



BruinRoute

Isha, Emma, Miranda, Stella, Claudia



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O1

Project Overview

Exploring solutions to Prompt #2

Problem Space

Large and Hilly Terrain

UCLA's vast and hilly campus poses accessibility challenges.



Orientation Difficulty

New or visiting students often struggle to navigate from building to building efficiently.

Magnified Challenges

Students with mobility impairments face intensified challenges with finding routes and reporting routes that need repair.

Existing Solutions

Current map design is not interactive or user friendly

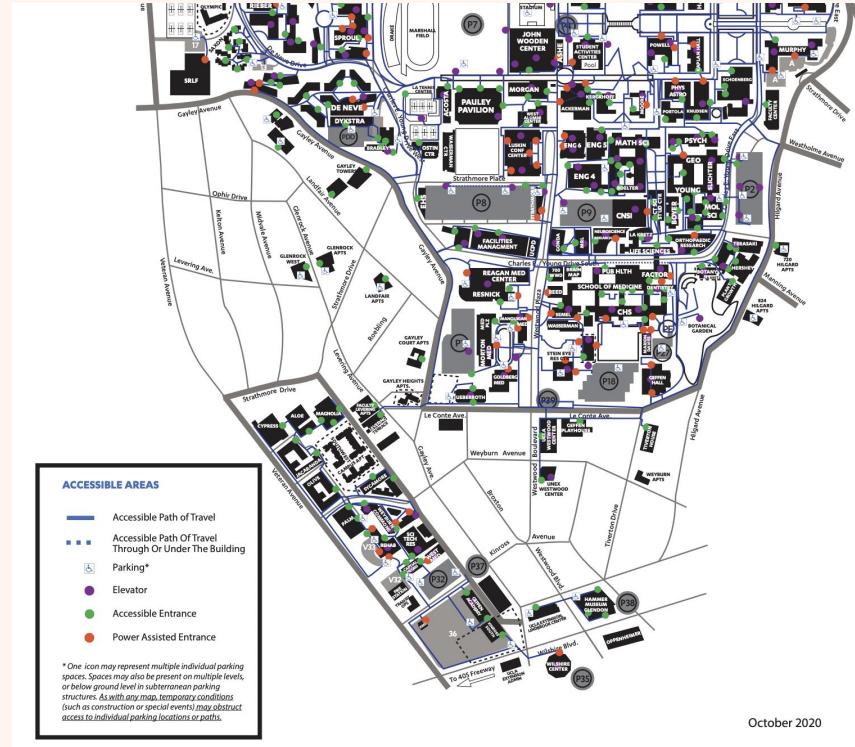
Current Maps

UCLA Accessibility Map

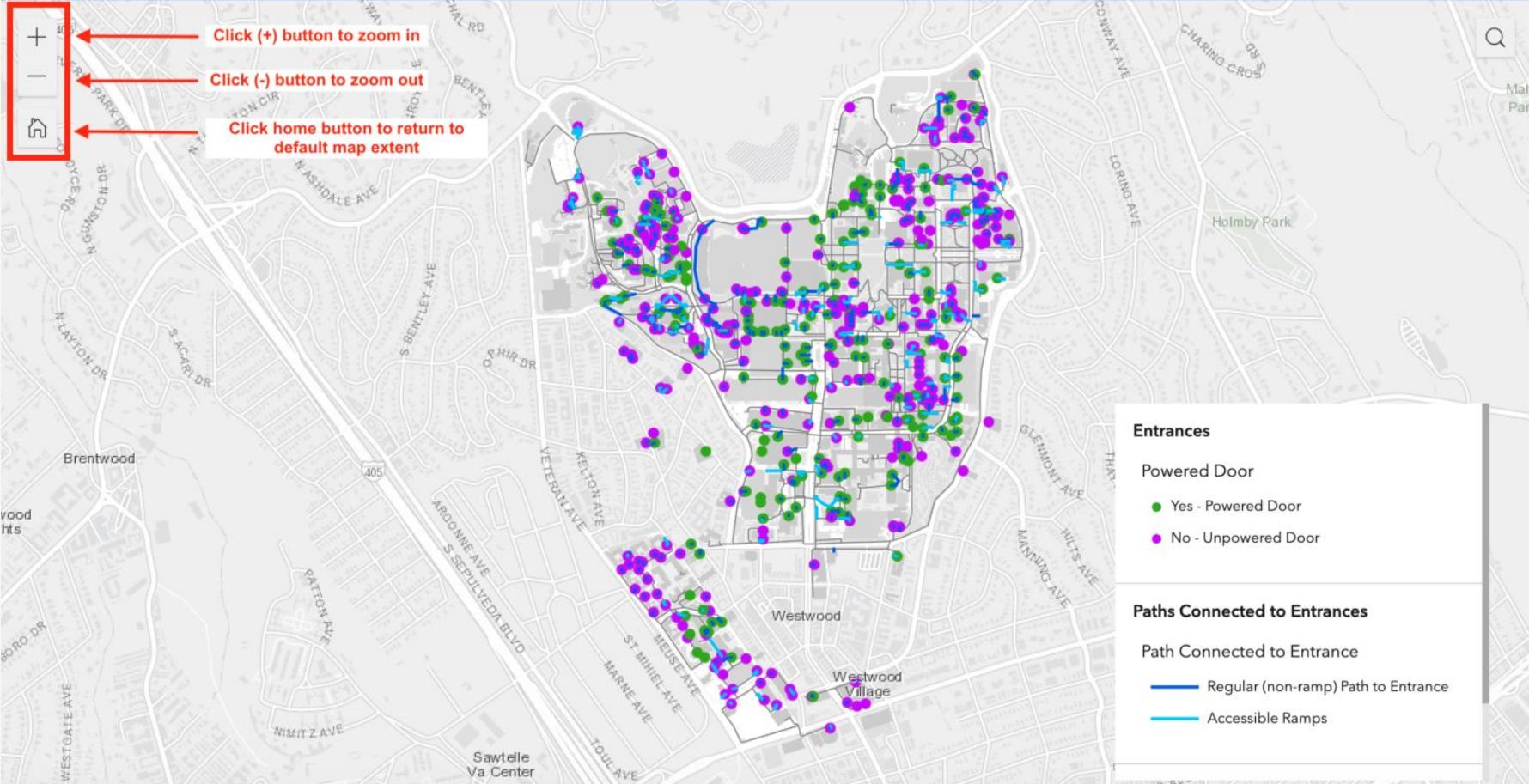
Non-Interactive

Cluttered Design

Not personalized:
Static so difficult to report
inaccuracies



October 2020





BruinRoute is a student-developed app designed to simplify campus navigation for students with disabilities.



02

Research + Literature Review

Exploring conversations about accessibility

Literature Review Case Study 1

"Personalized Accessibility Maps (PAM) - Tailoring Solutions for Mobility-Impaired Individuals"



Key Points

- Introduction to PAM and its relevance to mobility-impaired students on college campuses.
- Highlighting the need for **personalized solutions** based on users' unique needs and preferences.

Takeaways

- Role of **user profiles** in a user-centric design approach for the BruinRoute app.
- Put users in **control** of defining their accessibility requirements

Literature Review Case Study 2

"Mapping for Wheelchair Users: Enhancing Urban Navigation"

Key Points

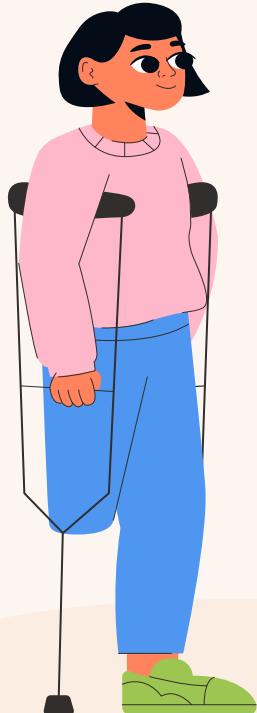
- Highlighting the use of questionnaires and field surveys to identify accessibility barriers.
- The importance of creating a GIS-based application to calculate the best routes for users.

Takeaways

- GIS technology can help create personalized accessibility maps for UCLA's campus.
- Display accessible pathways, entrances, and restrooms on the campus map through GIS layers
- Store and analyze crowdsourced data for updates and improvements

Literature Review Case Study 3

"Evaluating Wheelchair-accessible design on College Campuses"



Key Points

- Emphasizing the impact of policies and standards on accessible design.
- Highlighting the gap between theoretical design standards and practical, everyday usability.
- The importance of continual evaluations of accessible design in real-world contexts.

Takeaways

- Even environments designed for accessibility may still present practical challenges.
- BruinRoute can identify potential obstacles and provide alternative routes that navigate around these issues.

Ethnographic Observations

Reporting broken / inaccessible paths



1. Currently, the access map doesn't update paths when **accessibility routes are blocked off**. Additionally, when we observed routes on campus this week, more accessibility routes became closed off around Powell/Royce for Parent's weekend.
2. I work within Bunche Hall and **elevators are constantly broken**, but the building itself is difficult to navigate without elevators. In cases where only one elevator is working, traffic in and out of the building is prolonged.
3. The **ongoing reconstruction** of this area and the removal of key accessibility routes have prolonged the amount of time it would usually take to navigate toward central campus.

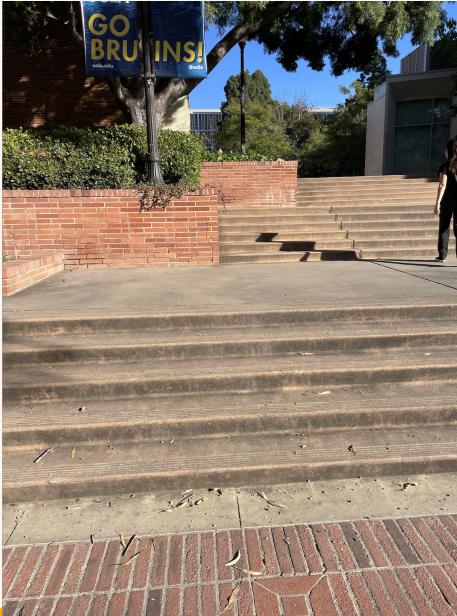
Ethnographic Observations



Need for personalization

1. Some accessibility routes are **steeper** and **more difficult** to navigate even for able-bodied students.
2. Routes are now being more frequently used by students on electric scooters making **traffic** through these routes more complicated and disrupted.

Ethnographic Observations



Difficult to know the right paths

1. When navigating towards central campus you can navigate on either side of the Tongva Steps area, but regardless both **paths require more navigation** than taking stairs.
2. Getting to the second level to Northern Lights and other buildings around there would require **knowing about elevators in the building** prior to reaching those points.

Research → Features



Easily view routes

Users can click on specific buildings or destinations to view suggested paths



Filters

Select whether they want to view accessible entryways, ramps, and elevators



Class schedules

Customize routes based on classes



Easy Reporting

Easily report inaccessible routes or any obstacles that block pathways, construction or broken elevators



Audio Narrations

For visually-impaired individuals



VR

Narrate surroundings using VR technology



02

Interviews

With CAE, DSU, and MetaMaps

Interview 1



Veronica Martinez-Lopez

Associate Director CAE,
Programming, Evaluation, &
Auxiliary Services



Spencer Scruggs

CAE Director

Q1: In your experience, what are some of the most common challenges or barriers that students with disabilities face in accessing university programs and facilities?

- Hilly campus, getting through doorways, accessible parking
- Many different accommodations are needed ranging from housing, to test taking, to transportation





Q2: What advice or recommendations would you provide to a project aiming to improve accessibility on campus, such as the development of the BruinRoute app?

- Important to distinguish grading of slope, whether elevators break down, and understand that accessibility changes often
 - Consider using AI and live VR
For blind students, and have a live VR experience where things are described to them
- 
- 

Additional questions asked include:

- Would you be able to provide an overview of the Center for Accessible Education Office's role and responsibilities on campus?
- What specific programs, services, or facilities are most commonly addressed by your office in terms of accessibility for disabled individuals?
- How do you gather feedback or input from disabled individuals or the broader campus community to inform your work and priorities?

Interview 2

DSU Member / Student

Student 1 - Eliana

Student 2 - Anhuka

Student 3 - Karen

1. Can you share your experiences with navigating UCLA's campus? What are the most significant challenges you face in terms of accessibility and mobility?
2. Are there specific areas or buildings on campus that you find particularly challenging to access or navigate due to your disability? Could you describe these challenges?
3. In your daily routine, how do you plan your travel between classes and other campus locations? What tools or strategies do you currently use to ensure accessible routes?
4. What are your expectations and preferences for an accessible campus navigation app like BruinRoute? What features or functionalities would be most helpful to you?
 - a. In your opinion, what are the key attributes of a user-friendly app for students with disabilities, and how should it cater to diverse needs within this group?
5. How do you currently find information about accessible routes, ramps, elevators, and other facilities on campus? Are there existing resources or apps that you use for this purpose?
6. Can you describe any experiences of reporting accessibility issues or concerns to the university authorities or relevant offices? What has been the outcome of such reports?

User Persona



Goals

- obtain her doctorate
- be able to go to new places without needing to visit the day before to find accessible entrances
- be involved on campus as much as possible
- find ways to share information/tips with disabled students about things such as parking

Frustrations

- reported a broken elevator once and was faced with discrimination and a dismissive attitude towards her report, has since then never tried again
- difficulty opening heavy doors due to limited hand function, therefore always needs to use powered doors
- UCLA campus is hilly with many stairs

Name	Katrina
Year	PhD Student
Age	28
Location	Off-Campus

About the User

Katrina is a PhD student at UCLA who also obtained her undergraduate degree here. She lives off-campus and has her own van with a wheelchair lift that she drives. She uses a powered wheelchair to get around campus. She recently worked as a tour guide for incoming students and although they did their best to accommodate the job for her, she was still faced with the inaccessibility of many of the buildings on campus. As for her classes, they are all generally in the same couple buildings, but if she were to have one in a new building, she makes plans to visit a day before and figure out a plan to get to class.



Goals

- work through a solution with UCLA for BruinAccess
- find a way to get around campus with all the accommodations she needs
- finding a community to work together to advocate and find the right people or talk about all these problems with

Frustrations

- Always having to advocate for herself, especially with the CAE and BruinAccess not being accessible because of drop-off points and delays
- UCLA events blocking accessible routes (ex. ramps) and telling her she can't use it
- The uncertainty of planning her route because she can't know ahead of time if an elevator or lift is broken
- Campus accessibility

Name	Anna
Year	3rd year UCLA student
Age	22
Location	Dorming

About the User

Anna is a 3rd year, transfer student who lived in the Bay Area. She uses a walker and experiences extreme periods of pain on her leg that intensifies when her feet are not elevated. Therefore, she can only walk for short periods of time. Since she started at UCLA she has been fighting to have all her accessibility needs met, but has been faced with a lack of action from those she has reached out to. She is a strong and determined advocate not just for herself but for other disabled students as well.



Goals

- be able to switch back to her rolling backpack
- have ramps/accessible routes be easily located and found, somewhere where you can find this information would be really helpful

Frustrations

- has had to switch to a carry-on backpack because she finds it difficult to locate ramps
- frustrated with the lack of accessibility on campus

Name	Liliana
Year	2nd year UCLA student
Age	20
Location	Commuting

About the User

Liliana is a 2nd year student who is autistic. She uses a rolling backpack to help her carry her things around campus and commutes from home to UCLA. When she first started using her rolling backpack, it was hard for her to find ramps, because they were not easy to locate. When she couldn't find them, she would have no option but to drag her backpack up the stairs.

Interview 3

Caronlanne Link

MetaMaps



Experience



UCLA

4 yrs 7 mos

- **UCLA Web Accessibility Initiative (UWAI) Senior Program Manager**
Full-time
May 2023 - Present · 7 mos
- **UCLA Committee on Disability (UCOD) Physical Spaces Subcommittee Head**
Jan 2020 - Present · 3 yrs 11 mos
- **UCLA Web Accessibility Initiative (UWAI) Project Manager**
Full-time
May 2019 - Apr 2023 · 4 yrs
Los Angeles, California, United States

MetaMaps Questions

Interview 2

Carolanne Link

Date: Upcoming

- What were the key user feedback and experiences with the previous version of Metamaps, and how can we address them to enhance the new platform?
- In terms of providing accessible routes, what were some of the notable features or strategies employed in the previous version, and how can we improve upon them?
- Are there any new technologies, tools, or frameworks that have emerged since the previous version of Metamaps, which we should consider incorporating for a more robust platform?

MetaMaps Questions

Interview 2

Carolanne Link

Date: Upcoming

- What were the design principles and user interface considerations that contributed to the success of Metamaps, and how can we optimize the user experience on the new platform?
- Were there any partnerships or collaborations in the previous project that significantly contributed to its success, and how can we establish similar partnerships or leverage their networks for the new platform?



BruinRoute

Isha, Emma, Miranda, Stella, Claudia



05

Designs

Lo-Fi Designs & User Persona

Our Design Goals



Inclusivity

Inclusive design that caters to users with diverse needs, adheres to WCAG guidelines, and improves accessibility



Clarity/Visibility

Clutter-free, minimalist design, easily identify routes



Personalization

Give users the ability to customize profiles to specify unique needs/preferences

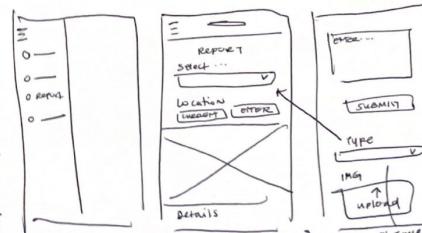
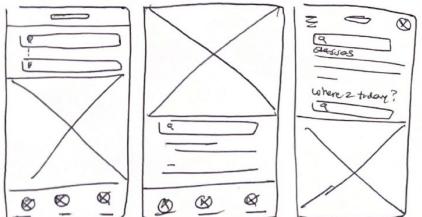
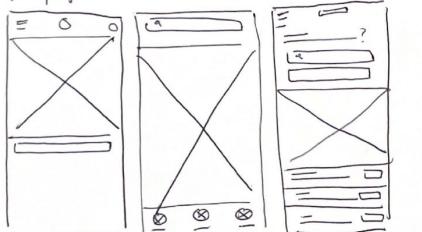


Usability

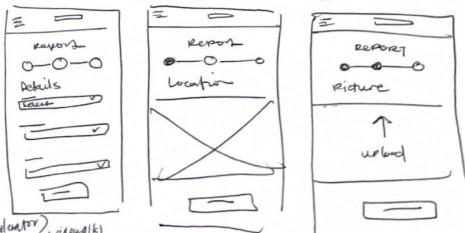
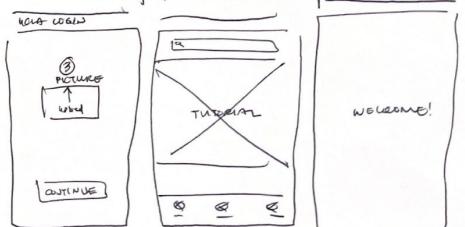
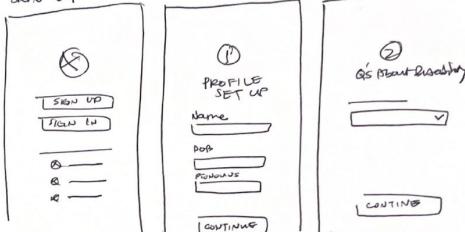
Easy to navigate, with clear instructions and understandable features

Paper Wireframes

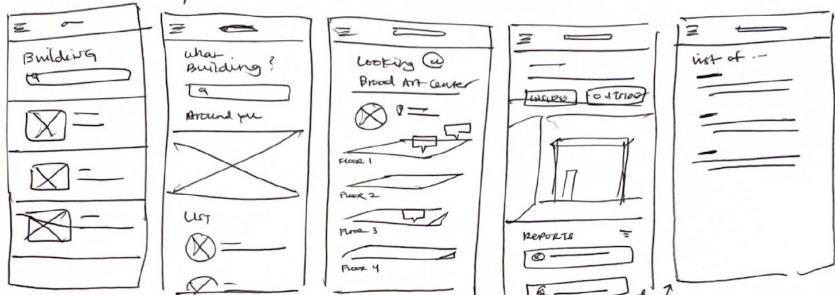
Homepage



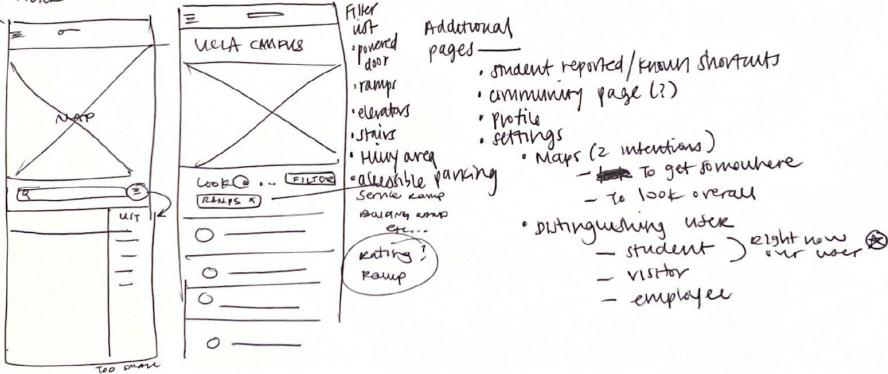
SIGN UP



BUILDING ACCESSIBILITY



FILTER



Additional pages

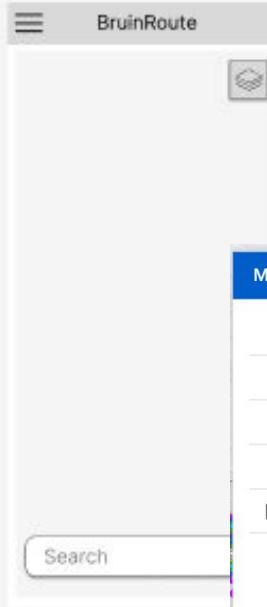
- student reported/knows shortcuts
- community page (?)
- profile
- settings
- Maps (2 intentions)
 - To get somewhere
 - To look overall
- distinguishing user
 - student) right now our user
 - visitor
 - employee

Lo-fi Design

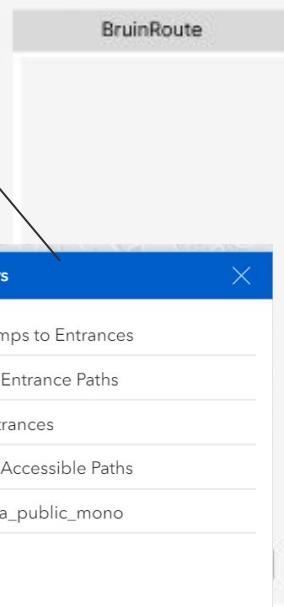
iPhone 14 & 1...



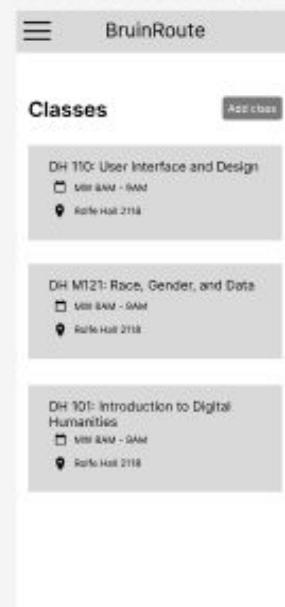
iPhone 14 & 1...



iPhone 14 & 1...



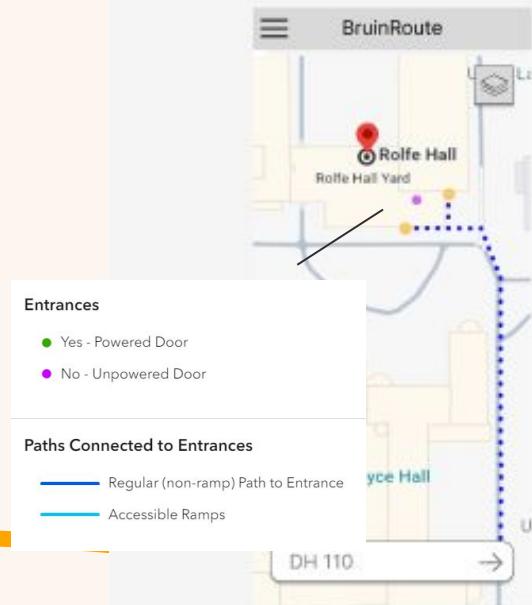
iPhone 14 & 1...



Lo-fi Design

Audio Narrations

iPhone 14 & 1...

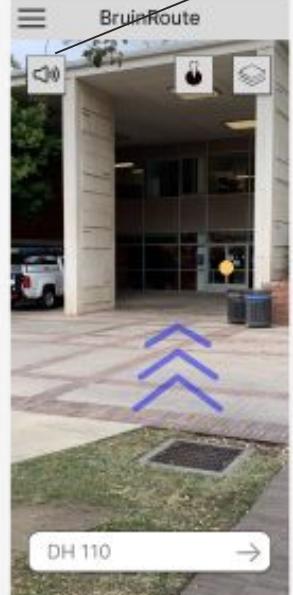


iPhone 14 & 1...



iPhone 14 & 1...

BruinRoute



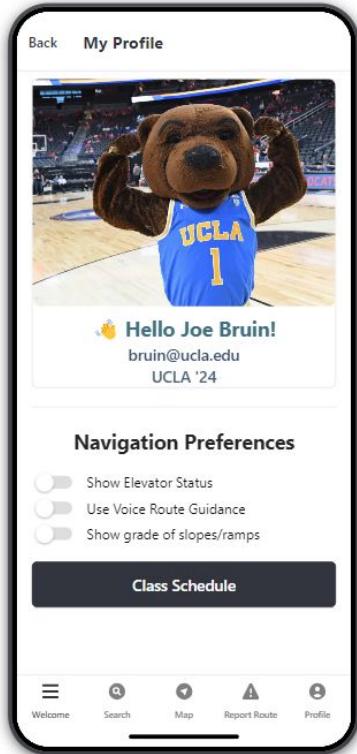
VR

BruinRoute

- Personalized Profile
- Report a Path
- [Empty box]

Reporting changes on paths + personalizing route

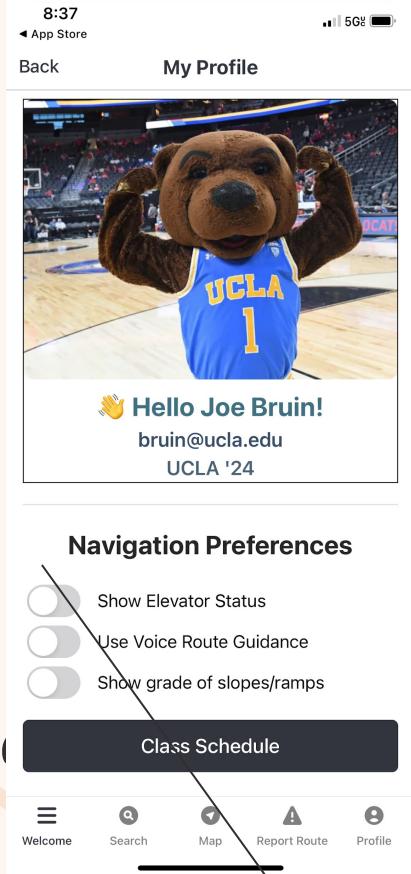
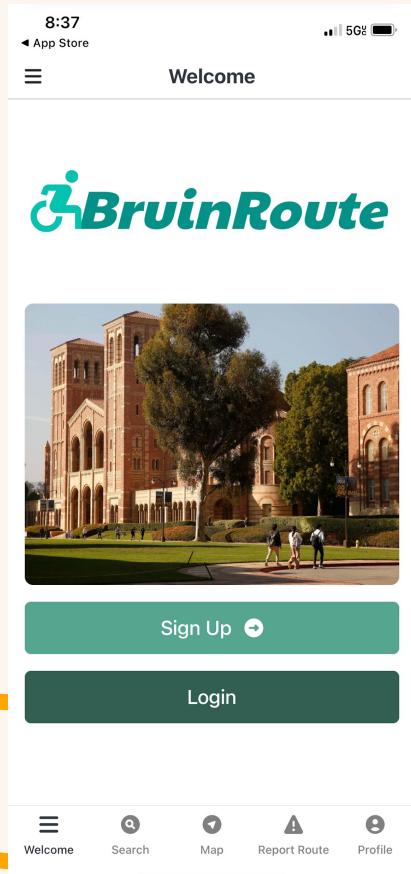
Hi-Fi



BruinRoute
Scan the QR code to open as a native app on iOS or Android



Hi-fi Design

Two screenshots of the BruinRoute app. The first, titled "Suggested Routes", lists five navigation options with their destinations, emails, and estimated times: "To North Campus via Wilson Plaza" (10 minutes), "To Pritzker Hall via Ackerman" (20 minutes), "To Rolfe Hall from Dykstra Hall" (25 minutes), "To Powell Library via Bruinwalk" (15 minutes), and "To Court of Sciences via Ackerman" (10 minutes). Each entry includes a location pin icon and an "Let's Go!" button. The second screenshot, titled "mapScreen", shows a map of the UCLA campus area. The map includes labels for "University of California", "WESTWOOD", "Ronald Reagan UCLA Medical Center", "Gayley Ave", "Hilgard Ave", and "Hilgard Ave". A search bar at the bottom says "Search...".

8:37
App Store

Suggested Routes

To North Campus via Wilson Plaza
hanson@deck.com
10 minutes

To Pritzker Hall via Ackerman
sueshei@example.com
20 minutes

To Rolfe Hall from Dykstra Hall
jason@response.com
25 minutes

To Powell Library via Bruinwalk
cher@example.com
15 minutes

To Court of Sciences via Ackerman
erica@widget.org
10 minutes

Let's Go!

8:37
App Store

mapScreen

University of California
WESTWOOD
Ronald Reagan UCLA Medical Center
Gayley Ave
Hilgard Ave
Hilgard Ave

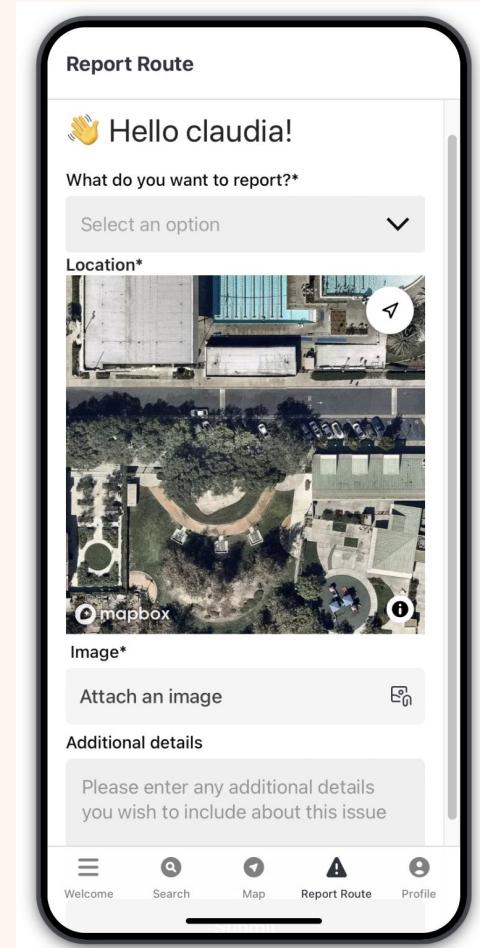
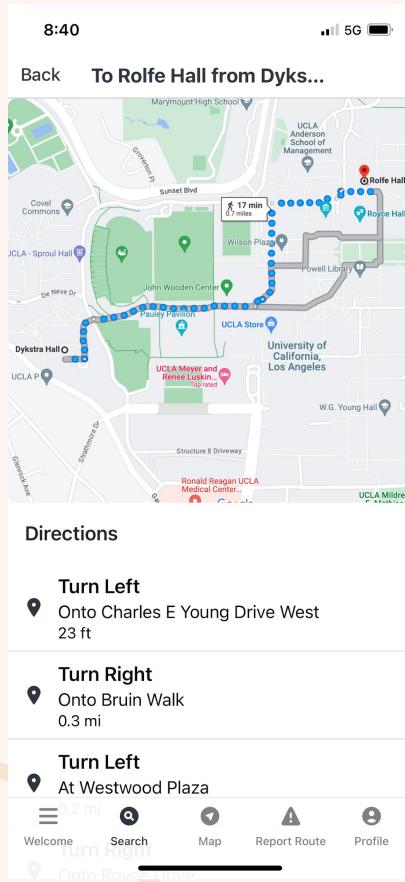
Search...

Welcome Search Map Report Route Profile

Preferences w/ Elevator Updates

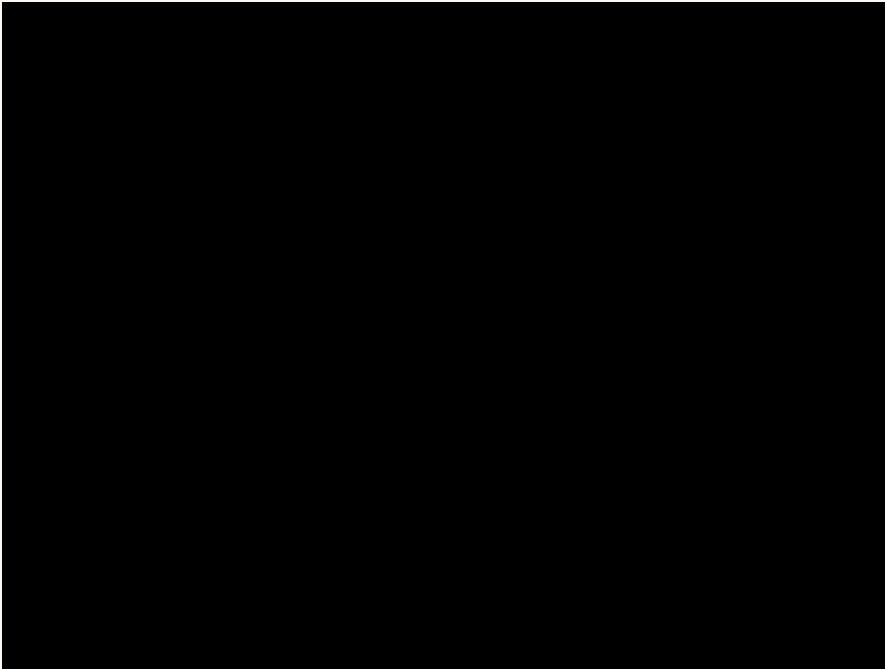
Hi-fi Design

Suggested/Popular Route



Report page that can send a text to maintenance

Hi-fi Design/User Journey



[Hi-fi Design Video](#)



06

Initial Plan

For Usability Testing

Our Initial Plan

1

Prep Survey Design

Choose method of collecting user feedback and design a survey that allows users to reflect on their observations of BruinRoute.

2

Usability Testing

Recruit participants based on user personas and develop realistic scenarios for participants to complete.

3

Feedback Analysis

Collect and analyze recurring patterns and recommendations in user feedback.

4

Iterative Testing

Update BruinRoute with user feedback and iterate testing again if possible.



06

Usability Testing

Methods and Interview Questions

Methods

- Recruiting
 - Disabled Students Union (DSU) Groupme/Slack
 - UCLA Class of 2027 Facebook Group
- Five participants
 - UCLA undergraduate students
 - Three students from DSU , two freshmen
- One interview conducted was in person, other four were conducted over Zoom

Interview Questions

1. User Background:

For both in-person and Zoom: Can you briefly describe your familiarity with UCLA's campus and your experience with navigating it?

2. BruinRoute Usage:

For both in-person and Zoom: Have you used navigation or mapping apps before? If yes, which ones and what features did you find most useful?

3. Feature Interaction:

In-Person: We'll be sharing a static image of the app's interface. Could you please walk us through your typical interaction with the features shown?

Zoom: Since we can't interact directly with the app, I'll share my screen with the features. How do you envision using these features based on the screens displayed here (Show mobile app hi-fi design, ask users what to click on the screen so they can explore interacting with the app virtually)?

4. Accessibility Preferences:

For both in-person and Zoom: How effective do you think the customization options for accessibility preferences are?

Probe further to understand any preferences the user might have or features they'd want to customize.

5. Navigation Experience:

For both in-person and Zoom: Imagine you're using BruinRoute to find your next class. What are your steps, and what do you expect from the app in this situation?

Explore their expectations and possible challenges they foresee.

6. Reporting Functionality:

For both in-person and Zoom: Let's discuss the process of reporting issues. How do you envision using the reporting feature based on its description?

Probe for any difficulties or suggestions in the reporting process.

7. Usability and Clarity:

For both in-person and Zoom: Based on the features discussed, what's your overall impression of BruinRoute's usability?

We will encourage the user to rate the app's usability on a scale from 1-10 and express any concerns they have.

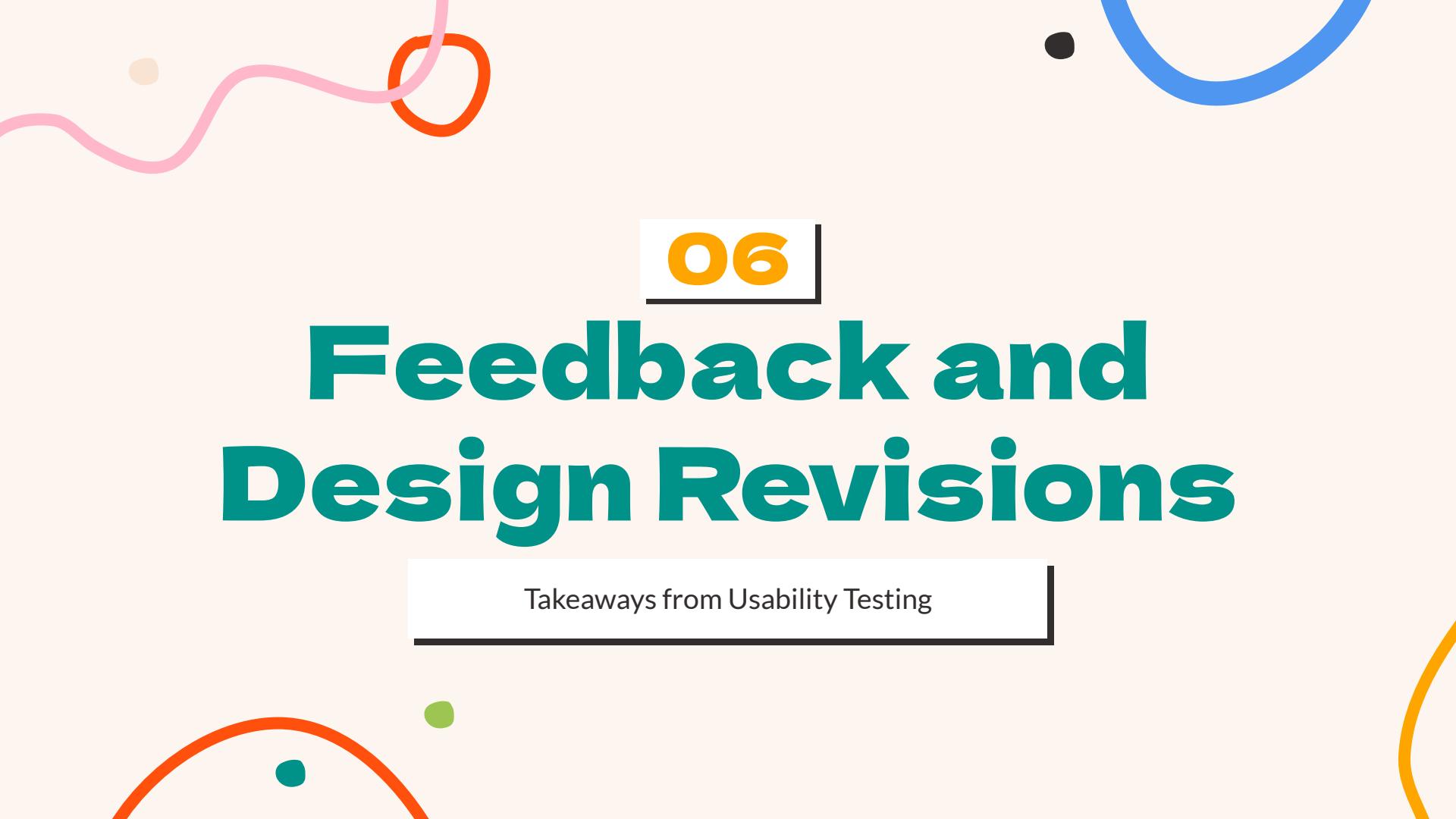
8. Feedback and Improvement:

For both in-person and Zoom: Can you suggest any additional functionalities or improvements that you believe would enhance BruinRoute's usability?

9. General Feedback:

For both in-person and Zoom: Any final comments or observations you'd like to share about your experience using BruinRoute?

We will allow the user to express any thoughts or feedback not covered by previous questions.



06

Feedback and Design Revisions

Takeaways from Usability Testing

Insights from User Feedback

Reporting Feature

- Users appreciated the reporting feature, especially when elevators/ ramps are blocked or broken for days or weeks at a time
- Expressed interest in getting notifications for newly reported incidents so users can adjust their routes ahead of time

Static Routes

- Provided suggestions for more static routes that we could include, based on paths they commonly take
 - E.g., Getting to Powell Library or the Court of Sciences, going from Hedrick to Sproul

Icon for Broken Elevators/ Blocked Paths

- Suggested that broken elevators or blocked paths that have already been reported should be marked by some sort of icon, so users can see at a quick glance whether they have to adjust their route, also mention grading of slopes and width of doorways

Design Revisions

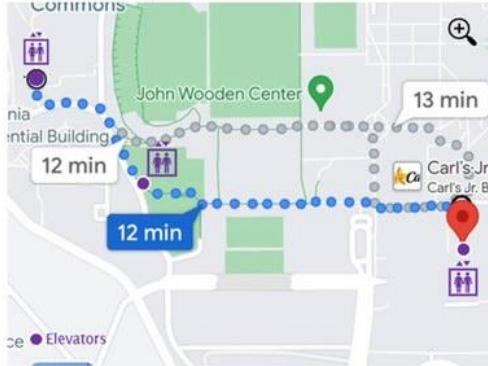
Texting Feature Integration Benefits:

- Users can exchange real-time updates and have access to quick dissemination of information about route changes or reported obstacles.
- Encourages users to actively contribute to the platform's navigation database, enhancing its effectiveness.
 - Users feel more in control with immediate updates and the ability to contribute to the platform's information pool.

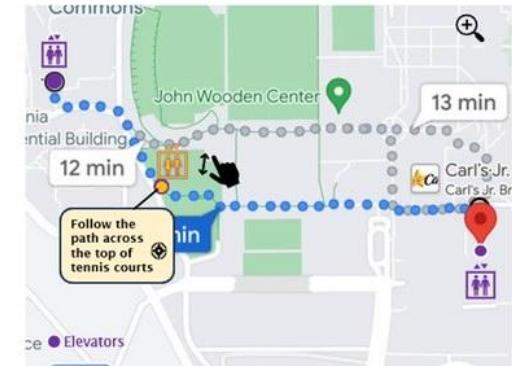
Expansion of Static Routes/Incorporating highly frequented routes Benefits:

- Enhancing User Convenience and Accessibility by providing a comprehensive array of static routes streamlines navigation for users, saving time and effort.

- 1 View Elevator icons (toggle slider in profile)



- 2 Click elevator icon to expand directions



- 3 The instructions also provide a "live view" option to see a photo of the elevator location



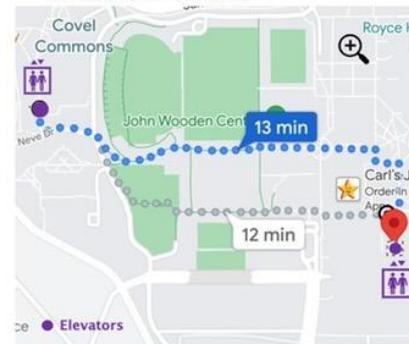
- 4 Live view example photo for tennis courts



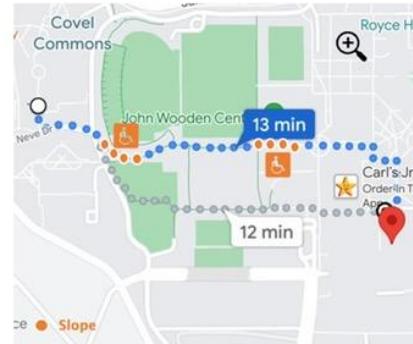
5 Broken Elevator notice



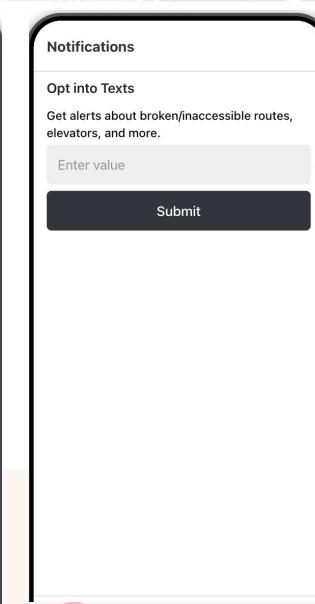
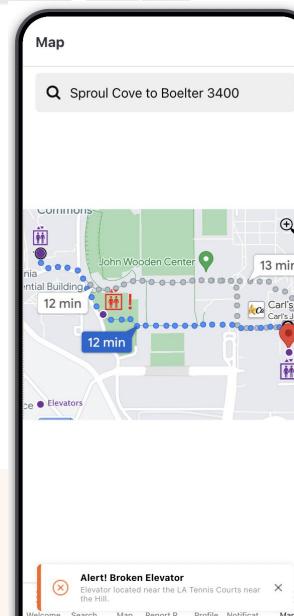
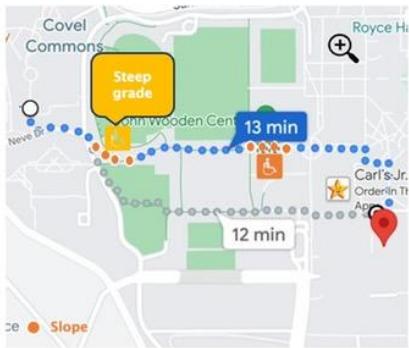
6 Automatically find another route without that elevator



7 Display ramps/slopes



8 Display ramps/slopes grade/other information



Figma Final Design Walkthrough

<https://www.figma.com/file/esjoUpnByInjB8BmT4TnRY/Low-Fi-Wireframes%3A-BruinRoute-App?type=design&node-id=85%3A2&mode=design&t=gROg3nn5ATgotE1R-1>

Thanks!

Do you have any questions?

CREDITS: This presentation template was created by **Slidesgo**,
including icons by **Flaticon** and infographics & images by **Freepik**

Core values

Earth

Earth is the planet on which we all live

Mercury

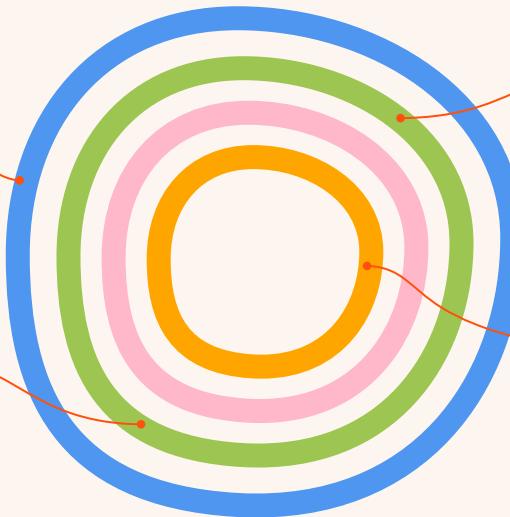
Mercury is the closest planet to the Sun

Neptune

Neptune is the farthest planet from the Sun

Mars

Despite being red, Mars is actually a cold place



sdf Design Goals



sdf



sdf



sdf

Market share



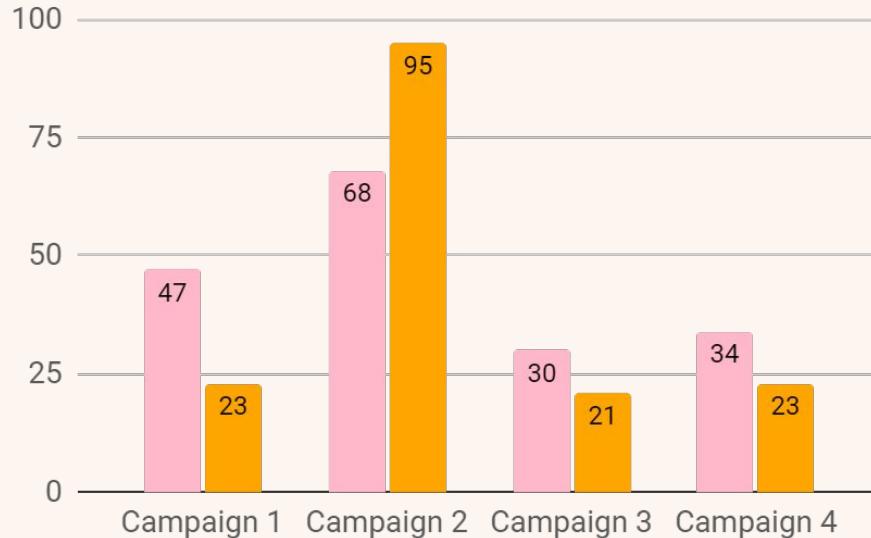
Neptune

Neptune is the farthest planet from the Sun



Mars

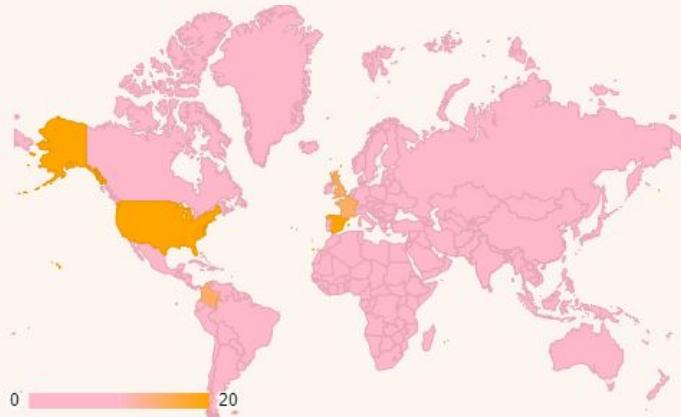
Despite being red, Mars is actually a cold place



Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)

Core customer audience

Location

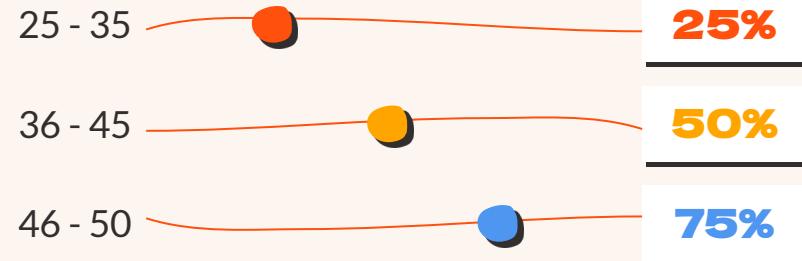


Venus
Venus has a
beautiful name



Mars
Mars is made
of basalt

Age



Interests



Follow the link in the graph to modify its data and then
paste the new one here. [For more info, click here](#)

Competitor analysis

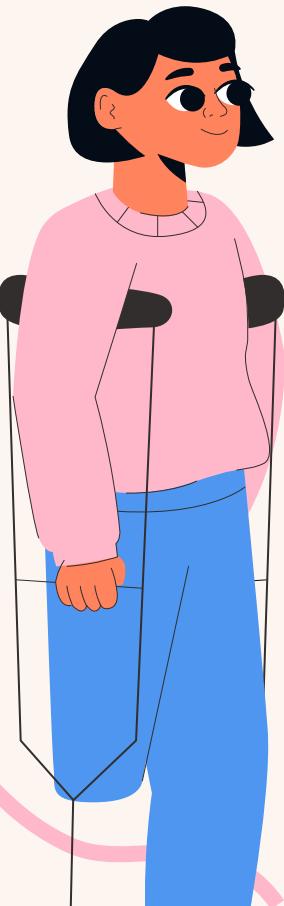


Strengths

- You can list your competitor's strengths here

Weaknesses

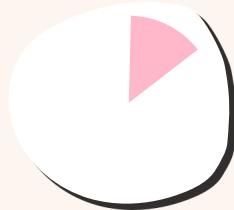
- You can list their weaknesses here



150,000

Big numbers catch your audience's attention

Market segmentation



10% **Venus**

Venus is the second planet from the Sun



25% **Saturn**

Saturn is a gas giant and has several rings



75% **Mars**

Despite being red, Mars is a really cold place



60% **Jupiter**

It's the biggest planet in the Solar System

Strategy



Mars

Despite being red,
Mars is actually a
cold place



Venus

Venus is the
second planet from
the Sun



Jupiter

Jupiter is the
biggest planet in
the Solar System



Saturn

Saturn is a gas
giant and has
several rings





Awesome
words

Product description



Mars

Despite being red, Mars is actually a cold place

Venus

Venus is the second planet from the Sun

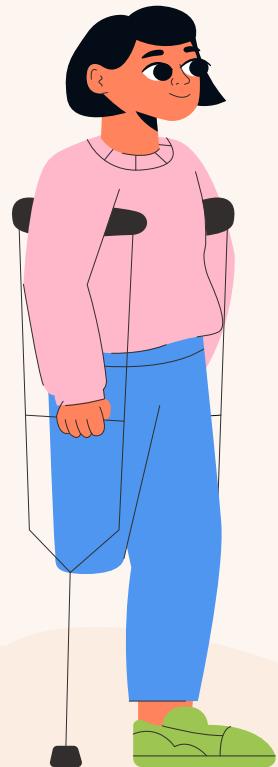
Saturn

Saturn is a gas giant and has several rings

Jupiter

Jupiter is the biggest planet in the Solar System

Pricing



Basic

Mercury is the closest planet to the Sun and also the smallest one

\$20



Premium

Venus has a beautiful name and is the second planet from the Sun

\$40

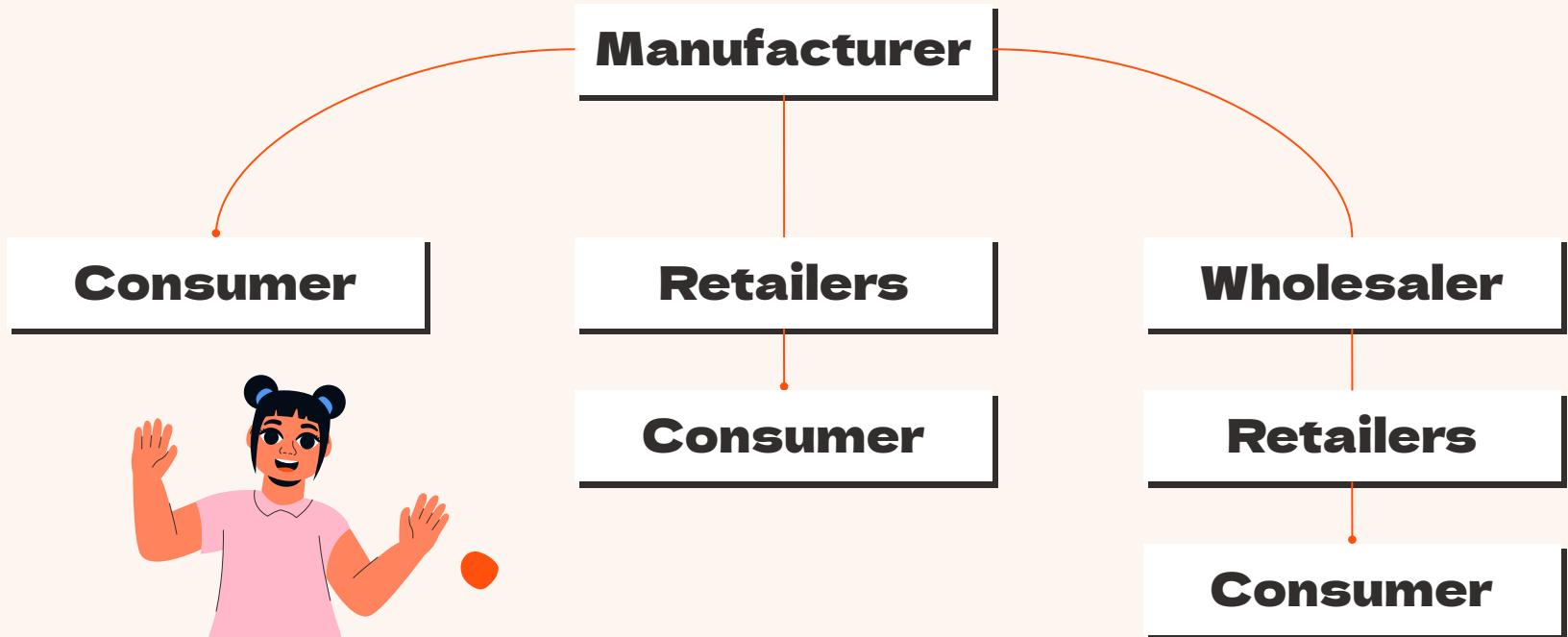


Pro

Despite being red, Mars is actually a cold place. It's full of iron oxide dust

\$30

Distribution channels



Promotion



Multimedia

Venus is the second planet from the Sun



Press

Mars is actually a very cold place



Mobile app

Saturn is composed of hydrogen and helium



Digital

Mercury is the closest planet to the Sun



Podcast

Jupiter is the biggest planet of them all



TV

Neptune is the farthest planet from the Sun

Advertising campaign 1



Advertising campaign 2

Channel

Press



Description

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot, even hotter than Mercury, and its atmosphere is extremely poisonous

Goals

1. You can list your goals here
2. You can list your goals here
3. You can list your goals here

Budget

\$15,000,000

Predicted reach



Venus

Venus is the second planet from the Sun



Mercury

Mercury is the closest planet to the Sun



Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)

PR outreach



Video

Key message

Venus is the second planet from the Sun

55%

Goals

Neptune is the farthest planet from the Sun



Social

Key message

Mercury is the closest planet to the Sun

75%

Goals

Saturn is a gas giant and has several rings

Budget allocation

	Jupiter	Mercury	Venus	Mars
Area 1	\$2,000	\$3,100	\$400	\$1,300
Area 2	\$3,400	\$600	\$200	\$100
Area 3	\$1,700	\$800	\$2,500	\$700

Our team

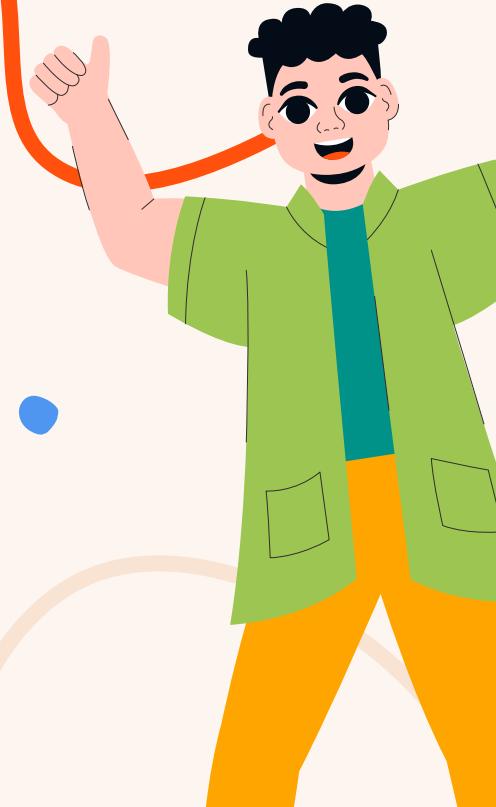
Jenna Sue

You can replace the image on
the screen with your own



Sarah James

You can replace the image on
the screen with your own



Timeline

Venus

Venus is the second planet from the Sun

O1

O2

O3

O4

Mars

Despite being red, Mars is a cold place

Mercury

Mercury is the closest planet to the Sun

Saturn

Saturn is a gas giant and has several rings

Multimedia

You can replace the image on the screen with your own work. Just right-click on it and select “Replace image”



Alternative resources

Here's an assortment of alternative resources whose style fits the one of this template:

Vectors

- Mental health illustration
- Hand drawn people with disabilities illustration (I)



Resources

Did you like the resources in this template? Get them for free at our other websites:

Photos

- Disabled person travelling in the city
- Woman and man with leg disability laughing and getting ready to go running in the city
- Free photo full shot people playing basketball
- Disabled person travelling in the city (I)
- Disabled person travelling in the city (II)

Vectors

- Mental health illustration
- Hand drawn people with disabilities illustration (I)
- Hand drawn people with disabilities illustration (II)

