



Monique Mahony - User research and testing

Tariq Amireh - Documentation and planning

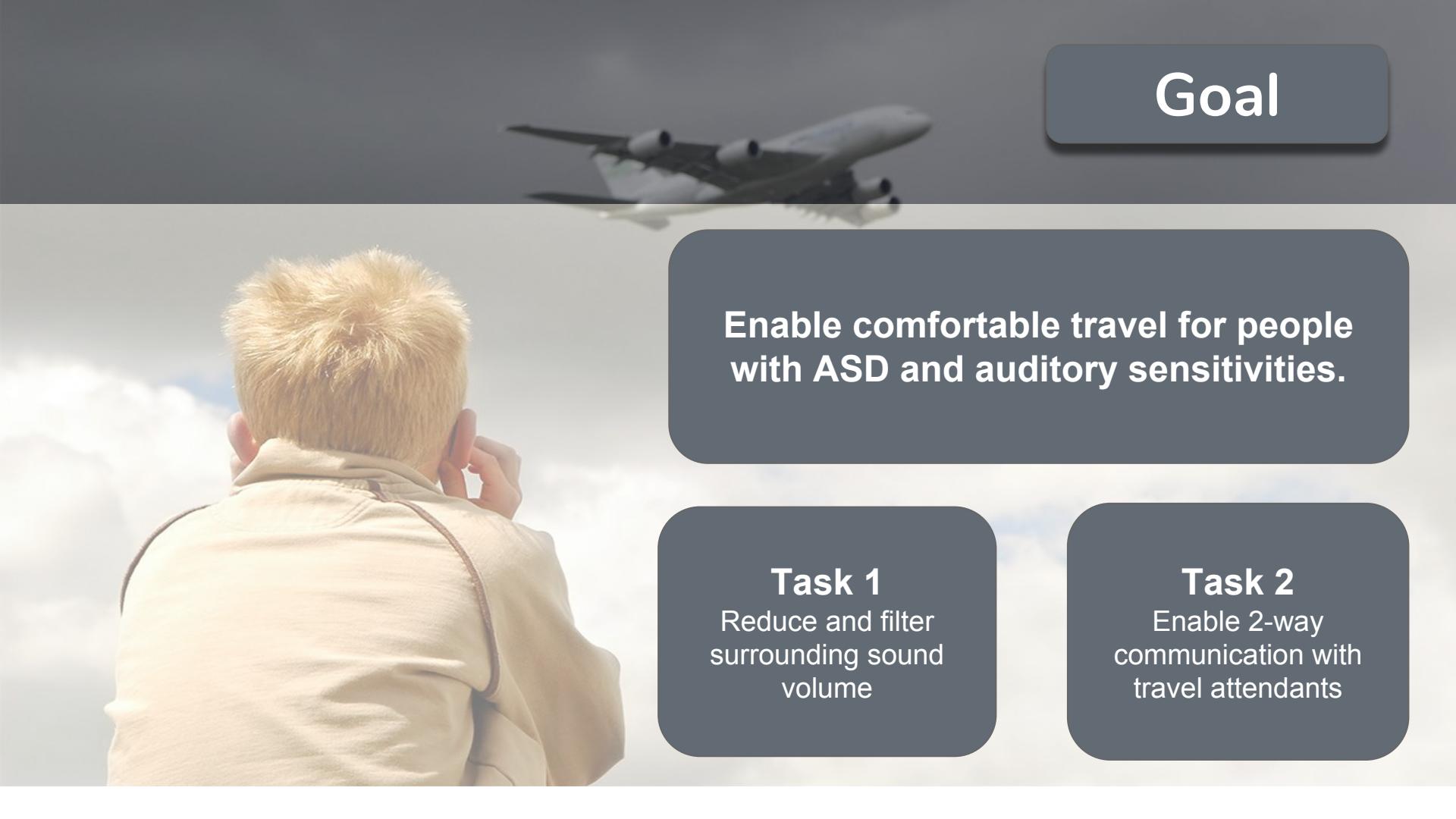
Sungmin Rhee - Paper and digital prototypes

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

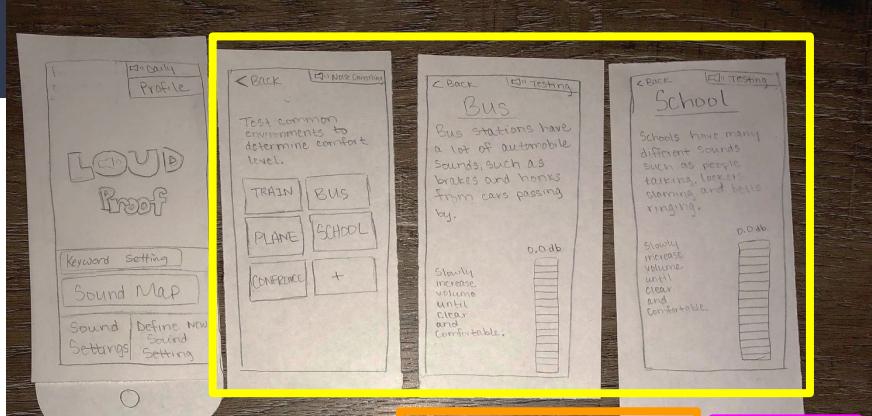
Reduce and filter surrounding sound volume

Task 2

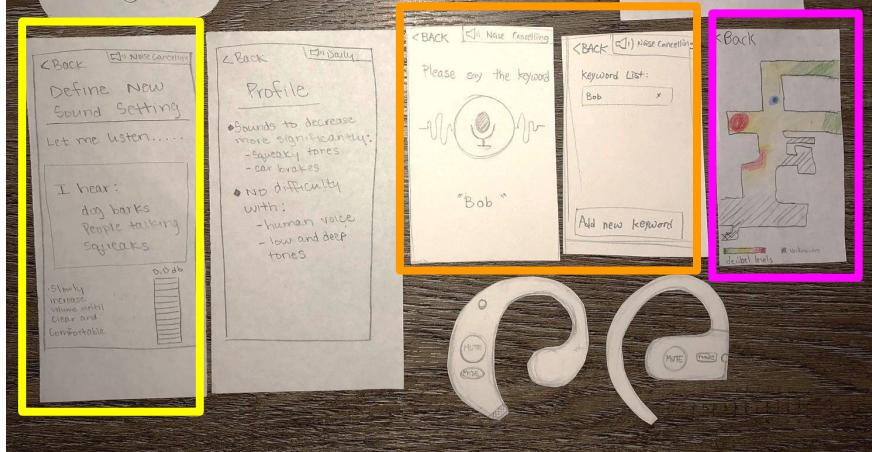
Enable 2-way communication with travel attendants

Initial Paper Prototype

Feature: Creating Sound Modes to set comfortable sound caps



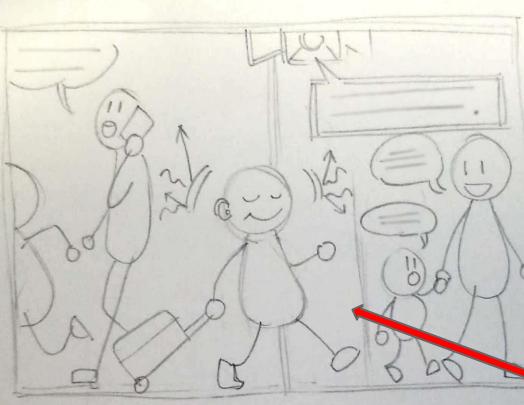
Feature: Creating keywords that will get detected by device



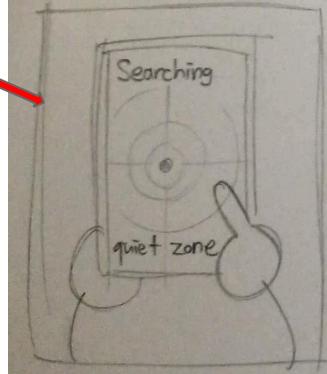
Feature: Access to a Sound Map that scans audio field

Task 1: Reduce and Filter Surrounding Volume

Should be
Airport Mode



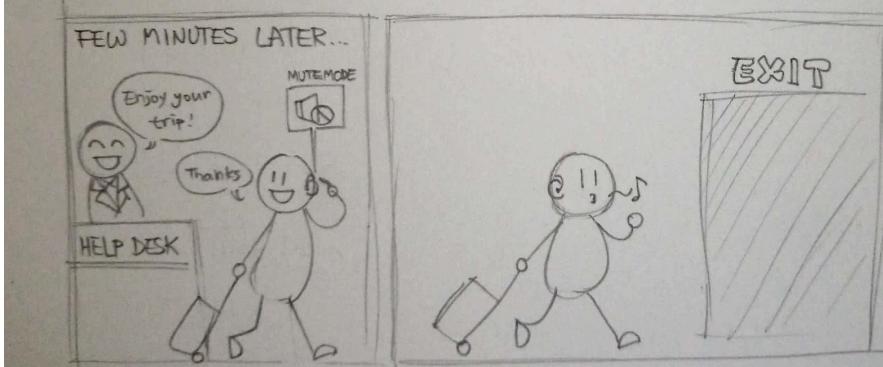
Entering
Sound Map



Able to choose
between
comfortable
listening or sound
blocking via the
device or the app

Task 2: Enable 2-way Communication with Travel Attendants

Initiating conversation:
Going from noise cancelling to a sound mode via the device.



Receiving conversation:
The device detects keywords preset by the user in the app. An example of one could be "How may I help you."

Testing Process

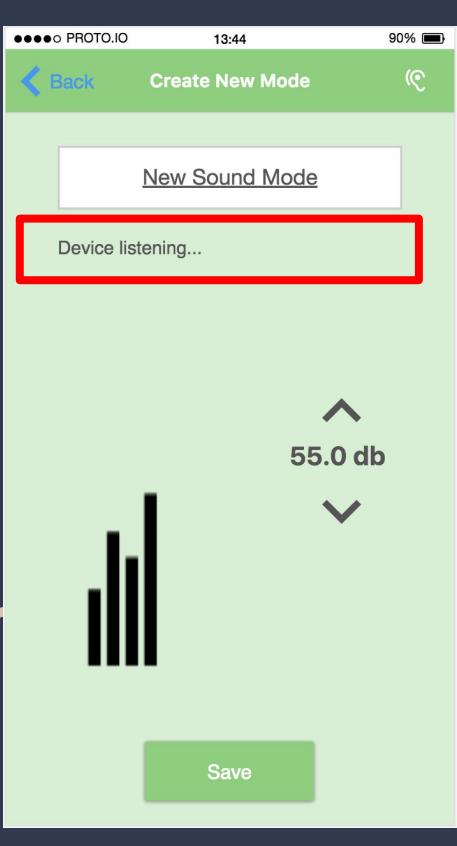
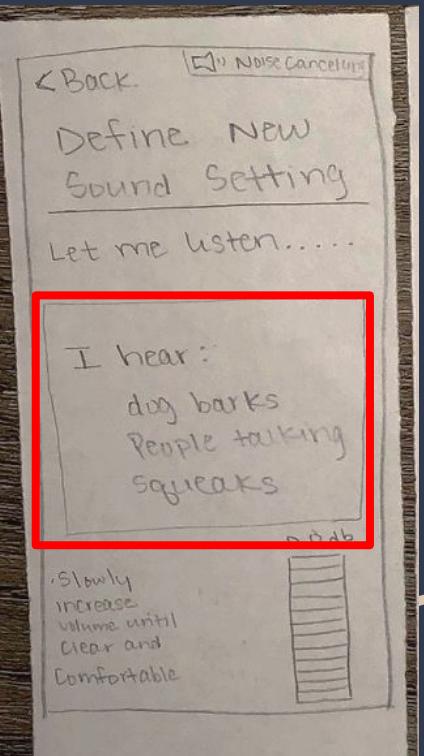
3 Participants

- 2 of 3 experienced some annoyance or sensitivity to audio

Subtasks

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

Revision 1



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

Excessive text and classification of noises was what indicated this

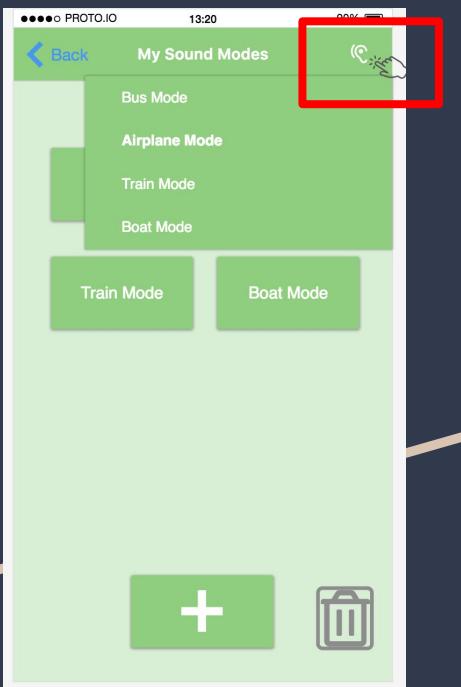
Revision 2

No volume control affordance on physical hearing aid device

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



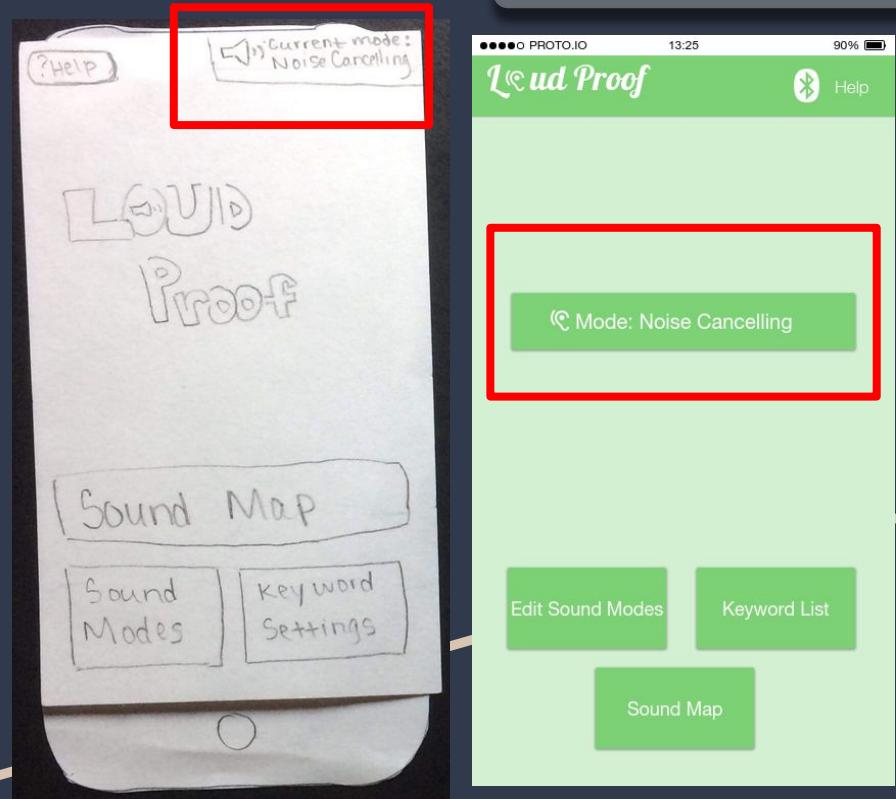
Revision 3



Visibility of current mode was unavailable on some screens

Use unused space in upper right corner to display current mode

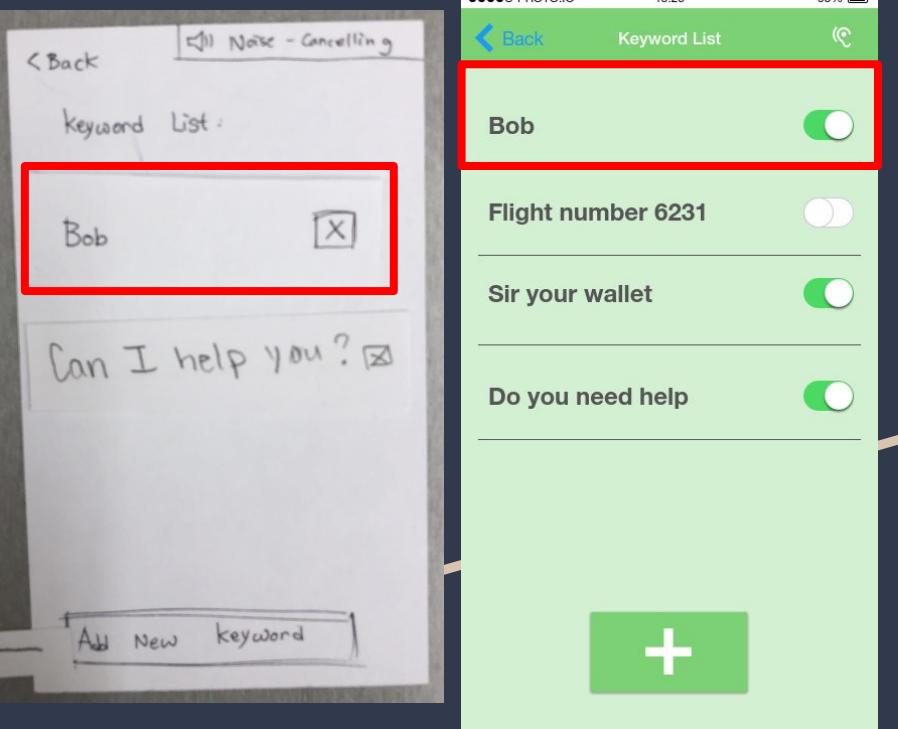
Revision 4



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

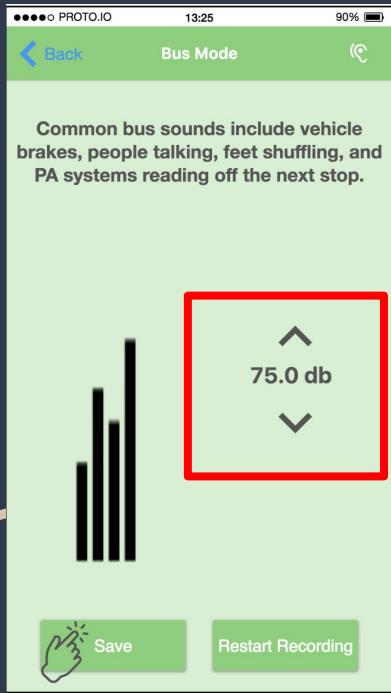
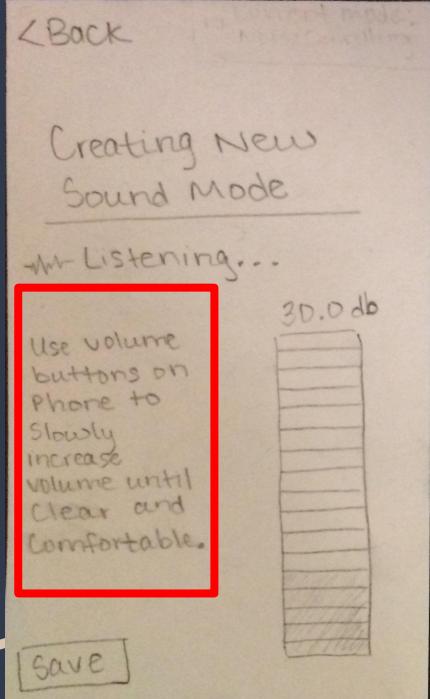
Revision 5



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

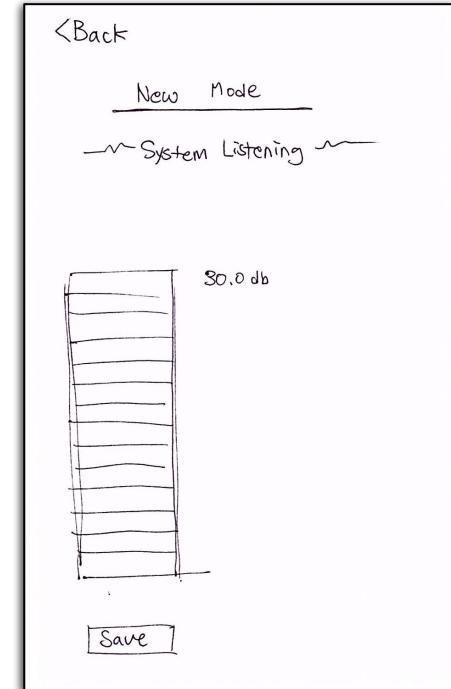
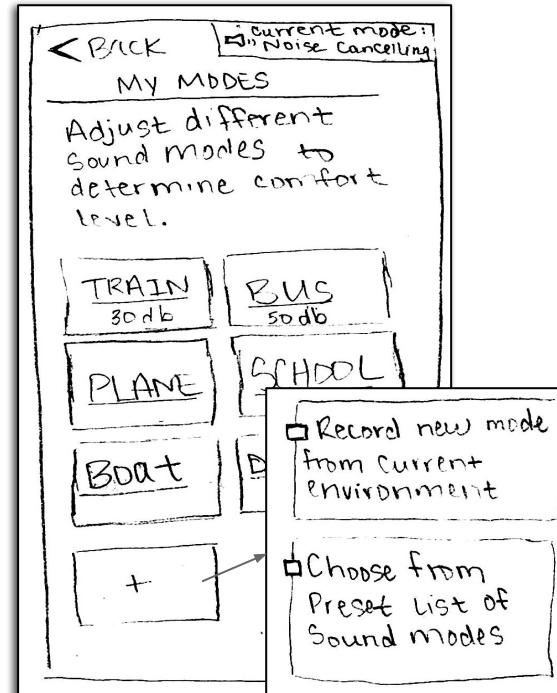
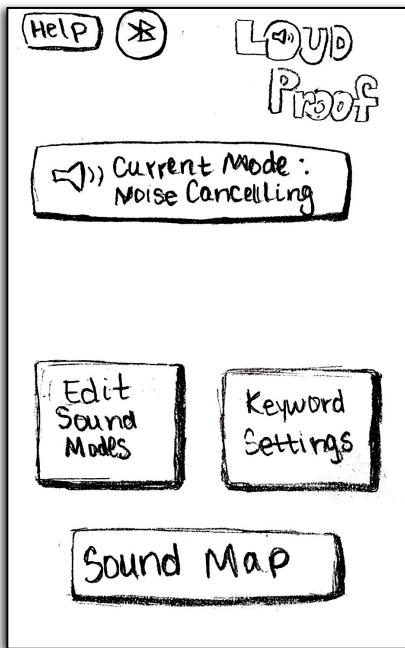


Excessive amounts of instructional text made the interface cluttered

Used tooltips as a fluid solution

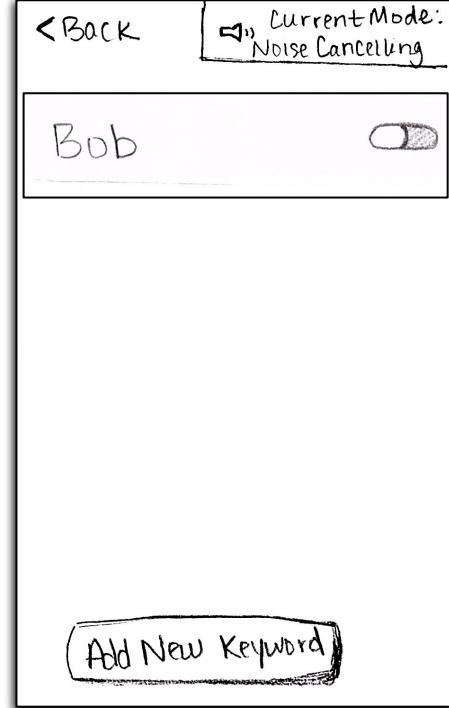
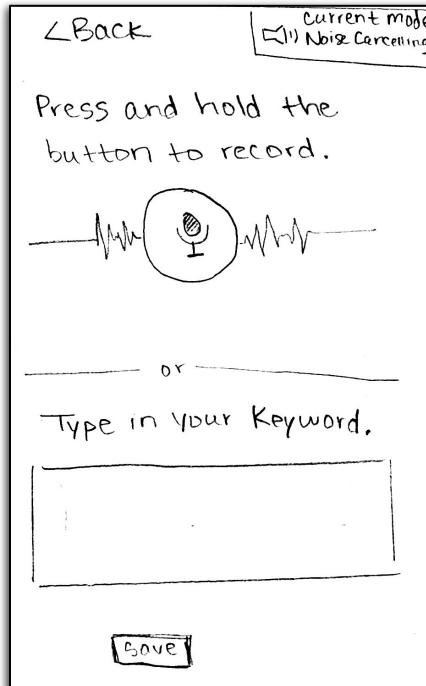
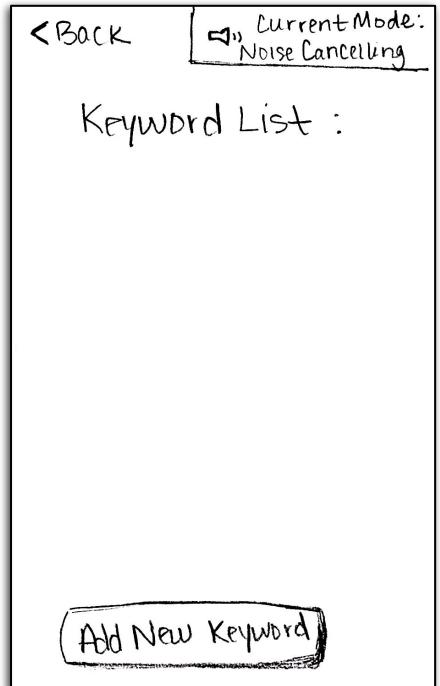
Final Paper Prototype

Task 1: Filter and Reduce Sound



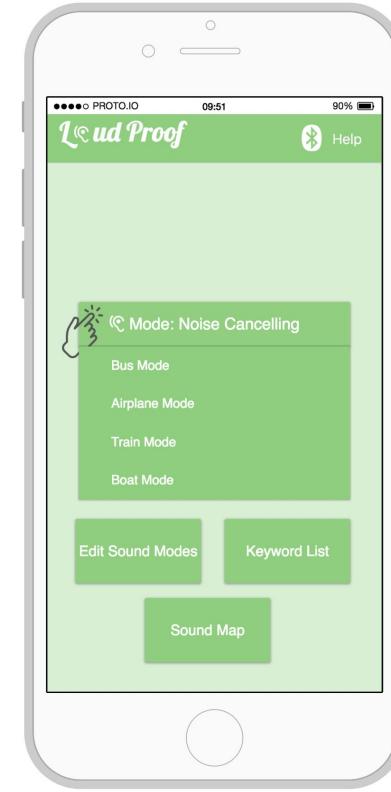
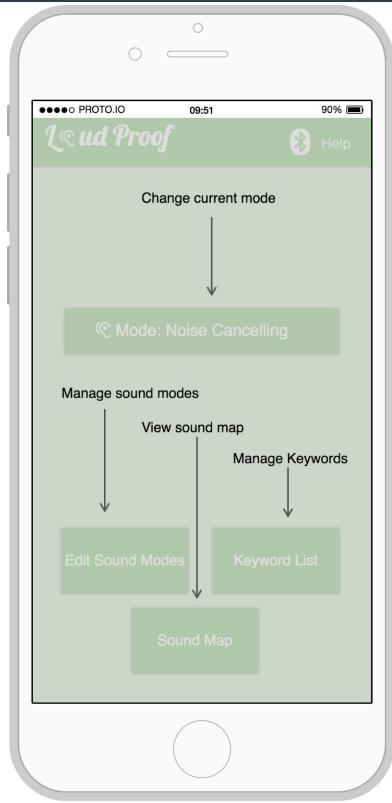
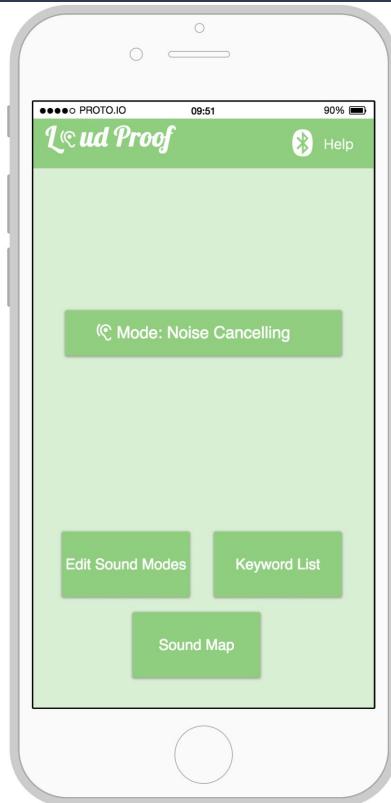
Final Paper Prototype

Task 2: Enable Communication



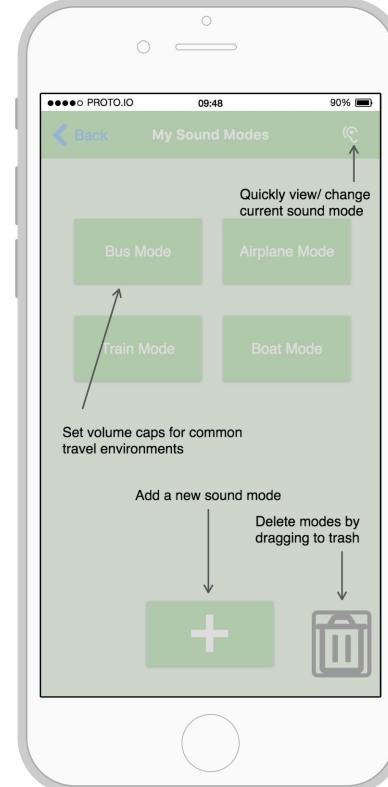
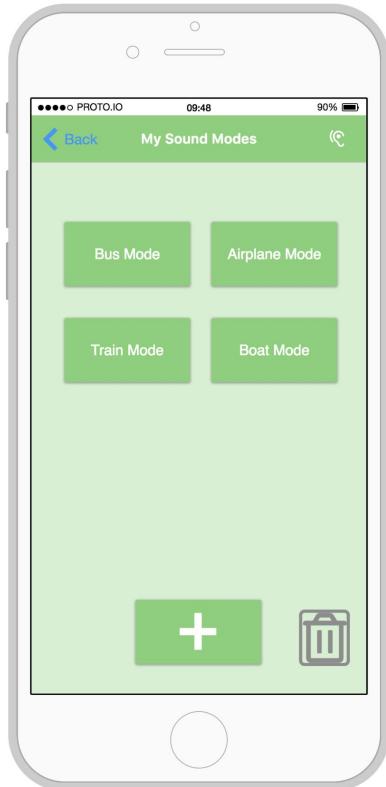
Digital Mockup

Task 1: Reduce Sound



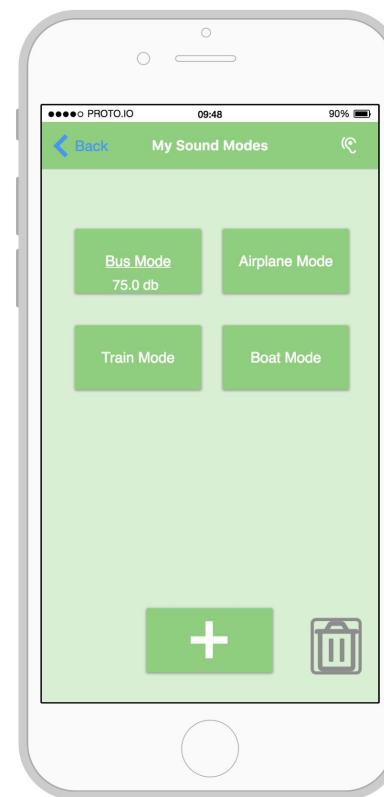
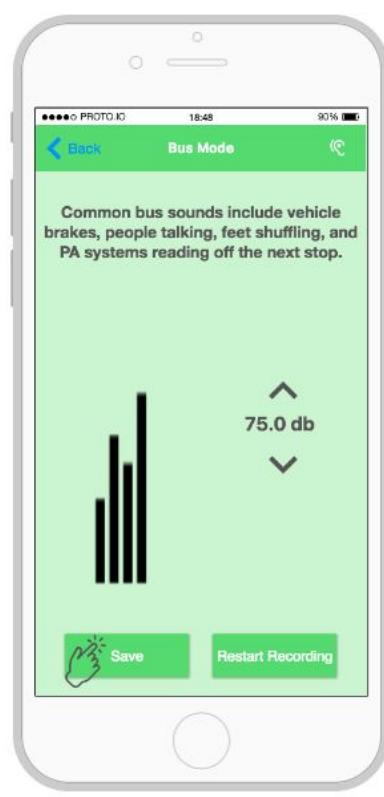
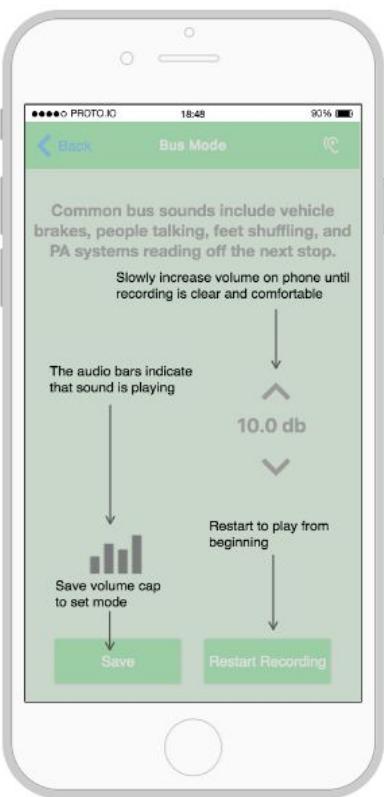
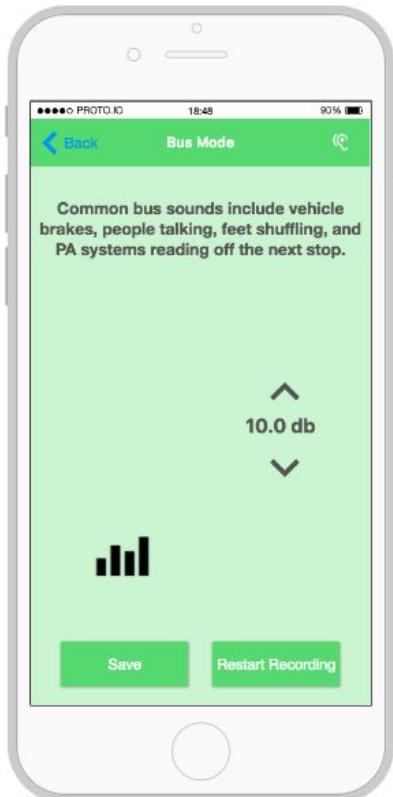
Digital Mockup

Task 1: Reduce Sound



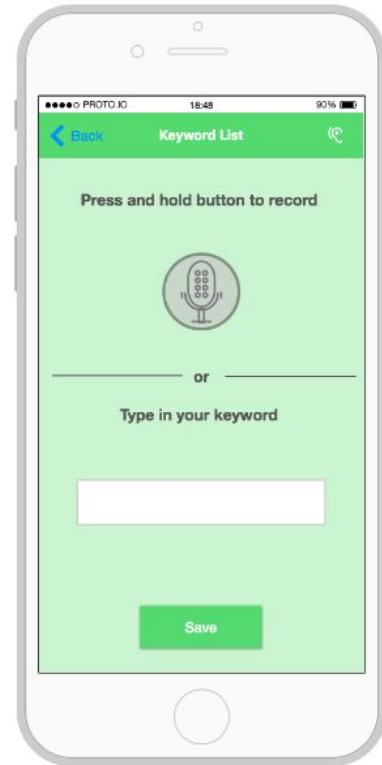
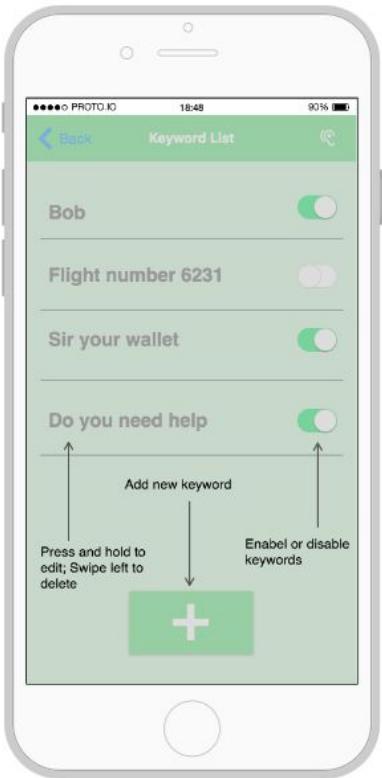
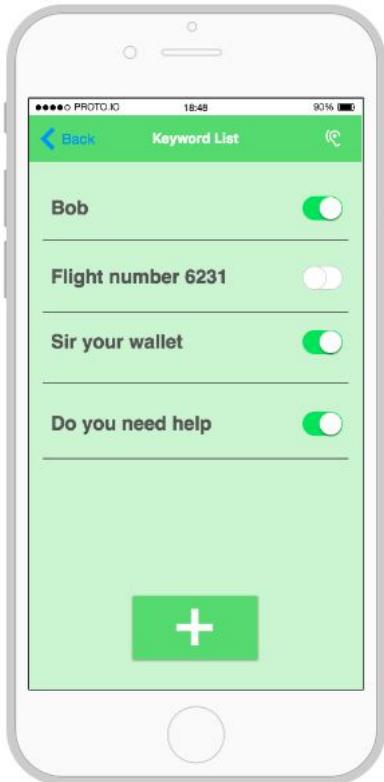
Digital Mockup

Task 1: Reduce Sound



Digital Mockup

Task 2: Enable Communication



Summary and Takeaways

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

Questions?