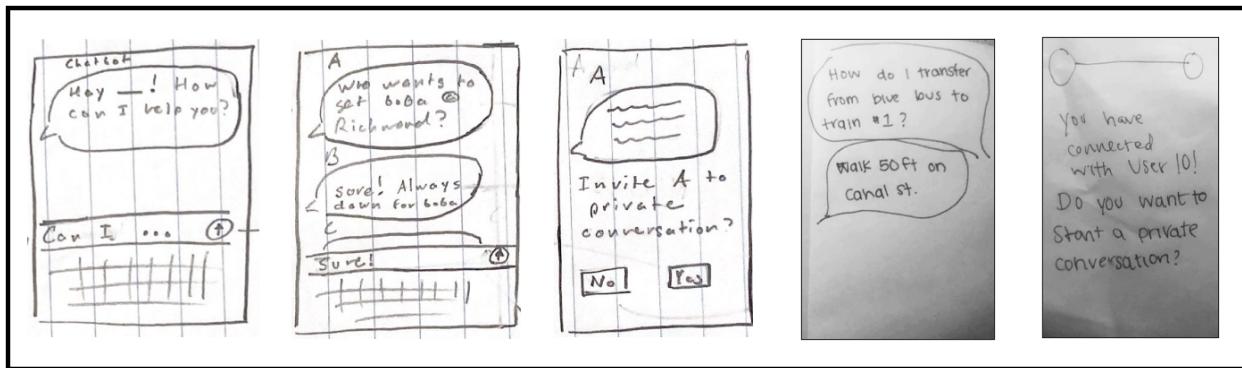


Figure 4: Chat-based design for native mobile app, encouraging person-to-person interaction on the same bus, train, or line

Pros	Cons
Interactive	Takes a lot of time to type
Feels familiar	Might not be clear if the user is chatting with the chatbot or another person

### Post-Based

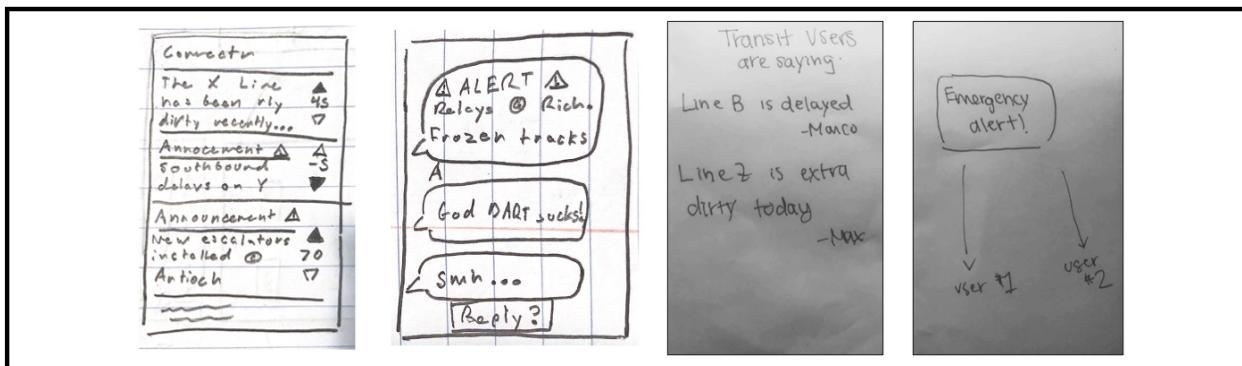


Figure 5: Post-based design for native mobile app, encouraging spreading alerts or other events that may apply to many users in the same area

## Further Storyboarding

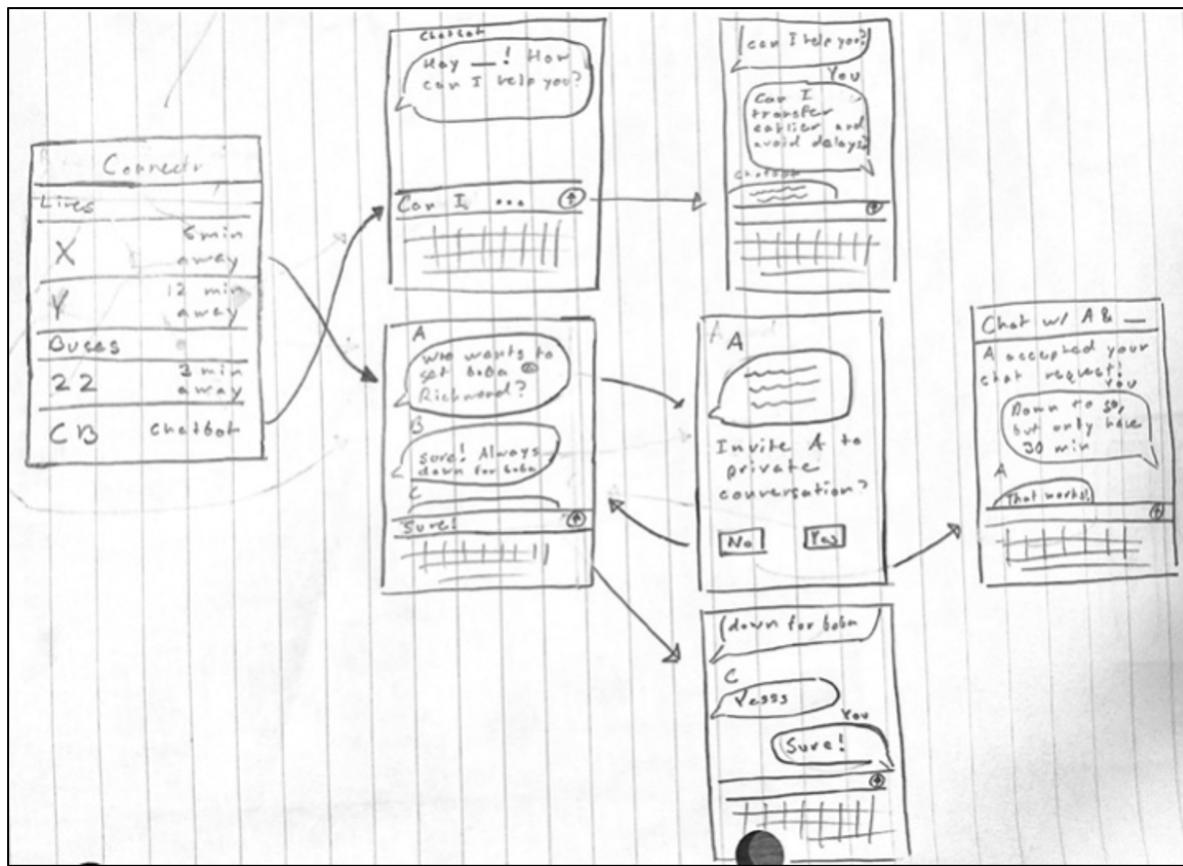


Figure 6: Chat-based task flows, including a homepage to navigate between different chats and line/ride and private messaging

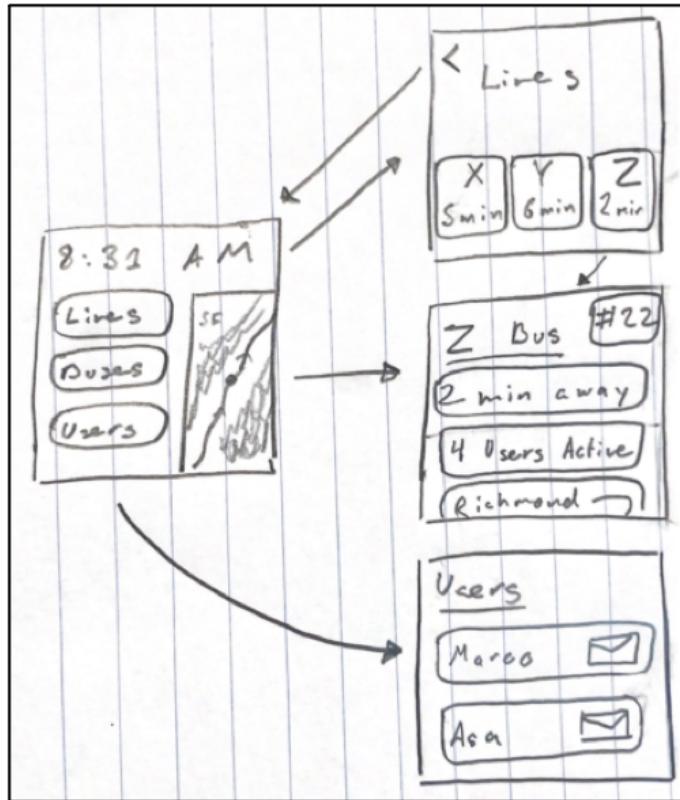


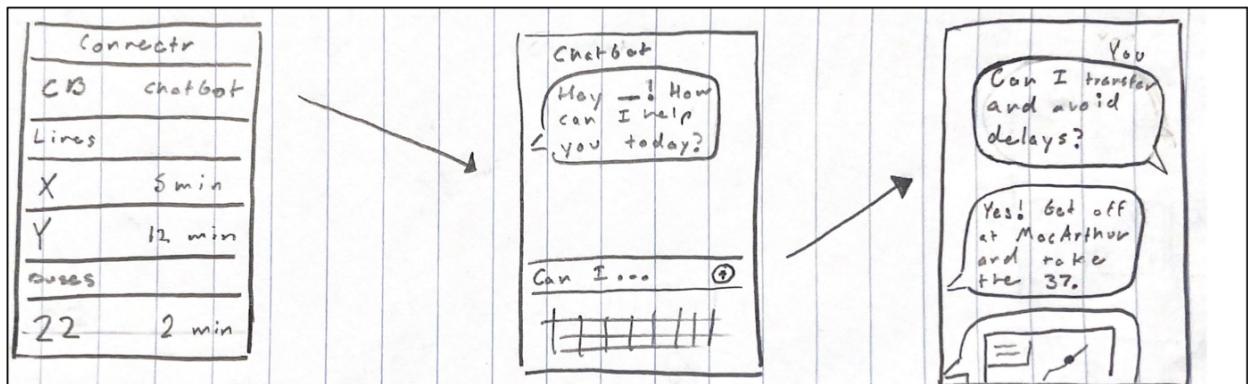
Figure 7: Widget storyboarding

### Selected Interface Design

We aim to implement a mobile application. A mobile application will allow our product to be used on the go and in busy situations. Mobile application reduces the reliance on WiFi and provides us access to location services. Finally, most transit users are already using their phones for entertainment so our app will fit smoothly with their experience.

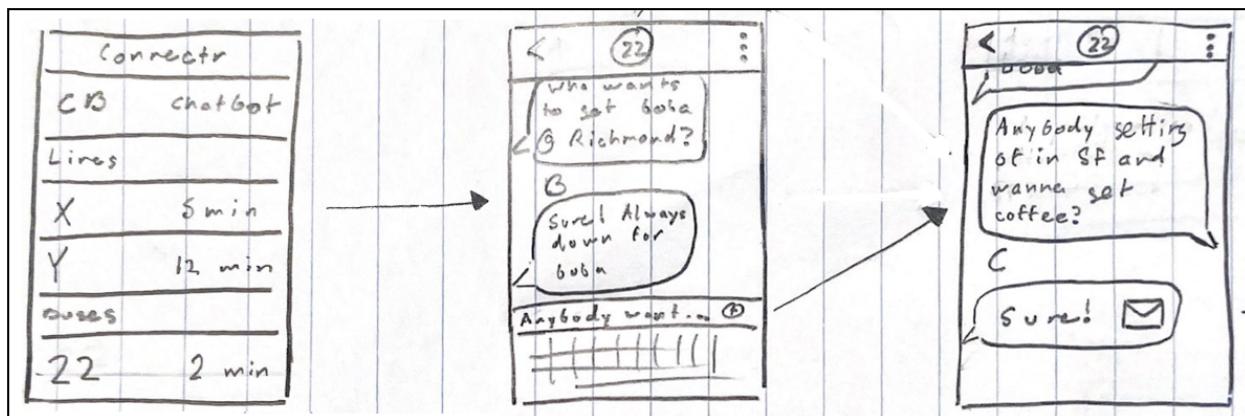
#### *Simple:*

(T1) Asking the chatbot about your ride

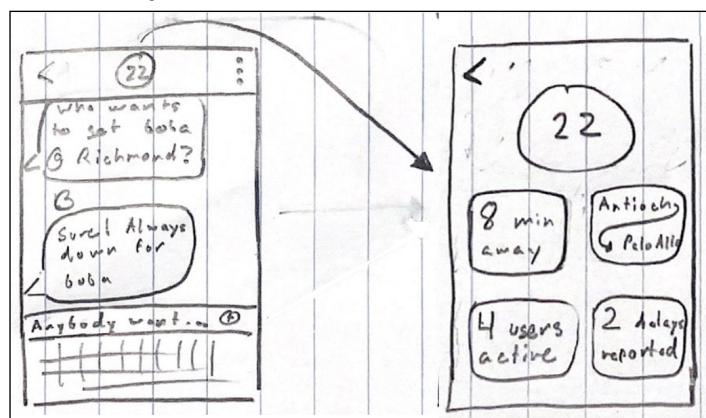


### Moderate:

(T2) Chatting with people on the same bus (#22).

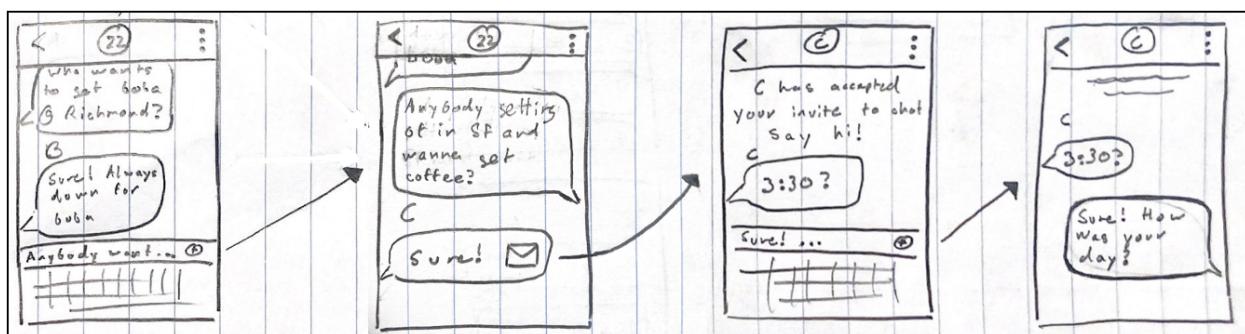


(T3) You're trying to find extra, base details about your ride, like how far away the next bus on the line is and where you're headed.



### Complex:

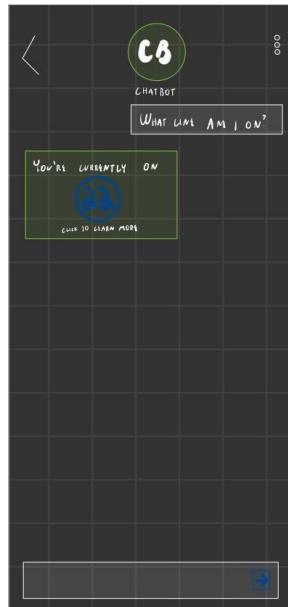
(T4) Direct messaging



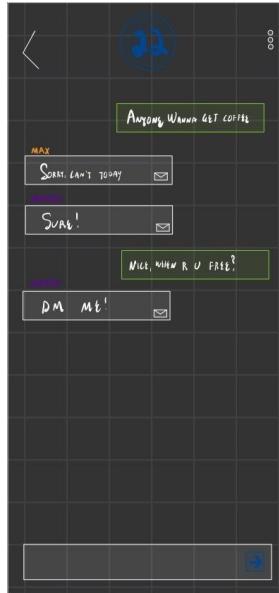
## Prototype



Here, users can view their chats. They can chat with the Chatbot and people on specific bus/train routes. They can also view their direct messages that they have started.



(T1) If a user clicks on the Chatbot, they are led here. They can message the chatbot questions about their public transit system, similar to interacting with the bus driver.



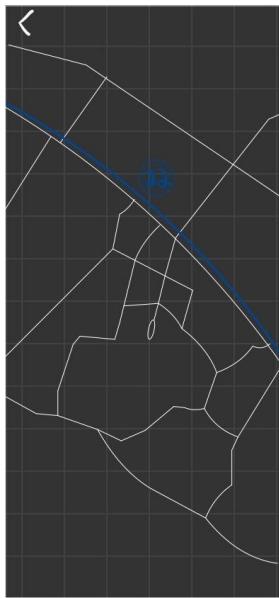
(T2) If a user clicks on the chat with their bus, they are led here. Here, they can send messages to other people on the train/bus. They also have the option to DM a user in the chat if they want to talk to them one-on-one.



(T4) If a user clicks on the direct message with Marco from the screen above, they are led here. They can send messages back and forth with Marco, who is also on the bus.



(T3) This widget style page allows the user to view different types of information about their trip all at once. It tells them how far away the next bus is, where the bus line starts and ends, how many other passengers are active on Connectr, whether there are delays, how often the bus comes, and the name of the bus. It also gives users the option to message the chat containing people on this route.



This Map panel provides an aerial view of the trip to give users context for where they are and where they are going.

## Participants and Environment

We recruited our participants through Nextdoor. We interviewed three women. They are all public transit users currently residing in the Bay Area. Two have lived in the Bay Area for their entire lives and frequently use public transport. One moved to the Bay from Singapore 6 months ago. She always used public transit in Singapore. When she moved to the Bay, she tried to use public transit but was frustrated by the system. We conducted our prototype testing over Zoom. We sent users our prototype and had them share their screen as they navigated it

## Tasks

### 1. *Simple:*

- a. You're confused about what line you're on and want to interact with the chatbot to learn more about your ride.

### 2. *Moderate:*

- a. You're on a bus and trying to chat with people on the same bus (#22) with the app. You want to see if anybody on the bus wants to get coffee.
- b. You're trying to find extra details about your ride, like how far away the next bus on the line is and where you're headed.

### 3. *Complex:*

- a. You're trying to directly message the person who agreed to get coffee with you to get more specific details about how you should meet each other.

## Usability Goals

Our goal is to create a fluid user experience where someone can quickly answer questions about public transit and interact with other people on public transit. In our prototype testing, we want users to be able to be able to navigate through the different chat options and understand the value that each one provides. We also want them to better understand their trip through aerial navigation and widget style page. We hope that in our prototype testing, our participants understand the type of information the widget page provides and find it useful to using public transit.

## Test Measures

We measured whether our app was useful and easy to navigate for users. By measuring successes, we were able to understand which features are intuitive and provide a benefit to the users. They revealed which tasks users would actually use and the circumstances under which they would use them. We also used participant reactions to gauge the efficacy of our product. For features that they particularly enjoyed,

participants would often remark on how much they wish they had this feature today. Our failures revealed which tasks were confusing and needed to be revised.

## Procedures

We asked participants to imagine a scenario where they are having difficulty using public transit and then presented them with our prototype to see how they used the application to navigate the scenario.

## Team Member Roles

- Greeter: Asa/Marco
- Facilitator: Max
- Notetaker: Asa/Marco

## Results

- Chatbot had mixed success among our participants.
  - UI not intuitive enough
    - Participant #3: "This is immediately confusing to me. There's no button that says, 'What line am I on?' I see this and I freeze."
  - Not a clear enough prompt to interact with the chatbot
    - Participant #1: "Chatbot starts everything?"
- Chatting with others was more intuitive and all participants successfully completed the task
  - People liked that the app knew where they were
  - Liked that it displayed the name of the bus on the top
- People had a difficult time navigating the widget-style "info page"
  - Liked the information we provided
  - Didn't know to click the widgets for more information
- People quickly learned how to use the direct messaging feature
  - Most familiar -- similar format to Whatsapp/Facebook Messenger
  - The envelope symbol helped them understand how to complete the task
  - Wanted more anonymity for Direct messaging
  - Users completed this task the fastest by far

## Discussion

Our participants all expressed excitement over our concept and affirmed the need for a product that uses multiple tools to help users approach public transit systems.

Participant #3 told us "This is a very good application for computer technology."

Participant #1 affirmed our desire to implement a crowd-based advice system. She said: "New [public transit] systems can be really hard to use and Google Maps doesn't

have as much information as community members. I would prefer to ask people who know the area."

Our failures provide valuable insight into next steps. Participants struggled to know where to start with the chatbot. We will shift our prototype to prompt the user to interact with the chatbot. A searchable FAQ section could be helpful in improving the success of the chatbot.

Participants also expressed frustration with the need to type into the chatbot or type to interact with other users on the train. In a rush, they said, this would be difficult.

Participants also pointed out that many of the questions that a person would ask the chatbot are repeated. These insights suggest that having FAQs for the chatbot and prompts for the crowd-sourced messaging would be helpful and save time. With the crowd-sourced messaging, the prompts could cover common topics like, "Is anyone else getting off at this stop?," "Does anyone know if this trip will be delayed?"

Participants like the crowd-sourced approach but expressed concerns over privacy. Participant #2 stressed the need for anonymity but also appreciated interacting with named humans. She suggested displaying users' first name only. This way, users are assured that they are interacting with real people but aren't worried about safety.

A final takeaway is the usability of our homescreen. There were not sufficient distinctions between our features and our tasks. To make the app intuitive and to ensure that users interact with all of the tasks that our product can complete, we need to better label our different screens. Since our envelope symbol vastly improved the usability of our direct messaging feature, we hope to develop symbols that can capture the task that each screen completes .

## Appendix

### Critical Incident Logs

#### Participant #1

Incident	Severity
(T4) Struggled to find out how far away the bus was, clicked a lot of things before finding the correct button	4
(T3) Knew what button to hit from the widgets to start a DM	0
(T1) Immediately knew how to interact with the chatbot	0
(T2) Thinks crowd-sourcing is intuitive and more useful than visual map	0

#### Participant #2

Incident	Severity
(T4) Worried about privacy and safety "I don't want people to have my last name"	3
(T1) More need for prompts "I'm not sure what type of question I would ask"	2
(T4) Likes the ability to DM individuals "I always have a crush on the train"	0
(T2) Likes widget style format "Ooh, it's helpful to have all this information"	0

#### Participant #3

Incident	Severity
(T4) Has no idea where to go, not intuitively clear "Well I don't know"	4
(T2) Lack of distinction between chats in homescreen: Chatbot/Automated	3

vs. Lines vs. Ride	
(T1) Lack of specific standardized, basic questions already provided, information accessible with less tapping/texting	2
(T1) Believes that chatbot is the central component of the app for general details	0
(T2) Likes the use of real-time data to see what lines/ride one is on	0
(T2) Likes the similarities between messaging on phone and app <i>"That would make intuitive sense"</i>	0
(T3) Also loves DM similarities	0

## Consent Forms

### Consent Form

Connectr's prototype is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in the experimental evaluation of this prototype provide data that is used to evaluate and modify the interface of Connectr. Data may be collected by interview, observation, and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Asa Kohrman, Marco Pizarro, or Max Vandervelden) or with Professor James Landay, the instructor of CS 147:

James A. Landay  
CS Department  
Stanford University  
650-498-8215  
[landay@stanford.edu](mailto:landay@stanford.edu)

Participant anonymity will be maintained by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the research and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the Connectr's research. I understand that I may withdraw my permission at any time.

I give consent to be videotaped during this study:

Yes  No

I give consent to be audiotaped during this study:

Yes  No

I give consent for video or audio recordings from this study to be shown to people not directly involved with this research during/in class, seminars, reports, or scientific presentations.

Yes  No

Name  
Leah Sachs

Participant Number \_\_\_\_\_ Participant #1 \_\_\_\_\_

Date 2/5/2022

Signature Leah Sachs

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Yes       No

Name Stephanie Webster  
Participant Number Participant #2  
Date 2/5/2022

Signature *Stephanie Webster*

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Yes       No

Name

Deborah Gleen

Participant Number Participant #3

Date 2/5/2022

Signature Deborah Gleen