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UX/UI Design & Development, M.A.
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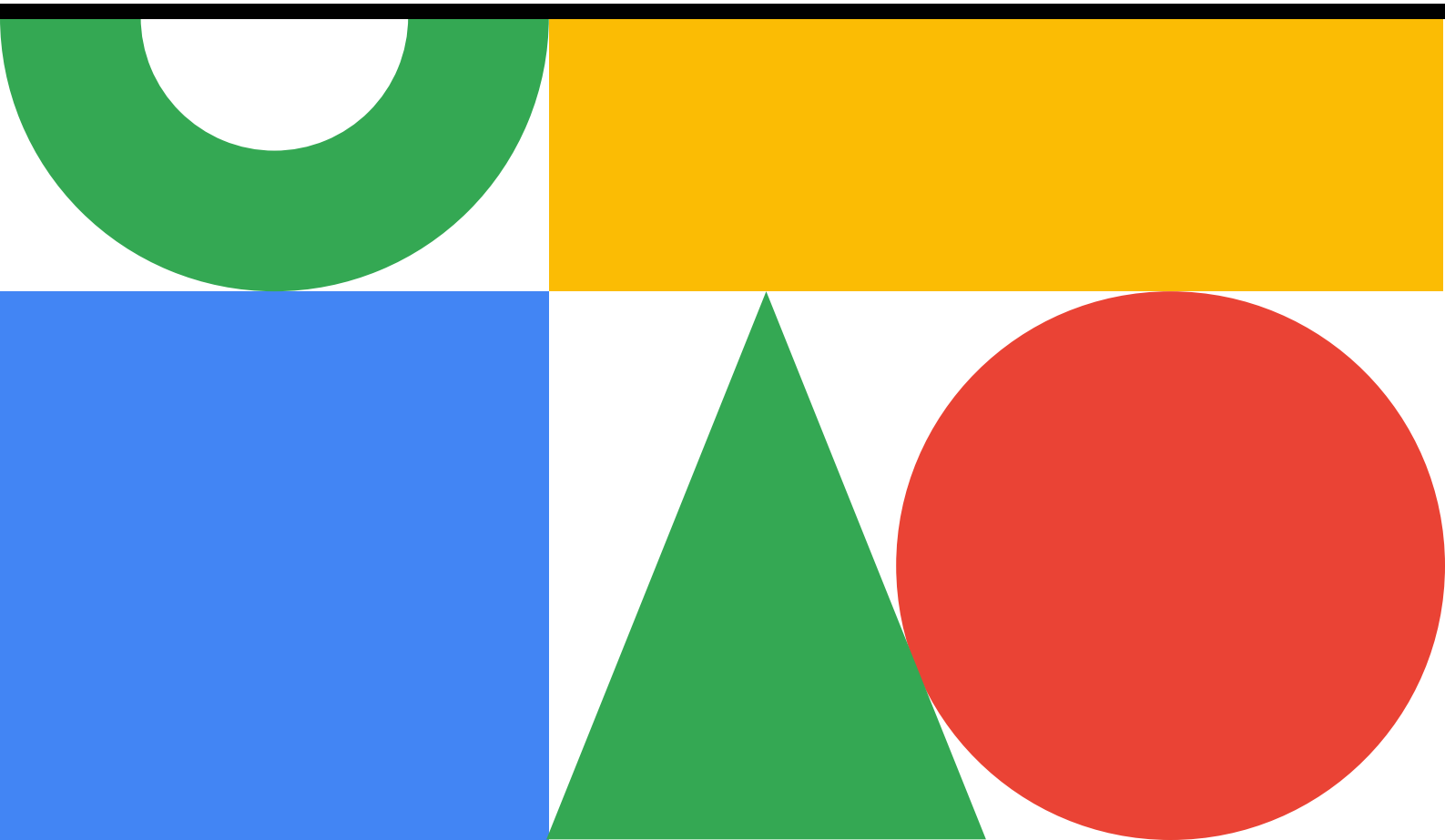
Safety Through Design:

A Guide to Implementing Women-Centric Features For Safer Navigation

A thesis submitted in fulfilment of the requirements for the Degree of Master of Arts In UX/UI Design and Development.



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Introduction

Despite advancements in technology and the widespread use of travel and transit apps, there remains a significant gap in addressing the specific safety concerns of women when navigating public spaces. Studies from various countries indicate that a substantial percentage of women experience fear and anxiety while using public transport and walking in certain areas, impacting their mobility and access to the city. Traditional travel and transit apps fail to consider these concerns, leading to women adjusting their behaviour, routes, and modes of transportation to mitigate risks.

According to a study conducted in the UK, 62% of women are scared walking in multi-storey car parks, 60% are scared waiting on train platforms, 49% are scared waiting at the bus stop, and 59% are scared walking home from a bus stop or station. The figures for men are 31%, 25%, 20% and 25%, respectively. This fear impacts on women's mobility and their basic right of access to the city. Studies from Finland, Sweden, the United States, Canada, Taiwan and the UK all show that women adjust their behaviour and their travel patterns to accommodate this fear. They avoid specific routes, times and modes of transport. The ones who can afford it, take a taxi etc. The women forced to take public transport, due to financial reasons, adopt strategies such as taking a longer roundabout route or only travelling while accompanied [Perez, C. C. (2019). Invisible Women: Data Bias in A World Designed for Men. (United States), Abrams.].

To address this issue, there is a need to examine the user experience of existing travel and transport apps, such as Google Maps and Apple Maps, from a feminist perspective. This analysis will identify shortcomings in both design and content that contribute to women's feelings of insecurity. By understanding how women currently use these apps and the limitations they encounter, we can propose improvements that prioritize safety and inclusivity.

The objective of this research is to develop enhanced design features for existing travel apps, with a focus on Google Maps, informed by feminist perspectives and design principles. These features aim to empower women to plan and carry out safer journeys, thereby alleviating their fear and anxiety when using public transportation or walking alone. By addressing these specific needs, we aim to promote gender equality in urban mobility and ensure that all individuals have equal access to the city.

Project Brief

Background

Based on experience, traditional travel and transit apps do not take into account the specific needs for women and their safety when using public transport or cover a distance on foot. Analyzing how women use existing apps to plan their travel and doing research on the topic will give me insight into what the popular apps are lacking. This can inform the changes I plan to apply to one specific travel app (google maps).

Project Goals & Objectives

- Analyse travel behaviour in women
    - desk research on existing studies regarding travel patterns and behaviour
    - survey about women's travel behaviour
    - conduct interviews
- Analyse user experience of existing travel applications
    - conduct interviews
    - contextual inquiry
- Improve current design (Google Maps) based on research findings
    - host a focus group
    - usability testing

Research Questions

1. Women adjust their travel behaviour to accommodate fear
    a. How do women carry out their usual travel?
    b. How does fear impact their behaviour using public transport/walking to their destination?
    c. Which adjustments have they made to increase their safety or feeling of safety?
2. Women primarily use popular apps like Google Maps to plan their travel routes and navigate unfamiliar areas
    a. How do women use travel apps to plan their journeys?
    b. Why don't they use apps such as Securella to plan their journeys?
    c. How do women use travel apps to carry out / during their journey?
3. Women prefer additional features in Google Maps to plan their journeys and accommodate their fear and safety concerns
    a. What features are women missing in Google Maps when planning their journey? What features are women missing in Google Maps when carrying out their journey?
    b. Which functions deem women most important to reduce their fear and ensure their safety while travelling?

Research Plan

Problem Statement

The lack of consideration for women's safety concerns in existing travel and transit apps, such as Google Maps, perpetuates feelings of fear and insecurity, hindering women's mobility and access to urban spaces. This research aims to identify and address these shortcomings by proposing design enhancements informed by feminist perspectives, ultimately fostering safer and more inclusive experiences for all users.

Research Goals (S.M.A.R.T.)

1. Conduct a comprehensive analysis of existing travel and transport apps, focusing on Google Maps, to identify specific areas where they fail to address the safety concerns of female users.
    - *Specific*: This goal clearly outlines the objective of analyzing existing travel apps to pinpoint shortcomings related to female safety.
    - *Measurable*: The analysis will involve gathering data through surveys or interviews, providing quantifiable insights into the extent of the apps' shortcomings.
    - *Attainable*: Utilizing available resources such as research participants and existing literature, the analysis can be feasibly conducted within a reasonable timeframe.
    - *Relevant*: Addressing the gap in travel app design concerning women's safety is highly relevant in the context of urban planning and user experience design.
    - *Time-based*: Completion of the analysis within a specific timeframe ensures timely progress and completion of this research phase.
2. Conduct a contextual inquiry and host a focus group with diverse groups of women to gain deeper insights into their experiences, concerns, and preferences regarding the use of travel and transport apps, including Google Maps.
    - *Specific*: This goal entails conducting in-depth research activities, such as contextual inquiries and focus groups, with women from diverse backgrounds to understand their perspectives on travel app usage.
    - *Measurable*: The insights gathered from contextual inquiries and focus groups will be documented and analyzed to identify common themes, pain points, and opportunities for improvement in existing travel apps.
    - *Attainable*: Recruiting participants from various demographic groups and organizing research sessions in accessible locations can facilitate the successful execution of contextual inquiries and focus groups.
    - *Relevant*: Engaging directly with female users through research activities ensures that the proposed design improvements and outreach strategies are grounded in their real-world experiences and needs.
    - *Time-based*: The research activities, including participant recruitment, data collection, analysis, and reporting, will be conducted within a specific timeframe, to maintain momentum and meet project deadlines.
3. Develop and propose design improvements for Google Maps that address the safety needs of female users, informed by feminist perspectives.

- *Specific*: This goal outlines the task of creating design enhancements for Google Maps specifically tailored to address women's safety concerns.
- *Measurable*: The proposed improvements will be quantitatively assessed through usability testing to gauge their effectiveness.
- *Attainable*: Collaborating with experts and utilizing available design methodologies ensures the feasibility and effectiveness of the proposed enhancements.
- *Relevant*: Improving the safety and usability of Google Maps for female users directly addresses a pressing societal issue in urban transportation.
- *Time-based*: Implementation and testing of the proposed design improvements will be conducted within a specific timeframe, to ensure timely progress.

Hypothesis, Research Questions and Methods

Women adjust their travel behaviour to accommodate fear

	Research Question	Qualitative or Quantitative
1	How do women carry out their usual travel?	Qualitative
2	How does fear impact their behaviour using public transport/walking to their destination?	Qualitative
3	Which adjustments have they made to increase their safety or feeling of safety?	Qualitative

Women prefer additional features in Google Maps to plan their journeys and accommodate their fear and safety concerns

	Research Question	Qualitative or Quantitative
1	What features are women missing in Google Maps when planning their journey?	Qualitative
2	What features are women missing in Google Maps when carrying out their journey?	Qualitative
3	Which functions deem women most important to reduce their fear and ensure their safety while travelling?	Qualitative

Women primarily use popular apps like Google Maps to plan their travel routes and navigate unfamiliar areas

	Research Question	Qualitative or Quantitative
1	How do women use travel apps to plan their journeys?	Qualitative
2	Why don't they use apps such as Securely to plan their journeys?	Qualitative
3	How do women use travel apps to carry out / during their journey?	Qualitative

Research Process

Survey

	Metric Measurement	Behavioral or Attitudinal	Natural, Scripted, Limited, or Not Using
A	Close-ended Questions	Attitudinal	Decontextualised
B	Open-ended Questions	Attitudinal	Decontextualised
C	Likert Scale	Attitudinal	Decontextualised

Interviews

	Metric Measurement	Behavioral or Attitudinal	Natural, Scripted, Limited, or Not Using
A	Interview Questions	Attitudinal	Decontextualised

Contextual Inquiry

	Metric Measurement	Behavioral or Attitudinal	Natural, Scripted, Limited, or Not Using
A	Observation	Behavioural	Natural Use
B	Open-ended Questions	Attitudinal	Natural Use

Focus Group

	Metric Measurement	Behavioral or Attitudinal	Natural, Scripted, Limited, or Not Using
A	Brain Dump	Attitudinal	Limited Use
B	Card Sorting/Clustering	Attitudinal	Limited Use
C	Open Discussion	Attitudinal	Decontextualised

Competitive Analysis

Identification of Competitors

Google Maps

- *Company Size*: Large multinational corporation.
- *Stakeholders*: Owned by Alphabet Inc.
- *Decision Makers*: Decisions made by Google leadership and development teams.
- *Location*: Headquarters in Mountain View, California, USA.
- *Business Model*: Offers free access to basic mapping services with revenue generated through advertising. It also, provides premium features for businesses through the Google Maps Platform.

Apple Maps

- *Company Size*: Large multinational corporation.
- *Stakeholders*: Owned by Apple Inc.
- *Decision Makers*: Decisions made by Apple leadership and development teams.
- *Location*: Headquarters in Cupertino, California, USA.
- *Business Model*: Integrated into Apple devices, generating revenue indirectly through device sales. Provides free mapping services.

HERE WeGo

- *Company Size*: International mapping company.
- *Stakeholders*: Originally developed by Nokia, now owned by multiple German automotive companies.
- *Decision Makers*: Decision-making involves stakeholders from multiple companies.
- *Location*: Originally developed in Berlin, Germany.
- *Business Model*: Offers free mapping services with monetization through licensing mapping data to businesses.

Overview of Competitors' Products / Services

Google Maps

- *Offerings*: Mapping, navigation, and location-based services.
- *Features*: Real-time traffic data, Street View, offline maps, local business information, and reviews.
- *Pricing*: Free for basic use, premium features available for businesses through Google Maps Platform.

Apple Maps

- *Offerings*: Mapping, navigation, and location-based services integrated into Apple devices.
- *Features*: Turn-by-turn navigation, real-time traffic data, and integration with Siri.
- *Pricing*: Free for Apple device users.

HERE WeGo

- *Offerings*: Mapping, navigation, and location-based services.
- *Features*: Offline maps, public transportation information, route planning.
- *Pricing*: Free for basic use, licensing model for businesses.

Feature Comparison

Feature	Google Maps	Apple Maps	HERE WeGo
Real-time Traffic	Yes	Yes	Yes
Offline Maps	Yes	Limited	Yes
Public Transportation	Yes	Limited	Yes
Voice-guided Navigation	Yes	Yes	Yes

User Flow Evaluation

Google Maps

- Intuitive UI with easy access to various features.
- Detailed and clear navigation instructions.
- Extensive use of icons for quick understanding.

Apple Maps

- Seamless integration with iOS devices.
- Simple and minimalist design.
- Integration with Siri for voice-based commands.

HERE WeGo

- User-friendly interface with straightforward navigation.
- Emphasis on offline usability.
- Clear route planning and public transportation information.

Technology Stack

Google Maps

- Utilizes various technologies including JavaScript for web maps, Android/iOS SDKs for mobile apps, and a robust backend infrastructure for data processing.

Apple Maps

- Built into the iOS ecosystem, leveraging Apple's technology stack, including Swift for iOS development and Apple Maps API.

HERE WeGo

- Utilizes a combination of web technologies for the online version, and native mobile development for iOS and Android platforms.

Strengths and Weaknesses

Google Maps

- *Strengths*
    - Extensive global coverage.
    - Robust real-time traffic data.
    - Integration with Google ecosystem.
- *Weaknesses*
    - Can be resource-intensive on mobile devices.
    - Some advanced features may require a learning curve.

Apple Maps

- *Strengths*
    - Seamless integration with iOS devices.
    - Siri integration for voice-guided navigation.
- *Weaknesses*
    - Limited availability on non-Apple devices.
    - Features may be more limited in some regions.

HERE WeGo

- *Strengths*
    - Strong offline functionality.
    - Public transportation information.
- *Weaknesses*
    - May not have as extensive coverage in some regions.
    - UI design may be considered less modern by some users.

Opportunities

1. **Customizable Navigation Alerts**: Users may have specific preferences for navigation alerts that current apps may not fully accommodate. Offering more customization options for alerts could enhance the user experience.
2. **Community-Sourced Safety Features**: Although some safety features are present, there's an opportunity to leverage community-driven safety data more extensively, allowing users to share and access real-time safety information.
3. **Specific Location Information**: Include more detailed information about locations the user might, pass, walk through or waits at.
4. **Live Bus/Subway Tracker**: Show the live location of the bus/subway which the user intends to take to time departure and arrival more detailed. In addition, possibly share this love location.
5. **Wider Option of Filters**: Include better filter options for the user to adjust their journey and plan the best route according to their needs.

User Persona

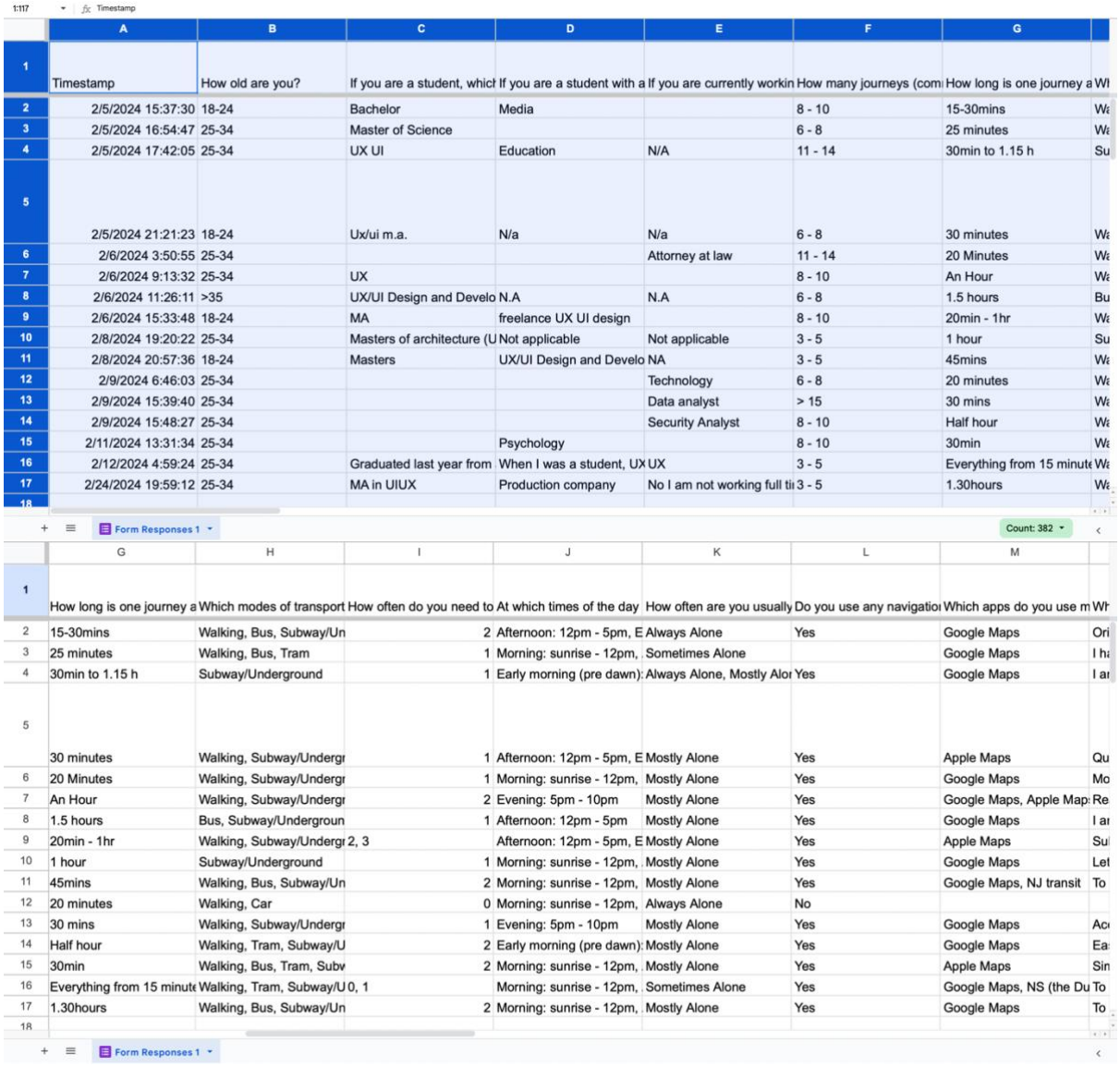
This Persona is based on 5 people. Most people I was working with during this project were students and young professionals in their 20s and 30s, which is why there is only one applicable persona. In the future I would extend my research to a more diverse set of women and through that create more personas.

Survey

Survey set up

The whole Survey can be accessed through this link, or found in the appendix of this document.
https://forms.gle/eM3TKRrPUA42oZP38

Results



	A	B	C	D	E	F	G
1	Timestamp	How old are you?	If you are a student, whic	If you are a student with a	If you are currently workin	How many journeys (com	How long is one journey a
2	2/5/2024 15:37:30	18-24	Bachelor	Media		8 - 10	15-30mins
3	2/5/2024 16:54:47	25-34	Master of Science			6 - 8	25 minutes
4	2/5/2024 17:42:05	25-34	UX UI	Education	N/A	11 - 14	30min to 1.15 h
5	2/5/2024 21:21:23	18-24	Ux/ui m.a.	N/a	N/a	6 - 8	30 minutes
6	2/6/2024 3:50:55	25-34			Attorney at law	11 - 14	20 Minutes
7	2/6/2024 9:13:32	25-34	UX			8 - 10	An Hour
8	2/6/2024 11:26:11	>35	UX/UI Design and Develo	N.A	N.A	6 - 8	1.5 hours
9	2/6/2024 15:33:48	18-24	MA	freelance UX UI design		8 - 10	20min - 1hr
10	2/8/2024 19:20:22	25-34	Masters of architecture (U	Not applicable	Not applicable	3 - 5	1 hour
11	2/8/2024 20:57:36	18-24	Masters	UX/UI Design and Develo	NA	3 - 5	45mins
12	2/9/2024 6:46:03	25-34			Technology	6 - 8	20 minutes
13	2/9/2024 15:39:40	25-34			Data analyst	> 15	30 mins
14	2/9/2024 15:48:27	25-34			Security Analyst	8 - 10	Half hour
15	2/11/2024 13:31:34	25-34		Psychology		8 - 10	30min
16	2/12/2024 4:59:24	25-34	Graduated last year from	When I was a student, UX	UX	3 - 5	Everything from 15 minute
17	2/24/2024 19:59:12	25-34	MA in UIUX	Production company	No I am not working full ti	3 - 5	1.30hours

Form Responses 1 — Count: 382

	G	H	I	J	K	L	M
1	How long is one journey a	Which modes of transport	How often do you need to	At which times of the day	How often are you usually	Do you use any navigatio	Which apps do you use m
2	15-30mins	Walking, Bus, Subway/Un	2	Afternoon: 12pm - 5pm, E	Always Alone	Yes	Google Maps
3	25 minutes	Walking, Bus, Tram	1	Morning: sunrise - 12pm,	Sometimes Alone		Google Maps
4	30min to 1.15 h	Subway/Underground	1	Early morning (pre dawn):	Always Alone, Mostly Alo	Yes	Google Maps
5	30 minutes	Walking, Subway/Undergr	1	Afternoon: 12pm - 5pm, E	Mostly Alone	Yes	Apple Maps
6	20 Minutes	Walking, Subway/Undergr	1	Morning: sunrise - 12pm,	Mostly Alone	Yes	Google Maps
7	An Hour	Walking, Subway/Undergr	2	Evening: 5pm - 10pm	Mostly Alone	Yes	Google Maps, Apple Map
8	1.5 hours	Bus, Subway/Undergroun	1	Afternoon: 12pm - 5pm	Mostly Alone	Yes	Google Maps
9	20min - 1hr	Walking, Subway/Undergr	2, 3	Afternoon: 12pm - 5pm, E	Mostly Alone	Yes	Apple Maps
10	1 hour	Subway/Underground	1	Morning: sunrise - 12pm,	Mostly Alone	Yes	Google Maps
11	45mins	Walking, Bus, Subway/Un	2	Morning: sunrise - 12pm,	Mostly Alone	Yes	Google Maps, NJ transit
12	20 minutes	Walking, Car	0	Morning: sunrise - 12pm,	Always Alone	No	
13	30 mins	Walking, Subway/Undergr	1	Evening: 5pm - 10pm	Mostly Alone	Yes	Google Maps
14	Half hour	Walking, Tram, Subway/U	2	Early morning (pre dawn):	Mostly Alone	Yes	Google Maps
15	30min	Walking, Bus, Tram, Subv	2	Morning: sunrise - 12pm,	Mostly Alone	Yes	Apple Maps
16	Everything from 15 minute	Walking, Tram, Subway/U	0, 1	Morning: sunrise - 12pm,	Sometimes Alone	Yes	Google Maps, NS (the Du
17	1.30hours	Walking, Bus, Subway/Un	2	Morning: sunrise - 12pm,	Mostly Alone	Yes	Google Maps

Form Responses 1

	N	O	P	Q	R	S	T	
1	Why do you use these?	Which features in these a (anything from, looking up	How scared are you usua	Which factors scare you?	How do you plan ahead to	How do the travel Plannin	In which ways don't they h	Ha (e.
2	Orientation	Looking up the location	3	If there are no people, Po	Avoid weird areas	Not at all lol	In all lol	No
3	I have no orientation at all	Checking the schedule tin	3	If there are no people, If t	Yes, avoid to go out when	Google tells me when the	sun sets :)	No
4	I am pretty sure I have ge	Just the path	5	If there are no people, Se	I face them	Not helping at all	I think it's generally those	No
5	Quick and easyto access	What time the subway is a	7	If there are no people, If t	-make sure I always look -Talk on the phone if I'm ta -call someone if I'm in a s -very vigilant about my su -wearing clothes to blend	They dont	Safety is not a concern or	Ye
6	Most convenient	all of the above	4	If there are no people, Po	I can't	Not at all	No specific features	No
7	Reach quick	Shortest distance	5	If there are no people	Leave early or go out with	friends		No
8	I am new here so I use thi	Location and time schedu	8	Walking past certain estat	I walk with crowd	Shorter span	Sometimes it doesn't work	Ye
9	Subway real time updates	Searching for quickest rou	4	Secluded areas, Its dark c	I can't because of my con	they help me know how lo	They aren't telling me a sa	Ye
10	Let's me know if I would fa	Location, time to reach the	6	If there are no people, Po	By trying to travel with cro	Usually they don't	Haven't seen any feature	No
11	To see the train names, tir	Route with transportation	3	If there are no people, Po	Select fastest route	To see the schedules of b	No warning that timings m	No
12			6	If there are no people, Po	Pretend I'm on the phone	or actually call someone		Ye
13	Accurate	Routes and times	2	If there are no people, Its	Not go out at night	Google map		No
14	Easy to use and clear info	Checking locations, routes	6	If there are no people, Po	Try to make sure that whe	They don't help with that	They don't give informatio	Ye
15	Simplicity	All of the above	4	If there are no people, Po	Safety tools (alarm on key	Eta	Sharing location, showing	Ye
16	To know when to leave ho	Check the route for walkir	2	Getting to your destinatior	I don't lol	They keep me updated or	Sometimes the transfer "v	Ye
17	To get to the destinations	I use looking up the locati	5	If there are no people, Po	I cannot plan it but I try to	They cannot help with me	They cannot tell me the rc	No
18								

Form Responses 1

	U	V	W	X	Y	Z	AA
1	Have you ever used apps (e.g. Citizen, NewsBreak,	Which ones have you use	When do you use them?	How did using these apps	How helpful are these apr	is there anything else you would like to add? A specific	
2	No						
3	No						
4	No	None of them	N/a	N/a	1		
5	Yes	Citizen	If I'm traveling late at nigh	Unwell and scared	1		
6	No						
7	No				1		
8	Yes	NL-Alert	When I am scared and fel	Somewhat relieved	3	As I say I am new to the city and I used Google maps a	
9	Yes	Citizen	if i see an alert near my lo	anxious	1	i think it's important to carry a self defense tool and let t	
10	No		Not applicable	Not applicable	5		
11	No		I haven't used		4	No	
12	Yes	Citizen	Not often but usually befo	Safer knowing what is hap	2		
13	No				5		
14	Yes	NL-Alert	When they pop-up with ar	They don't really affect my	3		
15	Yes	NL-Alert	When I lived in the US, I h	Scared since you knew hc	2		
16	Yes	Google	I used it too see what area	No particular way	1	I feel very safe in the country I live in, so I rarely have t	
17	No	I have not used any.	I don't.		1		
18							

Form Responses 1

https://docs.google.com/spreadsheets/d/1KfVpmSJywx4JNcWk329m_5DeH5q89zejzke4fpS7ydA/edit?usp=sharing

Interviews

Questions

- **Travel Behavior and Safety Concerns**
  - Can you walk me through a typical day or trip where you use public transport or walk to your destination?
  - Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior?
  - Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly?
  - Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling?
- **Usage of Travel Applications**
  - What factors influence your choice of travel applications for planning your journeys?
  - Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved?
  - Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns?
  - How do you balance convenience and safety when selecting and using travel apps?
- **Preferred Features for Safety and Convenience**
  - In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use?
  - Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns?
  - When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs?
  - How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination?
- **Experience with Existing Apps and Suggestions for Improvement**
  - Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples?
  - Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information?
  - How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible?
  - From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers?

Recordings

Transcripts

The transcripts of the Interviews can be found in the appendix. They were made with otter.ai an audio-to-text tool.

Contextual Inquiry

Subject: 30-year-old woman (referred to as Sarah in this Inquiry)
Commute:

- a 35-minute journey from her office in Hudson Yards, to her apartment on the Lower East Side
- taking the 7 and F trains downtown
- about 5-minute walk to the subway stop; 2 stops on the 7; walking 5 minutes through the subway station to switch trains; 8 stops on the F train; 5-minute walk from the subway station home

Navigation Tool: Google Maps

I (Researcher) meet Sarah outside of her office building in Hudson Yards. I have briefed her before today on what a contextual inquiry is and got her consent to use her answers for my research.

Researcher: Its 7pm right now. Is this the time you usually get off?
Sarah: If I'm lucky yes, but depending on the projects my team and I are working on I might end up staying late.
Researcher: So how do you plan your journey home?
Sarah: Well, usually I would already open google maps to check the time my train leaves at my desk, before leaving the office. I mean I know the trains run very frequently, but I like to make sure I know whether there are any delays or other news. And then I go and walk to the station.

Sarah quickly shows me the route she has pulled up on her phone and we start walking towards the subways station to catch the next 7 train downtown. She doesn't need to check which way to walk, because this is her daily commute. Once the 7 train arrives we get on. The cart is almost empty, with only one other woman.

Researcher: Is the subway station by Hudson Yards always this empty at night?
Sarah: Unless I leave around 6pm, yes. I feel like apart from rush hour it tends to be rather deserted.
Researcher: How does that make you feel?
Sarah: I would say with any other subway stop I'd feel a bit uneasy, but I really like this station, because it is super well-lit and spacious. It makes it seem like I always have a full view of my surroundings and could easily anticipate and escape an uncomfortable situation. This is also a modern stop which makes me believe that there is better surveillance. I don't know whether that's actually true tough *laughs*.

We arrive at 42nd Street – Bryant Park, making our switch to the F train downtown. Sarah checks her phone again to see if we will catch the next incoming train.

Sarah: Looks like we might be able to catch the F if we walk a bit faster.

We pick up our pace.

Researcher: This is quite a long walkway underground.
Sarah: Yeah, I know. Honestly, at night, like right now, I often find it quite sketchy. So even if we wouldn't be trying to catch the F right now, I'd probably still walk this fast. I prefer switching trains when all I have to do is switch platforms.

We have reached the F train platform and add a quick sprint to catch the subway before it takes off. We make it inside, the cart is quite full, so we decide to stand.

Researcher: Are there any other routes you could take to avoid this walk?
Sarah: When I first moved to the city, I was generally more conscious of taking the subway, since it all felt so new and daunting. So, during my first week I chose to take the bus. For that route I still had to switch between buses and it took me 10 minutes longer which sucked. Because that meant that I would get home even later at night. I also realized that taking the bus in NYC is a lot less reliable than taking the subway. Sometimes buses just don't come or have big delays and I wasn't comfortable waiting outside at a bus stop. That's why I decided to switch to taking the subway. Because even though there isn't anyone (who's in charge) in the cart with you, the stops I need to use have someone sitting in the ticket both and there are certain hurdles one has to overcome until they're on a platform. Maybe it's a false sense of security, but it feels a bit safer than just being out on the open street, where I could be approached by anyone.
Researcher: I noticed that this cart is a lot busier than the one on the 7 train.
Sarah: Yes, I wish we had a seat haha. But you'll notice, most of them get off at west 4th street to change trains.
Researcher: So that's something you look forward to?
Sarah: Yes, if the cart is as full as this, totally.

We continue through the stops until we reach East Broadway and get off the F train.

Sarah: So, now we take the exit Rutgers St & Broadway at NW corner. There is another exit at Madison St, which technically is the more convenient one to take to get to my apartment, but it is right by a corner store which always has some weird people hanging around outside. Plus, the exit is kind of situated at a dark corner. So, I choose to take this exit here, I just make a B-Line to get to my place on the main street.

We get out of the subway station and start walking towards her apartment.

Sarah: Look, this is a wine bar where *says actual name* / my friend works at. Another good reason to take this exit. I can decide whether I want to drink a glass of wone and catch up with her after work *laughs*.
Researcher: How does it make you feel that you not only know this bar, but even someone who works here?
Sarah: It's great, it kind of gives this area and this bar and the clientele if you will a face. So now, it's not just a bunch of sketchy strangers, but people who like the same wine bar I like.

We have reached Sarah's apartment and enter.

Focus Group

Set up

Duration: 2 hours
Participants: 5 women of diverse backgrounds and experiences with transportation apps
Problem Statement: To identify preferences of women when using Google Maps and to brainstorm solutions for improving (the feeling of safety) features in Google Maps.

Start

Introduction (5 minutes)

- Welcome participants and thank them for joining the focus group.
- Briefly explain the purpose of the session: to gather insights on safety concerns related to transportation apps and to brainstorm solutions.
- Establish guidelines for respectful and constructive discussion.
- Obtain consent for recording the session.

Icebreaker (5 minutes)

- Discuss the following questions, share experiences:
- What's the longest distance you've traveled using public transportation?
- Share a memorable experience you've had while using a transportation app.
- What safety feature do you value most in a transportation app?
- Have you ever used a transportation app to navigate through a challenging situation?

Methods

Scenario Exploration (50 minutes)

- Present participants with hypothetical scenarios involving navigation in different environments (e.g., poorly lit streets, empty subway stations).
- Discuss how participants would use google maps in these scenarios to increase their feeling of safety.
- Encourage participants to consider specific needs and preferences in each context.
- Use probing questions to uncover insights into desired features or improvements.

Cluster and Prioritize Ideas (20 minutes)

- Group similar ideas generated during the brainstorming session into clusters or themes on the whiteboard or flip chart.
- Allow participants to discuss and prioritize the clusters based on their perceived importance.
- Provide stickers for participants to vote on the clusters they find most valuable or relevant.

End

Wrap-up and Closing (10 minutes)

- Summarize key insights and ideas generated during the focus group session.
- Thank participants for their contributions and insights.

- Provide information on how their feedback will be used to inform the development of transportation apps.
- Offer the opportunity for participants to provide any final thoughts or comments.

Materials

- Whiteboard or flip chart
- Markers
- Printed session plan
- Post-it notes
- Stickers
- Timer
- Recording device

Scenarios

1. Imagine you're out late at night, you spend the evening with some friends at a nice bar and need to navigate your way home using Google Maps. It's about 1am and you're walking alone in poorly lit streets.
    a. How would you use Google Maps to ensure your safety in this scenario?
    b. What additional features or improvements could Google Maps offer to enhance your feeling of safety?
2. You need to use public transportation to get home after dark. The subway station is sparsely populated, and you're feeling uneasy about waiting for your train. In addition to that, you also need to switch trains once to get home.
    a. How could Google Maps assist you in this situation to increase your sense of safety and navigate the train switch?
    b. Are there any specific features you wish Google Maps had for navigating public transportation at night?
3. You're traveling alone in a remote area with limited cellular coverage, and you need to rely on Google Maps for navigation.
    a. How would you ensure your safety in such a scenario?
    b. What features or tools could Google Maps provide to support users navigating through remote or isolated locations?
4. You find yourself in an unfamiliar neighborhood during the daytime. The streets are quiet, and there are few people around.
    a. How would you use Google Maps to navigate through this area safely?
    b. What features or enhancements would make you feel more secure when using Google Maps in such unfamiliar environments?
5. You encounter a situation where you feel threatened or unsafe while using Google Maps.
    a. How could Google Maps help you in seeking assistance or getting to a safe location quickly?
    b. What additional emergency features or functionalities would you like to see integrated into Google Maps for such situations?

Consent Form

UX Research Consent Form

Research Project Title: Women's Mobility: Unveiling Women's Local Travel Patterns, Navigation App Usage, and Safety Perceptions

Researcher: Sophia Hettich, NYIT Master Student

Date: 3/13/2024

Purpose

As a participant, you will help gather insights on safety concerns for women, related to commuting by identifying preferences when using Google Maps and brainstorming solutions.

Recording

Please note that this session will recorded for analysis purposes. I will be recording the audio and take pictures during the session to document it. These recordings will not be shared publicly. The pictures will be part of my thesis deliverables and therefore shared publicly.

I am committed to user privacy. Your personal details and responses will be treated as confidential. Data will be securely stored, and any published results will be anonymized.

☐ I consent to being recorded.
☐ I do not consent to being recorded.

Participant's Initials: _____

Voluntary Participation

Participation in this research is completely voluntary, and you have the right to withdraw at any time without consequence. Your responses will be discarded and will not be accessed internally or externally.

I understand my participation is voluntary. I accept participating with knowledge of the stated risks and benefits of this research.

Participant's Initials: _____

Compensation

As a token of my appreciation, participants will receive a drink of their choice during the session.

I have read and understood the above information. I agree to participate in this research conducted by Sophia Hettich.

By signing below, you acknowledge that you understand the research's purpose and procedures and agree to participate.

Participant's Name:

_____

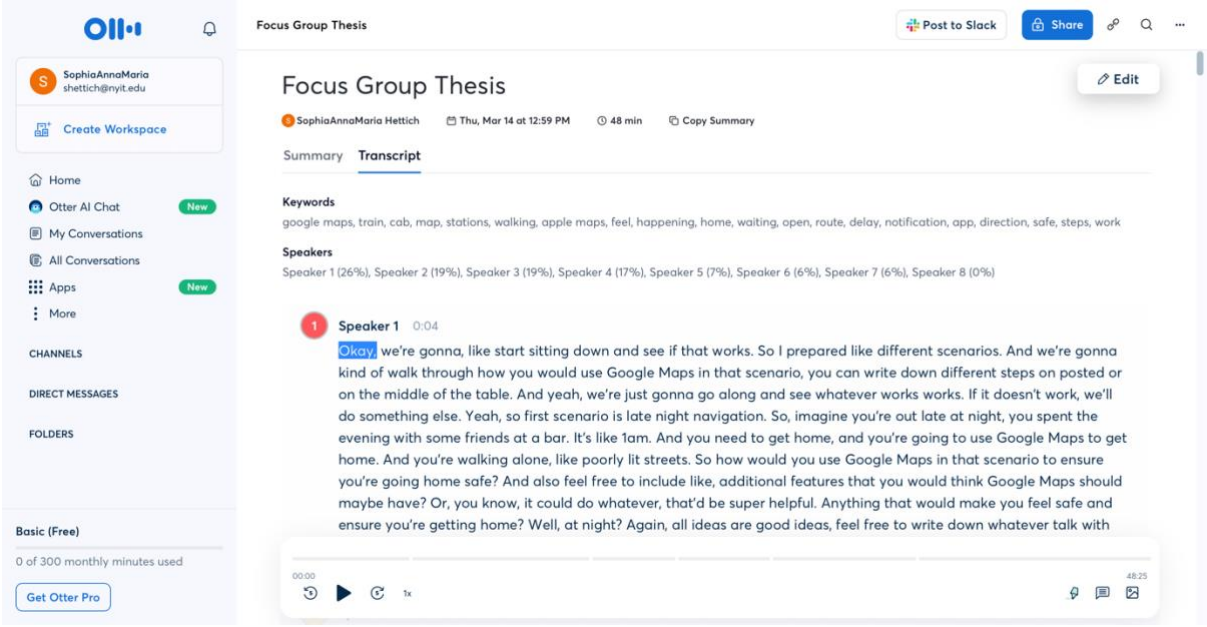
Participant's Signature: _____ Date:

_____

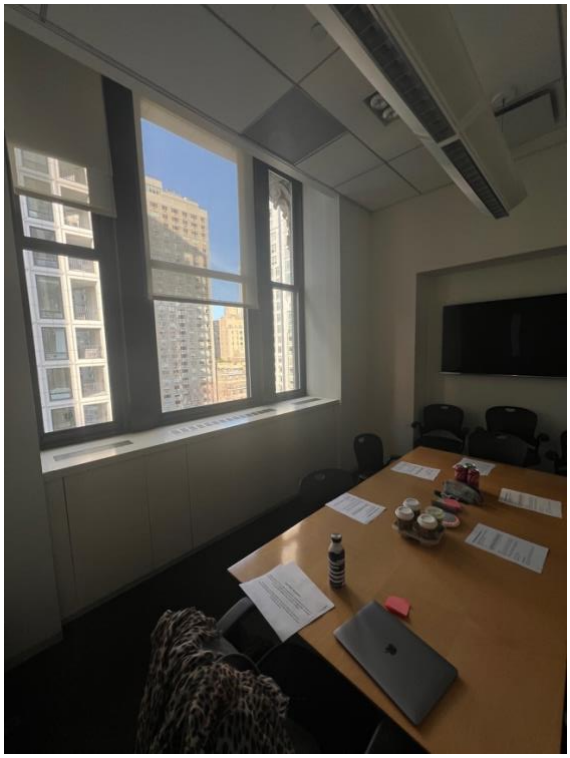
If you have any questions or concerns about the research, please don't hesitate to reach out to Sophia Hettich at shettich@nyit.edu.

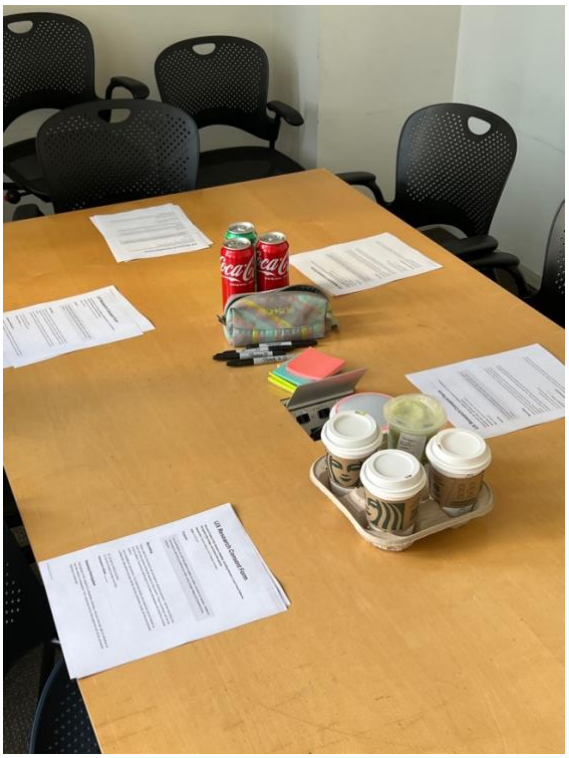
Transcript

The transcript was created with the help of otter.ai. The full transcript can be found in the appendix.



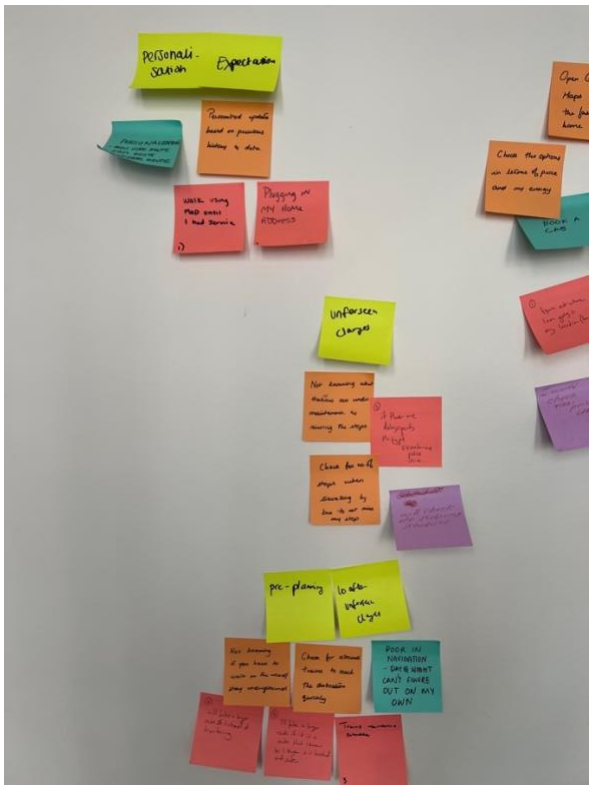
Pictures

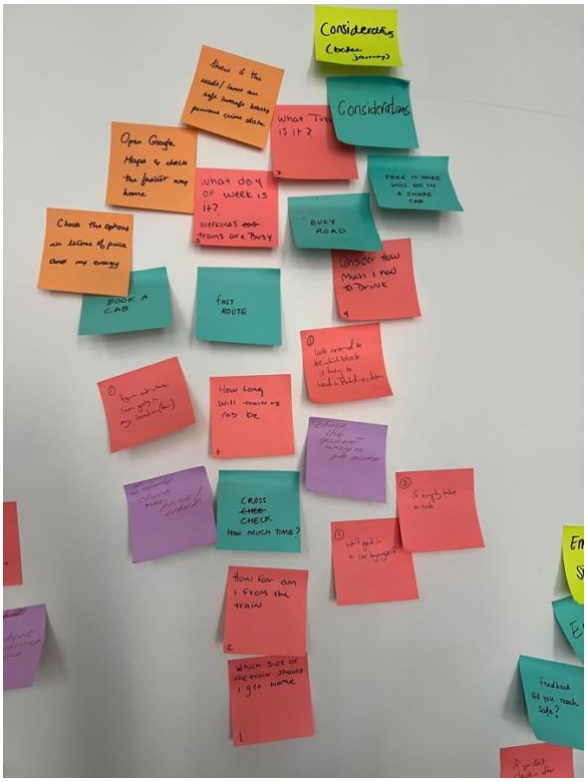


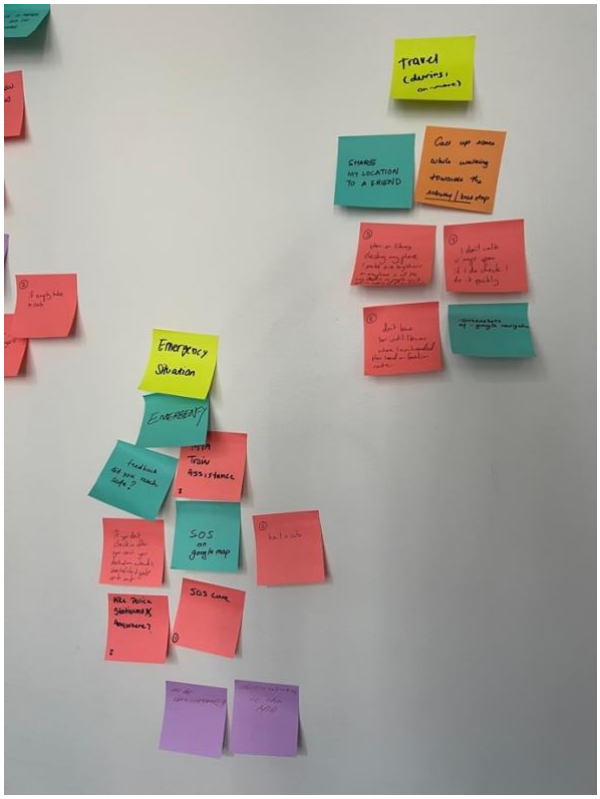



Emergency Assistance


Emergency Situation

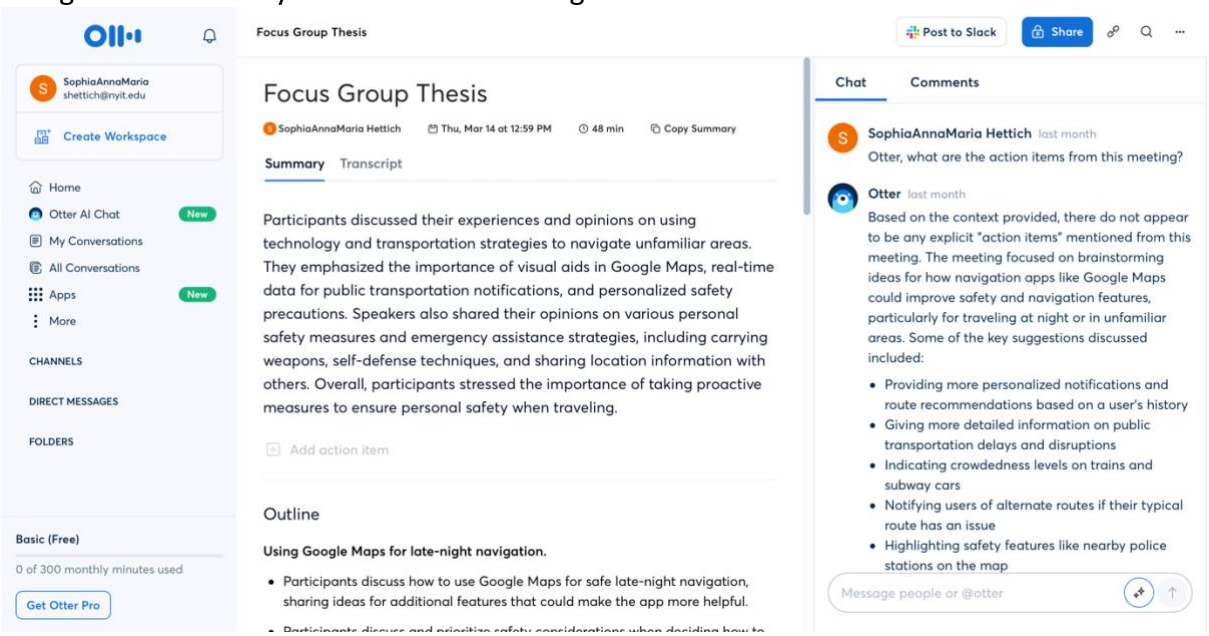

Personali-
Expectation
Unforseen
charges
pre-planing


Considerations
Open Google
Maps & check
the fastest way
home
Check the options
in terms of price
and my energy
BOOK A
CAB
FAST
ROUTE
BUSY
ROAD
How Long
will train be
not be
CROSS
CHECK
HOW MUCH TIME?
How far am
I from the
train
Which side of
the train should
I get home


Travel
SHARE
MY LOCATION
TO A FRIEND
Emergency
Situation
SOS
on
Google map

Findings

Using otter.ai to analyse the research findings and overall themes.



Focus group themes

Overall Themes

1. *Late Night Navigation with Google Maps:*
    a. Checking busy roads for safety.
    b. Estimating walk times to the subway.
    c. Checking taxi prices and considering ride-sharing options.
    d. Considering personal safety and alcohol consumption.
    e. Preferencing safer transportation options, such as taking a taxi rather than walking alone.
    f. Noting discrepancies in price estimates between Google Maps and ride-sharing apps like Lyft or Uber.
    g. Considering public transportation options and potential delays, especially on weekends.
    h. Being cautious about lone journeys, even in familiar areas.
    i. Utilizing low phone brightness to avoid drawing attention.
2. *Public Transportation at Night:*
    a. Concerns about transferring trains, particularly in unfamiliar areas.
    b. Desiring better guidance on which train cars provide faster access to exits or staircases.
    c. Preference for crowded train cars for safety.
    d. Need for real-time tracking of buses and trains.
    e. Suggestions for providing alerts about police presence or unusual delays.
    f. Frustration with incomplete or inaccurate delay notifications.
    g. Desire for personalized route suggestions based on user history.
    h. Need for clearer navigation instructions, especially during transfers and exits.
3. *Travelling Alone in Remote Areas:*

a. Reliance on screenshots for navigation in areas with poor network coverage.
b. Utilizing GPS-based maps for offline navigation until network service resumes.
c. Feeling safer in urban areas due to the presence of others.
d. Anxiety about travelling in remote areas, particularly at night or when isolated.
e. Preference for well-lit and populated areas for safety.
f. Concerns about encountering potentially dangerous situations, especially when alone.
g. Cultural differences in perceptions of safety and carrying weapons.

Combined Research Results

Possible Implementation (ranked by "popularity" with the help of otter.ai):

- Real-Time Transit Updates: Provide real-time updates on train or bus locations to help users better plan their journeys, especially in the evening when many women are traveling alone.
- Enhanced Navigation in Remote Areas: Offer more detailed and user-friendly directions, particularly in remote or less familiar areas where network coverage may be poor.
- Accessibility Features: Enhance navigation for users with by providing clearer verbal directions and step-by-step guidance (to avoid looking at your phone).
- Notification of Delays: Send notifications about delays, specifying the cause (e.g., maintenance, police activity), to help users plan their journeys accordingly.
- Offline Access: Allow offline access by enabling users to download maps and directions for use in areas with poor network coverage, ensuring they can navigate safely even without internet access.
- Price Comparison: Enable users to compare prices between different transportation options (e.g., Lyft, Uber) within the app, helping them make informed decisions about their transportation choices.
- Transit Information Accuracy: Improve the accuracy and reliability of transit information, including schedules and real-time updates, to minimize uncertainty and anxiety during journeys.
- Personalized Notifications: Personalize notifications based on the user's usual routes and preferences, providing tailored updates and suggestions to enhance the user experience.
- Safety Information: Provide information about busy roads or areas to ensure safety, especially during late-night navigation, addressing concerns about walking through empty or poorly lit areas.
- Station Closure Notifications: Notify users about station closures or service disruptions, helping them plan alternative routes or modes of transportation.
- Safety Features: Include safety features such as sharing location with contacts, especially in remote or unfamiliar areas, to provide users with a sense of security while traveling alone.
- Assistance with Train Transfers: Implement features to assist with train transfers, such as indicating which part of the train to board for quicker transfers, reducing stress and uncertainty during transfers between modes of transportation.

- Information about Security Presence: Provide information about police stations or security presence at subway stations, helping users feel safer and more secure while waiting for or using public transportation.

Findings x UX standards

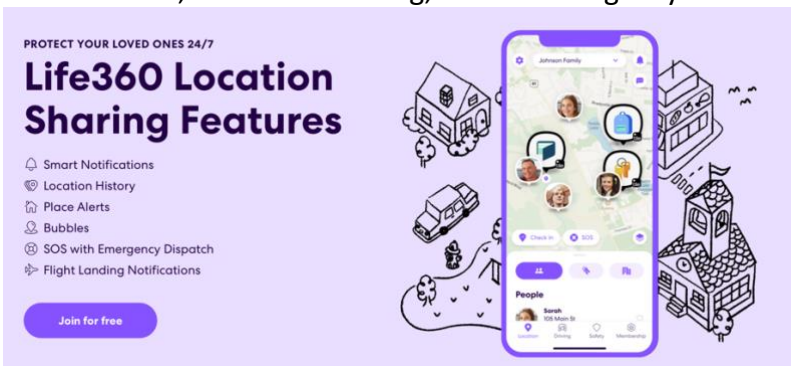
To put the findings for possible navigation app features into the context of user experience design, I created a excel sheet. This sheet shows which of the UX standards apply to which finding.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1		UX Standards											
2	Findings	UX Psychology				UX Laws			UX Heuristics				
3	Safety Features: Include safety features such as sharing location with contacts, especially in remote or unfamiliar areas, to provide users with a sense of security while traveling alone.	People have limitations				Doherty Threshold	Fitts Law	Postels Law	Visability of system status	User Control and freedom	Consistency and standards	Error preventions	Recognition rather than recall
4	Safety Information: Provide information about busy roads or areas to ensure safety, especially during late-night navigation, addressing concerns about walking through empty or poorly lit areas.	People Crave Information	People understand visual systems						Visability of system status	Aesthetic and minimalist design			
5	Offline Access: Allow offline access by enabling users to download maps and directions for use in areas with poor network coverage, ensuring they can navigate safely even without internet access.	People Crave Information				Jackobs Law			User control and freedom	Flexibility and efficency of use			
6	Assistance with Train Transfers: Implement features to assist with train transfers, such as indicating which part of the train to board for quicker transfers, reducing stress and uncertainty during transfers between modes of transportation.	People dont want to work or think more than they have to	People have limitations	People crave information	People understand visual systems	Aesthetic Usability Effect	Hicks Law	Law of Prägnanz	Match between system and real world	User Control and freedom	Flexibility and efficiency of use	Aesthetic and minimalist design	
7	Accessibility Features: Enhance navigation for users with by providing clearer verbal directions and step-by-step guidance (to avoid looking at your phone).	People dont want to work or think more than they have to	People have limitations			Doherty Threshold			match between system and real world	User control and freedom	Consistency and standards	Error prevention	
8	Personalized Notifications: Personalize notifications based on the user's usual routes and preferences, providing tailored updates and suggestions to enhance the user experience.	People dont want to work or think more than they have to											
9	Real-Time Transit Updates: Provide real-time updates on train or bus locations to help users better plan their journeys, especially in the evening when many women are traveling alone.	People Crave Information				Doherty Threshold			Visibility of system status	User control and freedom			
10	Enhanced Navigation in Remote Areas: Offer more detailed and user-friendly directions, particularly in remote or less familiar areas where network coverage may be poor.	People dont want to work or think more than they have to	People Crave Information	People Understand Visual Systems		Aesthetic Usability Effects	Jackobs Law	Law of Prägnanz	Visibility of system status	match between system and real world	Consistency and standards	Aesthetic and minimalist design	
11	Notification of Delays: Send notifications about delays, specifying the cause (e.g., maintenance, police activity), to help users plan their journeys accordingly.	People dont want to work or think more than they have to	People Crave Information										
12	Price Comparison: Enable users to compare prices between different transportation options (e.g., Lyft, Uber) within the app, helping them make informed decisions about their transportation choices.	People Crave Information				Hicks Law	Jackobs Law		Consistebcy and standards				
13	Station Closure Notifications: Notify users about station closures or service disruptions, helping them plan alternative routes or modes of transportation.	People dont want to work or think more than they have to	People crave information	People understand visual systems		Jackobs Law			Visability of system status	Match between system and real world			
14	Information about Security Presence: Provide information about police stations or security presence at subway stations, helping users feel safer and more secure while waiting for or using public transportation.	People Crave Information	People understand visual systems						Match between system and real world	Aesthetic and minimalist design			

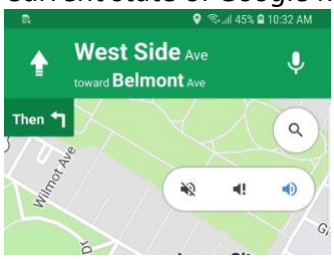
Here is a link to the excel sheet:
https://docs.google.com/spreadsheets/d/1ncZhw3eLvBXyCdwXUoPFrJP7N2UViCBmi80xhv3tFYs/edit?usp=sharing

Implementation Points

Based on my knowledge as an expert and the research findings, I picked six features to explore in more depth. I wrote down what would be necessary for them to be implemented in an actual navigation app. In addition, I also did some research on similar features that other apps have already adopted and why these would or would not work in the context of my project.

1. **Safety Features**: Include safety features such as sharing location with contacts, especially in remote or unfamiliar areas, to provide users with a sense of security while traveling alone.
    a. Location Sharing Button: Add a prominent button within the app interface to initiate location sharing with contacts.
    b. Contact Integration: Develop a feature that links to the user's contacts, allowing them to easily select recipients for their location sharing.
    c. Notification Sound: Include an audible notification sound to alert users when their location is being shared with contacts.
    d. Permission System: Implement a permission system that requires user consent before sharing their location, ensuring privacy and control.
    e. Real-Time Tracking: Enable real-time tracking functionality to provide continuous updates of the user's location to selected contacts.
    f. Emergency Alert Button: Integrate an emergency alert button that triggers immediate notifications to designated contacts in case of an emergency situation.
        i. *Life360* offers a range of safety features, including location sharing with contacts, real-time tracking, and an emergency alert button.
        ii. 

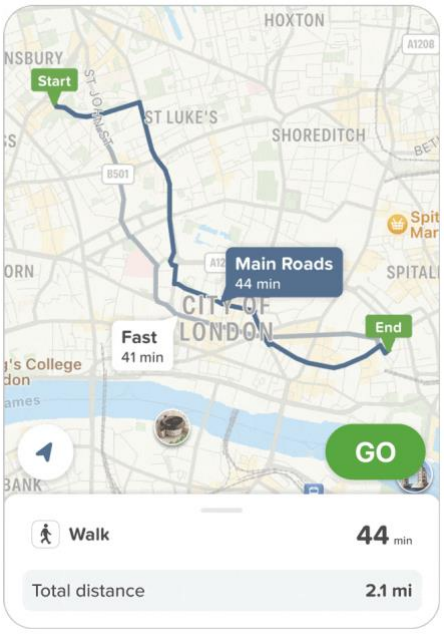
        iii. Former *Google Trusted Contacts*
        iv. „However, the two apps' features are not identical: Google Maps location sharing must be turned on, and left on all the time, or set for a specific time window. The Trusted Contacts feature would only broadcast a phone's location when asked, with an option to decline.“
2. **Accessibility Features**: Enhance navigation for users with by providing clearer verbal directions and step-by-step guidance (to avoid looking at your phone).
    a. Clear Verbal Directions: Ensure the app provides clear and detailed verbal directions, including street names and landmarks (also for users with visual impairments).

b. Step-by-Step Guidance: Break down navigation instructions into smaller steps to provide users with clear, concise guidance without needing to constantly check their phone.
c. Voice Commands: Enable voice command functionality so users can navigate hands-free, initiating navigation, adjusting routes, and receiving updates using voice prompts.
d. Customizable Voice Settings: Allow users to personalize voice guidance settings, such as voice gender and speed, for a more comfortable navigation experience.
    i. Current state of *Google Maps*
    ii. 

    iii. Downfalls: Complexity of Interface, Limited Customization, Inconsistent Voice recognition, Lack of Offline Accessibility
    iv. „The navigation experience with Google Maps encountered several issues, including inaccurate distance fluctuations, premature turn instructions, and discrepancies between voice guidance and the app's directions. Despite reaching the destination correctly, the voice guidance became quiet upon arrival, leading the user into a parking garage instead. The return trip also faced similar issues, with voice guidance lagging behind actual location and providing incorrect turn instructions. Overall, the navigation was unreliable and frustrating, highlighting the need for improved accuracy and synchronization between voice guidance and the app's directions.“
    v. *Citymapper* also has a voice guided navigation, Fallbacks (Timeliness, Reactivity, Customization)

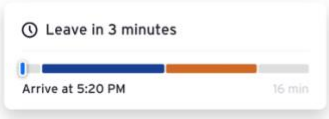
3. **Safety Information**: Provide information about busy roads or areas to ensure safety, especially during late-night navigation, addressing concerns about walking through empty or poorly lit areas.
    a. Road Safety Alerts: Incorporate audible alerts to notify users about busy or potentially unsafe roads during late-night navigation.
    b. Safety Feedback Button: Add a button for users to report safety concerns encountered during navigation, helping to improve safety information for others.
    c. Crowdsourced Safety Data: Utilize crowdsourced data to identify busy or unsafe areas in real-time, providing users with timely information for safer navigation.
    d. Safety Recommendations: Offer safety recommendations or alternative routes for users navigating through potentially unsafe areas.
    e. Clear Safety Information: Ensure safety alerts and recommendations are prominently displayed within the app interface for easy access and understanding by users.

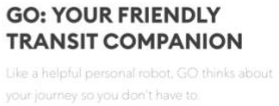
i. *Citymapper* prioritizes user safety by providing comprehensive safety information and features to help users navigate safely, especially during late-night travels or in potentially unsafe areas.

ii. 

4. **Assistance with Train Transfers**: Implement features to assist with train transfers, such as indicating which part of the train to board for quicker transfers, reducing stress and uncertainty during transfers between modes of transportation
    a. Platform Indicator: Display clear indicators showing which part of the train to board for faster transfers.
    b. Real-Time Updates: Provide real-time updates on train delays or platform changes to adjust transfer plans accordingly.
    c. Transfer Time Estimates: Show estimated transfer times between trains to help users plan efficiently.
    d. Audible Alerts: Use sound notifications to alert users when their train approaches a transfer station or when it's time to move to a specific part of the train.
    e. Visual Guidance: Include visual cues like icons or symbols to indicate designated transfer areas or boarding points on trains.
    f. Feedback Button: Add a button for users to share their experiences and suggestions for improving train transfer assistance directly within the app.
        i. *Transit*: The App has a platform indicator, audible alerts and icons to indicate transfer areas and boarding points. "Transit prioritizes user convenience and efficiency by offering comprehensive assistance with train transfers, enhancing the overall transit experience for users."
        ii. Problem with Accuracy, Coverage and a complex Interface.

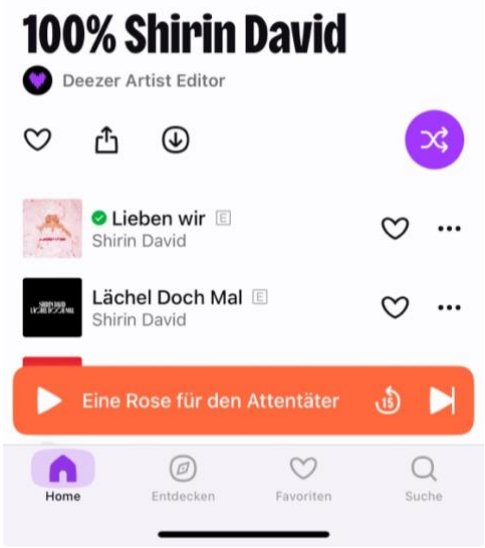
iii.

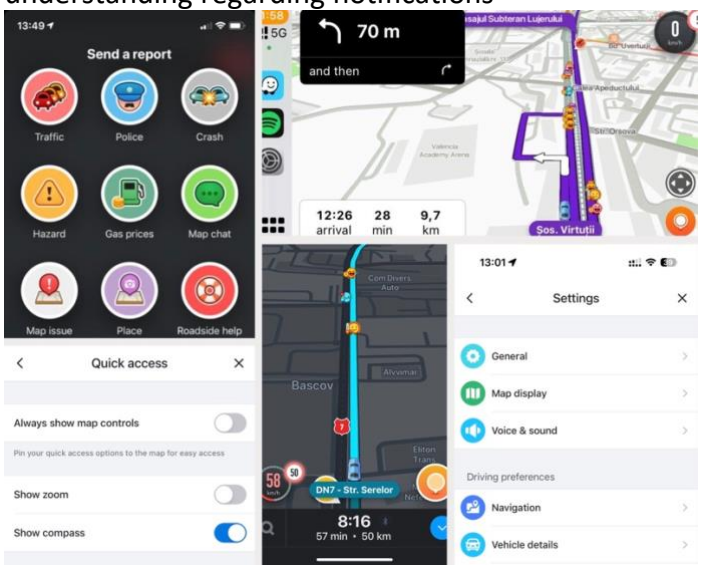




5. **Offline Access**: Allow offline access by enabling users to download maps and directions for use in areas with poor network coverage, ensuring they can navigate safely even without internet access.
    a. Map Download Button: Add a button for users to download maps and directions for offline use.
    b. Offline Mode Switch: Include a switch to activate offline mode in the app, enabling access to downloaded maps without internet.
    c. Offline Search Bar: Provide a search bar for users to find locations within downloaded maps even when offline.
    d. Offline Navigation Button: Implement a button for users to access turn-by-turn directions offline.
    e. Automatic Updates Setting: Include a setting for automatic updates of downloaded maps when connected to the internet.
    f. Storage Management Option: Offer an option to manage offline map storage, allowing users to delete outdated maps or free up space.
        i. Many Apps have this, but they all fall short when it comes to accuracy and general limitation of available offline functionalities.
        ii. MAPS.ME, Sygic GPS, etc.
        iii. Other apps using the download function

iv.



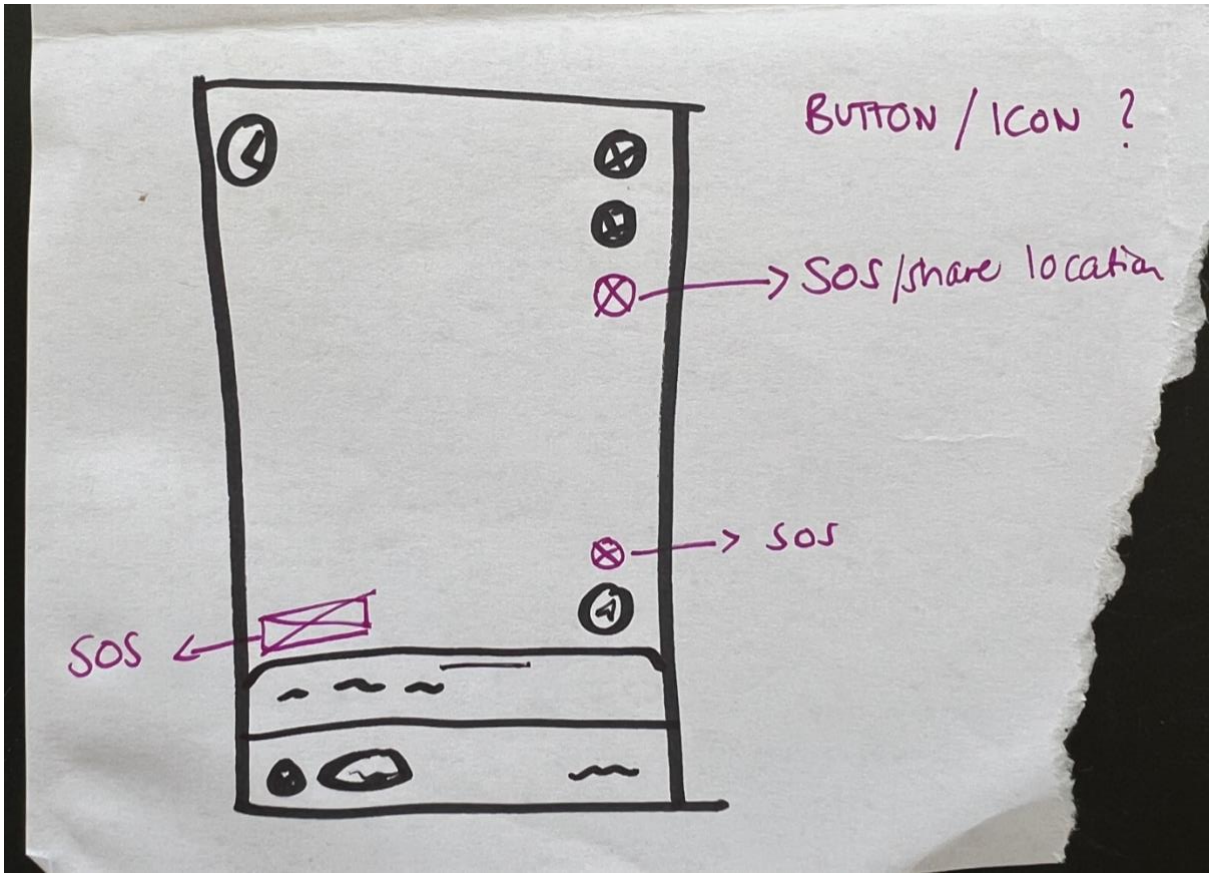
6. **Personalized Notifications**: Personalize notifications based on the user's usual routes and preferences, providing tailored updates and suggestions to enhance the user experience
    a. Route History Analysis: Track user's usual routes and favorite locations.
    b. Notification Settings: Provide options for users to customize their notification preferences, such as frequency, type of notifications, and preferred delivery time.
    c. Personalized Alerts: Utilize machine learning algorithms to predict user preferences and behavior, enabling the app to deliver personalized notifications based on individual habits and patterns.
    d. Contextual Suggestions: Offer contextual suggestions within notifications based on the user's current location, time of day, and upcoming events or appointments.
    e. Feedback Loop: Incorporate a feedback loop where users can provide input on the relevance and usefulness of notifications, allowing the app to continuously improve its personalization algorithms.
    f. Privacy Controls: Ensure robust privacy controls to allow users to control the types of data used for personalizing notifications and to opt-out if desired, respecting user preferences and privacy concerns.
        i. *Waze*: Route History Analysis, suggesting preferred routes and giving contextual suggestions.
        ii. Pitfalls: heavily reliant on user data and lack of contextual understanding regarding notifications
        iii. 

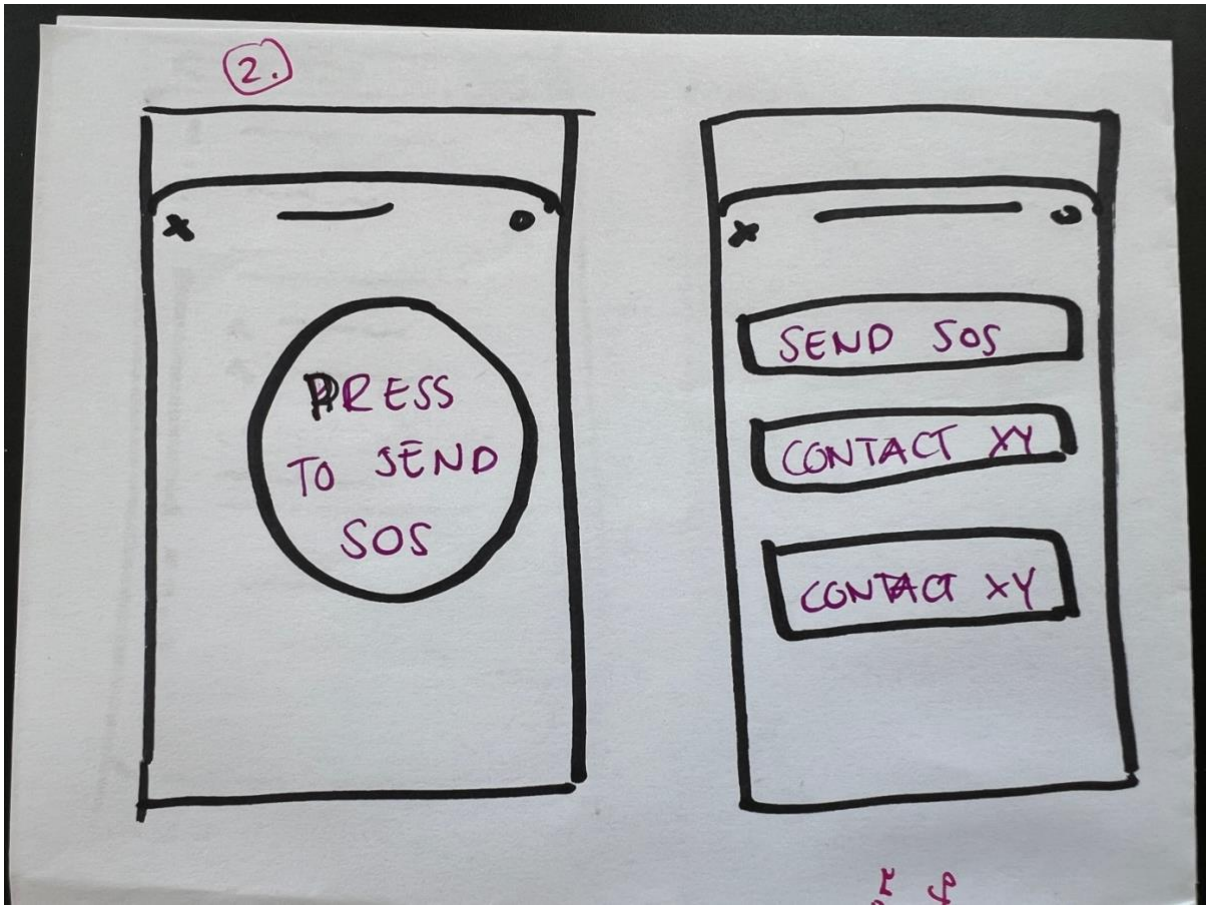
Wireframes

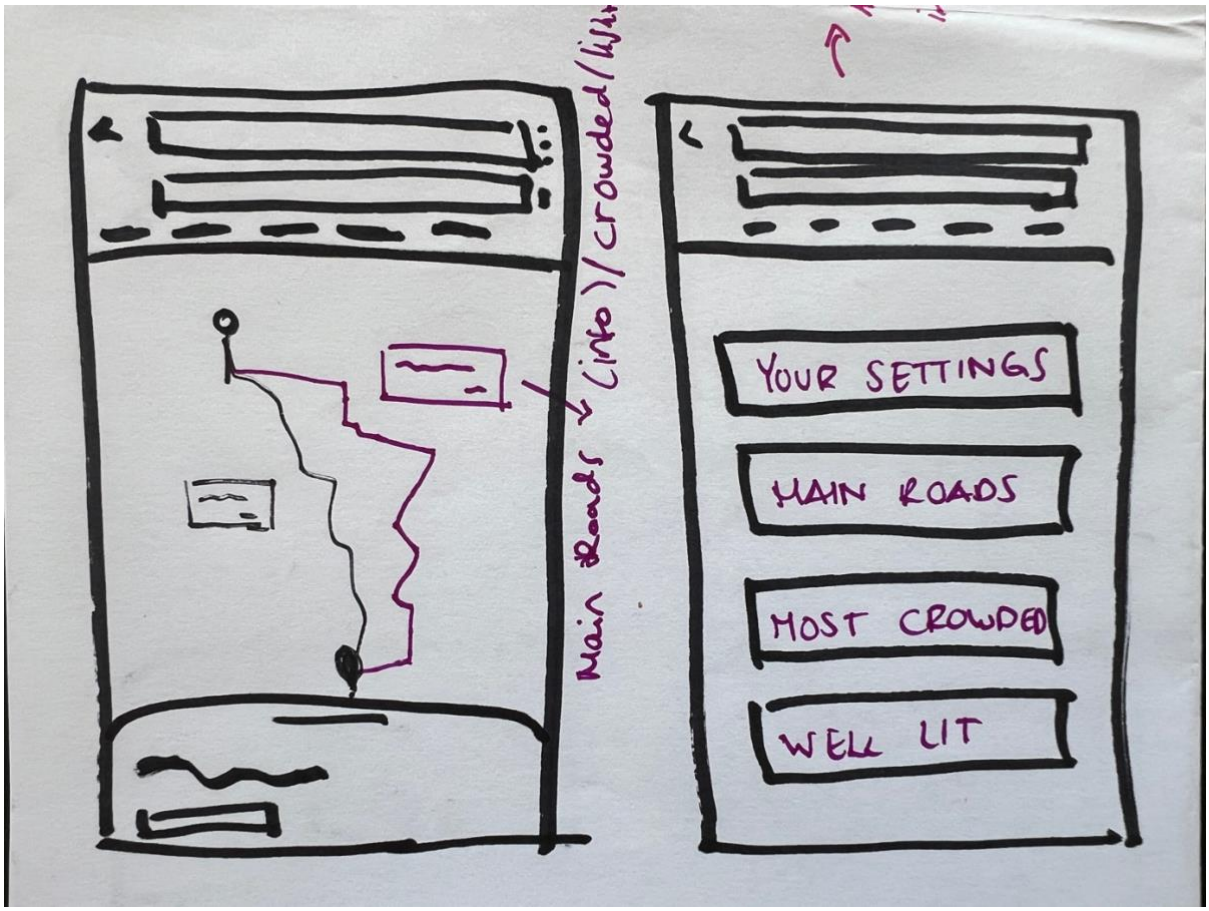
Due to time constraints I decided to focus on four features to create wireframes for in Figma.

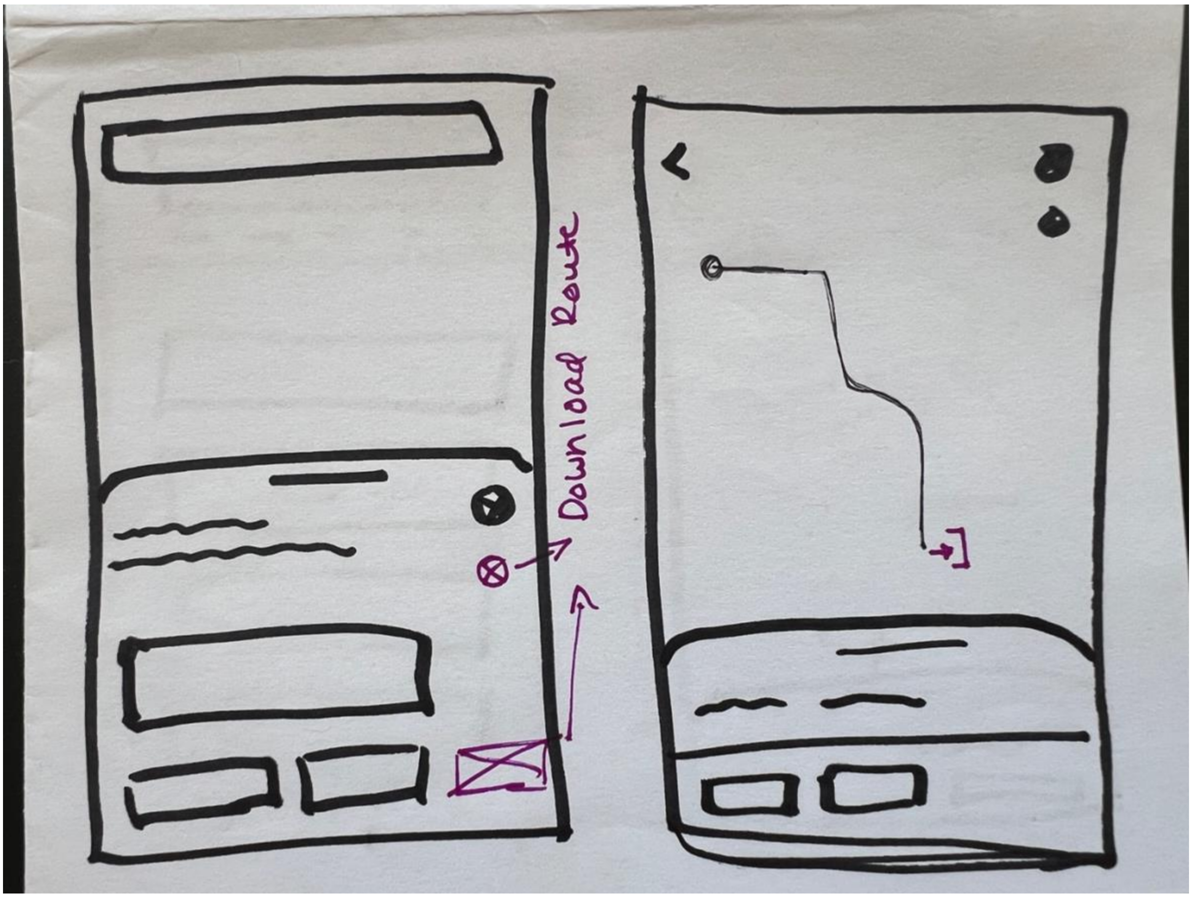
Paper Sketches

These are low fidelity sketches of the wireframes.




2.
PRESS TO SEND SOS
SEND SOS
CONTACT XY
CONTACT XY


Main Roads (into)/crowded/
YOUR SETTINGS
MAIN ROADS
MOST CROWDED
WELL LIT

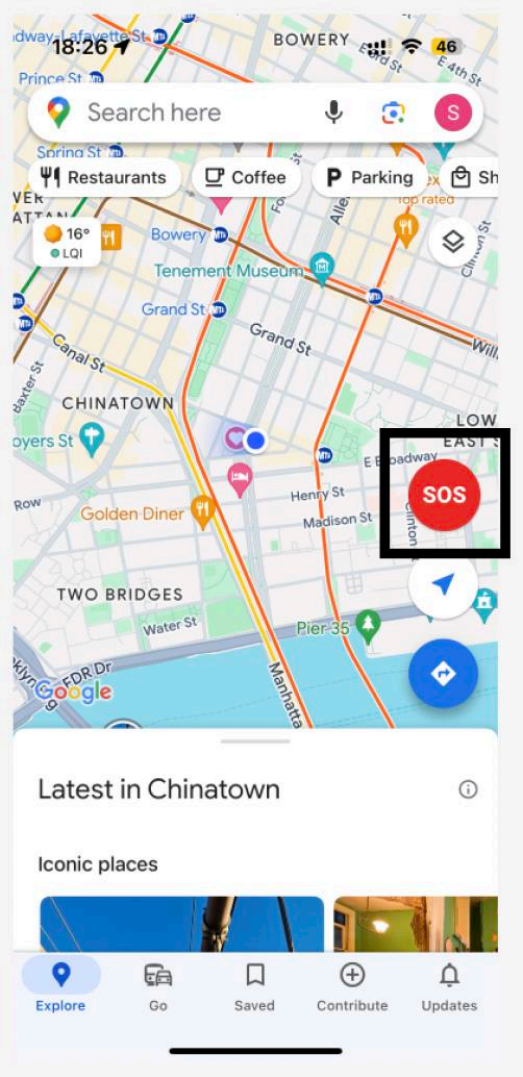

Download Route

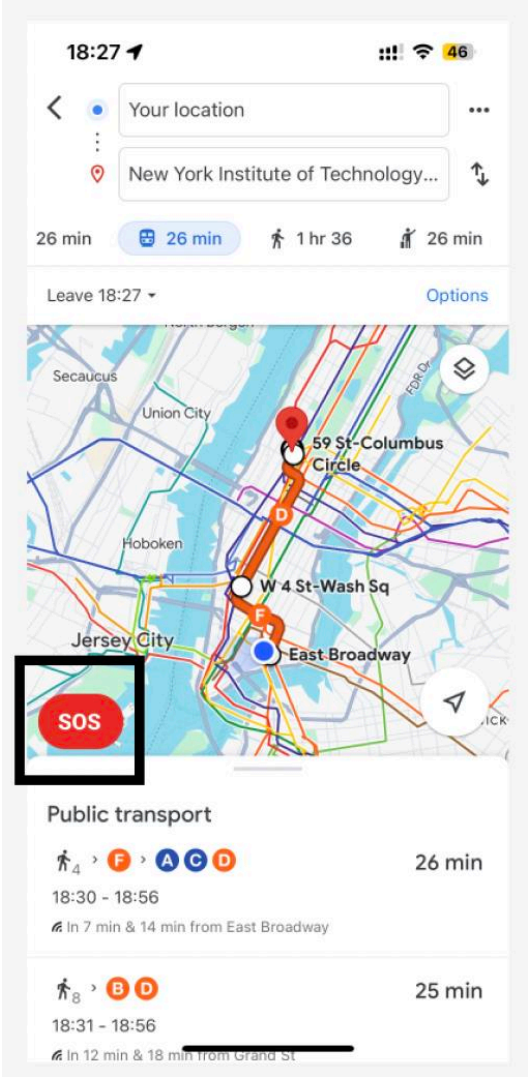

which entrance for best location
info on cards
where to get off (walk overground >)

Figma Wireframes

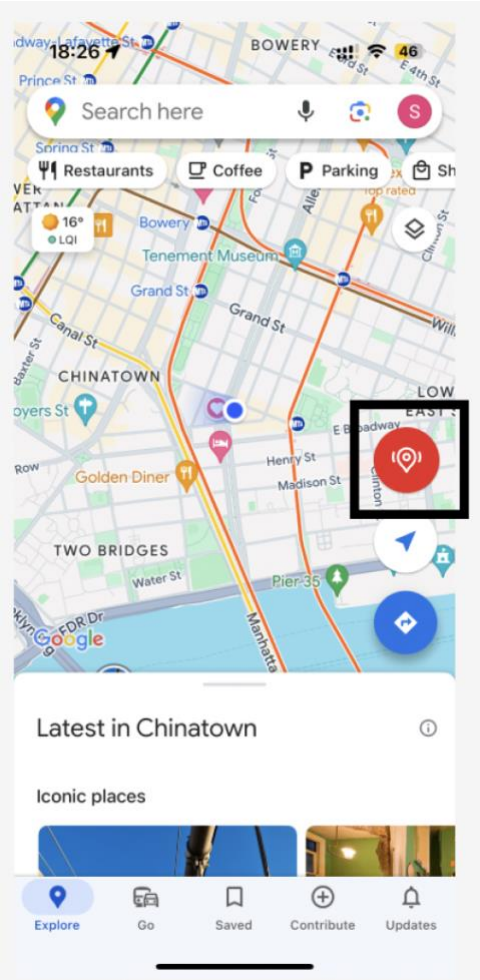
These are the initial Figma wireframes, before any testing. To see the iteration and the final wireframes, visit the side-by-side iteration section.

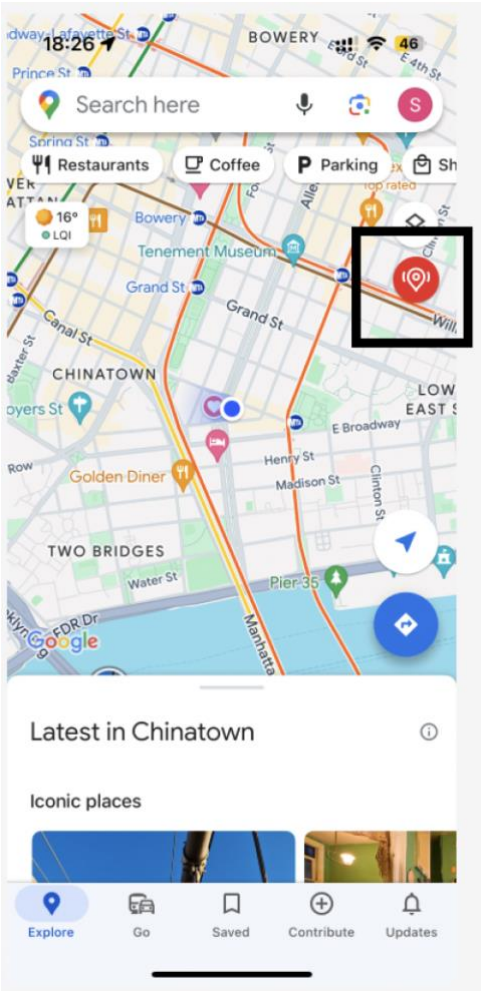
SOS Button



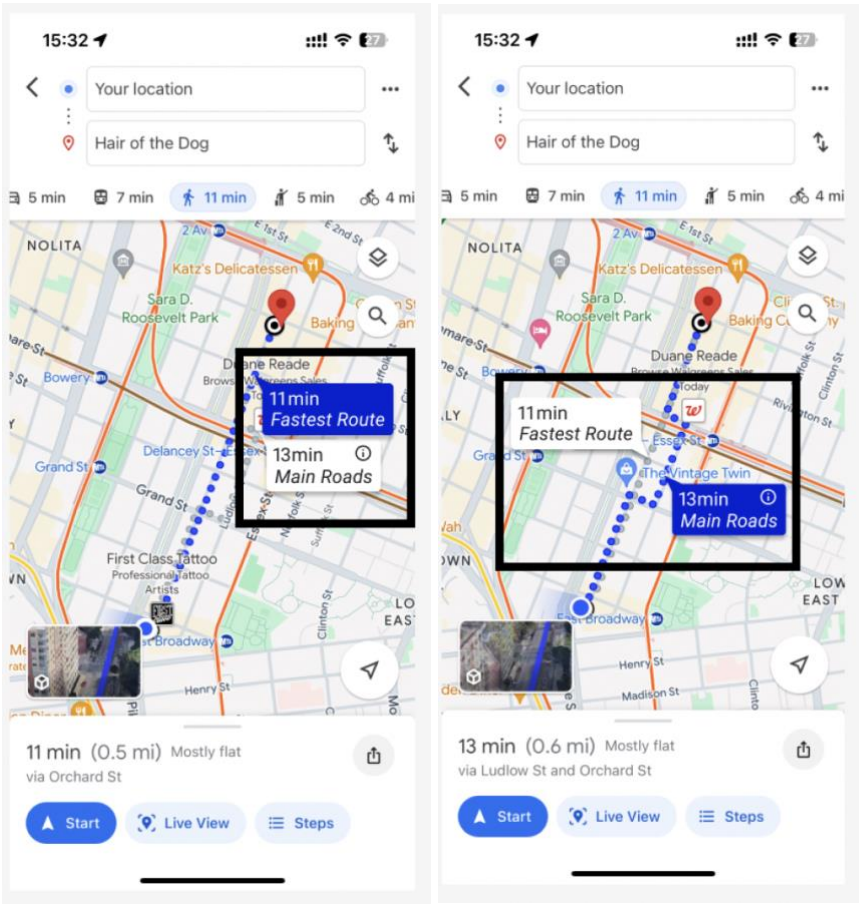


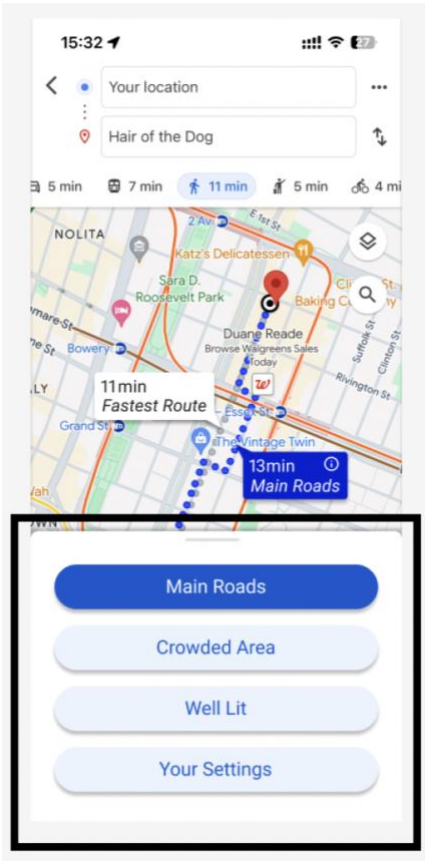
Share Location



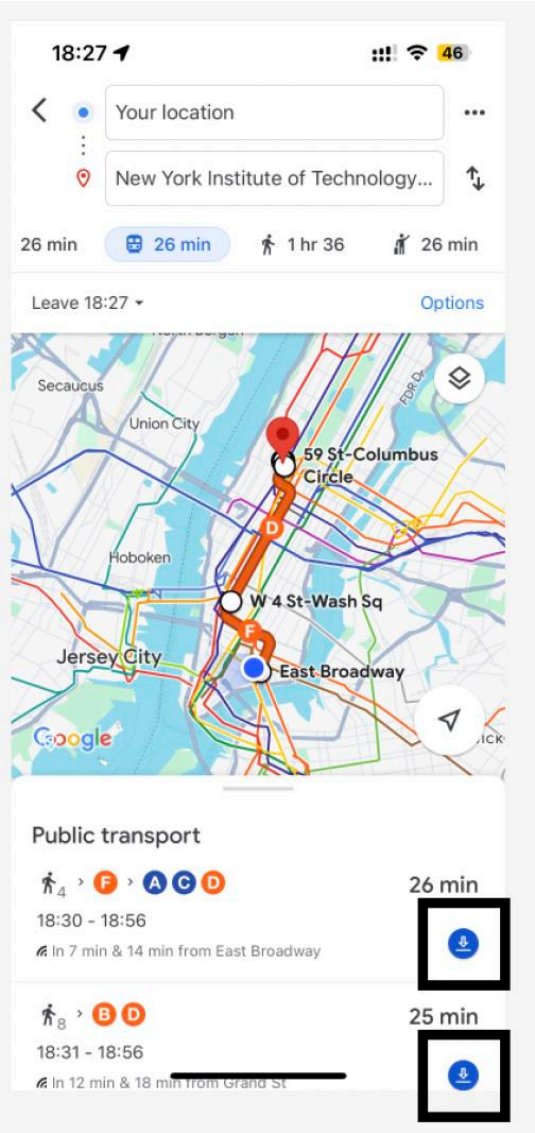


Route Selection

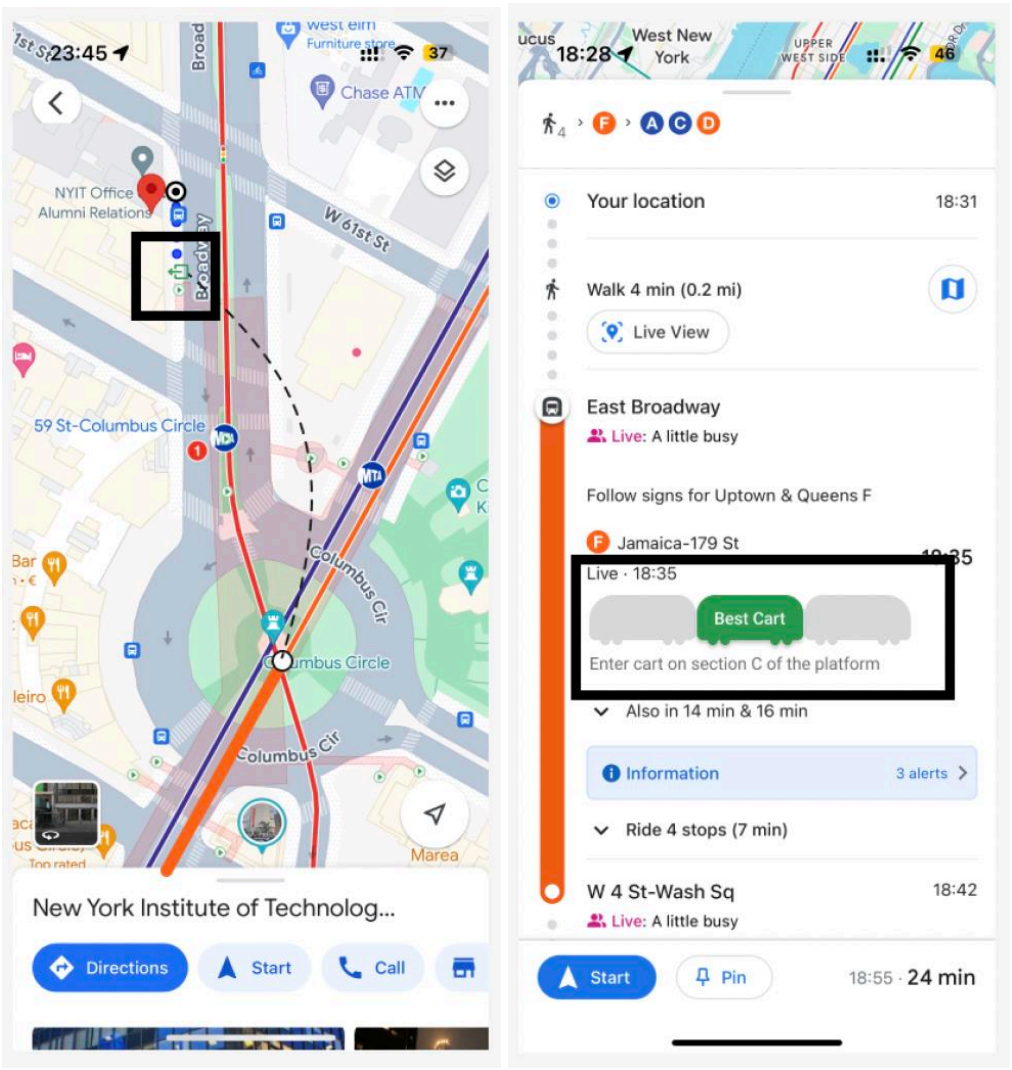




Download Maps



Transit Information



A/B Testing Brief

The problem being addressed in this testing is the lack of consideration for women's safety in existing travel and transit apps, leading to increased fear and limitations in mobility for women. The scope of the testing is to assess the effectiveness of proposed new/improved features in addressing these safety concerns within Google Maps. The purpose is to enhance the user experience for women and promote safer journeys.

Target Audience/Participants

The target audience for the testing consists of women aged 20-35 who regularly use travel and transit apps, particularly Google Maps, for navigation.

Objectives and Goals

1. Evaluate the usability and effectiveness of new/improved features designed to enhance women's safety in Google Maps.
2. Gather feedback on the proposed features to inform further iterations and improvements.
3. Assess user perceptions of the relevance and importance of safety features in travel apps.

Relevance

The testing is significant within the project as it directly informs the final design recommendations, proposing features for companies like Google to implement in their navigation apps to address women's safety concerns.

A/B Testing Plan

Hypothesis and Questions

1. Hypothesis: Women will find the new/improved safety features in Google Maps useful and empowering.
    a. Questions: How do women perceive the usability and effectiveness of the proposed safety features? What specific aspects of the features do they find most beneficial?
2. Hypothesis: The proposed safety features will positively impact women's confidence and sense of security when using Google Maps.
    a. Questions: To what extent do the safety features alleviate women's fears related to using public transport or walking alone? How do these features influence women's travel behaviour and route planning?

Methods and Techniques

A/B testing will be conducted with 3 participants per round, totalling 2 rounds of testing. Participants will be asked to perform specific tasks using both the current version of Google Maps (control group) and the version with the new/improved safety features (experimental group). The prototype was tested with mainly a Wizard of Oz approach. Think-aloud protocols and post-task interviews will be utilized to gather qualitative feedback.

Testing Tasks

1. **Task: Safety Features**
    - *Scenario*: You're traveling alone in a big city and want to ensure your safety, especially in unfamiliar or remote areas.
    - *Instructions*: Open Google Maps and explore the safety features available, such as sharing your location with contacts and sending a SOS alert to authorities. Test the functionality of sharing your location with a trusted contact and assess how easy it is to use. Simulate calling for help through the SOS button. Evaluate the effectiveness of the safety features in providing you with a sense of security while traveling alone.
2. **Task: Safety Information**
    - *Scenario*: It's late at night, and you need to walk home from a friend's house through an unfamiliar neighbourhood. You want to ensure you choose the safest route possible.
    - *Instructions*: Open Google Maps and input your friend's address as the starting point and your home address as the destination. Pay attention to any safety information provided by the app. Evaluate the relevance and usefulness of the safety information in helping you choose a safe route for your late-night walk home.
3. **Task: Offline Access**
    - *Scenario*: Imagine you're planning a trip in a remote area with poor network coverage. You want to ensure you have access to navigation even without internet access.

- *Instructions*: Using the provided device, open Google Maps and download map sand directions for the route you plan to take. Evaluate the usability and effectiveness of the offline access feature in ensuring you can navigate safely in areas with poor network coverage.

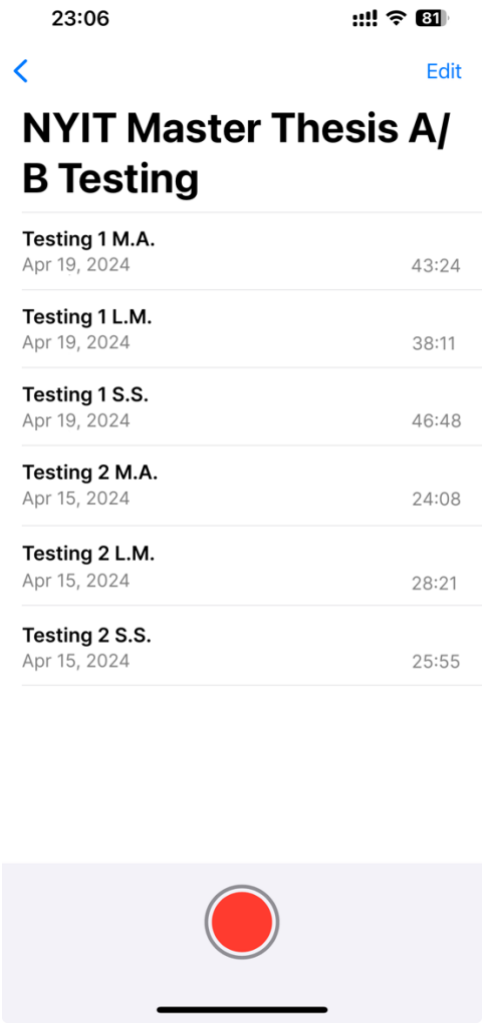
4. **Task: Assistance with Train Transfers**
   - *Scenario*: You're riding the subway alone at night and need to transfer between two different train lines to reach your destination.
   - *Instructions*: Open Google Maps and plan a route from your current location to your meeting venue, which involves transferring between two different train lines. Pay attention to any assistance provided by the app, such as indications about which part of the train to board. Evaluate the effectiveness of the train transfer assistance feature in reducing stress and uncertainty during your journey.

Recruitment Plan

Participants will be recruited through targeted online advertisements on platforms frequented by women, such as social media groups and forums. Incentives such as gift cards or discounts will be offered to encourage participation.

Testing Results

Test Recordings

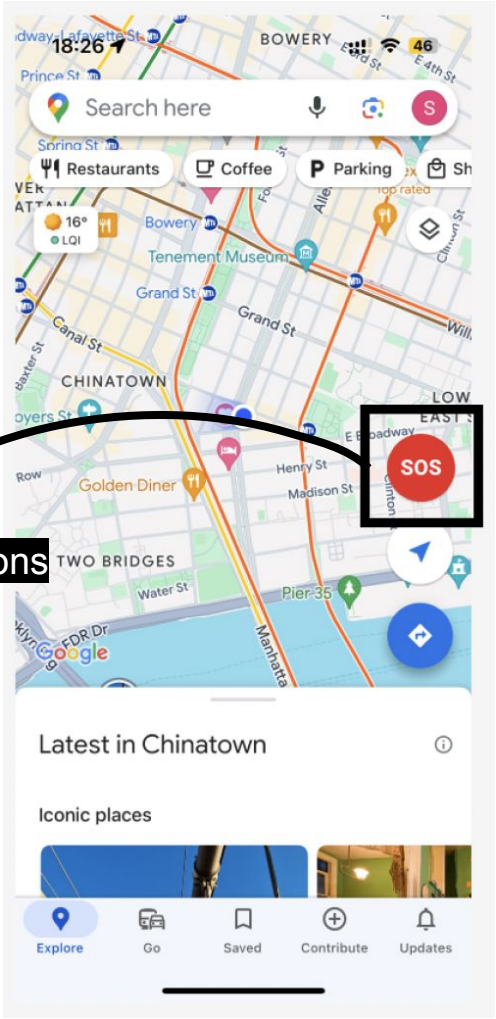


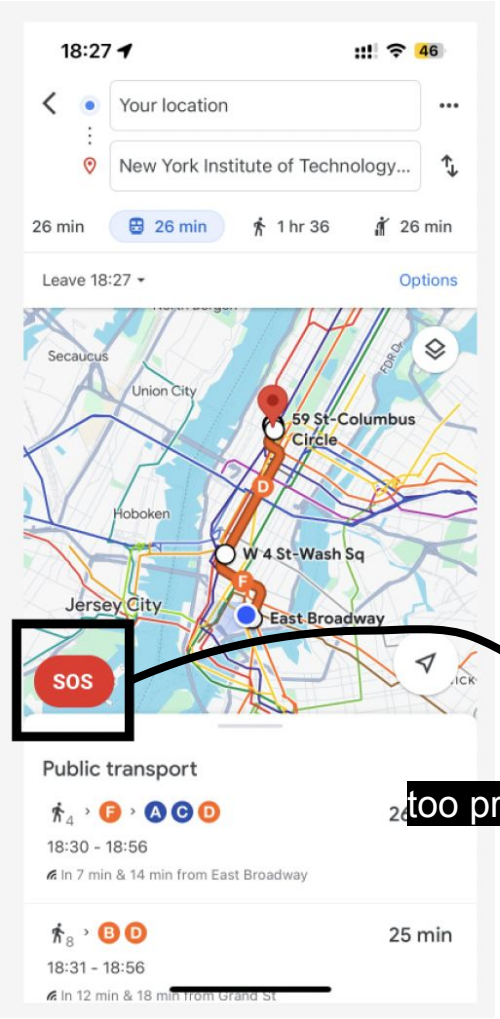
Iteration after A/B Testing

Below is a derivation of how my final designs came about through the testing results.

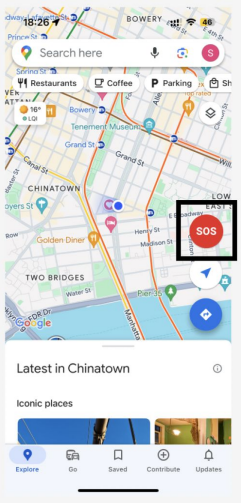
Initial SOS Button

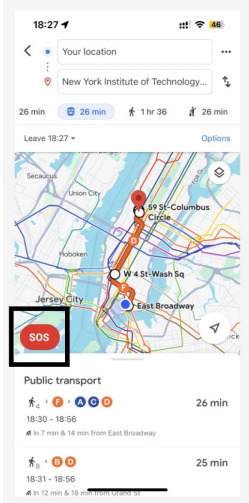
too close to other buttons





too prominent on the interface



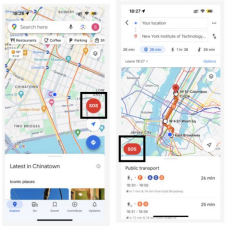


User Feedback

- The users found the SOS button placement in both instances inconvenient as it obstructed other important information on the interface

User 1:
"I struggled to find the SOS button easily because it seemed to get lost among other elements on the interface. It felt like it was hiding in plain sight, which made me hesitate to use it in an emergency."

User 2:
"The SOS button placement didn't feel intuitive to me; it was kind of tucked away in a corner where I didn't expect it. I think if it were more prominently displayed, it would give me more confidence that help is just a tap away."



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People have limitations

UX Laws:
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UX Heuristics:
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Consistency and standards
Error preventions
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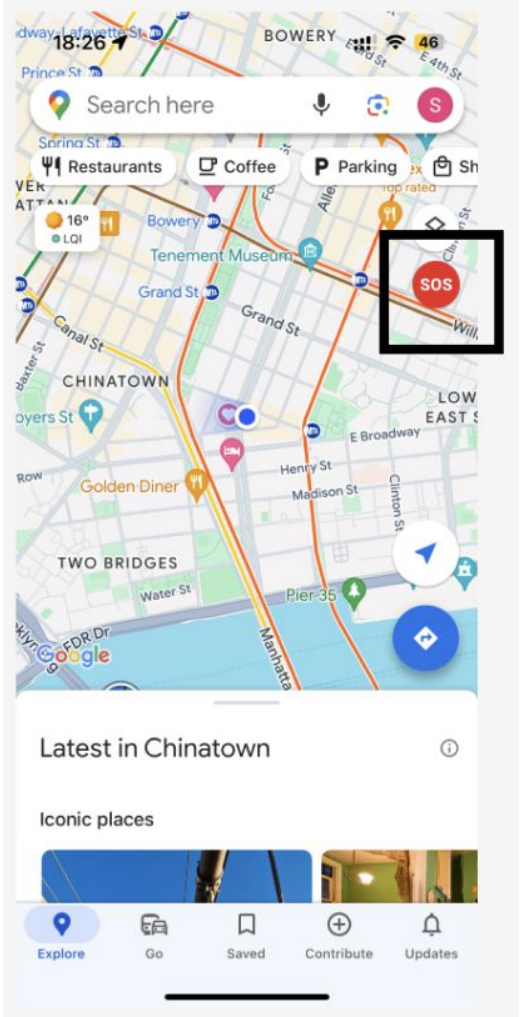
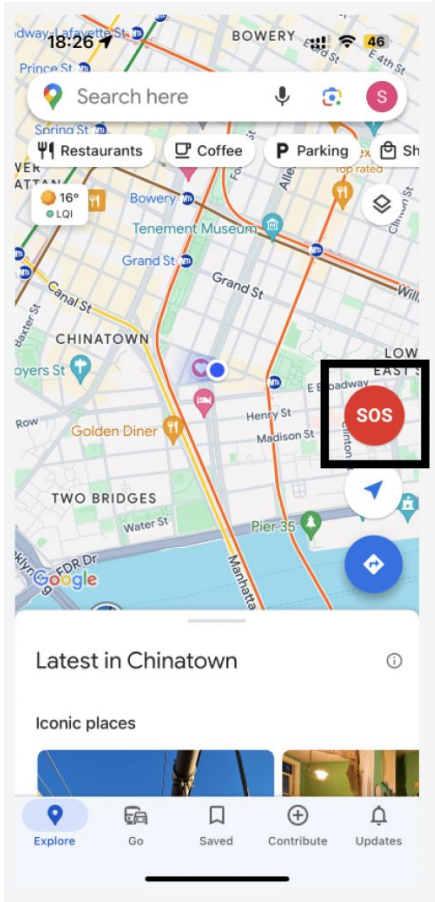
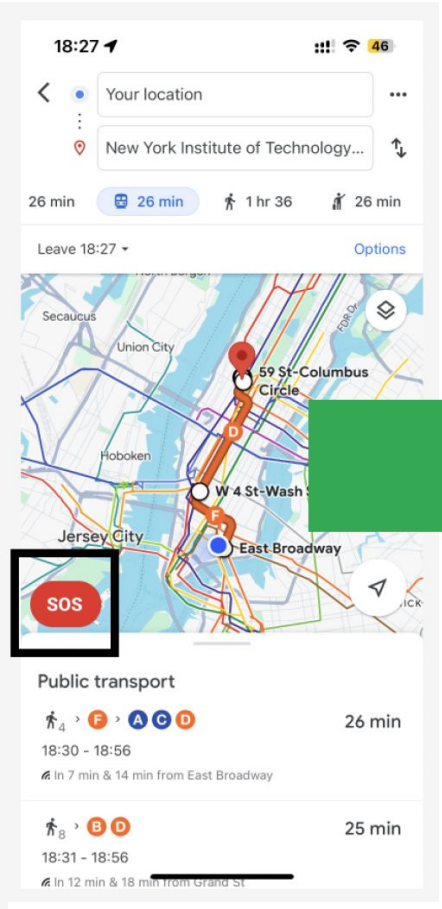
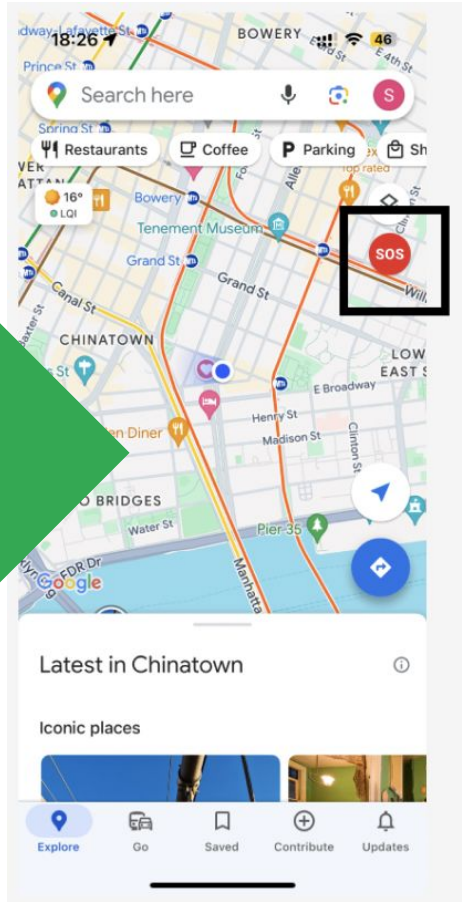


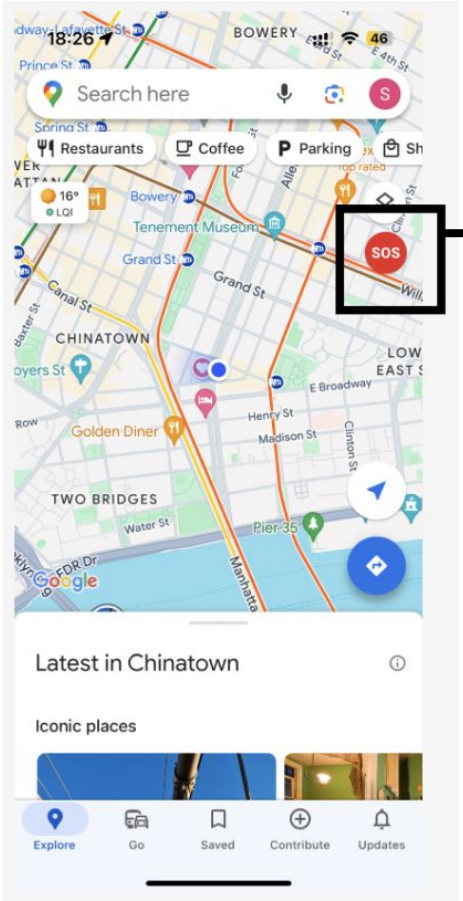
A/B Testing Round 1



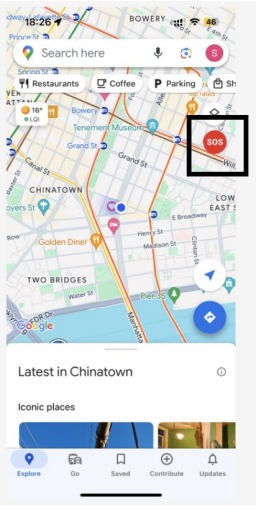




Round 1 SOS Button



Not enough information about the function

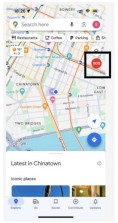


User Feedback

- The lack of a dedicated screen for the SOS button with clear instructions was criticized. It caused a decreased the user's confidence in using the SOS feature effectively.

User 1:
"I wasn't sure what would happen when I pressed the SOS button. There wasn't any clear indication or instructions, so I hesitated to use it. It made me doubt whether it would actually work in an emergency."

User 2:
"I think having a dedicated screen for the SOS button would make a big difference. When I pressed it, I expected some sort of confirmation or guidance, but nothing happened. It left me feeling unsure about whether it was activated or not."



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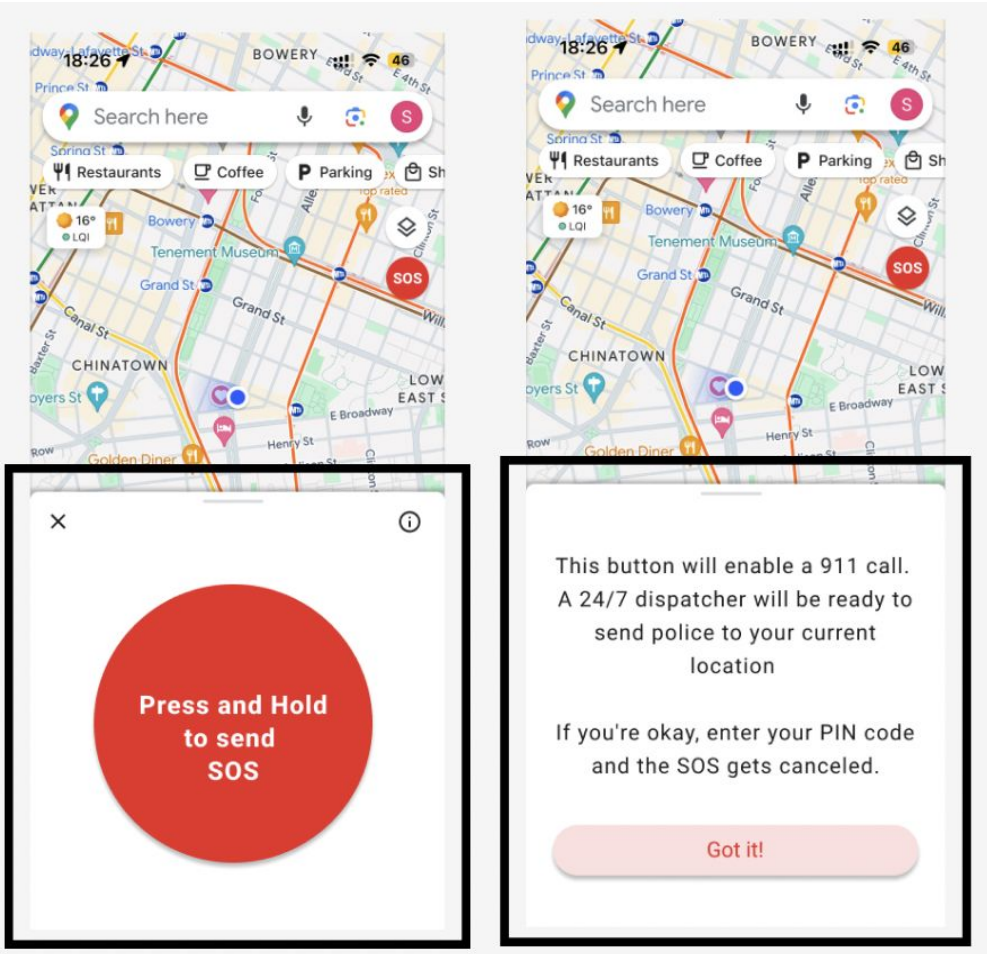
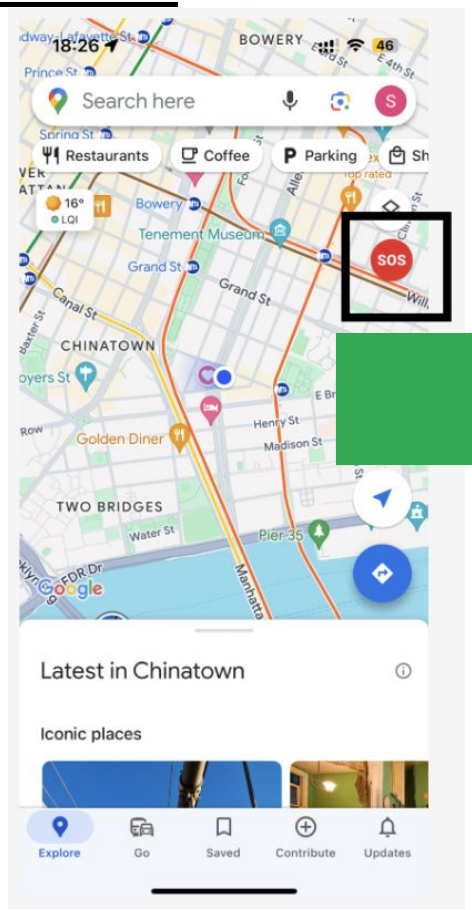
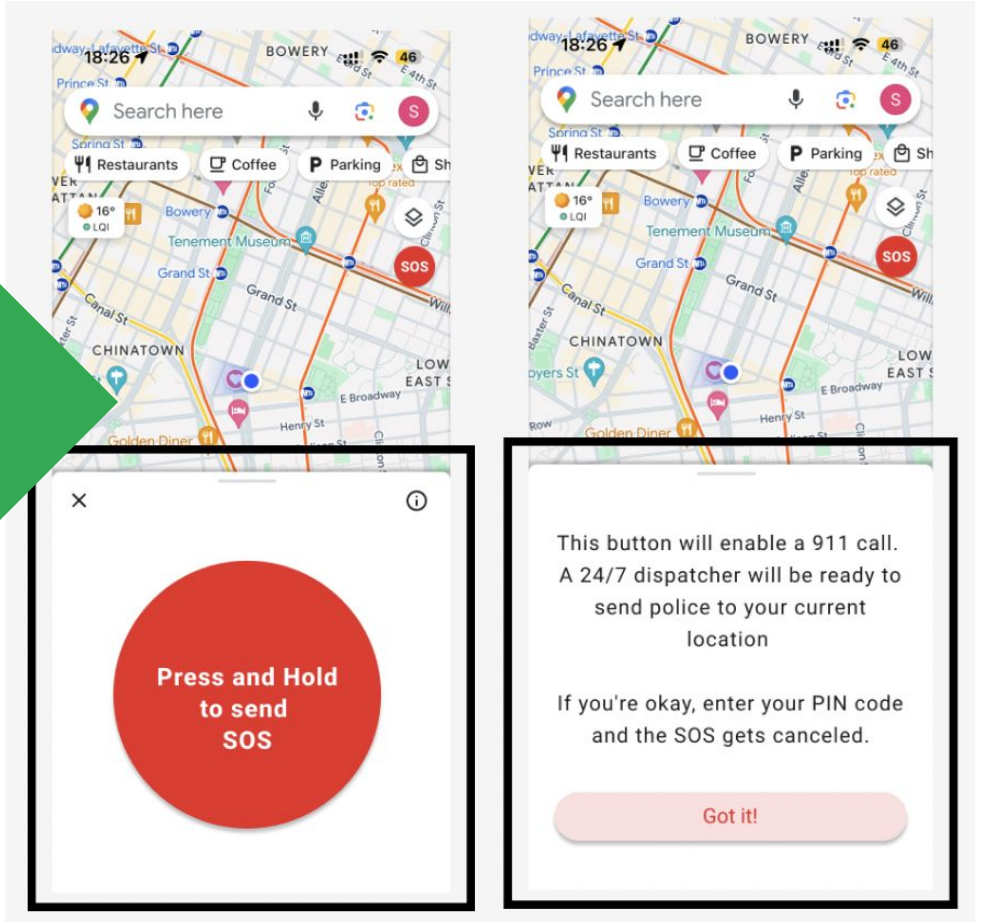
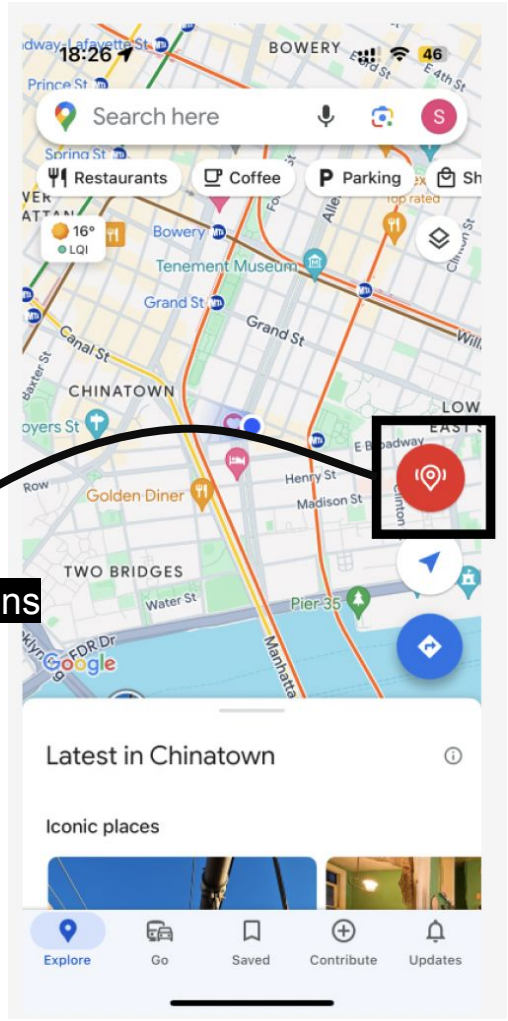


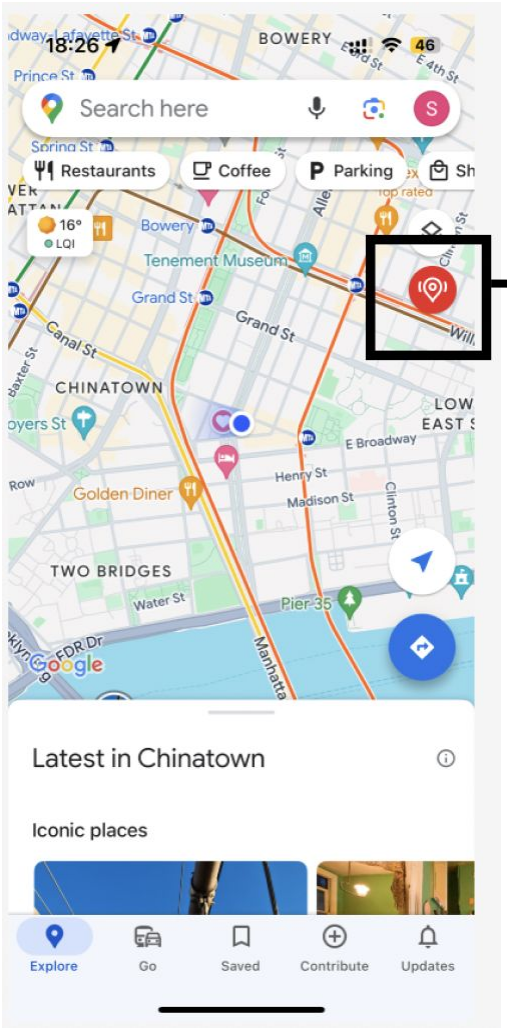
A/B Testing Round 2

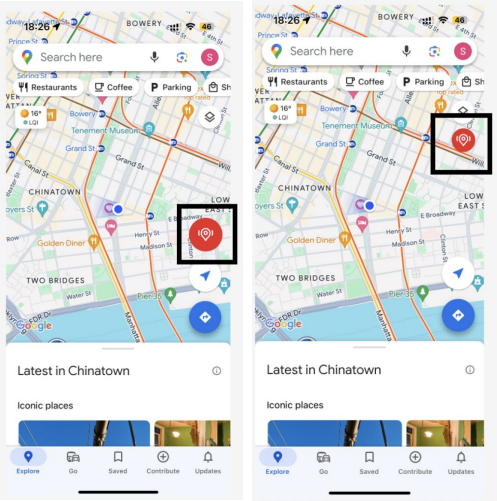




Initial Location Sharing Button







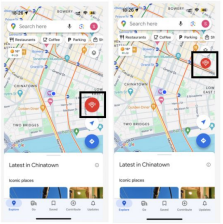
User Feedback

- The users found the share location button useful but felt it could be more prominent and use some additional information improving clarity and usability.

User 1:
"The share location button was handy, but I almost missed it because it blended in with the other icons. Making it stand out more would make it easier to find when I need it in a hurry."

User 2:
"I liked the idea of the share location button, but it took me a moment to figure out what it was for. Adding some text or a label would make its purpose clearer, especially for users who might not be familiar with this feature."

User 3:
"I found the share location button helpful, but I think it could be improved with a bit more information. Maybe a tooltip or a brief explanation could help users understand its function better, especially if they're new to the app."



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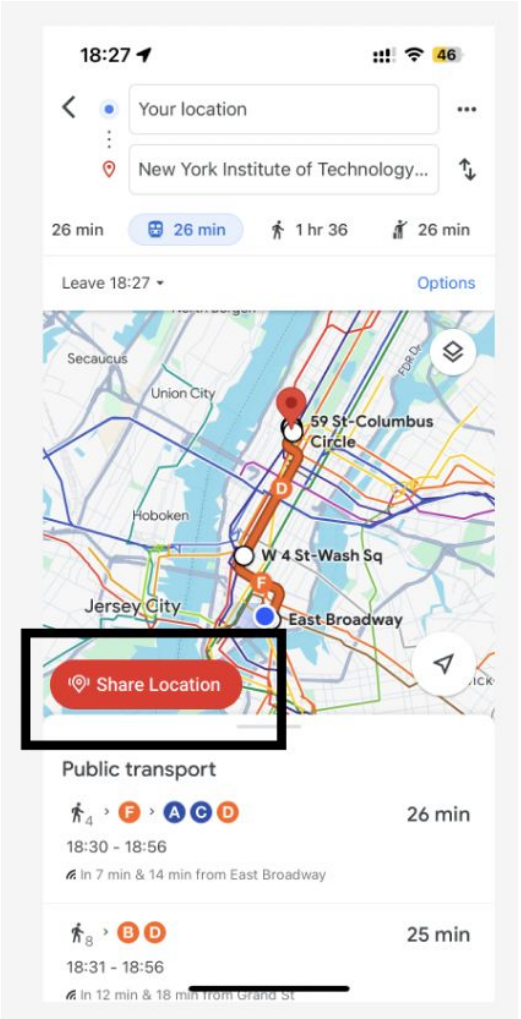
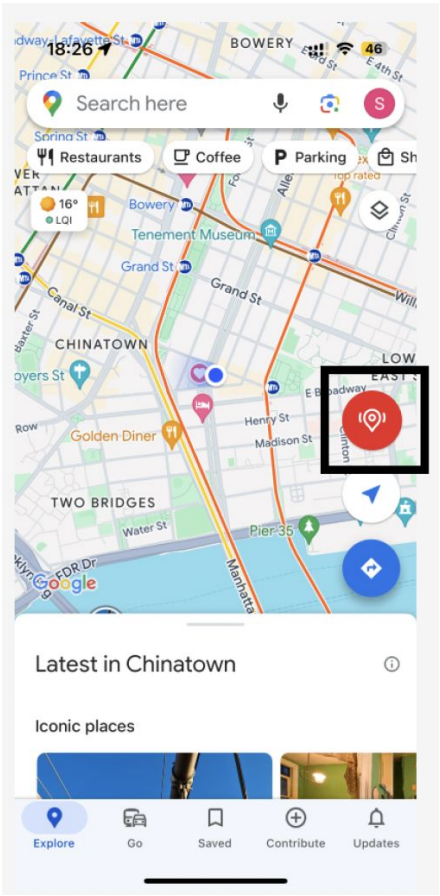
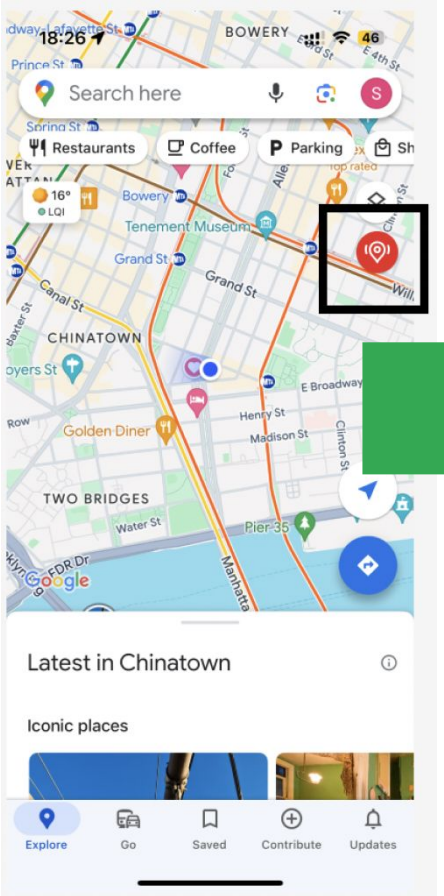
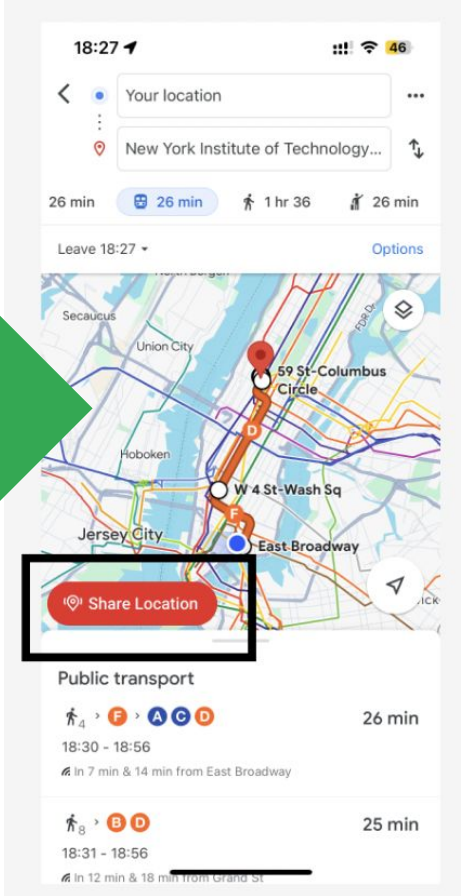


A/B Testing Round 1

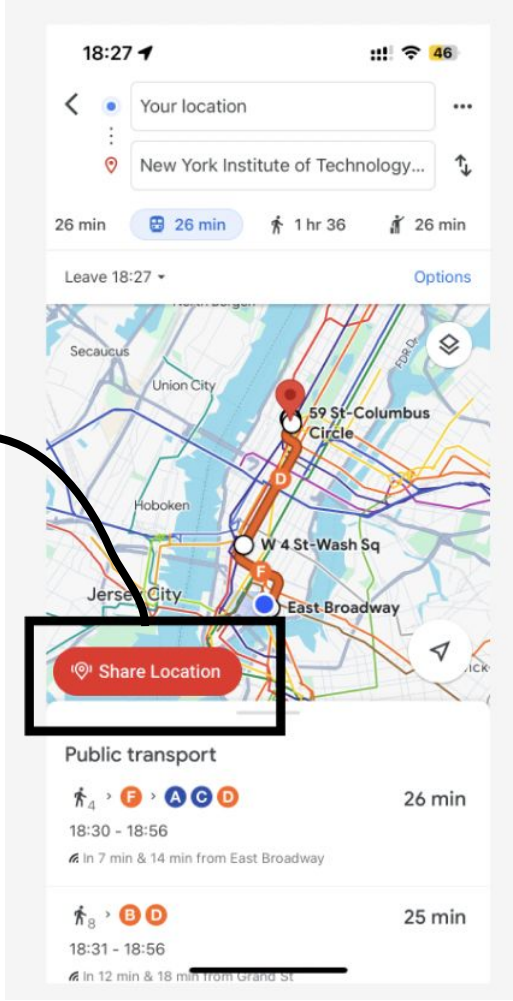


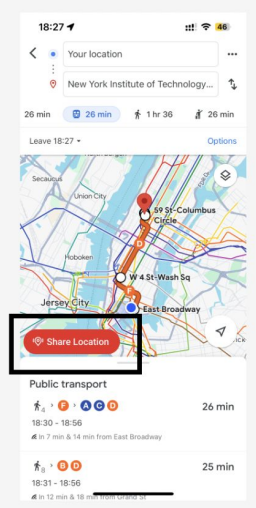




Round 1 Location Sharing Button

missing additional info on the function of the button





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- The users were unclear what would happen if they pressed the location sharing button.

User 1:
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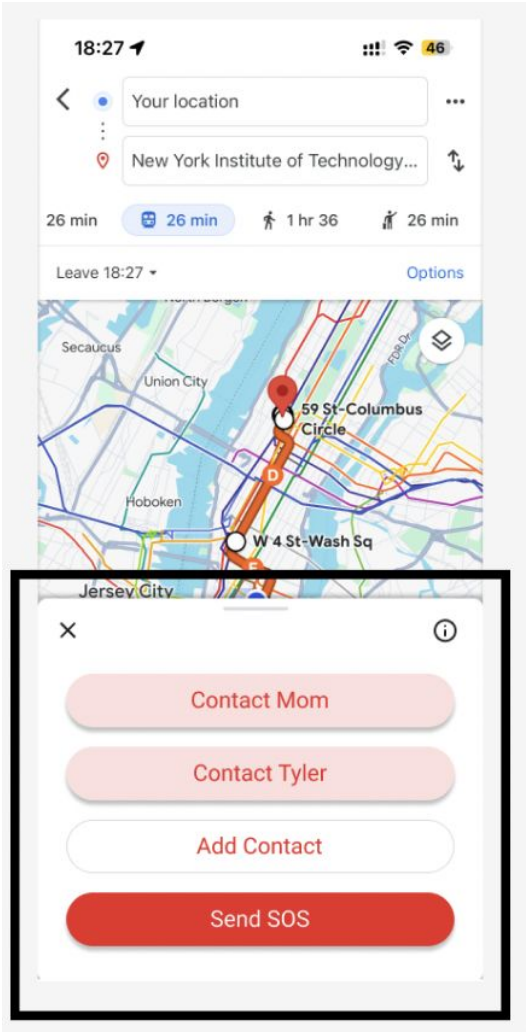
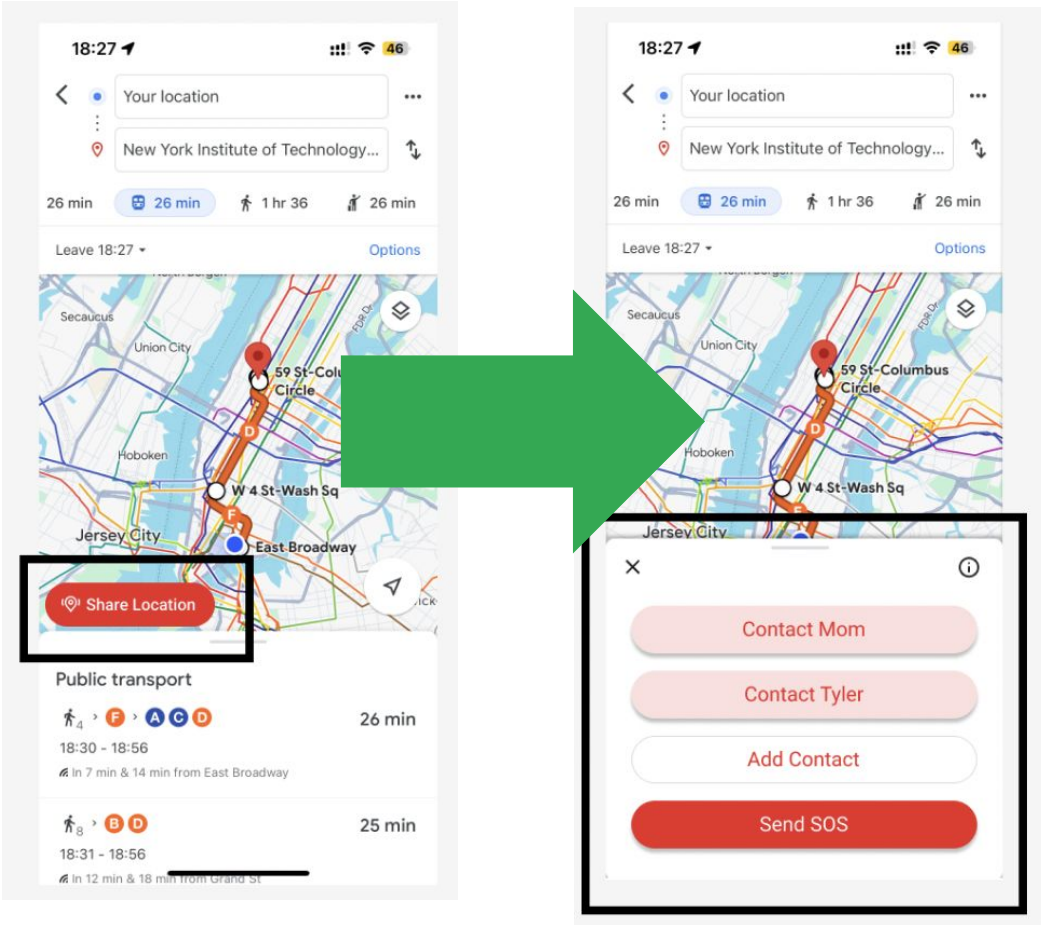
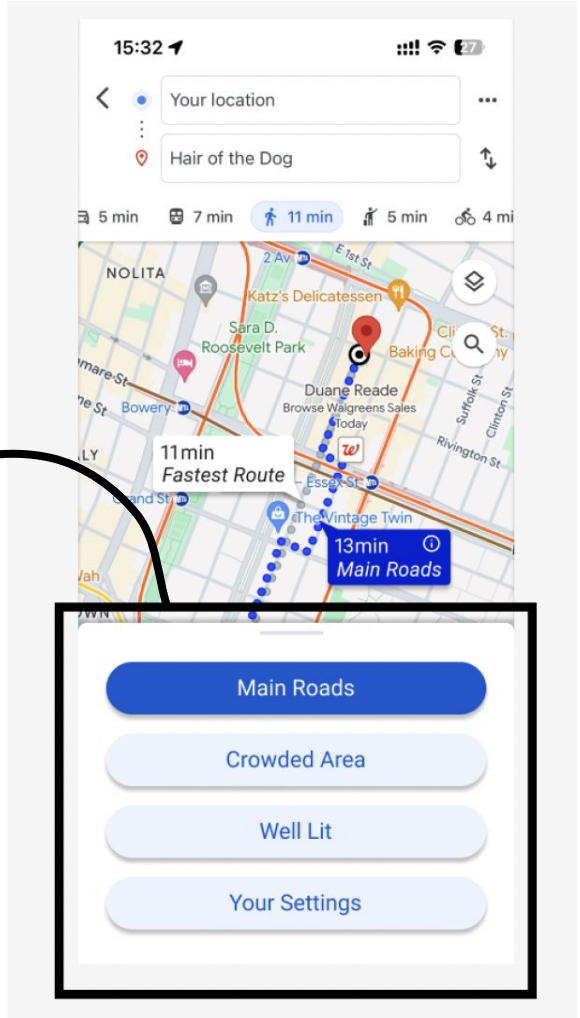


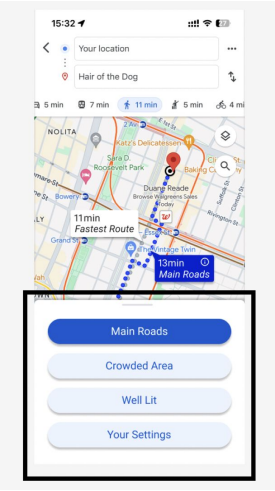
A/B Testing Round 2



Initial Route Information

Needs more information on what the routes are





User Feedback

- The users appreciated the option to view different routes based on safety criteria, such as well-lit or crowded areas. However, they found the terminology without any additional information confusing.

User 1:
"I liked being able to choose routes based on safety criteria, but I was unsure what 'well-lit' or 'crowded' areas meant exactly. Having an info icon next to these terms would have clarified things and made me feel more confident in my choice."

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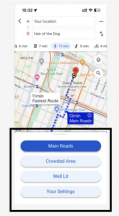

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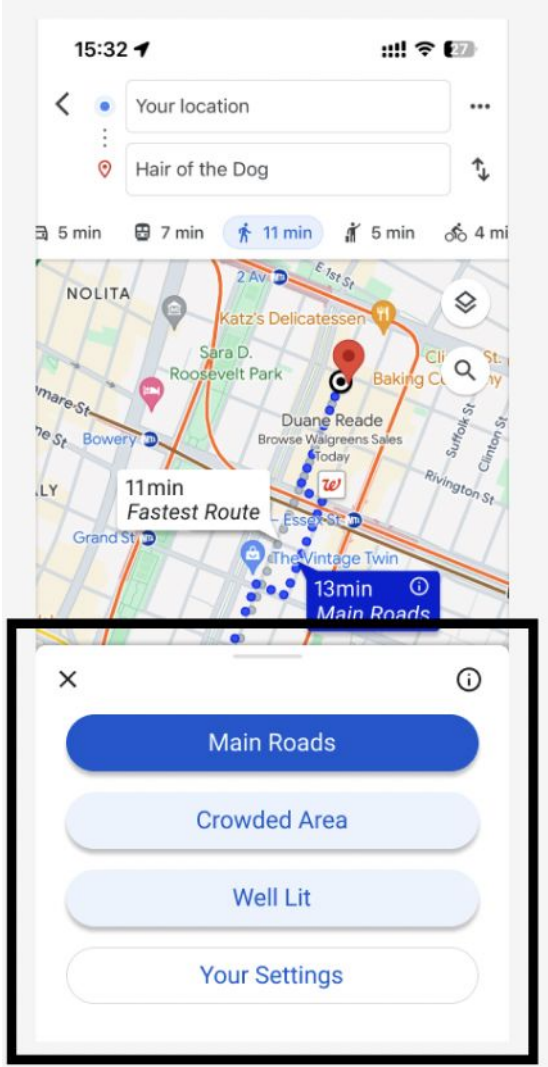
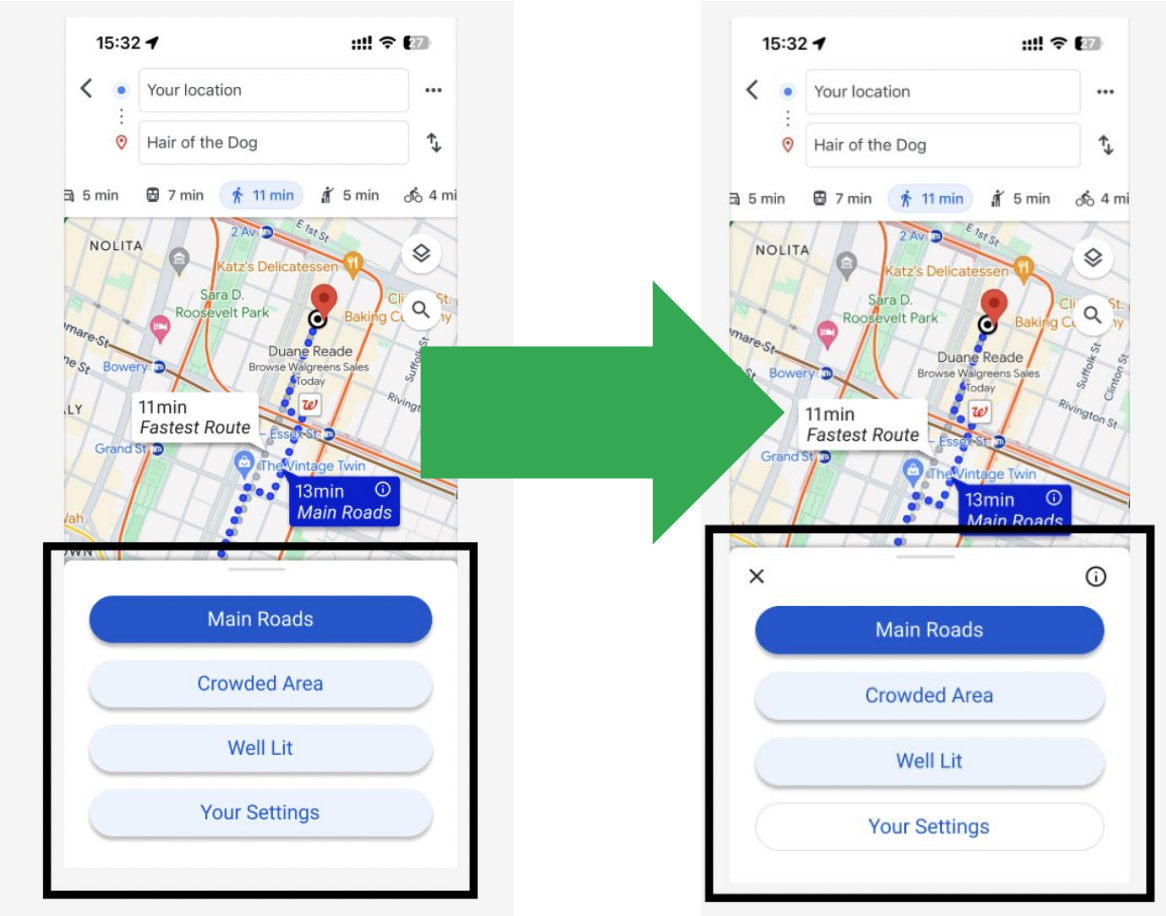
UX Psychology:
People Crave Information
People understand visual systems

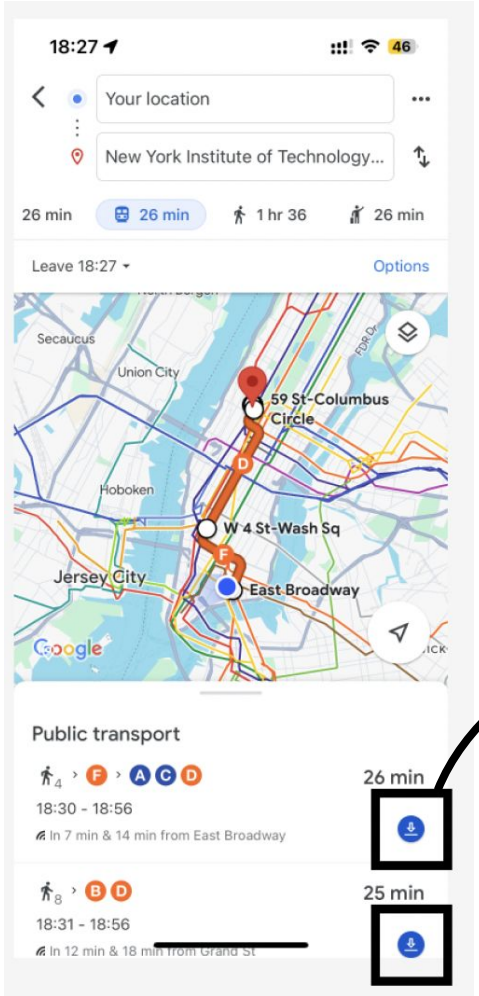
UX Heuristics:
Visibility of system status
Aesthetic and minimalist design



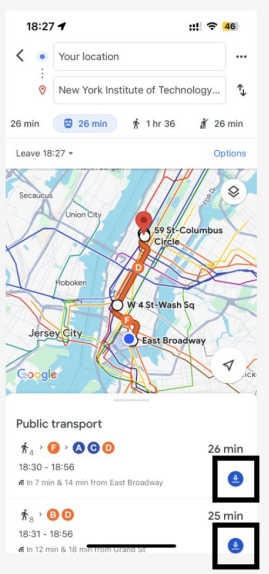
A/B Testing


15:32
Your location
Hair of the Dog
5 min
7 min
11 min
5 min
4 mi
NOLITA
Katz's Delicatessen
Sara D. Roosevelt Park
Duane Reade
Browse Walgreens Sales Today
Bowery
11 min
Fastest Route
13min
Main Roads
Grand St
Main Roads
Crowded Area
Well Lit
Your Settings

Initial Route Information



Placement not intuitive and not aligned with function



User Feedback

- The users found the placement of the download button somewhat intuitive but suggested additional functionality. They expressed interest in the ability to download specific routes, including public transit instructions, for offline use.

User 1:
"I was hesitant to press the download button because I wasn't entirely sure what it would download. Having more clarity on whether it would save the entire map or just specific routes would have helped me feel more confident in using the feature."

User 2:
"While I could locate the download button relatively easily, I felt it lacked some features I expected. Being able to download specific routes, especially with public transit instructions, would have been incredibly useful for offline navigation."

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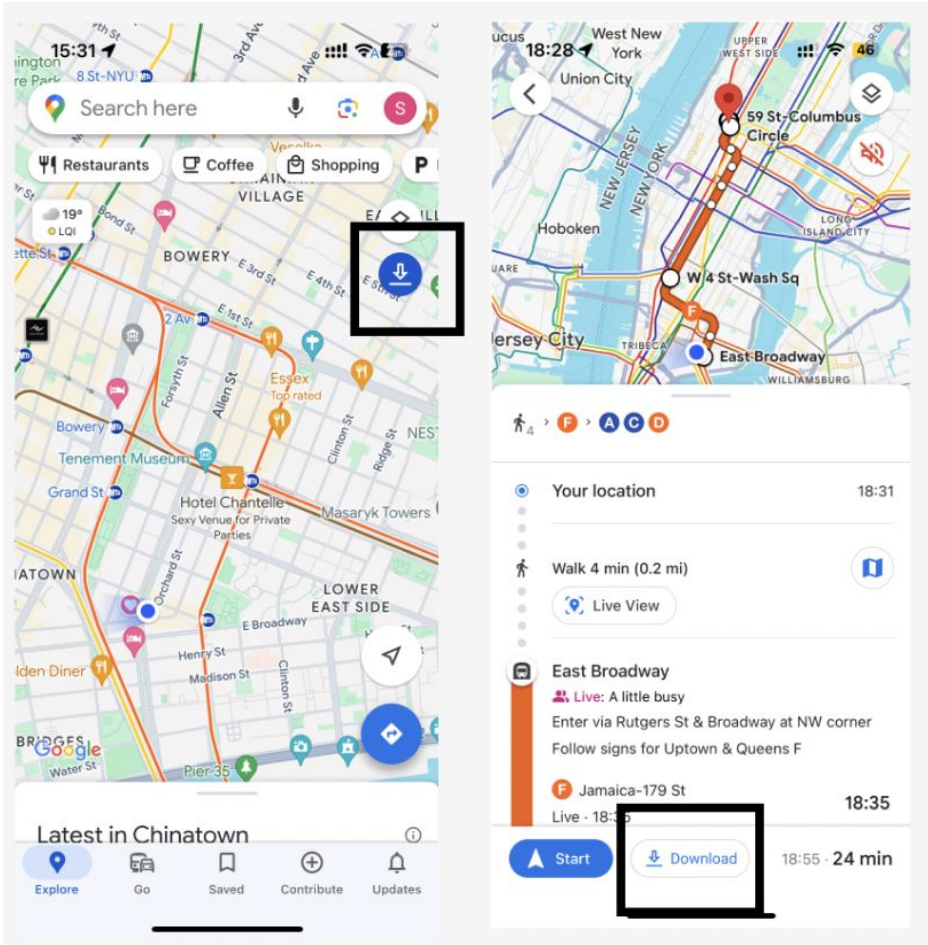
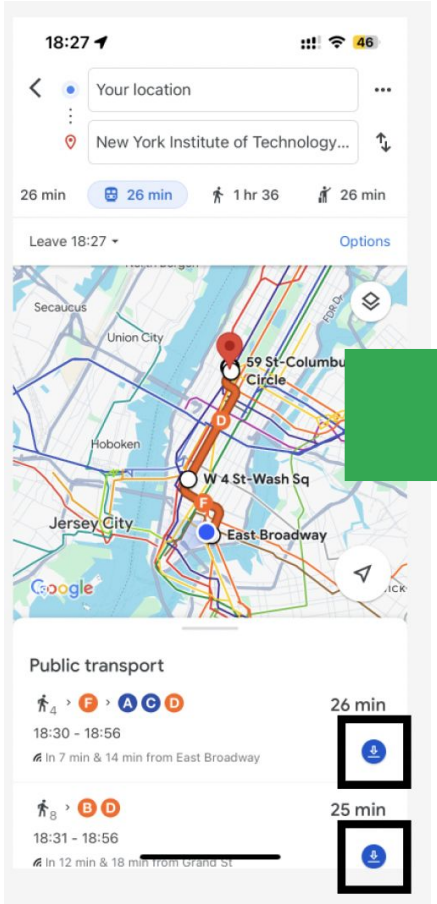
UX Psychology:
People Crave Information

UX Laws:
Jackobs Law

UX Heuristics:
User control and freedom
Flexibility and efficency of use



A/B Testing


18:27
Your location
New York Institute of Technology...
26 min
26 min
1 hr 36
26 min
Leave 18:27
Options
Secaucus
Union City
59 St-Columbus Circle
Hoboken
W 4 St-Wash Sq
Jersey City
East Broadway
Google
Public transport
26 min
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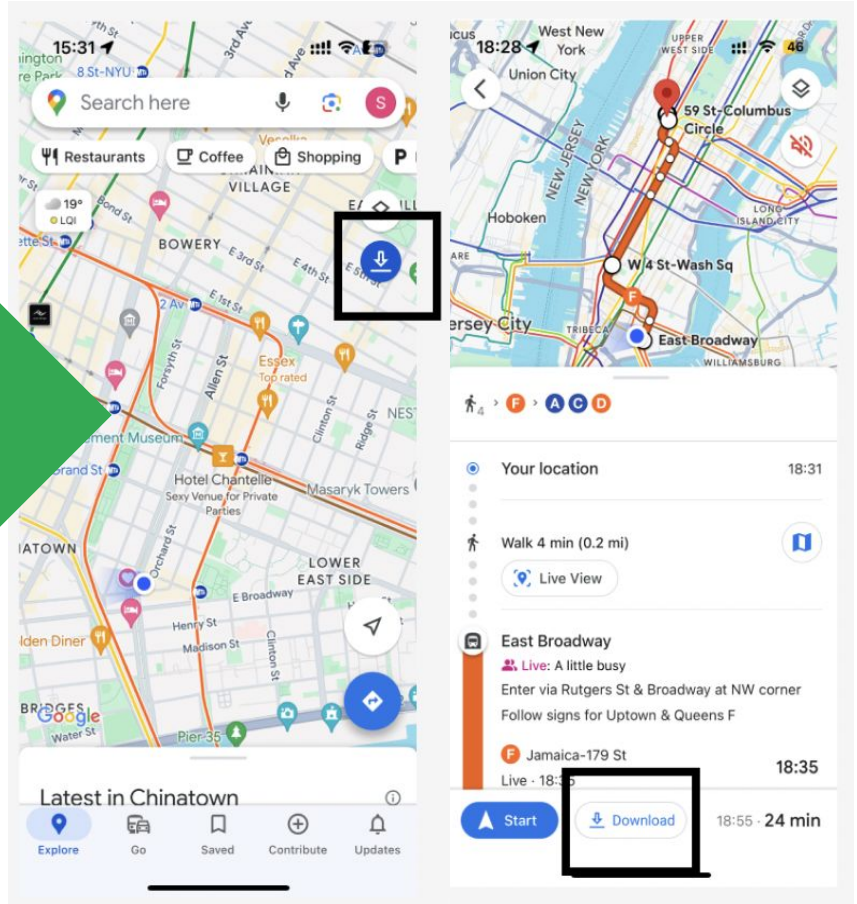
In 7 min & 14 min from East Broadway
25 min
18:31 - 18:56
In 12 min & 18 min from Grand St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Search here
Restaurants
Coffee
Shopping
VILLAGE
BOWERY
Hotel Chantelle
Sexy Venue for Private Parties
Masaryk Towers
LOWER EAST SIDE
Google
Latest in Chinatown
Explore
Go
Saved
Contribute
Updates
18:28
West New York
Union City
59 St-Columbus Circle
Hoboken
W 4 St-Wash Sq
East Broadway
Your location
18:31
Walk 4 min (0.2 mi)
Live View
East Broadway
Live: A little busy
Enter via Rutgers St & Broadway at NW corner
Follow signs for Uptown & Queens F
Jamaica-179 St
18:35
Start
Download
18:55 · 24 min

Initial Transit Information

not enough info on the exit

User Feedback

- The users found the exit button on the map alone too easily overlooked. They needed more written explanation as to which exit to take, providing clear guidance.

User 1:
"The exit button on the map seemed too inconspicuous to me; I almost missed it when planning my route. I would have preferred clearer written instructions indicating which exit to take, as it would have provided more confidence during my journey."

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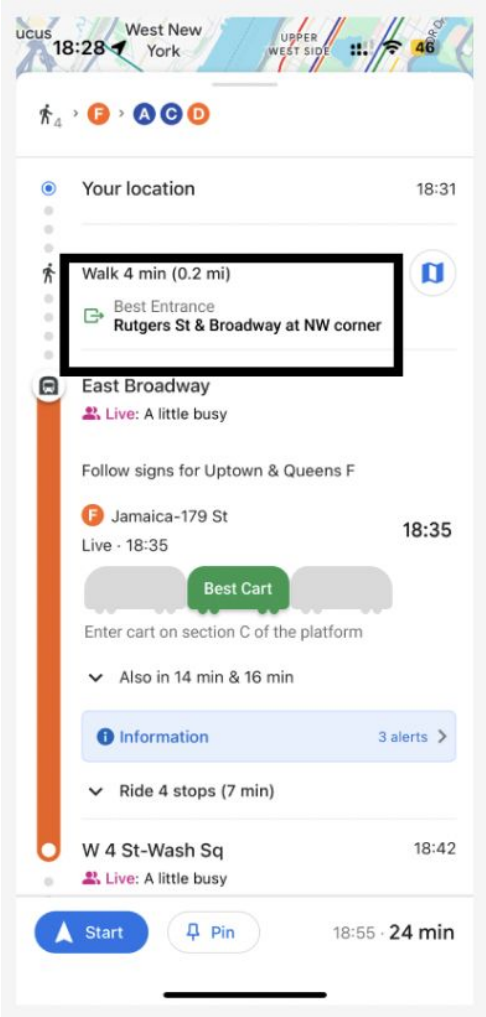
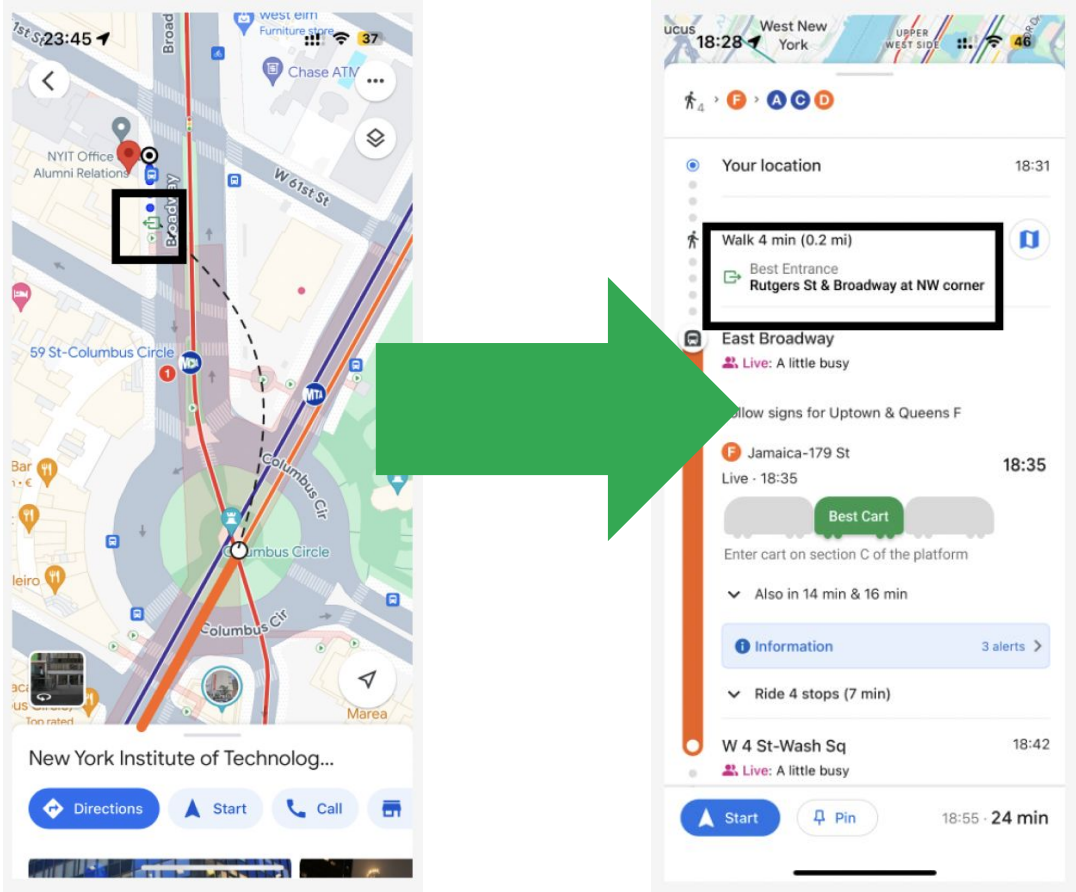
UX Psychology:
People don't want to work or think more than they have to
People have limitations
People crave information
People understand visual systems

UX Laws:
Aesthetic Usability Effect
Hicks Law
Law of Prägnanz

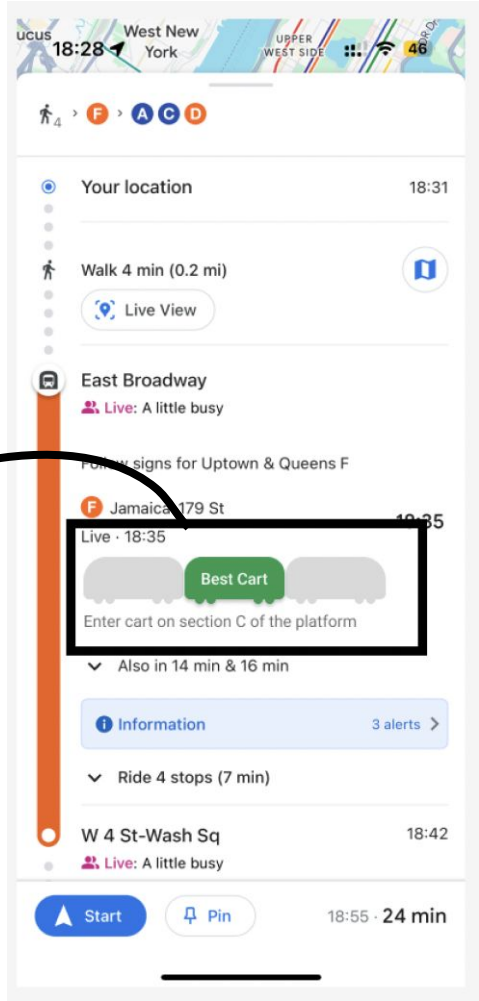
UX Heuristics:
Match between system and real world
User Control and freedom
Flexibility and efficiency of use
Aesthetic and minimalist design



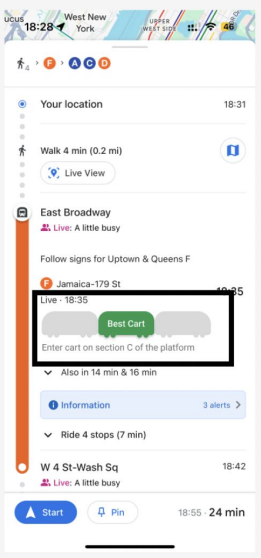
A/B Testing Round 1



Round 1 Transit Information



No explanation for reason behind “best cart”



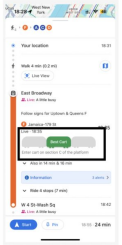
User Feedback

- The users need the option to click on the subway cart icon to view why it's the best cart to board would improve user understanding and confidence during transfers.

User 1:
"I found myself wishing for more information about why a specific subway cart was recommended. Being able to click on the cart icon to see why it's the best option would have helped me understand the reasoning behind the suggestion."

User 2:
"While I appreciated the recommendation for the best subway cart, I felt unsure about why it was chosen.

User 3:
"The recommendation for the best subway cart was helpful, but I wanted more context. Being able to understand why it was recommended would have made me feel more comfortable about boarding that particular cart."



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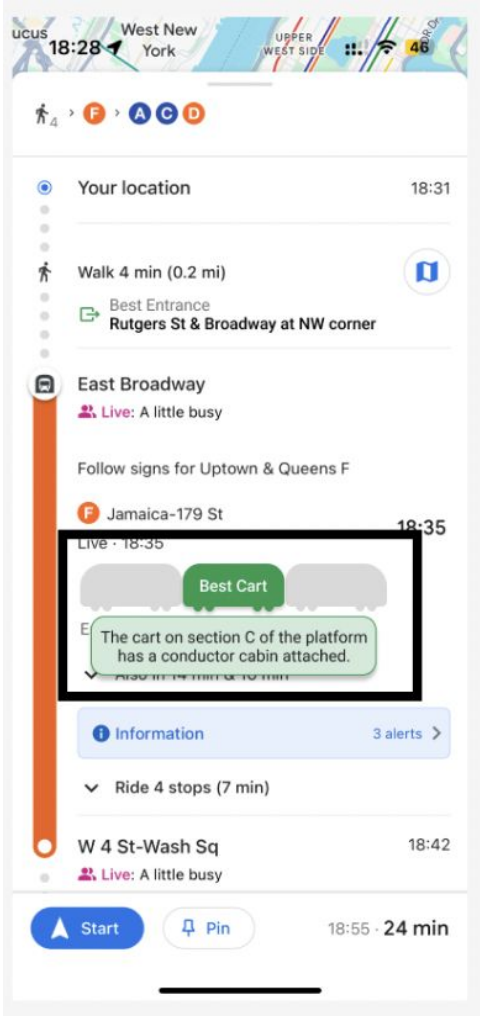
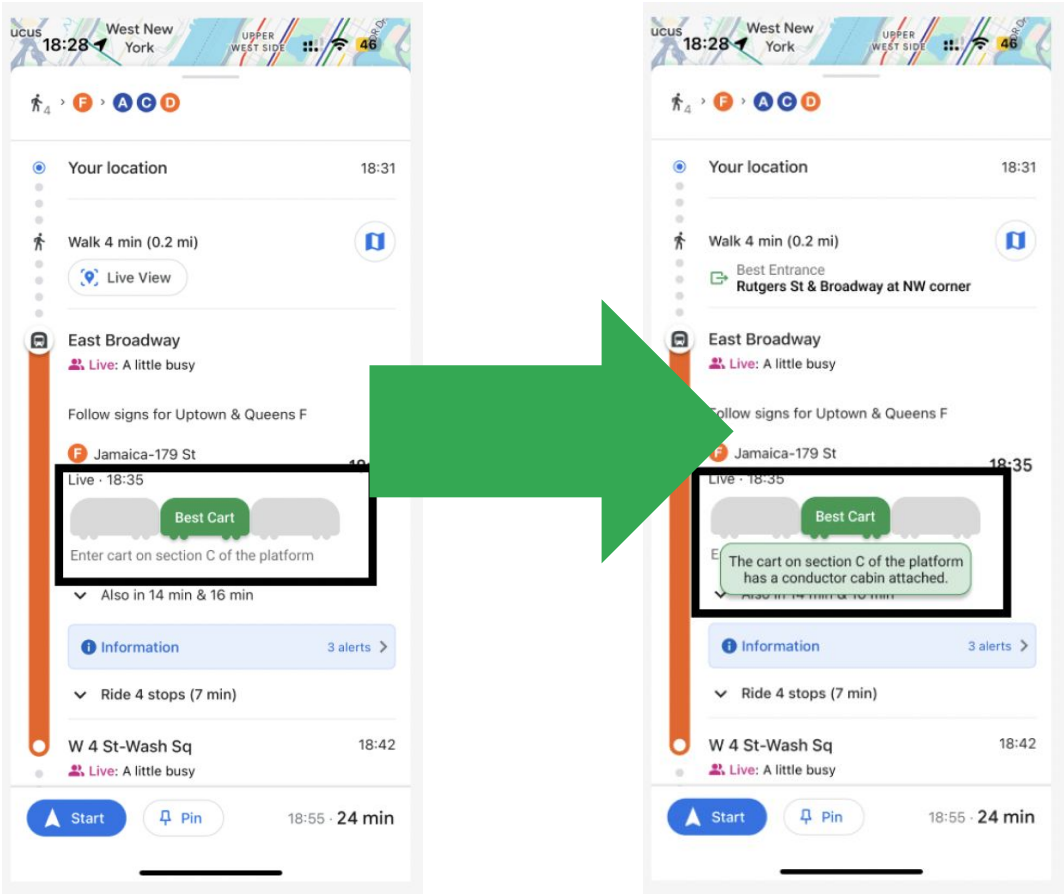
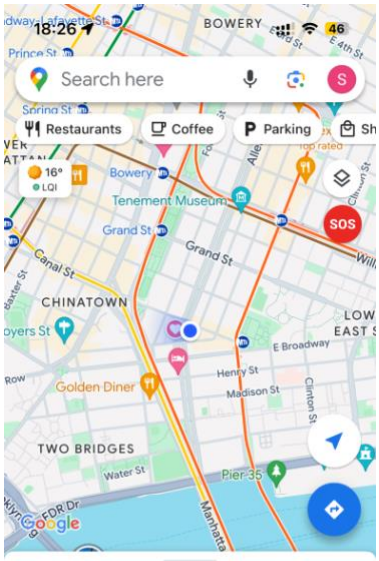


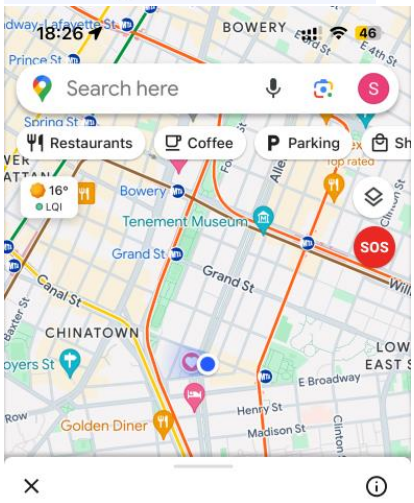
A/B Testing Round 2

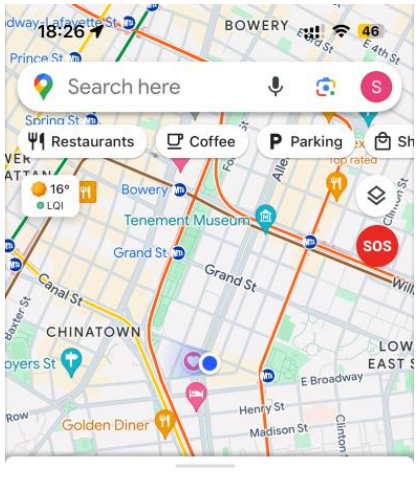


Final Wireframes

SOS Button





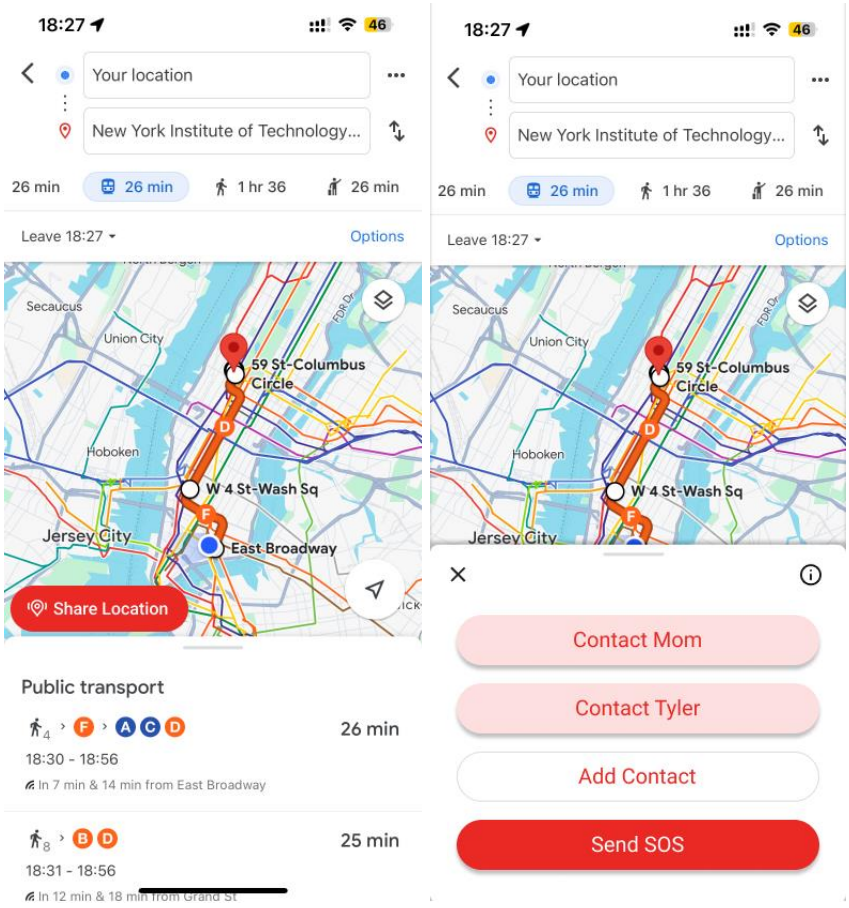


This button will enable a 911 call. A 24/7 dispatcher will be ready to send police to your current location

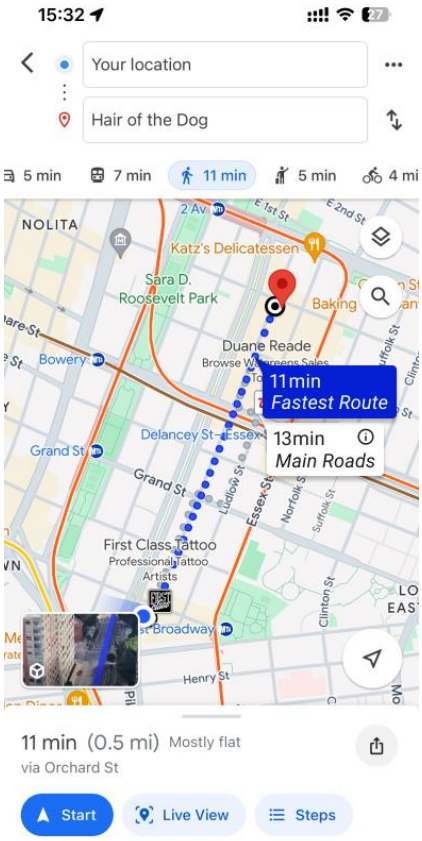
If you're okay, enter your PIN code and the SOS gets canceled.

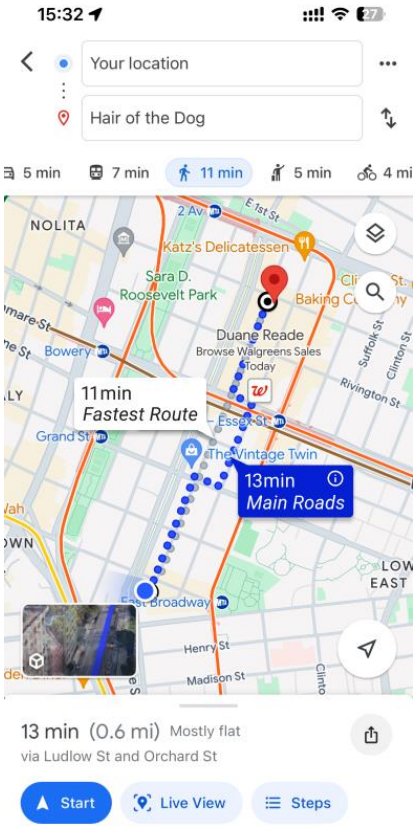
Got it!

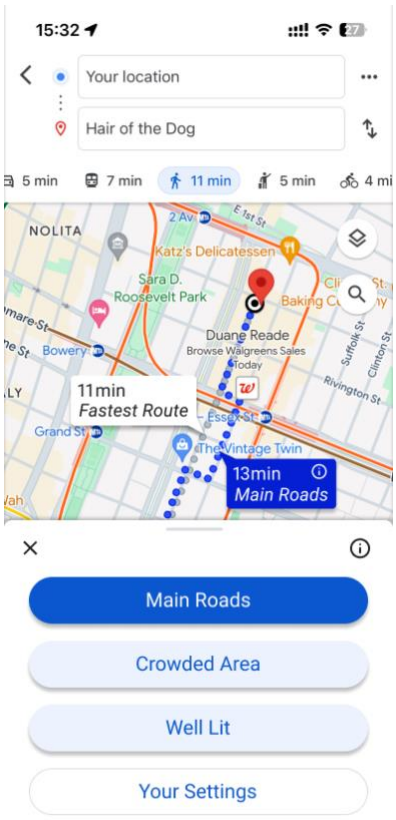
Share Location



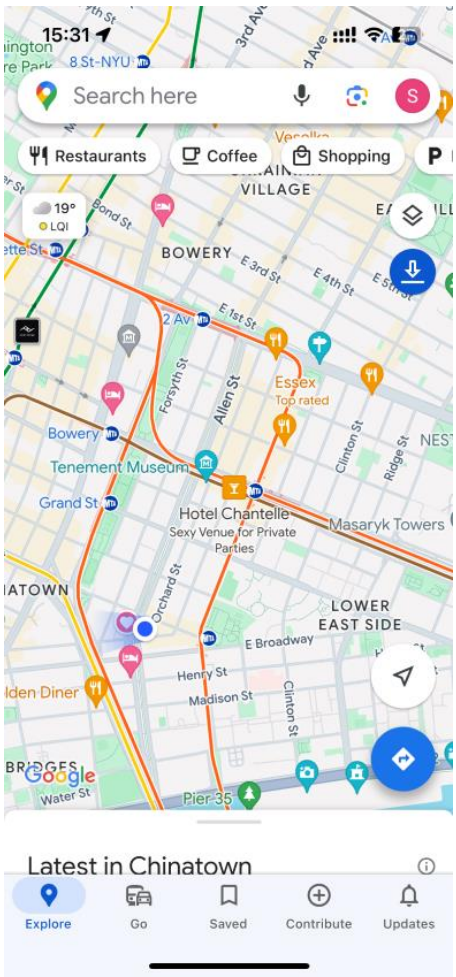
Route Selection

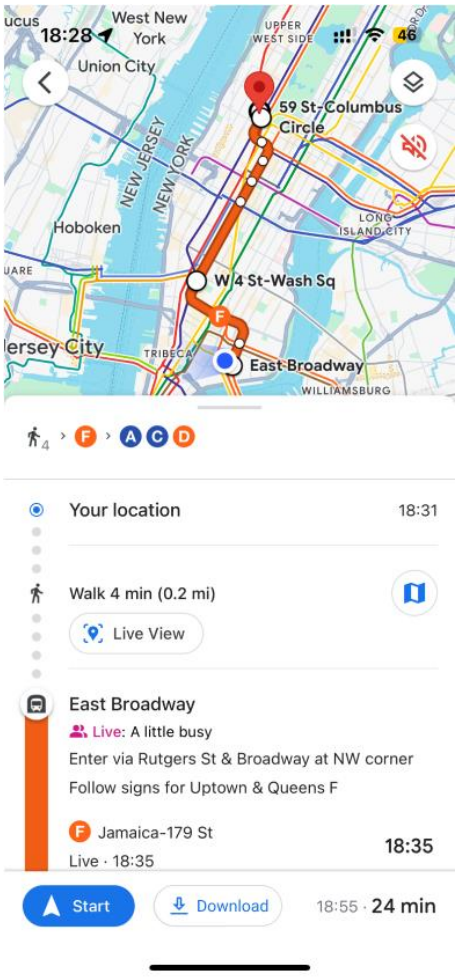




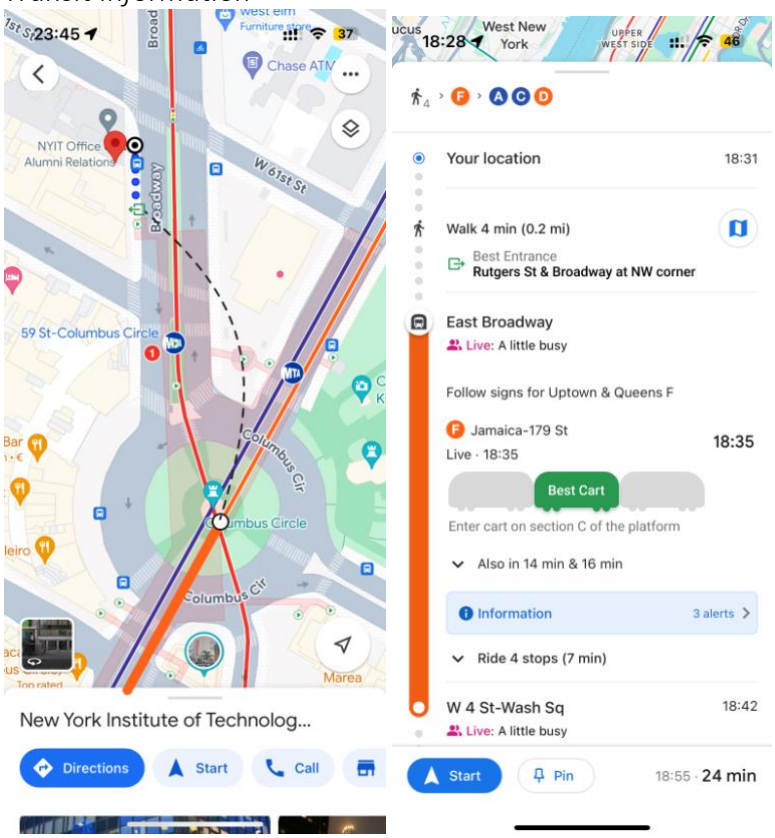


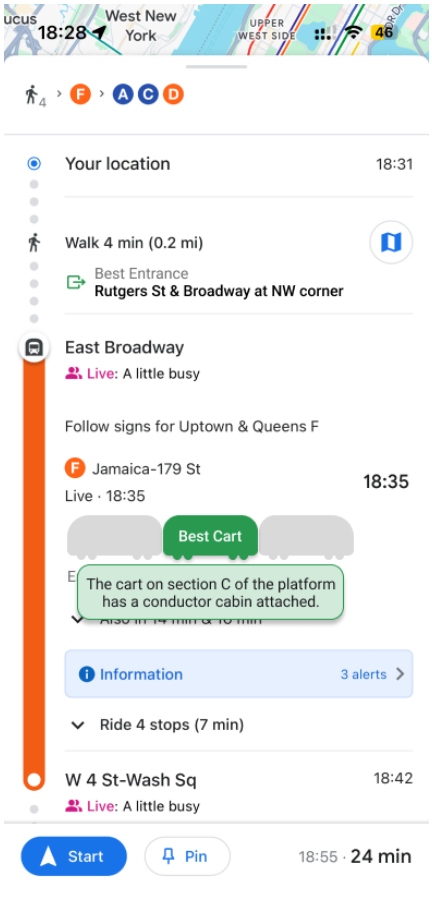
Download Maps





Transit Information





Conclusion and Future Recommendations

In today's digital age, navigation apps play a pivotal role in facilitating urban mobility, offering users convenience and efficiency in navigating public spaces. However, despite their widespread adoption, these apps often fall short in addressing the specific safety concerns of women. Studies from various countries have highlighted that a significant percentage of women experience fear and anxiety while using public transport and walking in certain areas, impacting their mobility and access to the city. Traditional travel and transit apps have failed to adequately consider these concerns, leading to women adjusting their behaviour, routes, and modes of transportation to mitigate risks.

To bridge this gap and promote gender equality in urban mobility, there is an urgent need to examine the user experience of existing travel and transport apps from a feminist perspective. By understanding how women currently navigate public spaces and the limitations they encounter, we can propose enhancements that empower women to plan and carry out safer journeys, alleviating their fear and anxiety.

The following recommendations outline actionable steps for companies providing navigation apps, such as Google with Google Maps, to incorporate women's needs and address women's safety concerns effectively. These recommendations are informed by feminist perspectives and design principles, with the overarching goal of promoting gender equality in urban mobility and ensuring that all individuals have equal access to the city.

1. Safety Features Integration:
    - Include safety features such as sharing location with contacts, especially in remote or unfamiliar areas, to provide users with a sense of security while traveling alone. This could involve prominently featuring a "Share My Location" button on the app interface, accompanied by clear instructions on how to use it for emergency situations.
2. Assistance with Train Transfers:
    - Implement features to assist with train transfers, such as indicating which part of the train to board for quicker transfers. This could involve providing real-time information on platform congestion and recommending specific areas of the train for boarding, enhancing user confidence and reducing stress during transfers between modes of transportation.
3. Offline Access Enhancement:
    - Allow offline access by enabling users to download maps and directions for use in areas with poor network coverage. Ensure that users can navigate safely even without internet access by providing the option to download specific routes, including public transit instructions. Enhance usability by placing the download button prominently on the app interface and offering clear instructions for offline usage.
4. Feminist Perspective Design Review:
    - Conduct a comprehensive review of existing travel and transport apps, such as Google Maps and Apple Maps, from a feminist perspective. Identify design and content shortcomings that contribute to women's feelings of insecurity and

anxiety. This analysis should consider factors such as visibility of safety features, inclusivity in language and imagery, and accessibility of navigation options.

5. User-Centric Design Iterations:
    - Develop enhanced design features for existing travel apps, with a focus on addressing women's safety concerns. Incorporate feedback from female users through user testing sessions and surveys to ensure that the proposed improvements meet their specific needs and preferences. Iterate on the design based on user feedback to create a more inclusive and user-friendly experience for all individuals, regardless of gender.
6. Promotion of Gender Equality in Urban Mobility:
    - By prioritizing safety and inclusivity in navigation apps, promote gender equality in urban mobility and ensure that all individuals, regardless of gender, have equal access to the city. Communicate the commitment to addressing women's safety concerns through transparent communication and ongoing engagement with users and stakeholders.
7. Partnerships and Collaborations:
    - Explore partnerships and collaborations with women's safety organizations, urban planners, and community groups to gain insights into specific safety challenges faced by women in different urban environments. Leverage these partnerships to co-create solutions that address the unique needs of female users and contribute to safer and more inclusive cities.

By implementing these recommendations, companies providing navigation apps can effectively incorporate women's needs and prioritize their safety, thereby promoting gender equality in urban mobility and ensuring that all individuals can navigate public spaces with confidence and security.

Appendix

Thesis Schedule

Survey Questions

Women's Mobility: Navigating Safety and Preferences in Travel Habits

Hii,
thank you for taking the time to fill out this survey for my Master Thesis!
My thesis takes a critical look at women´s (local) travel, their safety and the usage of popular navigation and mapping apps.

According to a study conducted in the UK, 62% of women are scared of walking in multi-storey car parks, 60% are scared of waiting on train platforms, 49% are scared of waiting at a bus stop, and 59% are scared of walking home from a bus stop or station. The figures for men are 31%, 25%, 20% and 25%, respectively. This fear impacts women's mobility and their basic right of access to the city.

The following survey covers a variety of questions on this topic and shouldn't take longer than 5 minutes to answer. All answers will be treated anonymously.

1. How old are you?

   Mark only one oval.

   - ◯ <18
   - ◯ 18-24
   - ◯ 25-34
   - ◯ >35

2. If you are a student, which degree are you currently attaining?

   _____

3. If you are a student with a part-time job, which field are you in?

   _____

4. If you are currently working full-time, which career are you pursuing?

_____

5. How many journeys (commute to work, to school, going to a friend's place, etc.) do you carr out in a week? (count the way there and back as one trip)

Mark only one oval.

- ◯ < 2
- ◯ 3 - 5
- ◯ 6 - 8
- ◯ 8 - 10
- ◯ 11 - 14
- ◯ > 15

6. How long is one journey approximately (the time it takes you to get to a specific location)?

_____

7. Which modes of transportation do you usually use/ use most often?

Check all that apply.

- ☐ Walking
- ☐ Bus
- ☐ Tram
- ☐ Subway/Underground
- ☐ Car
- ☐ Bike
- ☐ Other: _____

8. How often do you need to switch modes of transportation during your journeys? (i.e. from walking to taking the bus, or switching between two subway lines)

Check all that apply.

- [ ] 0
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] >5

9. At which times of the day do you usually carry out these journeys?

Check all that apply.

- [ ] Early morning (pre dawn): 12 am - sunrise
- [ ] Morning: sunrise - 12pm
- [ ] Afternoon: 12pm - 5pm
- [ ] Evening: 5pm - 10pm
- [ ] Night: 1pm - 12am

10. How often are you usually alone on these journeys?

Check all that apply.

- [ ] Always Alone
- [ ] Mostly Alone
- [ ] Sometimes Alone
- [ ] Rarely Alone
- [ ] Never Alone

11. Do you use any navigation/mapping apps to help you plan your journeys?

Mark only one oval.

- ◯ Yes
- ◯ No

12. Which apps do you use most often?

Check all that apply.

- ☐ Google Maps
- ☐ Apple Maps
- ☐ Waze
- ☐ HERE WeGo
- ☐ Other: _____

13. Why do you use these?

14. Which features in these apps do you use?
(anything from, looking up the location, to checking the schedule times of public transport and searching for the route with the shortest footwalk)

15. How scared are you usually during these journeys?

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	Very scared

16. Which factors scare you?

Check all that apply.

- [ ] If there are no people
- [ ] If there are a lot of people
- [ ] Poorly lit locations (bus stops, streets, ...)
- [ ] Secluded areas
- [ ] Its dark out
- [ ] Getting to your destination on time (e.g. before sunset)
- [ ] Walking past certain establishments / through certain areas
- [ ] Men (lol)

17. How do you plan ahead to avoid these factors?

18. How do the travel Planning apps you use help with that?

19. In which ways don't they help?

20. Have you ever used apps that update you on current crime and possible hotspots for criminal activities?

(e.g. Citizen, NewsBreak, Patrol, Vigitrust (France), NL-Alert (Netherlands), Katwarn (Germany), NINA (Germany), …)

Mark only one oval.

- Yes
- No

21. Which ones have you used?

Check all that apply.

- [ ] Citizen
- [ ] NewsBreak
- [ ] Patrol
- [ ] Vigitrust
- [ ] NL-Alert
- [ ] Katwarn
- [ ] NINA
- [ ] Other: _____

22. When do you use them?

_____

_____

_____

_____

_____

23. How did using these apps make you feel?

_____

_____

_____

_____

_____

24. How helpful are these apps in making you feel safe during your commute and general travel?

Mark only one oval.

	1	2	3	4	5	
Not helpful (feeling significantly less or not scared at all)	◯	◯	◯	◯	◯	Very helpful (feeling significantly less or not scared at all)

25. is there anything else you would like to add? A specific story you would like to share that fi these topics?

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Google Forms

Interview Transcripts

Interview F.M. ; Feb 3, 2024

Travel Behavior and Safety Concerns:

a. Can you walk me through a typical day or trip where you use public transport or walk to your destination? Sure! So, typically, I start my day early with a commute from New Jersey to NYC for my classes. I usually take the train and then walk a bit to reach my university campus. After classes, I often have evening sessions or study groups, so I end up commuting back home quite late. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior? Yes, unfortunately. There have been instances, especially when walking from the train station to my apartment late at night, where I've felt uneasy due to dimly lit streets or encountering suspicious individuals. It definitely makes me more cautious about my surroundings and the routes I take. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly? Absolutely. Evening commutes, particularly after 9 pm, make me more alert because the streets are quieter, and there are fewer people around. To mitigate any risks, I try to stick to well-lit and populated areas, even if it means taking a slightly longer route. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling? Yes, I always make sure to stay connected with friends or family during my commute, either through text or call. Additionally, I keep emergency contacts readily accessible on my phone and try to avoid using headphones so that I can remain aware of my surroundings.

Usage of Travel Applications:

a. What factors influence your choice of travel applications for planning your journeys? Convenience and reliability are my top priorities. I prefer apps like Google Maps because they offer comprehensive route options and real-time updates on public transportation schedules, which is crucial for my daily commute. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved? Recently, I used Google Maps to navigate to a new study spot in NYC. The app provided clear directions and estimated travel times accurately, which was helpful. However, it would have been even better if it could highlight safety features along the route, especially when walking alone at night. Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns? While Google Maps is great for navigation, I think it could improve by integrating features like real-time safety alerts or crowd-sourced information about well-lit pathways and busy areas, particularly for women traveling alone. How do you balance convenience and safety when selecting and using travel apps? It's definitely a delicate balance. While I prioritize convenience in terms of accurate directions and travel times, safety is non-negotiable. I'm willing to invest a bit more time in planning if it means choosing a route that's safer, even if it's slightly less convenient. Preferred Features for Safety and Convenience:

a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use? I would love to see features like a "Safe Route" option that considers factors like well-lit streets, high foot traffic areas, and known safety concerns. Additionally, real-time updates on incidents or emergencies along the route would be invaluable for peace of mind. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns? One idea could be a panic button within the app that instantly connects you with emergency services or sends your location to trusted

contacts in case of an emergency. Another innovative feature could be a virtual companion feature that allows you to virtually "check in" with friends or family during your journey. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs? Besides route guidance, I often look for information on nearby amenities like well-lit pathways, emergency services, and safe places to wait if I need to transfer between modes of transportation. Integrating this information into the app would be incredibly helpful. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination? Real-time information is crucial, especially during late-night commutes or when navigating unfamiliar areas. It helps me make informed decisions and adapt my route if there are any safety concerns or disruptions along the way.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples? Sometimes, the interface can be a bit cluttered or overwhelming, especially when trying to navigate through multiple transit options. Simplifying the interface and making key safety features more prominent would enhance the user experience. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information? I've noticed that some apps may not accurately reflect the safety conditions of certain neighborhoods, which can be misleading, particularly for individuals unfamiliar with the area. Providing more comprehensive and nuanced safety information would address this issue. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible? Safety features are essential, but they often feel like an afterthought buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for all users. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers? User feedback is invaluable for app developers to understand the unique needs and challenges faced by women travelers. By actively soliciting and incorporating user feedback, developers can create more inclusive and user-friendly apps that prioritize safety and convenience for all users.

Interview A.R. ; Feb 3, 2024
Travel Behavior and Safety Concerns:
a. Can you walk me through a typical day or trip where you use public transport or walk to your destination? Sure! During weekdays, I often use the subway or walk to get around the city for classes, work, or hanging out with friends. On weekends, I might take a train to visit my parents upstate or to attend events like concerts or parties in different boroughs. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior? Yeah, there have been times, especially when traveling late at night after a concert or party, where I've felt a bit uneasy, especially if I'm alone or in an unfamiliar area. It makes me more cautious about my surroundings and the routes I take. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly? Late-night travels definitely make me more alert, especially in quieter or less crowded areas. To stay safe, I try to stick to well-lit streets, travel in groups whenever possible, and avoid isolated

areas. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling? Definitely. I always make sure to let someone know my whereabouts, especially if I'm out late. I also keep my phone charged, stay aware of my surroundings, and try to avoid distractions like wearing headphones when walking alone at night.
Usage of Travel Applications:
a. What factors influence your choice of travel applications for planning your journeys? Convenience and accuracy are key. I rely heavily on apps like Google Maps because they provide real-time updates on transit options and help me navigate the city efficiently, whether I'm heading to a concert venue or visiting friends. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved? Sure! Recently, I used Google Maps to find my way to a new concert venue in Brooklyn. The app provided clear directions and even alerted me to any transit delays, which was super helpful. However, it would have been great if it could suggest safer routes, especially late at night. Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns? While travel apps like Google Maps are great for navigation, they could improve by incorporating safety features like real-time updates on crime hotspots or offering alternative routes that prioritize safety, especially for solo travelers at night. How do you balance convenience and safety when selecting and using travel apps? It's definitely a balancing act. While convenience is important, especially when navigating a bustling city like NYC, safety is paramount. I'm willing to sacrifice a bit of convenience if it means choosing a safer route or mode of transportation, especially late at night.
Preferred Features for Safety and Convenience:
a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use? I would love to see features like a "Safe Route" option that considers factors like well-lit streets, areas with high foot traffic, and known safety concerns. Also, real-time updates on safety incidents or crowd levels would be incredibly helpful, especially when traveling alone at night. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns? One idea could be a feature that allows users to share their real-time location with trusted contacts, similar to a digital buddy system. Also, integrating a panic button within the app that connects users directly to emergency services or nearby authorities would be invaluable. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs? Besides route guidance, I often look for information on well-lit pathways, areas with high police presence, and safe places to wait for transit. Integrating safety ratings or user-generated safety tips for different areas within the app would be incredibly useful. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination? Real-time information is essential, especially when navigating crowded areas or traveling late at night. It helps me make informed decisions about which routes or modes of transportation to take and allows me to adjust my plans if there are any safety concerns or disruptions.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples? Sometimes, the interface of travel apps can be a bit cluttered or overwhelming, especially when trying to navigate through multiple transit options. Simplifying the interface and making key safety features more prominent would

greatly enhance the user experience. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information? I've noticed that some apps may not accurately reflect the safety conditions of certain neighborhoods, which can be concerning, especially for solo travelers. Providing more detailed safety information, including user-generated safety tips, would be beneficial. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible? Safety features are crucial, but they often feel buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for all users, especially women travelers. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers? User feedback is essential for app developers to understand the unique needs and challenges faced by women travelers. By actively seeking and incorporating user feedback, developers can create more inclusive and user-friendly apps that prioritize safety and convenience for all users.

Interview S.S.; Feb 3, 2024

Travel Behavior and Safety Concerns:

a. Can you walk me through a typical day or trip where you use public transport or walk to your destination? Of course! My typical day starts with a commute from Bushwick to Hudson Yards for work. I usually take the subway, followed by a short walk to my office. After work, I might meet friends for dinner or attend a fitness class before heading back home. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior? Fortunately, I haven't encountered any major incidents, but there have been times when I've felt uneasy, especially during late-night subway rides or when walking alone in less crowded areas. It's made me more conscious of my surroundings and the routes I take. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly? I'm definitely more cautious during late-night commutes, especially when waiting for trains or walking in dimly lit areas. To stay safe, I try to stick to well-populated routes, avoid isolated stations, and stay vigilant of my surroundings, especially when traveling alone. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling?Absolutely. I always make sure to keep my phone charged, stay aware of my surroundings, and avoid distractions like wearing headphones. I also try to vary my routes and travel times to minimize predictability and reduce the risk of encountering any potential threats.

Usage of Travel Applications:

a. What factors influence your choice of travel applications for planning your journeys?Convenience and reliability are key factors for me. I rely heavily on apps like Google Maps because they provide accurate real-time updates on transit options and help me navigate the city efficiently, especially during rush hour commutes.b. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved?Sure! Recently, I used Google Maps to find my way to a new restaurant in a different neighborhood. The app provided clear directions and even suggested alternative transit options, which was helpful. However, it would be great if it could provide more safety-related information, especially when traveling alone at night.c. Are there any features or functionalities in existing travel apps that you find particularly

helpful or lacking in addressing your safety concerns?While travel apps like Google Maps are great for navigation, they could improve by incorporating safety features like real-time updates on crime hotspots or offering alternative routes that prioritize safety, especially during off-peak hours.d. How do you balance convenience and safety when selecting and using travel apps?It's definitely a delicate balance. While convenience is important, especially when navigating a bustling city like NYC, safety is always my top priority. I'm willing to sacrifice a bit of convenience if it means choosing a safer route or mode of transportation, especially during late-night travels. Preferred Features for Safety and Convenience:
a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use?I would prioritize features like a "Safe Route" option that considers factors like well-lit streets, areas with high foot traffic, and known safety concerns. Additionally, real-time updates on safety incidents or crowd levels would be invaluable for making informed decisions during my commute.b. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns?One innovative feature could be a virtual escort service that allows users to virtually "check in" with friends or family during their journey, providing an added layer of safety and peace of mind. Another idea could be a panic button within the app that connects users directly to emergency services or nearby authorities.c. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs?Besides route guidance, I often look for information on well-lit pathways, areas with high police presence, and safe places to wait for transit. Integrating user-generated safety tips or real-time safety alerts for different areas within the app would be incredibly useful.d. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination?Real-time information is essential, especially when navigating crowded areas or traveling during off-peak hours. It helps me make informed decisions about which routes or modes of transportation to take and allows me to adjust my plans if there are any safety concerns or disruptions.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples?Sometimes, the interface of travel apps can be a bit cluttered or overwhelming, especially when trying to navigate through multiple transit options. Simplifying the interface and making key safety features more prominent would greatly enhance the user experience.b. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information?I've noticed that some apps may not accurately reflect the safety conditions of certain neighborhoods, which can be concerning, especially for solo travelers. Providing more detailed safety information, including user-generated safety tips, would be beneficial.c. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible?Safety features are crucial, but they often feel buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for all users, especially women travelers.d. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers?User feedback is essential for app developers to understand the unique needs and challenges faced by

women travelers. By actively seeking and incorporating user feedback, developers can create more inclusive and user-friendly apps that prioritize safety and convenience for all users.

Interview L.M.; Feb 9, 2024

Travel Behavior and Safety Concerns:

a. Can you walk me through a typical day or trip where you use public transport or walk to your destination?Sure! My typical day starts with a quick walk to the subway station in Harlem. From there, I might head to a coffee shop downtown for a morning meeting with a client or venture to a co-working space in Midtown for a collaborative project. After work, I often meet friends for dinner or attend art exhibitions in different neighborhoods before heading back home.b. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior?Thankfully, I haven't encountered any major incidents, but there have been times when I've felt a bit uneasy, especially during late-night subway rides or when walking alone in unfamiliar areas. It's made me more cautious about my surroundings and the routes I take, especially when carrying expensive equipment.c. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly?Late-night travels definitely make me more alert, especially in quieter or less populated areas. To stay safe, I try to stick to well-lit streets, avoid empty subway cars, and stay aware of my surroundings, especially when traveling alone or carrying valuable equipment.d. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling?Absolutely. I always make sure to keep my phone charged and stay connected with friends or family during my commute. I also avoid displaying expensive items like laptops or cameras in crowded spaces and try to vary my routes to minimize predictability.

Usage of Travel Applications:

a. What factors influence your choice of travel applications for planning your journeys?Convenience and reliability are key factors for me. I rely heavily on apps like Google Maps because they provide accurate real-time updates on transit options and help me navigate the city efficiently, especially when traveling between client meetings.b. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved?Sure! Recently, I used Google Maps to find my way to a new client's office in Chelsea. The app provided clear directions and even suggested alternative transit options, which was helpful. However, it would have been great if it could provide more safety-related information, especially when traveling alone at night.c. Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns?While travel apps like Google Maps are great for navigation, they could improve by incorporating safety features like real-time updates on crime hotspots or offering alternative routes that prioritize safety, especially during off-peak hours.d. How do you balance convenience and safety when selecting and using travel apps?It's definitely a balancing act. While convenience is important, especially when navigating a bustling city like NYC, safety is always my top priority. I'm willing to sacrifice a bit of convenience if it means choosing a safer route or mode of transportation, especially during late-night travels. Preferred Features for Safety and Convenience:

a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use?I would prioritize features like a "Safe Route" option that considers factors like well-lit streets, areas with high foot traffic, and known safety concerns. Additionally, real-time updates on safety incidents or crowd levels would be invaluable for making informed decisions during my commute.b. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns?One innovative feature could be a virtual companion service that allows users to virtually "check in" with friends or family during their journey, providing an added layer of safety and peace of mind. Another idea could be a panic button within the app that connects users directly to emergency services or nearby authorities.c. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs?Besides route guidance, I often look for information on well-lit pathways, areas with high police presence, and safe places to wait for transit. Integrating user-generated safety tips or real-time safety alerts for different areas within the app would be incredibly useful.d. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination?Real-time information is essential, especially when navigating crowded areas or traveling during off-peak hours. It helps me make informed decisions about which routes or modes of transportation to take and allows me to adjust my plans if there are any safety concerns or disruptions.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples?Sometimes, the interface of travel apps can be a bit cluttered or overwhelming, especially when trying to navigate through multiple transit options. Simplifying the interface and making key safety features more prominent would greatly enhance the user experience.b. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information?I've noticed that some apps may not accurately reflect the safety conditions of certain neighborhoods, which can be concerning, especially for solo travelers. Providing more detailed safety information, including user-generated safety tips, would be beneficial.c. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible?Safety features are crucial, but they often feel buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for all users, especially women travelers.d. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers?User feedback is essential for app developers to understand the unique needs and challenges faced by women travelers. By actively seeking and incorporating user feedback, developers can create more inclusive and user-friendly apps that prioritize safety and convenience for all users.

Interview M.A.; Feb 9, 2024
Travel Behavior and Safety Concerns:
a. Can you walk me through a typical day or trip where you use public transport or walk to your destination?Absolutely! My day usually starts with a walk to the subway station in Astoria, followed by a ride to the Financial District for work. After work, I might meet friends

for dinner or attend networking events before heading back home.b. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior?Fortunately, I haven't encountered any major incidents, but there have been times when I've felt uneasy, especially during late-night subway rides or when walking alone in less populated areas. It's made me more cautious about my surroundings and the routes I take, especially after dark.c. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly?Late-night commutes definitely make me more alert, especially when waiting for trains or walking in quieter areas. To stay safe, I try to stick to well-lit streets, avoid empty subway cars, and stay aware of my surroundings, especially when traveling alone.d. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling?Yes, I always make sure to keep my phone charged and stay connected with friends or family during my commute. I also try to avoid displaying expensive items like jewelry or electronics and stay alert, especially during late-night travels.

Usage of Travel Applications:

a. What factors influence your choice of travel applications for planning your journeys?Convenience and reliability are key factors for me. I heavily rely on apps like Google Maps because they provide accurate real-time updates on transit options and help me navigate the city efficiently, especially during rush hour commutes.b. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved?Sure! Recently, I used Google Maps to find my way to a new restaurant in Tribeca. The app provided clear directions and even suggested alternative transit options, which was helpful. However, it would have been great if it could provide more safety-related information, especially when traveling alone at night.c. Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns?While travel apps like Google Maps are great for navigation, they could improve by incorporating safety features like real-time updates on crime hotspots or offering alternative routes that prioritize safety, especially during off-peak hours.d. How do you balance convenience and safety when selecting and using travel apps?It's definitely a balancing act. While convenience is important, especially when navigating a bustling city like NYC, safety is always my top priority. I'm willing to sacrifice a bit of convenience if it means choosing a safer route or mode of transportation, especially during late-night travels. Preferred Features for Safety and Convenience:

a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use?I would prioritize features like a "Safe Route" option that considers factors like well-lit streets, areas with high foot traffic, and known safety concerns. Additionally, real-time updates on safety incidents or crowd levels would be invaluable for making informed decisions during my commute.b. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns?One innovative feature could be a virtual companion service that allows users to virtually "check in" with friends or family during their journey, providing an added layer of safety and peace of mind. Another idea could be a panic button within the app that connects users directly to emergency services or nearby authorities.c. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs?Besides route guidance, I often look for information on well-lit pathways, areas with high police presence, and safe places to wait for transit. Integrating

user-generated safety tips or real-time safety alerts for different areas within the app would be incredibly useful.d. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination?Real-time information is essential, especially when navigating crowded areas or traveling during off-peak hours. It helps me make informed decisions about which routes or modes of transportation to take and allows me to adjust my plans if there are any safety concerns or disruptions.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples?Sometimes, the interface of travel apps can be a bit cluttered or overwhelming, especially when trying to navigate through multiple transit options. Simplifying the interface and making key safety features more prominent would greatly enhance the user experience.b. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information?I've noticed that some apps may not accurately reflect the safety conditions of certain neighborhoods, which can be concerning, especially for solo travelers. Providing more detailed safety information, including user-generated safety tips, would be beneficial.c. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you would suggest to make them more prominent or accessible?Safety features are crucial, but they often feel buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for all users, especially women travelers.d. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers?User feedback is essential for app developers to understand the unique needs and challenges faced by women travelers. By actively seeking and incorporating user feedback, developers can create more inclusive and user-friendly apps that prioritize safety and convenience for all users.

Interview I.R.; Feb 10, 2024
Travel Behavior and Safety Concerns:
a. Can you walk me through a typical day or trip where you use public transport or walk to your destination?Absolutely! My day usually starts with a walk to the subway station in Park Slope, followed by a ride to Midtown Manhattan for work. After work, I might run errands or meet friends for dinner before heading back home.b. Have you ever experienced any situations that made you feel unsafe while traveling? If so, could you describe them and how they affected your travel behavior?Yes, there have been a few instances, especially during late-night subway rides or when walking alone in unfamiliar areas. It's made me more cautious about my surroundings and the routes I take, especially when traveling after dark.c. Are there specific routes or times of day when you feel more concerned for your safety? How do you adjust your plans accordingly?Late-night commutes definitely make me more alert, especially when waiting for trains or walking in quieter areas. To stay safe, I try to stick to well-lit streets, avoid empty subway cars, and stay aware of my surroundings.d. Do you rely on any particular strategies or techniques to enhance your sense of safety while traveling?Yes, I always make sure to keep my phone charged and stay connected with friends or family during my commute. I also try to avoid displaying valuables and stay vigilant, especially during late-night travels.

Usage of Travel Applications:
a. What factors influence your choice of travel applications for planning your journeys?Convenience and ease of use are important to me. I rely on apps like Google Maps because they provide clear directions and help me navigate the city, even though I sometimes find them a bit overwhelming.b. Could you describe a recent experience using a travel app to navigate an unfamiliar area? What worked well, and what could have been improved?Sure! Recently, I used Google Maps to find my way to a new restaurant in the East Village. The app provided clear directions, but I found it a bit overwhelming with all the options. It would be helpful if it could simplify the interface, especially for users like me who aren't as tech-savvy.c. Are there any features or functionalities in existing travel apps that you find particularly helpful or lacking in addressing your safety concerns?While I appreciate the navigation features of apps like Google Maps, I sometimes wish they provided more safety-related information, especially when traveling alone or in unfamiliar areas.d. How do you balance convenience and safety when selecting and using travel apps?It's definitely a balancing act. While I appreciate the convenience of travel apps, safety is always my top priority. I try to choose routes and modes of transportation that feel safe and comfortable, even if it means sacrificing a bit of convenience. Preferred Features for Safety and Convenience:
a. In your ideal travel app, what features or tools would you prioritize to enhance safety and ease of use?I would prioritize features that provide clear and simple navigation instructions, along with real-time updates on safety concerns in different areas. A feature that highlights well-lit pathways and busy areas would also be helpful for me.b. Can you think of any innovative features that could be integrated into travel apps to better address women's safety concerns?One innovative feature could be a "safety mode" that provides users with alternative routes that prioritize well-lit streets and busy areas. Another idea could be a panic button that connects users directly to emergency services if they feel unsafe.c. When planning a journey, what information or resources do you typically seek beyond basic route guidance? How could a travel app better accommodate these needs?Besides route guidance, I often look for information on safety concerns in different neighborhoods and areas to avoid. Integrating user-generated safety tips or real-time safety alerts within the app would be incredibly useful for me.d. How important is real-time information (e.g., crowd levels, safety alerts) in your decision-making process when using public transport or walking to your destination?Real-time information is essential for me, especially when traveling alone or in unfamiliar areas. It helps me make informed decisions about which routes or modes of transportation to take and allows me to avoid potentially unsafe situations.
Experience with Existing Apps and Suggestions for Improvement:
a. Have you encountered any usability issues or limitations while using existing travel apps? If so, could you provide examples?Yes, sometimes I find the interface of travel apps a bit overwhelming, especially with all the options and features. Simplifying the interface and making key safety features more prominent would greatly improve the user experience for me.b. Are there any specific areas or neighborhoods where you feel existing travel apps fall short in providing accurate or helpful information?I've noticed that some apps may not accurately reflect safety concerns in certain neighborhoods, which can be concerning, especially for solo travelers like myself. Providing more detailed safety information, including user-generated safety tips, would be beneficial.c. How do you feel about the representation of safety-related features in travel apps? Are there any enhancements you

would suggest to make them more prominent or accessible?Safety features are crucial, but they often feel buried within the app. Making them more prominent, perhaps with a dedicated safety tab or customizable safety preferences, would make them more accessible and useful for users like me who prioritize safety.d. From your perspective, what role could user feedback play in improving the design and functionality of travel apps to better meet the needs of women travelers?User feedback is essential for app developers to understand the unique needs and challenges faced by women travelers, especially those who may not be as tech-savvy. By actively seeking and incorporating user feedback, developers can create more user-friendly apps that prioritize safety and convenience for all users.

Focus Group Transcript

Speaker 1 0:04
Okay, we're gonna, like start sitting down and see if that works. So I prepared like different scenarios. And we're gonna kind of walk through how you would use Google Maps in that scenario, you can write down different steps on posted or on the middle of the table. And yeah, we're just gonna go along and see whatever works works. If it doesn't work, we'll do something else. Yeah, so first scenario is late night navigation. So, imagine you're out late at night, you spent the evening with some friends at a bar. It's like 1am. And you need to get home, and you're going to use Google Maps to get home. And you're walking alone, like poorly lit streets. So how would you use Google Maps in that scenario to ensure you're going home safe? And also feel free to include like, additional features that you would think Google Maps should maybe have? Or, you know, it could do whatever, that'd be super helpful. Anything that would make you feel safe and ensure you're getting home? Well, at night? Again, all ideas are good ideas, feel free to write down whatever talk with each other. But yeah, you know, you could start for example, by typing in your destination, by put down whatever flows it will get

Speaker 2 1:35
is Google Maps, and you're changing more with Apple Maps? Yes, yes. For sure.

Speaker 3 1:49
Students, should we do like a step on each post? Or does it Yes,

Speaker 1 1:53
one step per posted. But yeah, feel free to like, talk with each other? And like, maybe discuss what would be like your first step,

Speaker 4 2:06
I would see if there are busy roads. So that I mean, that people around even if it's one, which is the most busy.

Unknown Speaker 2:20
That's nice.

Speaker 2 2:22
I would see how long of a walk to the subway.

Speaker 5 2:28
Check how the price for them. There are this taxi

Unknown Speaker 2:38
saying what training? Is it?

Unknown Speaker 2:40
Yeah.

Speaker 6 2:41

Is it said 1am? I would probably see all the options begin walking, I would check all different ones, the quickest one and prizes actually. Is it worth taking the cab or not?

Speaker 1 2:57
So those are all the steps that you would take before even starting? Yeah, I

Speaker 6 3:01
would stand on the device. See, what is the quickest, fastest way

Unknown Speaker 3:06
I would consider how much I had to drink?

Unknown Speaker 3:08
Yeah. Because

Speaker 3 3:14
I wouldn't leave the bar until I know which direction? Really? Yeah. That's what it is. Yeah, leaving the bar until I know where I'm going. Yeah. Well, I mean, I think also, one would understand.

Speaker 4 3:37
When it's one meme, the first thing that comes to my mind is what would be most safest thing to do. So maybe I would, how would you determine that? The most safest thing would be right. Looking at where would I get a taxi close by? Rather than looking at going alone? Yeah. walking alone. If it's close by would, if my house is close by I would consider that. But if it's not, I would take a cab book a cab. Yeah. But again, booking a cab is also unsafe. So I would like to see where I'm going and keep a check on my maps as well. Yes, routes we are taking

Speaker 6 4:23
the price of the shoe on Google Maps is usually not the same as accurate. I can find it on Lyft or Uber. Yeah, it does show it 16 to $18. And you actually open Lyft and a check ride it becomes $30 Yeah.

Speaker 4 4:43
And if it's up if the price is high, I might choose for Uber cool.

Unknown Speaker 4:48
Share cab. You Yeah.

Unknown Speaker 4:51
Before have you used that option? Yeah.

Speaker 6 4:56
I did. By mistake. Okay

Speaker 6 5:05

let's do another there was there actually there was another person getting in the government what is happening? Oh my god, I'm gonna get

Speaker 4 5:13
extra 20 minutes but Dinah's more if the cost is less Yeah.

Speaker 2 5:20
Probably consider if it's a weekend if the trains are busy, yeah, one o'clock it's still kind of busy. Like, you know,

Speaker 6 5:28
Quincy of the trains fogged up after. Yeah,

Speaker 2 5:32
it depends where you are, I guess. I think that it's a different perspective, like Leanna said that she would wait inside the bar. So she knew where she was going. But I've lived here for a while now. So I generally know where I am. And like, I generally know which direction start walking into me. Unless I'm somewhere that I really am not familiar with, like maybe past Central Park or the Bronx. I'm not very familiar with the Bronx

Speaker 4 6:00
landmark, like a landmark. I mean, the places you know, are acquainted with, yeah.

Speaker 1 6:12
So that's like, a bunch of stuff that you guys would do before like the beginning of going home? Is there anything you would do while you're on your journey? Anything? Or how would you use Google Maps or whatever navigation app? If

Speaker 3 6:27
I ever like open, like, maps on like, the subway or whatever I'm walking like I, I want, I always have like, I turned the brightness on my phone all the way down. So nobody can tell like, you're so paranoid.

Unknown Speaker 6:43
Yeah, thank you

Speaker 6 6:48
during the journey night, so if I'm travelling by bus, and it's late at night, I will see the number of stops and allows us to check if people are in the right direction. Because sometimes they take detours, which are not allowed to, so that they'll just skip a couple of jobs. And they know that not a lot of people in the Bay Area. So that's an open open masters. Can you help me solve? How ahead? Should I click that? When do I have to request to stop? Yeah, that's when I use Google Maps. Yeah.

Speaker 5 7:21
When I open the Google Maps to see which direction

Unknown Speaker 7:27
track Yeah.

Speaker 2 7:31
Yeah, when I first moved here, I also watched the direction of my cab to like, see if it was going, at least in the general vicinity of where I was trying to get to.

Speaker 3 7:43
If I take cat by myself, like late, like always, like call someone? Yeah.

Speaker 5 7:56
Usually trust the cat. When taking something of the past, and I don't know the area, like completely, I just need to know is past. I

Speaker 1 8:09
also feel like classes are just the worst. Like they've never stopped. Where do you expect them to?

Unknown Speaker 8:15
Go? They don't even show up on time. Buses already here? Where

Speaker 1 8:28
would you then like, maybe switch? modes of transportation? Yes, I was like the past?

Speaker 6 8:33
me many times. Yeah. So I was just as I was talking about this with Elon, and so I'm the kind of person who would prefer consistency over surprises like this, especially when you have to travel so long. And when you have to reach the city on time, and you have evening classes, it's okay. But during the morning class, I think it becomes a scene becomes very true. There were so many instances where I was waiting for the bus, the buses either early and there's no notification about it. And Google was the first thing I would check because it shows all means of transportation. It includes the billboards, bustling bootcamp. I see when do I have to start I check with scheduling the time you can see if I want to leave at 9am What are the best routes? Yeah, but it's not usually that the bus is

Speaker 1 9:22
configured true. Yeah. For example, what I do right before when I like get home and for example, I'm in a cab, I tell the cab driver to like drop me off, like just not right in front of my door, but just like a little bit further. Maybe I'm screw paring knife, but sometimes I'm like, I don't want them to know where exactly, you know,

Speaker 4 9:43
that happens. It depends. When you get this thing from the driver, or, I mean, the cab driver. I mean, it's not all the time, but it's just the vibe. Yeah, you know that. Oh, yeah. I don't want to

Speaker 5 9:58

Yeah, You cautious? Because this never crossed my

Speaker 7 10:08
mind. I remember you posting there's a criminal nearby your house? Oh, yeah, he's fine

Unknown Speaker 10:23
Oh, god,

Unknown Speaker 10:24
okay fine.

Speaker 1 10:30
I mean, he's all for being performed by. Yeah. And

Speaker 4 10:37
also, when you walk, the map is different. And when you are in a cab, the map is different. Yeah. So to associate that, because I always walk, I can see the roads, but inside the cab, I'm not sure. Is the reason I keep on checking whether it's the same route. It's a different route. Yes, like that. Yeah, that too happens. I always check my maps wherever I am. Whether it's an F cab, or I'm sitting with a friend in a car to just check. If because I'm really bad at Aviation. Yeah. Yeah. I think yeah. The night thing, that in the day it looks I can remember the right but in the night, it would seem different to me. Yeah. For like, memory thing.

Speaker 1 11:23
Yeah, also, because like all the storefronts are closed. If you have like an orientation point, you're like, where is that cafe just gone? Very true. Especially

Speaker 6 11:33
with all the outdoor seating. Yeah.

Unknown Speaker 11:40
You're getting so many insights.

Speaker 1 11:47
Okay, if you guys have any more thoughts in this one? No. Otherwise, I'm gonna move on to the next scenario. I mean, they're all somewhat similar ideas might repeat themselves. Okay, next one is public transportation at night. So you need to use public transportation to the home after dark. The subway station is sparsely populated, and you're feeling a bit uneasy about waiting for your train. In addition to that, you also need to switch trains. So again, how would you use your navigation app to assist you, like feel safe in the section and also navigate your trains, which again, feel free to write down imaginary features that you would love your navigation app to have? It doesn't

Speaker 2 12:39
a big thing with transfers, is again, get on a train. And I don't know which side of the train gets me to the staircase, which is the quickest to transfer. And it's not me really worrying about my safety as much as it is like getting to the train way. Yeah, so I can get home if it's

late. And I would like a future where it'd be like you should get on the front of the train. So that up yeah, like now I know which staircases but it took me a while to figure that out. Yeah, there's an app that does it but I can't be bothered.

Unknown Speaker 13:11
Yeah, yeah. Great.

Speaker 3 13:14
And also like the cars I just felt like I think it was like a real like, if like I'm going home late like I'll try to get in like a car where like the conductor person is yeah, like I never know where Thank you actually can't see

Speaker 2 13:38
if you walk there's like this thing on the ceiling. Yeah, it's like the black and white it's like a little Yeah, yes, exactly. The Senate. Oh,

Unknown Speaker 13:46
I didn't know that.

Speaker 2 13:51
I don't know that person in the front of those person in the back. Yes.

Unknown Speaker 13:58
The backups are in the middle of setting now that

Speaker 5 14:11
is my suggestion would be more accurate. Because sometimes there's the hole as we discussed the whole situation and showing you one time. Yeah, the app just waiting for 20 minutes. Yeah, I've also seen this feature some things on the map. You can see how the boss think the real this thing is approaching. Oh, yeah. But it's also Yeah.

Unknown Speaker 14:41
I feel like it's not always there. And it's not always accurate. Today I

Speaker 2 14:44
went on Apple Maps. on Apple Maps. You can see exactly where the train is going. Oh, the train as well. The train. Oh, it's coming approaching

Speaker 5 14:53
the bus station and the chosen here

Speaker 1 15:02
So actually, how does that work? Is it just probably like, how the schedule is supposed to work. So when I map it from that, because I guess like it's not based on like GPS of the actual boss location, which

Unknown Speaker 15:15

is because it's like one minute ago was here.

Speaker 2 15:18
It's real time data from like, tracking other people as they get on certain stations. If they started moving at 100/60 Street. Yeah. And then they're at 120 A street. That's when the train is, you know, a lot of topics.

Speaker 4 15:35
They can track people like, yeah, why don't they use it like for in the map, like showing heads that this is the crowded area? These are the people here could be more transparent about it. Yeah.

Speaker 5 15:49
Yeah, but they like sending this notification and asking, for example, how they be trained with crowded Have you received in normal proceedings, set rules to vacation? Never applied? Yeah,

Speaker 2 16:10
I guess it would be nice to know like, if there are any police station stations you're going to, and were like, on your way. Yeah. Because there's certain stations where they're there like every day all night. Like come circle. There's always two in the station somewhere. Yeah. So I guess that would help. Being able to be like, I can get off here.

Speaker 1 16:33
Yeah. Yeah. Because already like, if the subway stations like empty, is that something that you were like concerned with? Or is that something? Like

Speaker 4 16:43
depends on the time? Okay, it's night. Yeah. At night. You want it like that. But in the daytime, it is like, amazing. Just reach on time.

Speaker 6 16:55
I think I don't mind an empty subway. But if there's one crazy person scares me even more. Yeah. Okay. There's no one else. Yeah, it's just one other.

Speaker 4 17:10
Didn't happen to me. What did you do? I mean that I was scared. I did not think about it. I waited I was I thought I was too brave to do that. To sit there. There was nobody else he got on the train. It was empty. He got on the train

Unknown Speaker 17:27
that requires self buyers. Yes.

Speaker 4 17:31
Yeah. So that was crazy. I couldn't I waited for my station. And I got down. He got down there as well, whenever people. But he was acting crazy. Yeah, it was getting.

Speaker 6 17:46
I think another issue with public transportation and lighters, sometimes stations, they go under maintenance after 10 or 11. And even though Google Maps they it shows at times if it's something else under maintenance. But it was just happens for like a day or two. And your stations are nervous. And you don't know What is even happening. That happened. Because last time when I was supposed to go to the vertex and authentication, and they just stopped in your Christopher, and they are everyone's aren't getting out. I didn't know what was even happening. And that's when they told the entire group from the super PCs shut. And we had to find some other strain to vote in there another weakness alternate, because that was not mentioned on Google Maps. Do you know how annoying these are? They're not. They're not here at all. You're listening

Unknown Speaker 18:38
to music all the time? Yeah. You're just

Unknown Speaker 18:44
you're just listening to something else. Yeah, that's

Speaker 4 18:47
another I mean, all the time. It happened with me. I was listening to the music was

Speaker 6 18:54
shot. I don't know, for some reason you have been skipping from 42nd. Yeah, that's why I got to know that only after seeing.

Unknown Speaker 19:04
I didn't notice. But I

Speaker 1 19:08
Yeah. Would you find it helpful if you maybe like got a notification on your phone, if something?

Speaker 6 19:15
Because this is one route that all of us frequently take, right? As students or as someone who goes to work, there's this insider Option A or Option B, this one trade or AMC? So when Google maps using all the data from previous history, they know that we are taking these trains from this top to this stuff. It's better to inform them saying that, see, this is your usual route. But there's something happening here. It's better if you take this.

Speaker 4 19:41
It is learning but it is not notifying. Yeah.

Speaker 6 19:45
It has all the data. So it has all the history too. Yeah, yeah. Why not put it on a better use? Yeah, like also

Speaker 4 19:55

your daily routes, and then your preferred Would

Speaker 6 20:00
that be more safe? Yeah. I know there's not a usual route. But this is also a better option. Yeah, there's one way of you reaching consumers, especially when you're new to a city, and it's messed up a chain.

Speaker 3 20:17
Also, like when it says there delays, like you have to like, click on the delay, and sometimes like, most of the time is track maintenance. But sometimes when you click, it's like, oh, like, person jumped on the tracks, like police. Like it would be nice. Like, someone just saw the track of the delay, like a delay that like there are police involved, or just like a usual delay yelling, that would be

Speaker 1 20:40
helpful. Yeah. I always feel like the delay messages are so long that like, sometimes I don't even bother reading through it. Because I'm like, trying to decipher it off. Like which Street? Exactly. Sometimes it just says like, for whatever trade you're taking through some point, there's like a final like, yeah, it's

Speaker 5 21:01
just sometimes not even applicable to just sum up what is happening for this case?

Unknown Speaker 21:11
Yeah, very true.

Speaker 2 21:12
Sometimes Apple Maps will tell me that there's a delay on like, the A train. And I'll get there and it's fine. Yeah, it's like just a minute delay. I don't need to know. Yeah.

Speaker 4 21:25
I mean, it shouldn't be selective and giving you a notification rather than

Speaker 2 21:28
take the train. Yeah. Well, it really disrupt my commute that much. Yeah. Then why is it telling you it's

Speaker 4 21:34
just dumping information to random people? Like, you don't have to? You

Unknown Speaker 21:38
don't have like a priority? Like which information is

Speaker 2 21:41
to be taken to take the A or the C? And it's like, okay, the C's running a little slow. The A is fine. Yeah, this has nothing to do with

Speaker 4 21:50
maybe the personalization thing, which is like, really not updated. Google Maps, I feel like which they can do it because they have all the data. And so that feature can be added where it suggests you does your work of calculating what I have to do. It does it for you. Yeah,

Speaker 1 22:10
yeah, that would be better. Never ever happened maps all the time? Yeah. Can you read the two people? By survey? Like,

Speaker 2 22:22
it's much cleaner? Yeah. You know, it gets you Zachary's V, it'll you know, you open up, like, you want to see a restaurant, you want to see shops? And like, I don't, you don't need to tell me what I want. But

Speaker 3 22:33
that's where I have to go. Yeah, like, you're gonna have to use Google Maps, like Google Maps, I think is a lot more reliable in Europe. Like everybody's like, if you use Apple Maps, absolutely not. But here, it's Apple map. Yeah,

Speaker 2 22:46
I have also picked up on that. But I think in Europe, the transit so much easier to understand that

Speaker 3 22:51
no, but still like, it will tell you completely wrong directions. Like when I was using Apple Maps,

Speaker 4 22:57
it depends in India, it was like the main deal. So you cannot be sure about Google Maps, because sometimes even the flyover thing, you will be taking a different change now, but before it was like, you won't get it the flyover should be in different colour. And this should be in different colours so that you understand, are you going level up or down? Service one confusion using

Unknown Speaker 23:19
Apple map? This one just this?

Unknown Speaker 23:24
Much easier to navigate.

Speaker 4 23:25
But do you have to share your I mean, map to someone your location to someone if that person is doesn't have the app? Yes, yeah. So you have to share in Google map, you will come back to the map. That's the problem.

Speaker 6 23:39

Also, another thing about switching trains in the middle of the night is where you have to get out of the road crossing the street. That is not notified when you have smaller stations up and you're just I don't wait till you get started someplace. You don't know if there's another shack within the sub base. You have to check out and check in again. Again, yeah, so once the one rule that I heard here was once you pay you don't have to pay for the number of trades that you take, but some stations, you have to get out. I think that invoice not even know I don't know, what are the stations? Connected?

Speaker 1 24:17
Underground? Yeah, I know, for Google Maps, I needed to turn on like the, like an overlay on the map where you can see the trains because then it's like, very slightly in red. It's indicated where there are tunnels, like you have to zoom in every time because Yeah, so like, underground or

Speaker 6 24:36
snowing or raining. Yeah. And also going out is not that safe again, because inside my

Unknown Speaker 24:44
Yeah, I mean, some

Speaker 4 24:46
sometimes it shouldn't always be visual because it's not what you say accessible? Yeah, rather than giving you steps that this is the entry that you can go or this is the pathway you can take dig so that you can go to the next station. It has all the steps, but then it's just not detailed out. Yeah. I mean, sometimes visual is not that accessible. Sometimes you zoom in and you go somewhere else. But if it's directive written somewhere to be more easier I feel NaVi navigate. Yeah.

Speaker 1 25:22
Anything else to add to this scenario? Are we ready for the next one? Okay. So next one is travelling alone in remote areas, again, like similar situation. But yeah. Is

Unknown Speaker 25:38
remote like, non city.

Speaker 1 25:42
No, it is still city. But it's more like in areas where you might not have like some of you lurk coverage. So we're like, no network or network might cut in and out. And maybe you just like, area that's not that. I don't know.

Unknown Speaker 26:02
Do you? I would take screenshots

Speaker 6 26:08
with no data if your destination is already loaded. Track is saved. There. I think it's the works on GPS. So

Speaker 2 26:17
yeah, I would use a map. Just looking at the map. Okay, and continue walking until I have service. Yeah, and I get a cab. Yep. But I get nervous. Yeah. Like, I'm not nervous travelling in the city, because it's so long. I'm nervous when I drive up to like, Vermont. And I'm driving on a road with nothing. Yeah. And it's dark. And I pass haven't passed a gas station for five miles. Yeah. That is terrifying to me. Yeah. If anything's gonna happen to me, it's their feeling of safety and numbers. You know, nothing's Yeah. And if I feel like I want to train even late at night with like, six guys in the car, and it's just men. I think to myself, are all six of these men truly evil. One of them would help me.

Speaker 1 27:08
That was very positive. I mean, honestly, in that situation is really

Speaker 2 27:13
hard. Yeah, for sure. But when I'm truly, like upstate New York terrified, the car breaks down, right? Yeah. over for me, I'd cursor crying. Yes. The scary part. The feeling of numbers is very, yeah. These people will maybe turn around if I yell. Yeah. I

Speaker 1 27:35
remember like, being like a week here, just freshly moved into the city. And I went to IKEA. And it's far, it's far. And I think because I went on, like a weekday sort of ferry wasn't going. So I was okay. I'll manage with like us and train, which I mean, now, like, I will never take the bus again. And for that it was the same where the bus didn't stop where it said it would stop and Google Maps. I was feeling slightly uneasy, because I'm like, This is not an area I've ever been to. That was the first time in Brooklyn, just like very a lot of unknown factors. And then I just had to walk the rest. And that was kind of scary, because I don't know it was like a very like right before IKEA. That area is very sketchy. Like, very sketchy wouldn't run. Yeah, yeah.

Speaker 2 28:31
Just really nice. Yeah, it's really nice. Driving to IKEA, though, it's it starts to get a little bit like, industrial.

Speaker 1 28:39
Yeah, exactly. That part. Yeah,

Speaker 2 28:42
there's no walking into like a bodega down there. And then there were like

Speaker 1 28:46
two men fighting on the streets. And all of a sudden, I was like, yelling and she's like, if you like, you'll have proper fella. And all of a sudden, I was very worried that I know in America where everyone can carry a weapon. Like most

Unknown Speaker 29:06
people do pick up state. You can Yeah.

Speaker 3 29:10

I don't know. It's not like Texas. You can't open carry. No, no. You can't have it can be

Speaker 2 29:19
concealed. Yeah, but you can't have it. They can hold now. What's the deal with that? Did you see that in Texas? No,

Speaker 1 29:26
I did not see anyone carrying a gun because I went to Texas like last week. Oh,

Unknown Speaker 29:32
you didn't? I've never been in Texas. I'd be really nervous.

Unknown Speaker 29:36
No, I mean, I didn't see anyone so that's good, but

Unknown Speaker 29:40
I don't think I've ever seen anyone. I'm

Unknown Speaker 29:41
always not afraid of men with fanny packs.

Unknown Speaker 29:47
Yes, because there is but aren't guns like really heavy and if you got to fake I don't want to be like no because that

Speaker 4 29:51
was the first thing that I really have. A knife or something. I mean, guys carry

Unknown Speaker 29:56
that. Andre he was like

Unknown Speaker 29:59
the fan Anytime your Swiss knife that's