



# POVs and Experience Prototypes

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# The Team

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# Project Domain

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In what ways do visually impaired users interact with technology?

Initial POV

Needfinding Interviews

Direction 1: Social Rapport

Direction 2: Accessible Buildings

Direction 3: Image Interaction

Summary

Appendix

# Initial POV

Needfinding Interviews

Direction 1: Social Rapport

Direction 2: Accessible Buildings

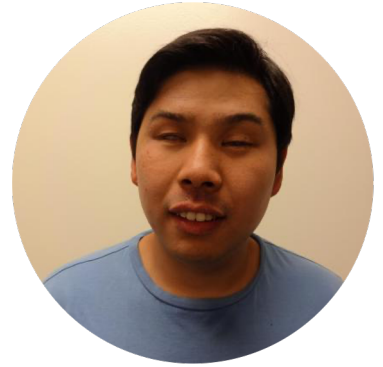
Direction 3: Image Interaction

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# Initial POV

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## WE MET...

Michael, a Stanford lecturer in CS, visually impaired, born with glaucoma

## WE WERE AMAZED TO REALIZE...

Even though assistive tech is intended to be unique to each disability, Michael felt frustrated that such hyper-specialized devices seem **cut off from the rest of the world.**

## IT WOULD BE GAME-CHANGING TO...

Help users interact with popular technology in **natural, integrated** ways that don't require as many "hacks" or workarounds.

Initial POV

## Needfinding Interviews

Direction 1: Social Rapport

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# Cricket



Visually impaired  
Stanford student

Disability equal  
access advocate

## Lessons

- ❑ Android vs iOS Accessibility
- ❑ Accessibility =  
Equal Rights + Equal Access
- ❑ Many accessibility issues are actually easy to solve,
  - ❑ Education is the key to building empathy and awareness



# Robin



Alternate Format &  
Assistive Technology  
Manager @ Stanford's  
Office of Accessible  
Education (OAE)

## Lessons

- Big distinction between blind vs. low vision
- Need accessibility education and training
  - Normalize thinking and caring about accessibility

Initial POV

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**Direction 1: Social Rapport**

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# Social Rapport: Initial POV

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## WE MET...

Adrian, software engineer and Stanford CS grad with nystagmus in one eye and blindness in the other.

## WE WERE AMAZED TO REALIZE...

He feels **socially left-out** when he can't distinguish his roommate lying on the couch from a bunch of pillows, and he wishes he could **greet people first with confidence**

## IT WOULD BE GAME-CHANGING TO...

Provide a better way to **detect the presence and identity** of friends in the same vicinity without having to visually see them.



# Social Rapport: Revised POV

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## WE MET...

Steve, a 54-year old pastor who woke up from surgery 7 months ago with Hemianopsia, which means he cannot see anything in the left half of his field of vision.

## WE WERE AMAZED TO REALIZE...

He once ran into an old lady boarding the bus because he didn't see her, and felt very **embarrassed** as well as **impolite**.

## IT WOULD BE GAME-CHANGING TO...

Provide visually-impaired users with a **subtle way to detect** the presence of strangers and friends who are in their vicinity.



# Social Rapport

How might we...

Subtly, but effectively, notify visually-impaired people of the presence of other people

One Solution:

Personalized vibrations using smartphones and location tracking



# Social Rapport

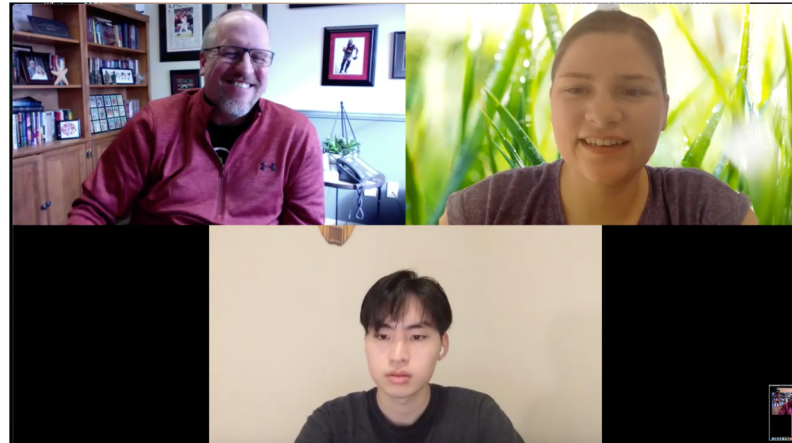
TESTER:

Steve A.

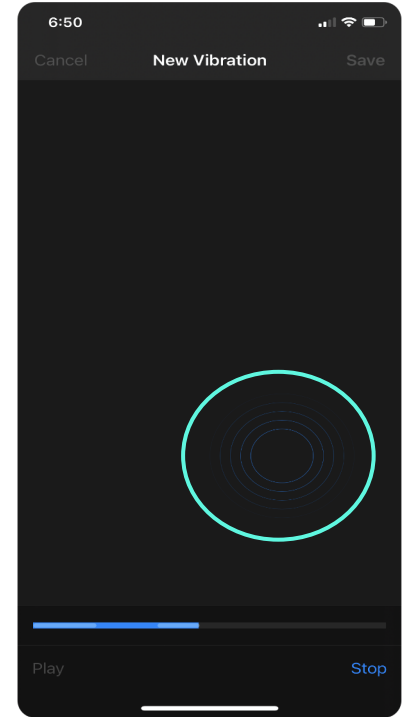
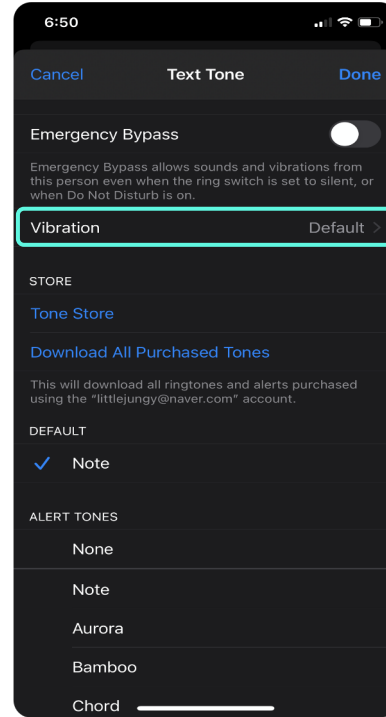
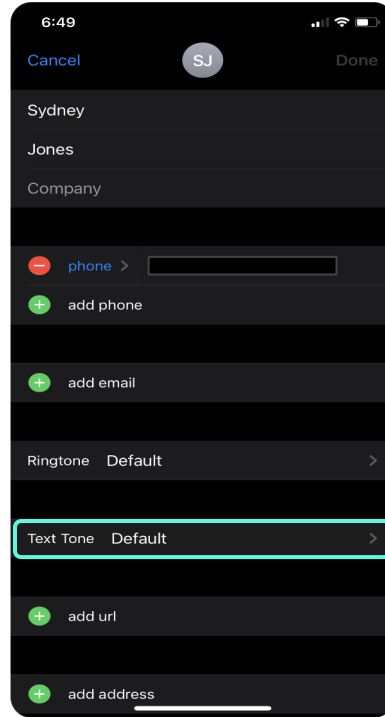
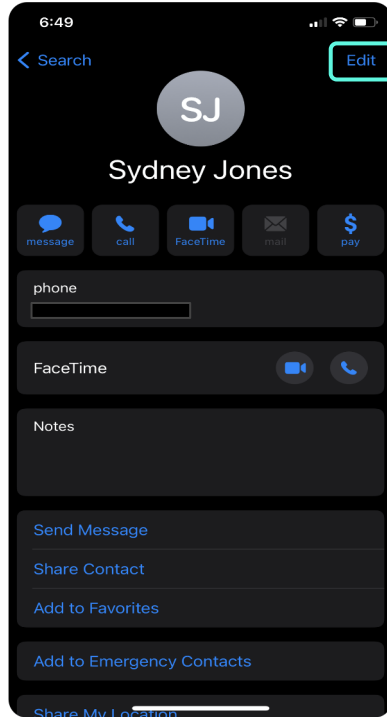
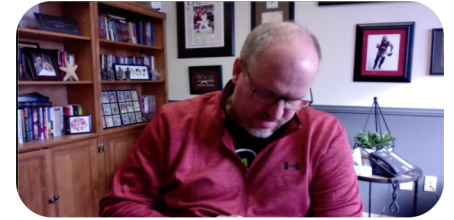


Assumption:

Visually-impaired users can distinguish different **vibration patterns** to identify different people entering a room.



# Prototype



# Social Rapport

## Solution:

Personalized text  
vibrations

## Results:

- ❑ Created custom vibrations for each user
- ❑ Vibrations were not consistent
- ❑ More preferable for strangers
- ❑ Low barrier to entry for assistive tech is essential

## Validity:

- ❑ Difficult to distinguish different vibrations, even with conscious effort



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# Accessible Buildings: Initial POV

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## WE MET...

Adrian, a Stanford CS grad with low-vision, moving to Vancouver and looking for a new apartment



## WE WERE AMAZED TO REALIZE...

Adrian feels overwhelmed trying to keep track of different accessibility criteria when looking for a new apartment, especially when most centrally-located apartments are also often the least accessible

## IT WOULD BE GAME-CHANGING TO...

Help visually-impaired people find accessible apartments in a convenient way



# Accessible Buildings: Revised POV

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## WE MET...

Adrian, a Stanford CS grad with low-vision, moving to Vancouver and looking for a new apartment



## WE WERE AMAZED TO REALIZE...

Visually-impaired people often rely on familiarity when navigating physical spaces, because **detailed accessibility info** is difficult to find before visiting a space in person

## IT WOULD BE GAME-CHANGING TO...

Help visually-impaired people **estimate the accessibility** of unfamiliar businesses and places



# Accessible Buildings

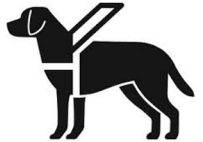
How might we...

Provide visually-impaired people with information about the accessibility of a space before visiting it?



One Solution:

“Yelp for accessibility”



# Accessible Buildings

TESTER:  
Trisha K.



## Assumption:

Visually-impaired users will feel more comfortable trusting personal reviews rather than a list of features

## Prototype:

A/B test with two types of reviews

### Ratings - Style A

#### **The Coffee Corner**

**0.2 miles away. 4 stars. Low-price.**

Coffeehouse chain known for its signature roasts, light bites and WiFi availability.

- Has clear walkways
- Has good lighting
- No Braille signage

### Ratings - Style B

#### **The Coffee Corner**

**0.2 miles away. 4 stars. Low-price.**

Coffeehouse chain known for its signature roasts, light bites and WiFi availability.

- “The waiters were really kind and welcoming of my service dog.” - Kristen G.
- “It was pretty well-lit indoors, but there wasn’t any Braille signage which was a bit frustrating.” - Jamal M.

# Accessible Buildings

## SOLUTION:

Yelp for accessibility

## Results:

- ❑ Wifi is important for video calling others and using apps to help her get around
- ❑ “It’s good and bad to have personal reviews”
- ❑ “By reading these reviews, I know not only that [the business] is trying to be inclusive, but that a person with a service dog has had success there.”

## Validity:

- Trisha trusted the personal reviews to predict what her experience might be like.

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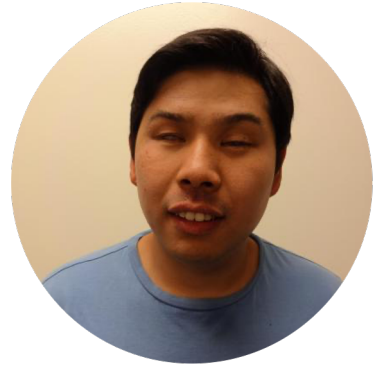
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Michael, a Stanford lecturer in CS, visually impaired, born with glaucoma

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## IT WOULD BE GAME-CHANGING TO...

Help users interact with popular technology in **natural, integrated** ways that don't require as many "hacks" or workarounds.



# Image Interaction: Revised POV

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## WE MET...

Cricket, a Stanford student who is fully blind and a strong advocate for improved accessibility for the visually-impaired

## WE WERE AMAZED TO REALIZE...

How frustrating it is to interact with images and PDFs without captions or alt text because they are **virtually inaccessible**.

## IT WOULD BE GAME-CHANGING TO...

Empower visually-impaired users to interact with images in a more **reliable and authentic** way.



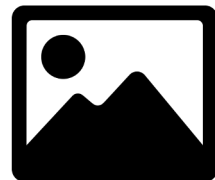
# Image Interaction

How might we...

Reduce the need for visually-impaired people to rely on others when interacting with images?

**One Solution:**

An extension which automatically prompts users to attach alt text to any images or PDFs (any visually inaccessible files) that they send or upload.



# Image Interaction

TESTER:

Isabelle C.



## Assumption:

People know what alt text is and how to write them for their images.

## Prototype:

Prompt that simulates attaching alt text to a personal social media post.



**Please provide alt text for the image above:**

My two female roommates and I are sitting and smiling on a couch wearing reindeer onesies (one orange, one brown, one pink), and holding Christmas presents on top of our heads (one plaid green, one pink hello kitty, one silver with snowflakes). Behind us is a solid beige wall with several strands of dangling fairy lights.

# Image Interaction

## SOLUTION:

Accessibility  
Reminder Extension

## Results:

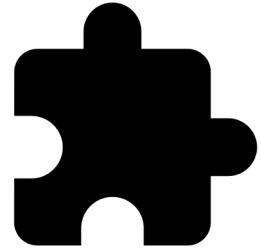
- ❑ Heard of alt text but **didn't know how** to write it
- ❑ Described **literal contents** of the photo rather than context or emotions
- ❑ “It was difficult to figure out what I should describe since the image is already very obvious to me.”

## Validity:

- ❑ Writing alt text can feel challenging and unfamiliar if you've never done it before

# Potential Best Solution?

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## Alt Text Reminder Extension

- ▣ Make interacting with images more accessible
- ▣ Facilitate digital social rapport and online inclusion
- ▣ Normalize alt text and raise awareness about accessibility needs

The issue isn't a person's disability, but rather how technology is designed in a way that isn't accessible to them

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# Summary

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- ▣ Accessibility Needs for Fully Blind  $\neq$   
Accessibility Needs for Low Vision
- ▣ Desire for Improved Accessible Technologies =  
Desire for Independence and Autonomy
- ▣ Improved Accessibility  $\rightarrow$  Stronger Social Bonds
- ▣ Education  $\rightarrow$  Awareness  $\rightarrow$  Solving of Accessibility Issues

Thank You!