

LoudProof

Monique Mahony - User research and testing

Tariq Amireh - Documentation and planning

Sungmin Rhee - Paper and digital prototypes

Steven Miller - Revisions and formatting

Problem

Most adults with ASD have difficulty with traveling due to auditory hypersensitivity.





Goal

Enable comfortable travel for people with ASD and auditory sensitivities.

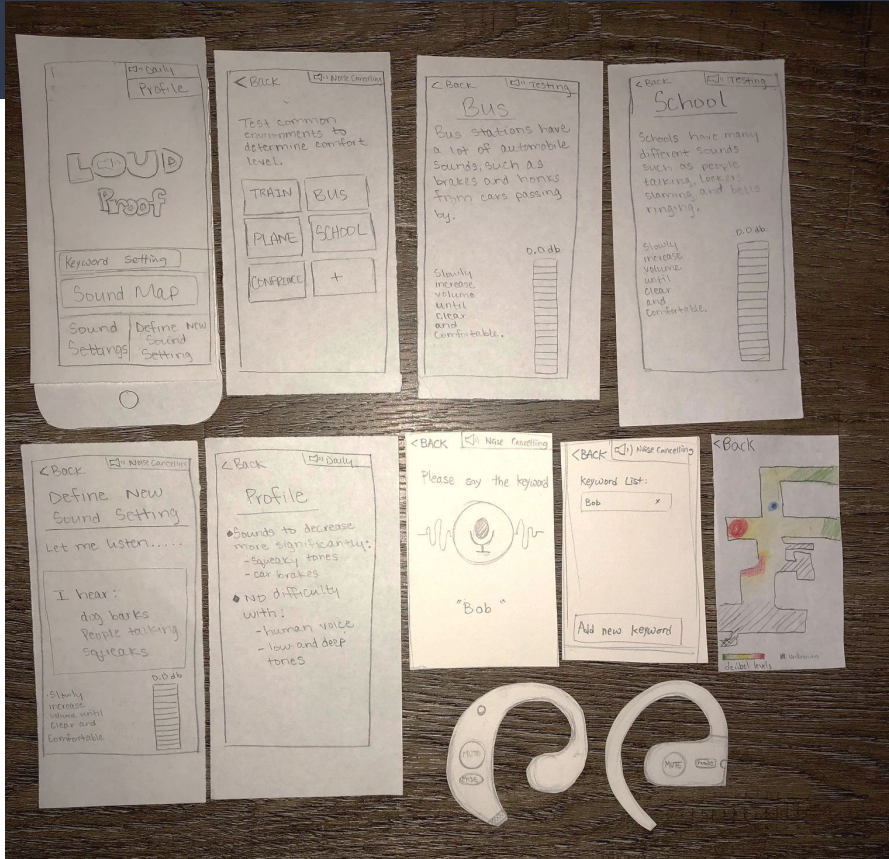
Task 1

Reduce and filter surrounding sound volume

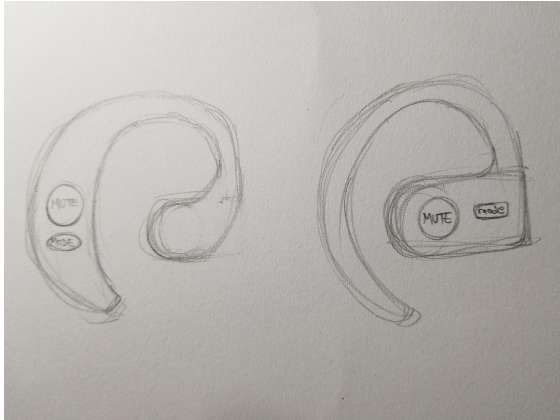
Task 2

Enable 2-way communication with travel attendants

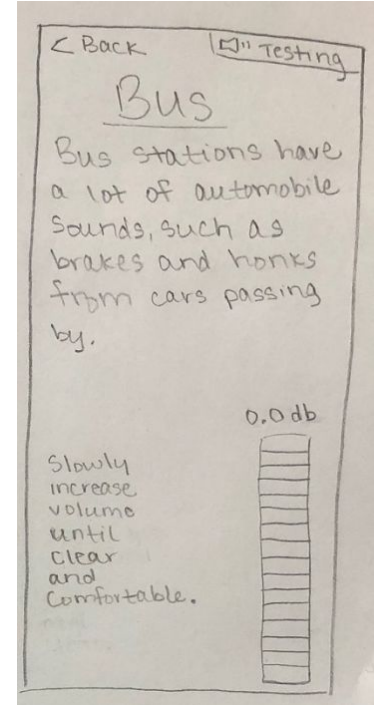
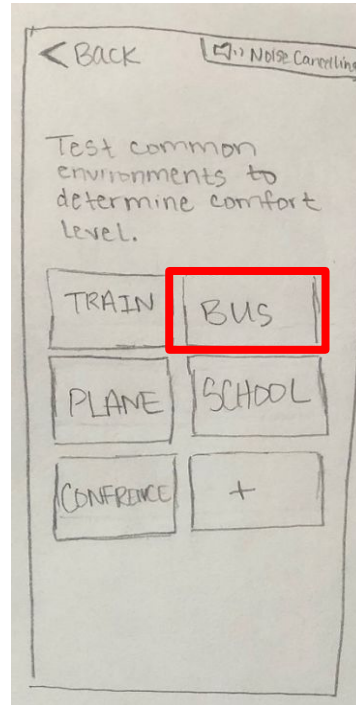
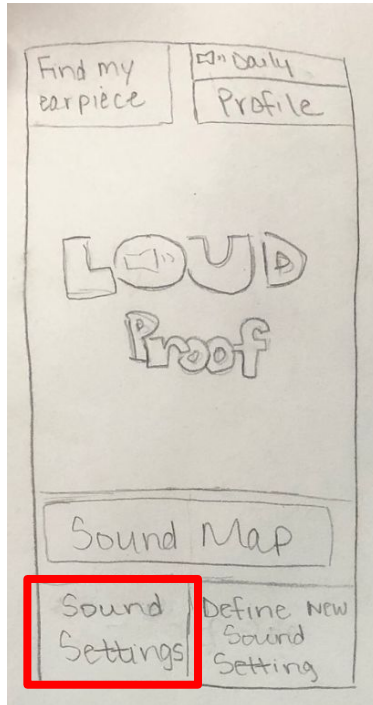
Initial Paper Prototype



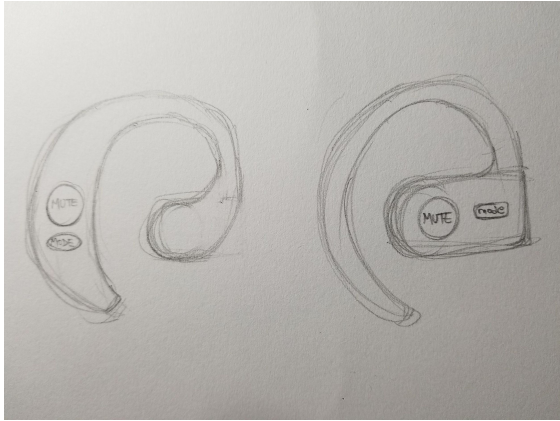
Task 1: Reduce and Filter Surrounding Volume



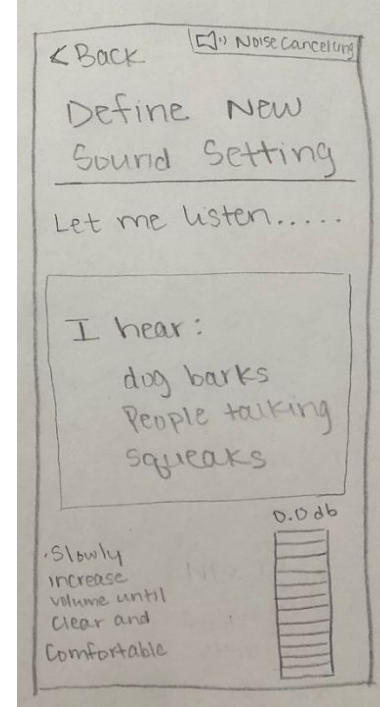
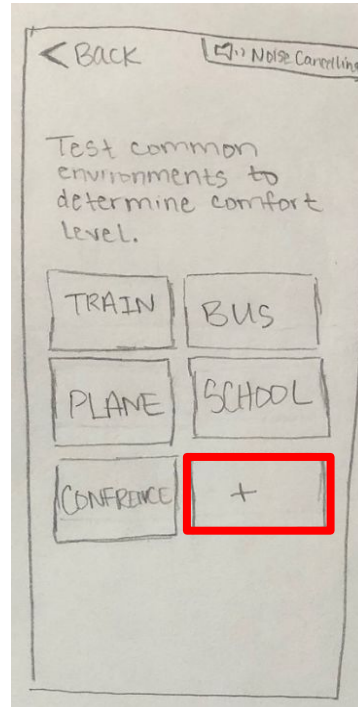
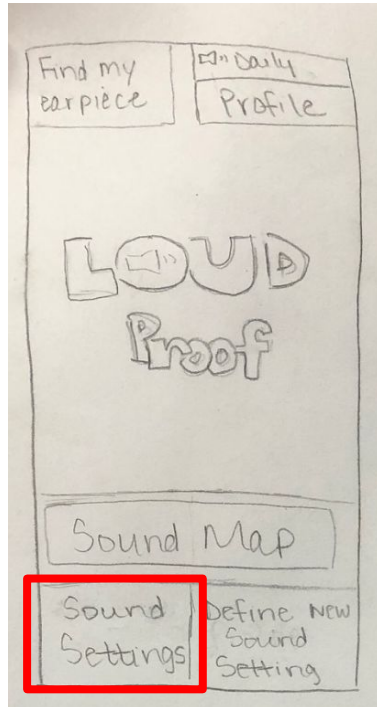
1a: Creating “Sound Modes”



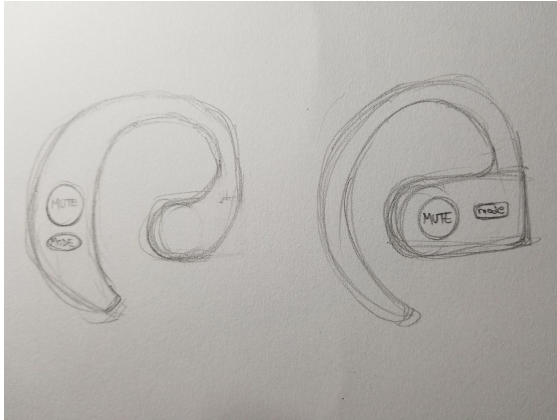
Task 1: Reduce and Filter Surrounding Volume



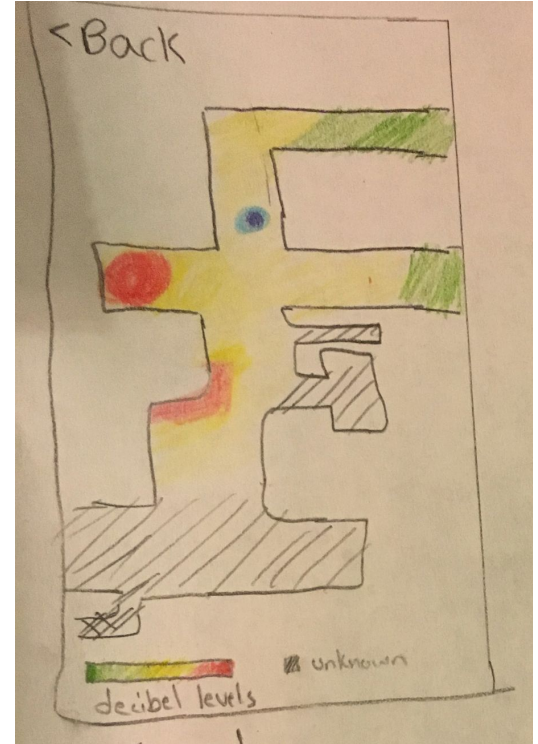
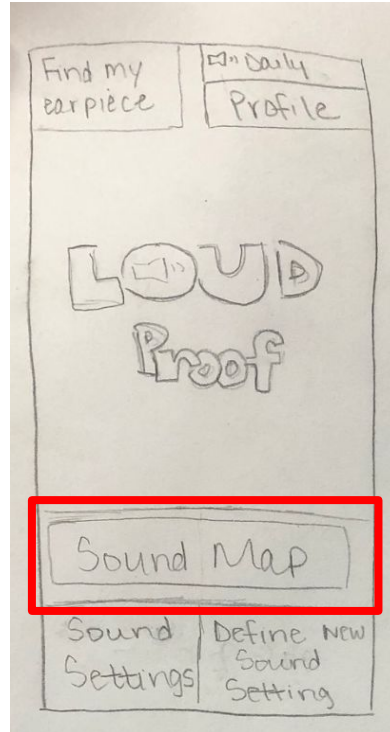
1a: Creating “Sound Modes”



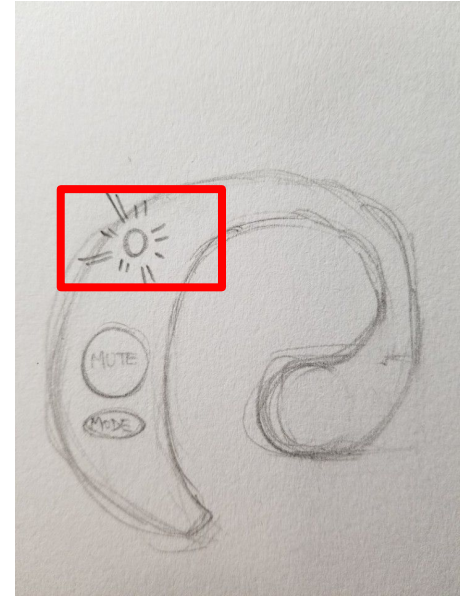
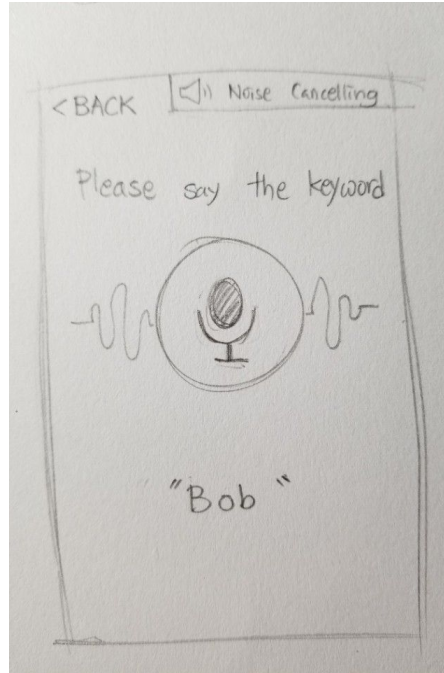
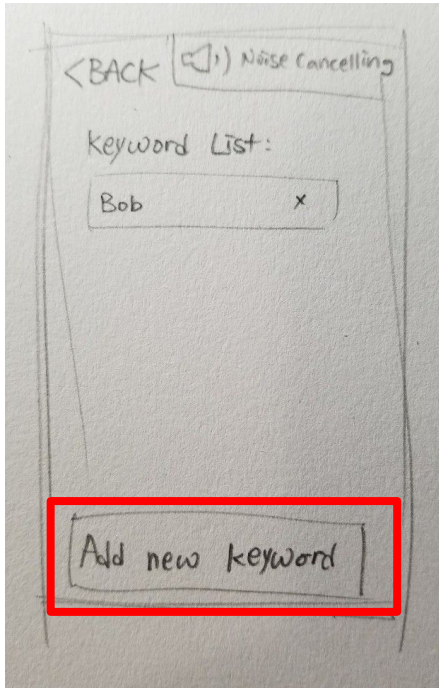
Task 1: Reduce and Filter Surrounding Volume



1b: Viewing “Sound Map”



Task 2: Enable 2-way Communication with Travel Attendants



2: Keyword detection

Testing Process

3 Participants

- 2 of 3 experienced some annoyance or sensitivity to audio

Subtasks

- Add keywords
- Create and edit sound modes
- Cycle through sound modes

Revision 1

< Back

Define New
Sound Setting

Let me listen.....

I hear:
dog barks
People talking
squeaks

Slowly
increase
volume until
Clear and
Comfortable

< Back

Creating New
Sound Mode

Listening...

20.0 db

Use volume
buttons on
Phone to
Slowly
increase
volume until
Clear and
Comfortable.

save

User believed that they could set caps on individual noises (false affordance)

Excessive text and classification of noises was what indicated this

Revision 2

No volume control affordance on physical hearing aid device

After much discussion we decided to add a volume wheel to device



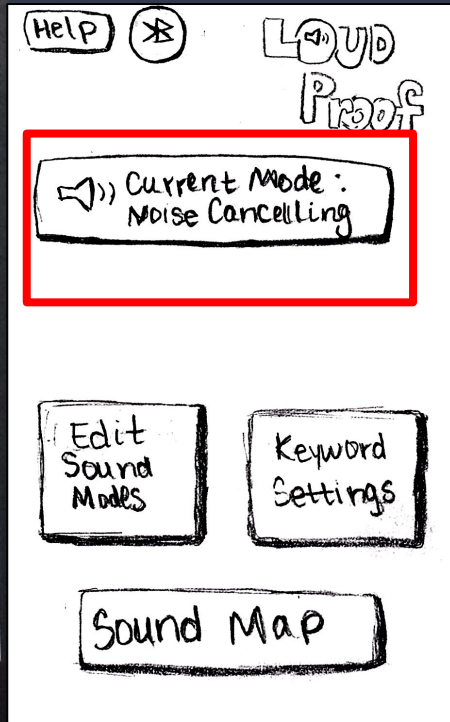
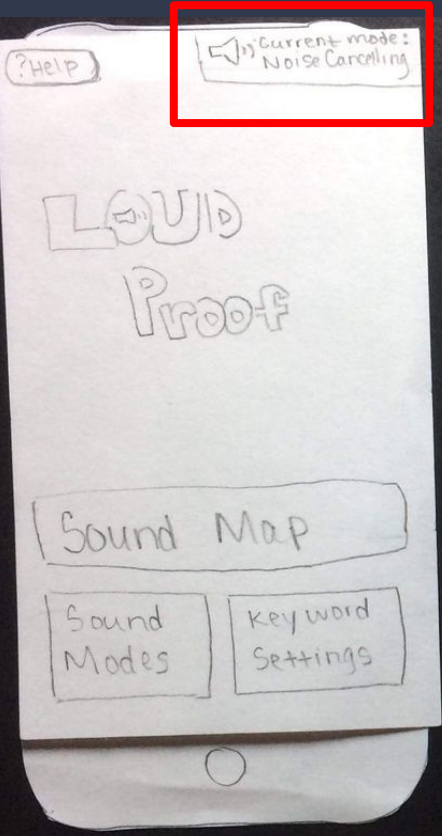
Revision 3



Visibility of current mode was unavailable on some screens

Use unused space in upper right corner to display current mode

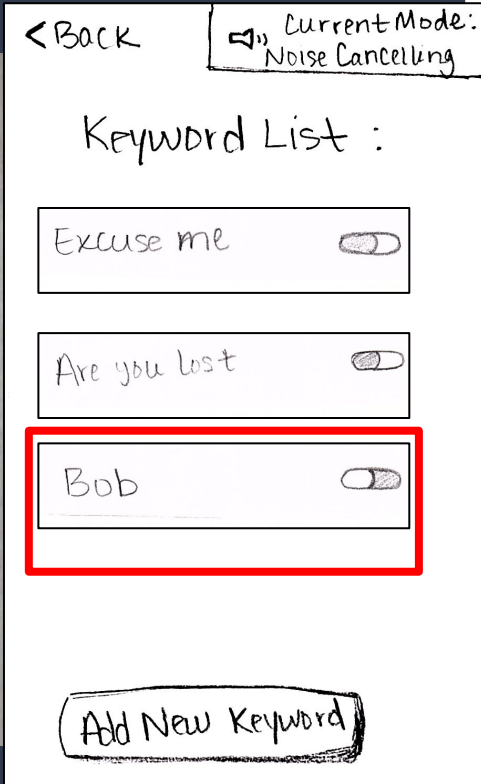
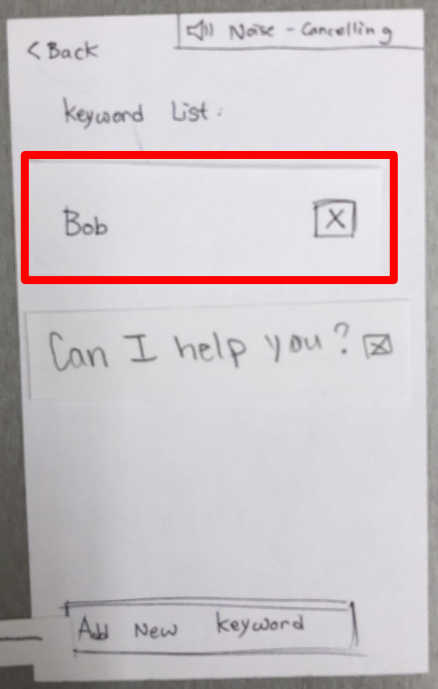
Revision 4



The main screen should display the current mode more obviously

Made use of unused space on the main screen to display current mode more clearly

Revision 5



No clarity on whether keywords were universal or mode specific

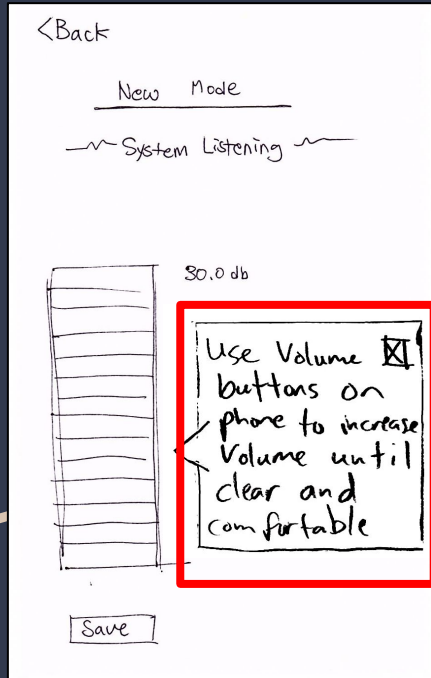
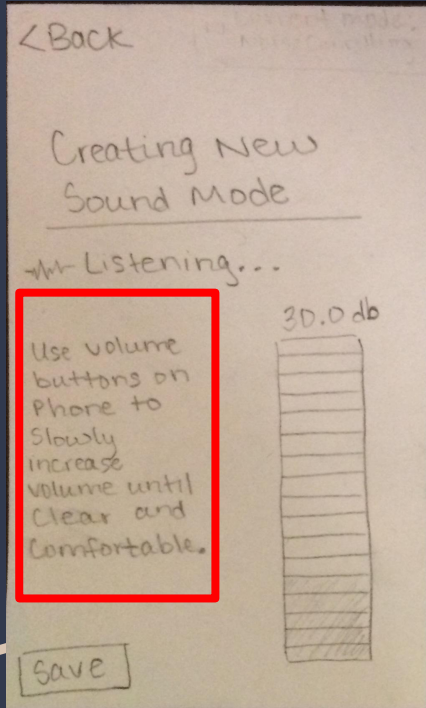
Made use of an IOS standard and used enabling and disabling of keywords instead of mode-specific or always on keywords



Revision 6

Excessive amounts of instructional text made the interface cluttered

Used tooltips as a fluid solution



Final Paper Prototype

HELP ⓘ **LOUD PROOF**

← Current Mode: Noise Cancelling

Edit Sound Modes Keyword Settings

Sound Map

⚠ ⓘ
Currently not paired with any device.
Pair now

Hold power button on device to pair.

Sync failed.
Try again now
Try again later

Record new mode from current environment

Choose from preset list of sound modes

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About LoudProof

LoudProof is a product of the Press with ASD - Action Spectrum Initiative and Accessibility Australia

Features:

- Sound Map
- Keyword Recognition
- Preset Modes
- Full Noise Cancellation

Select to Change mode. ⓘ

- Train
- Bus
- Plane
- School
- Dolly
- Noise Cancelling

Select to Change mode. ⓘ

- Train
- Bus
- Plane
- School
- Dolly
- Noise Cancelling



Please wait...

<Back

Bus

Chosen bus sounds include vehicle beeps, people talking, fast shuffling, etc. PA systems reading next stop.

00:00

Save Replay

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My MODES

Adjust different sound modes to determine comfort level.

TRAIN 30db	BUS 30db
PLANE	SCHOOL
BOAT	Dog barks
+	

<Back

New Mode

System Listening

50:00

Save

Use Volume ⓧ buttons on phone to increase volume until clear and comfortable

<Back

Choose from Presets

- Subway
- Nursery
- Trolley
- Cruise Boat
- Party
- Bus
- School

<Back

Keyword List:

Excuse me

Add New Keyword

<Back

Press and hold the button to record.

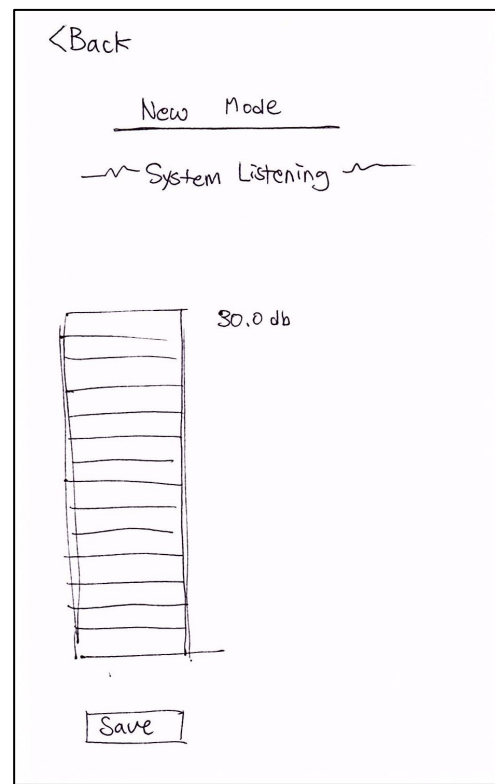
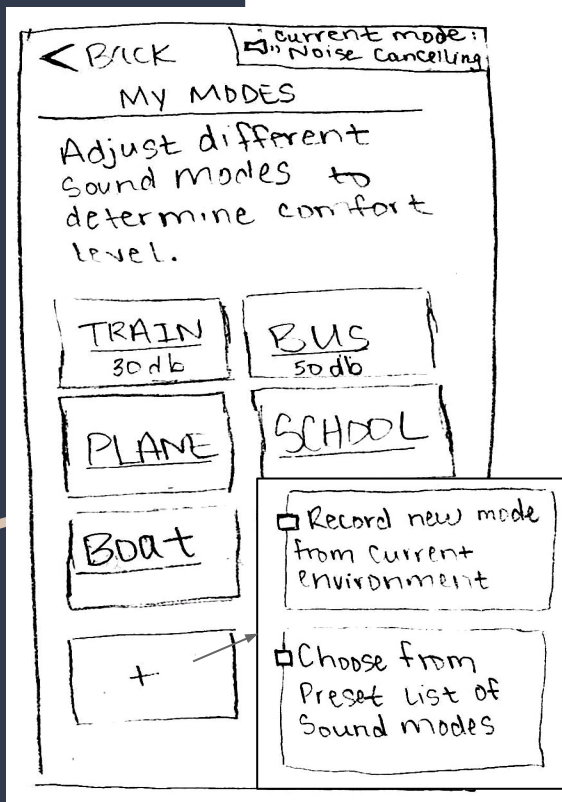
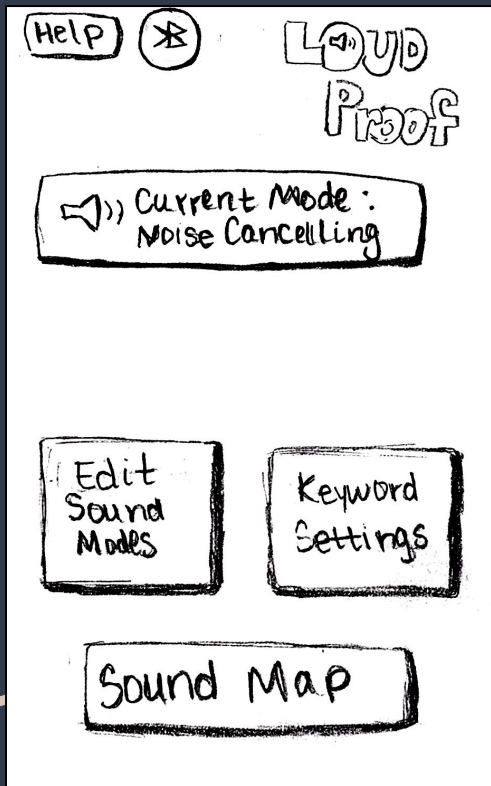
or

Type in your Keyword:

Save

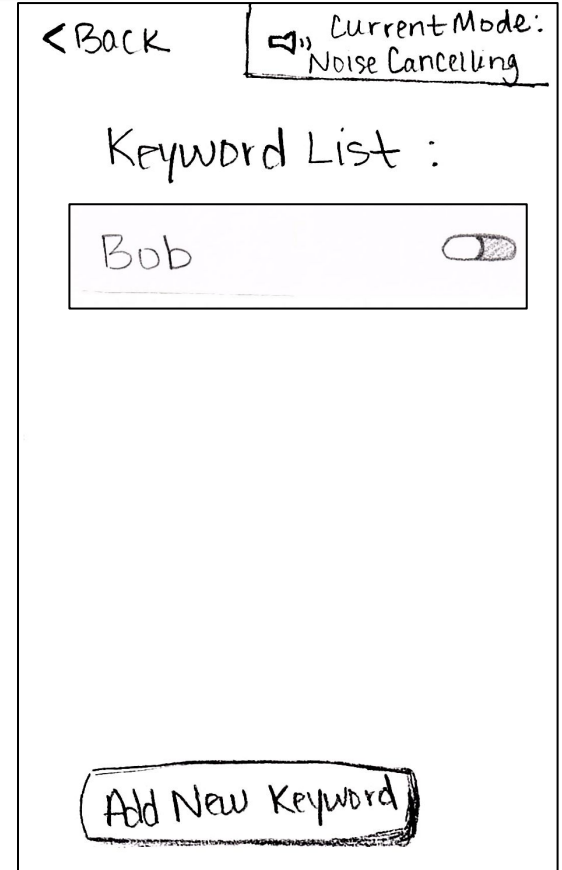
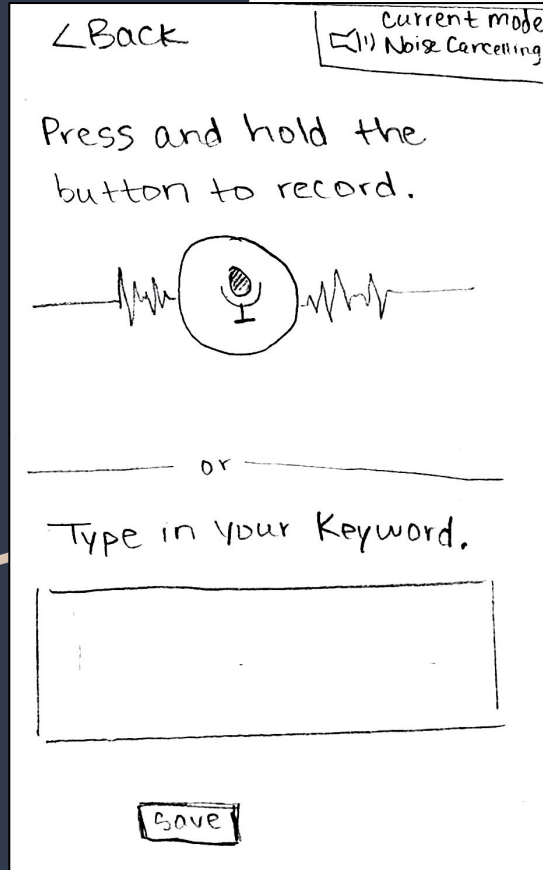
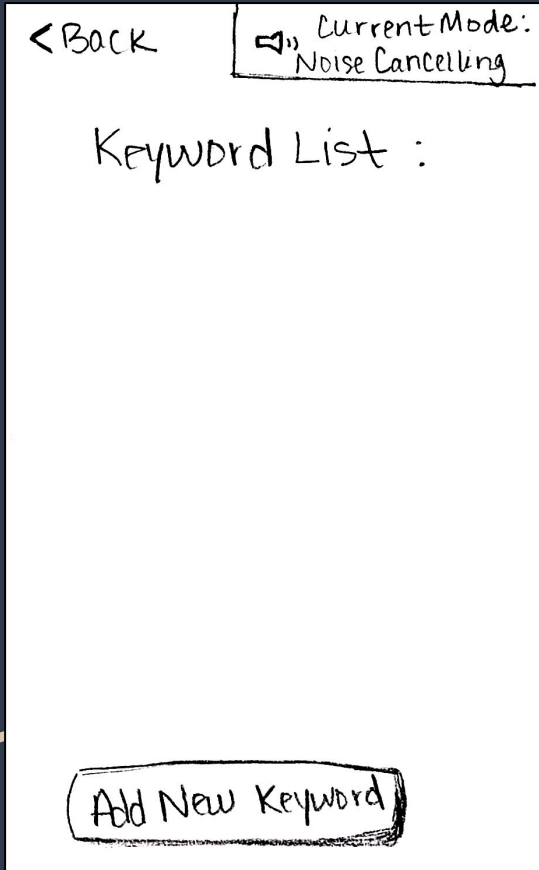
Final Paper Prototype

Task 1: Reduce Sound



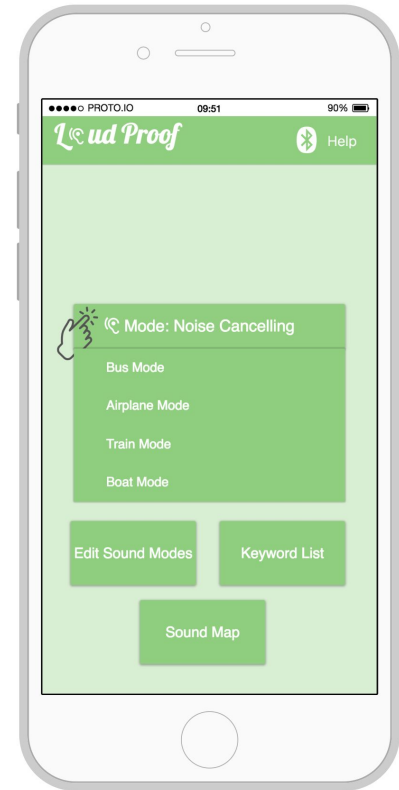
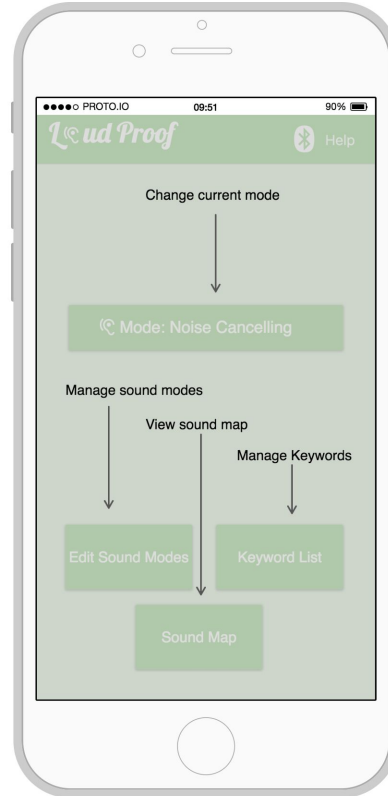
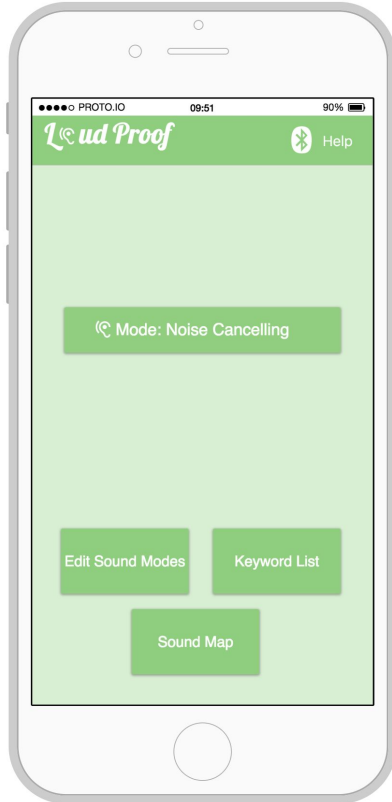
Final Paper Prototype

Task 2: Enable Communication



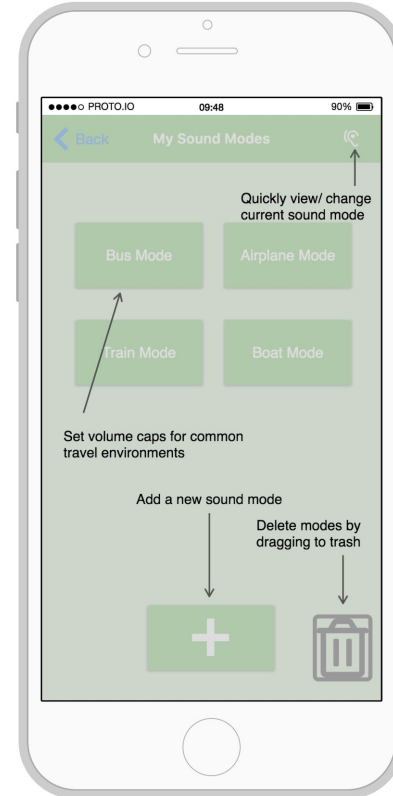
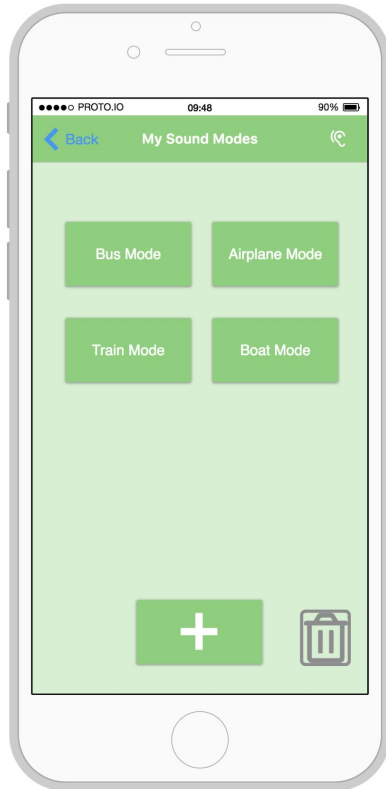
Digital Mockup

Task 1: Reduce Sound



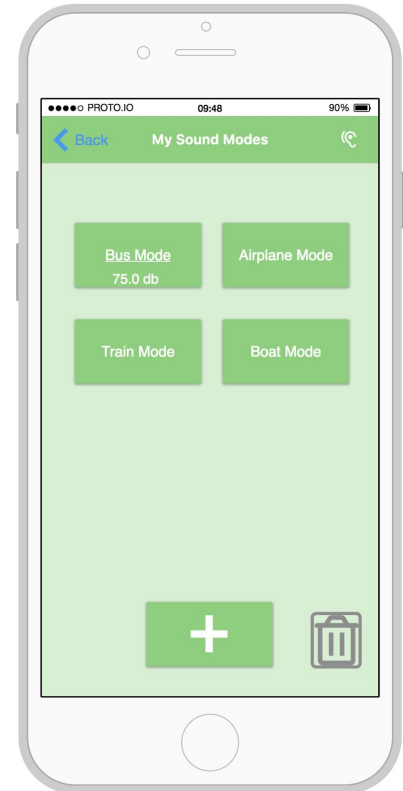
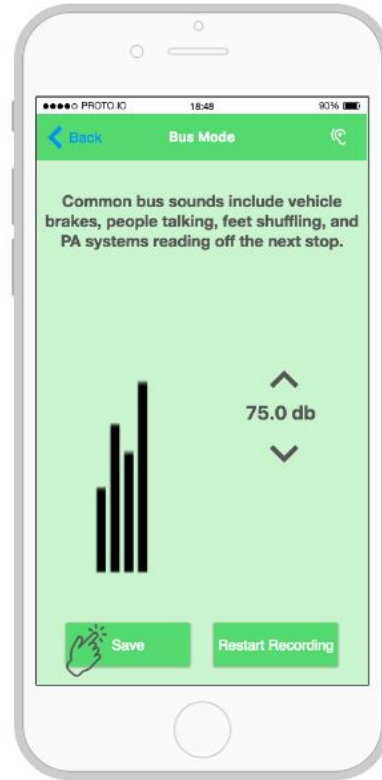
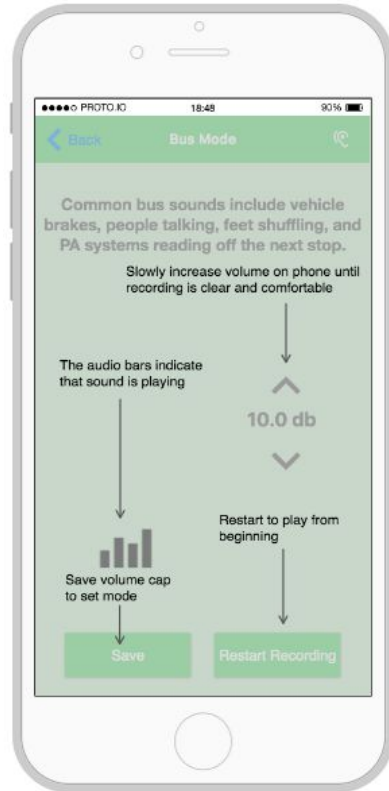
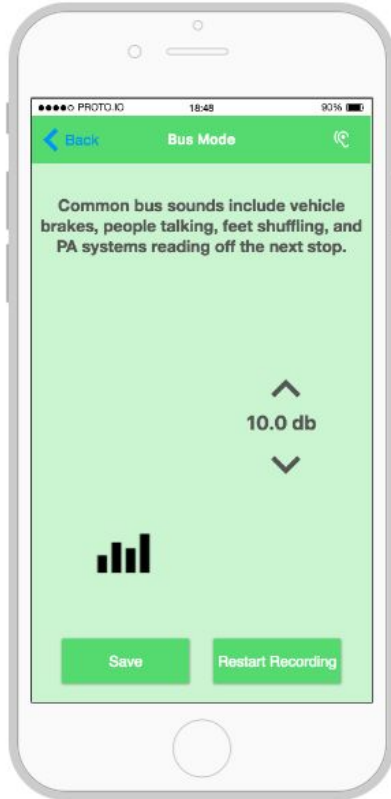
Digital Mockup

Task 1: Reduce Sound



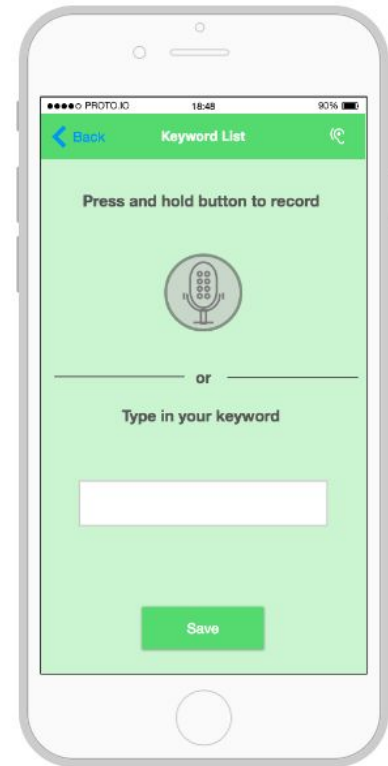
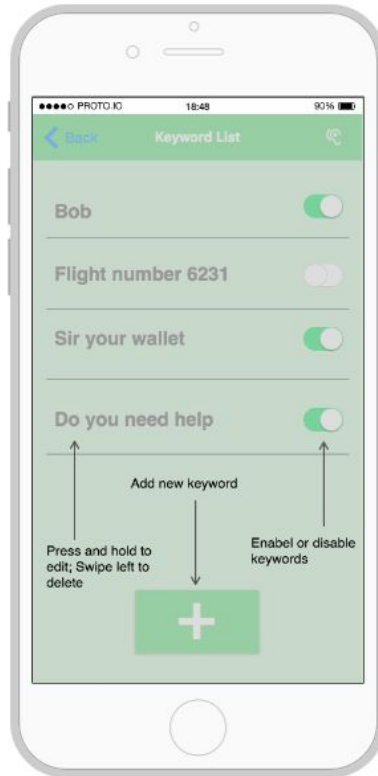
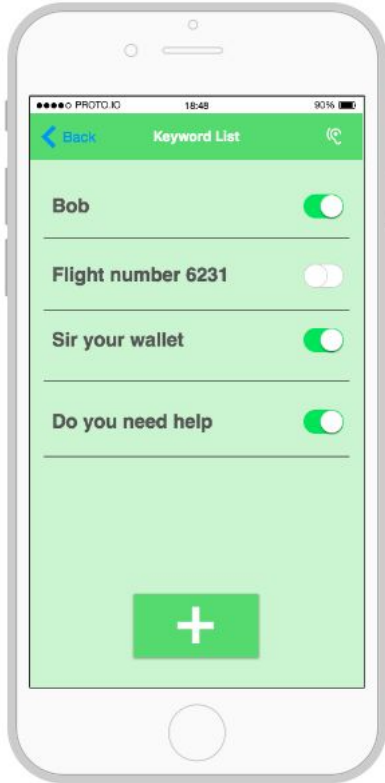
Digital Mockup

Task 1: Reduce Sound



Digital Mockup

Task 2: Enable Communication



Physical Prototype



Summary and Takeaways

- Balancing learning curve and feature richness
- Usability testing should be semi-scripted
- Tasks are always shifting
- Everything is contextualized

Questions?