

# LoudProof

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# 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

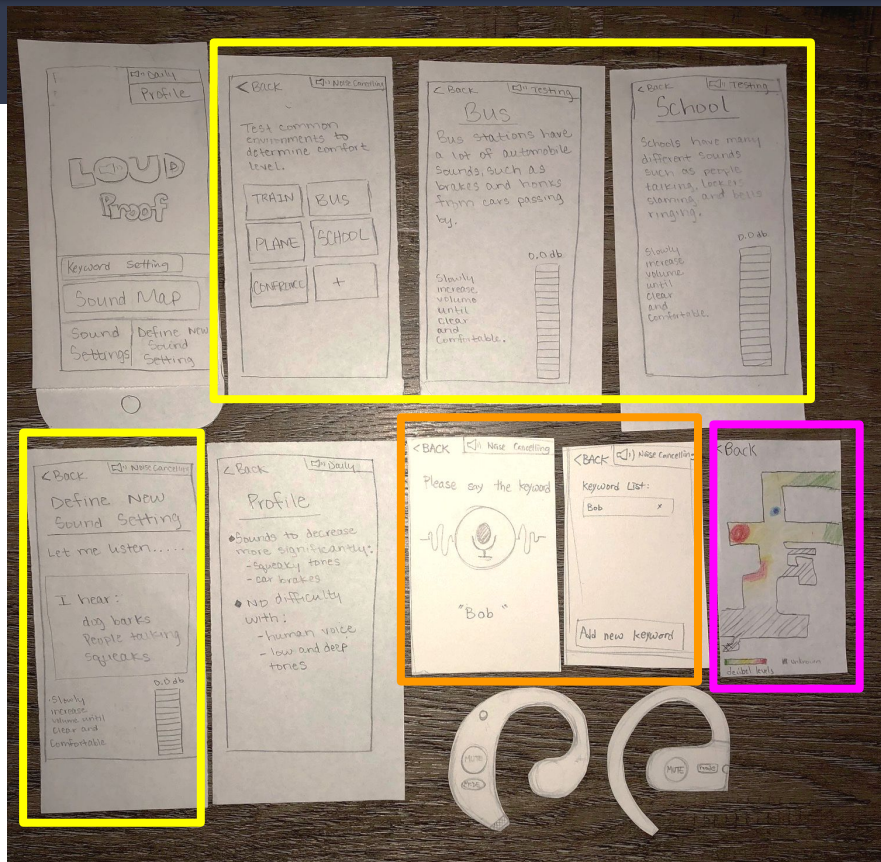
## **Task 2**

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

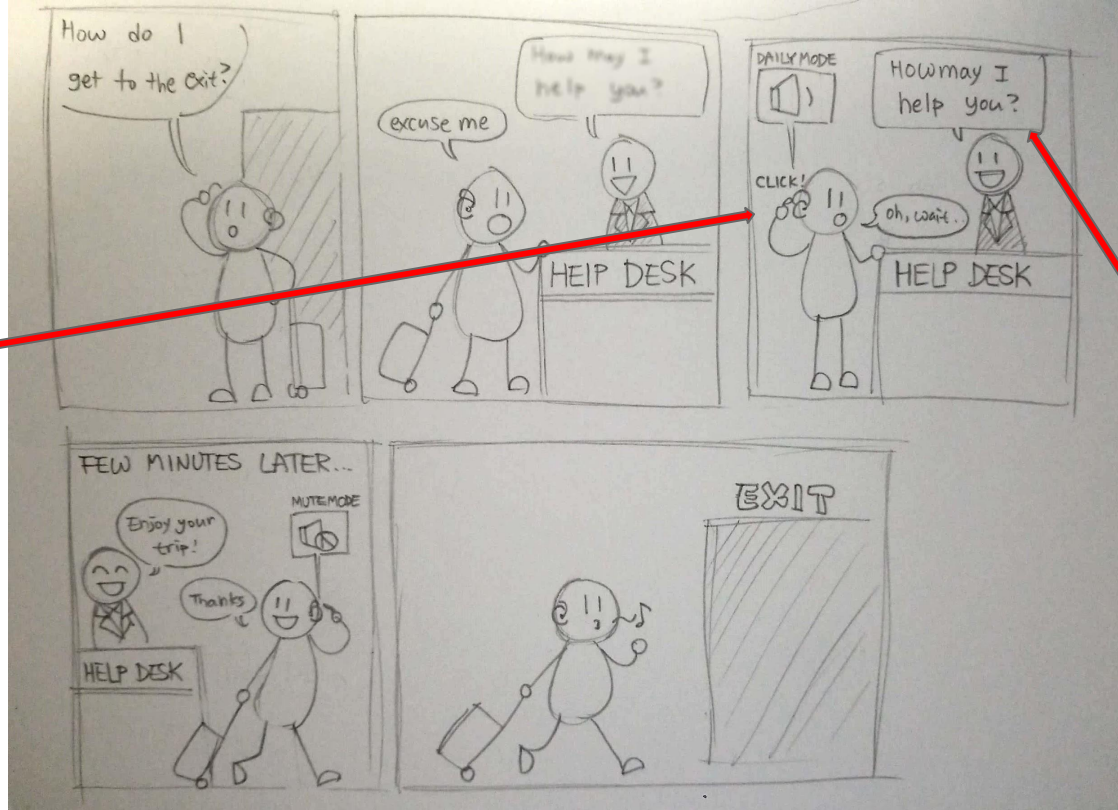
Should be  
Airport Mode

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

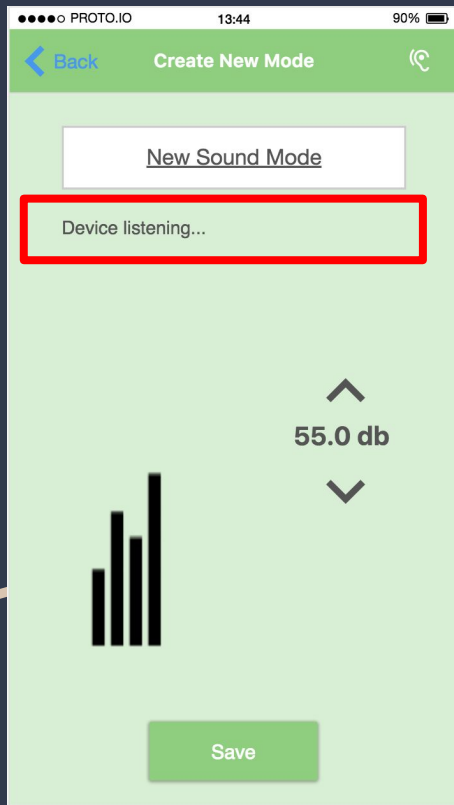
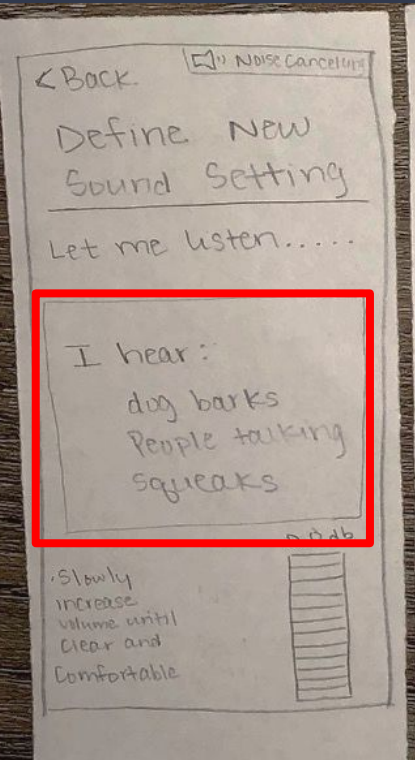
## 3 Participants

- 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



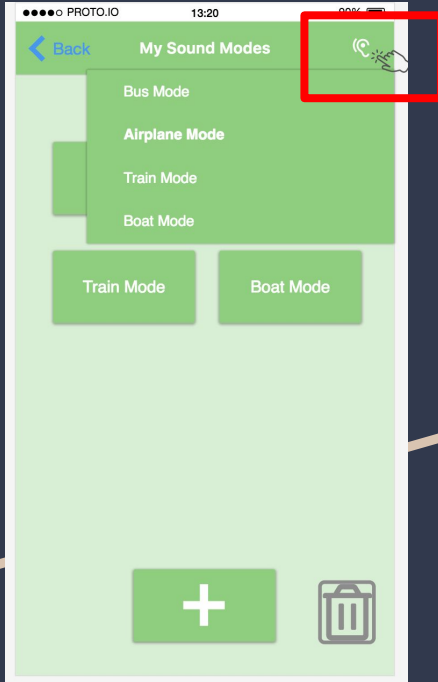
## Revision 2

No volume control affordance on physical hearing aid device

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



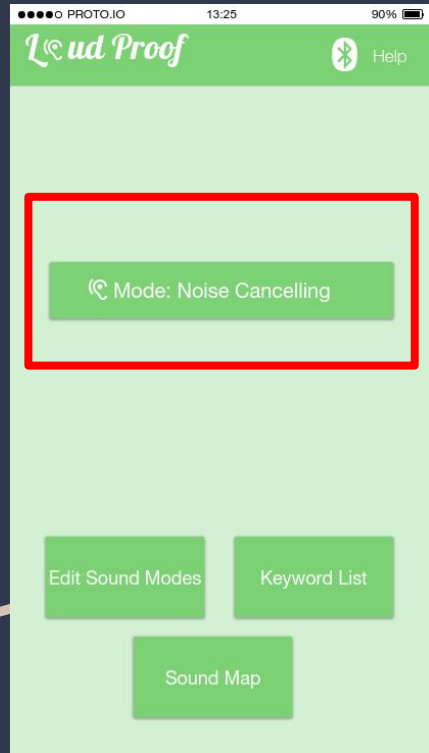
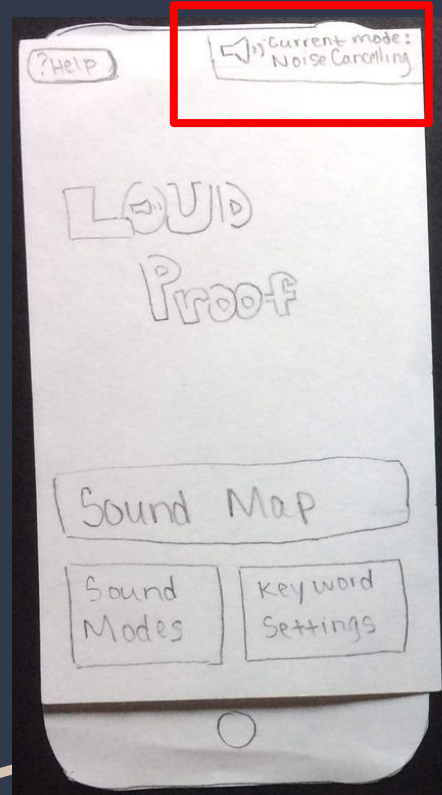
# Revision 3



Visibility of current mode was unavailable on some screens

Use unused space in upper right corner to display current mode

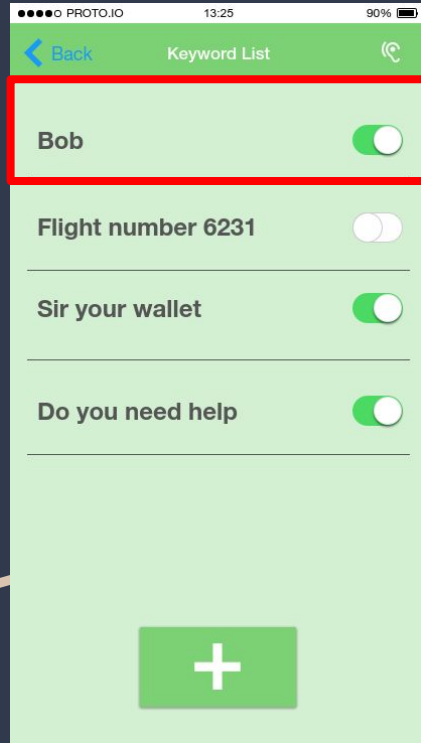
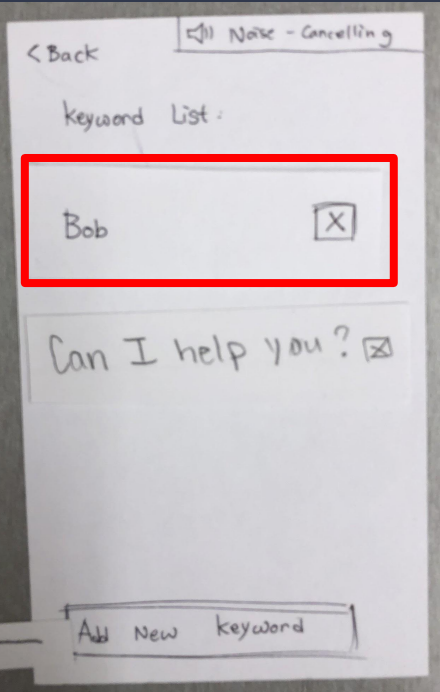
# Revision 4



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



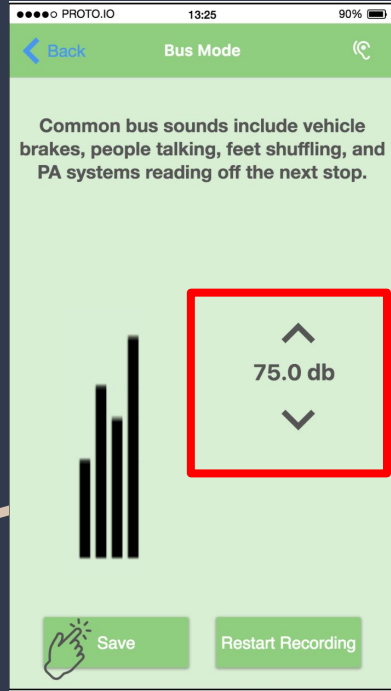
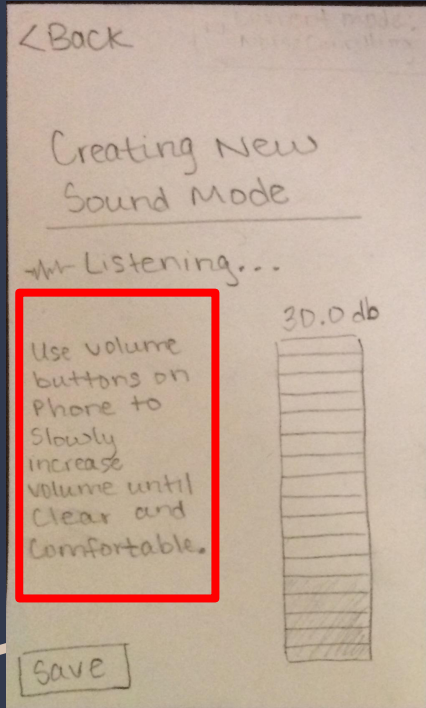
No clarity on whether keywords were universal or mode specific

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

# Revision 6

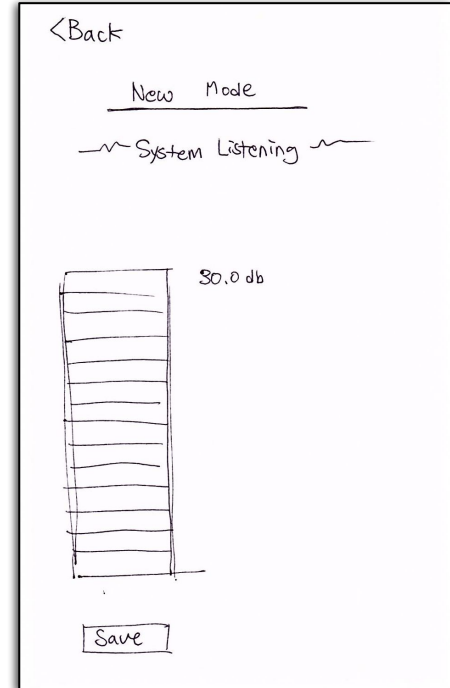
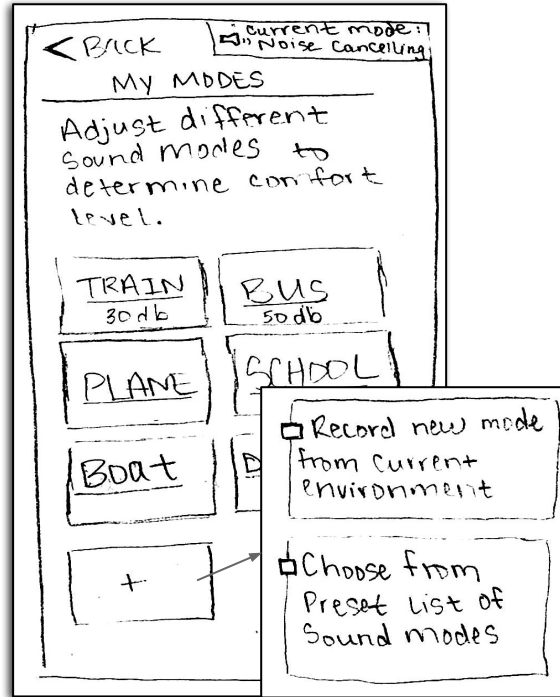
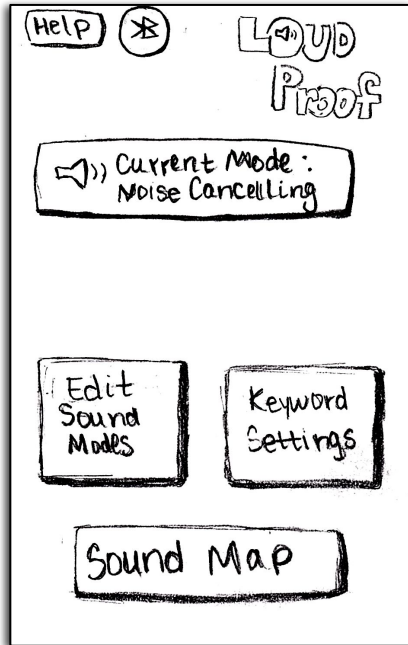
Excessive amounts of instructional text made the interface cluttered

Used tooltips as a fluid solution



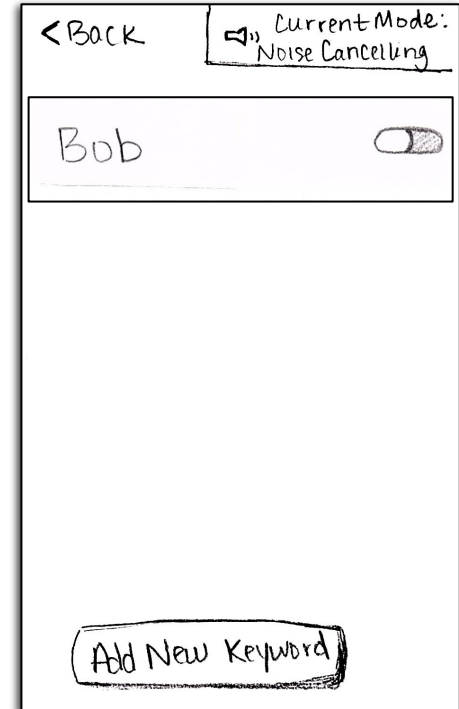
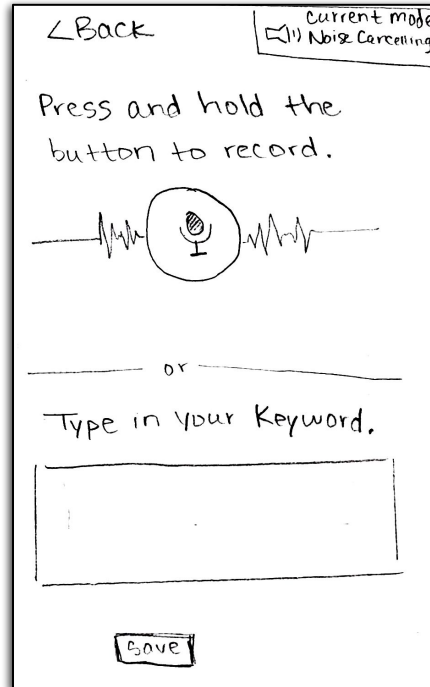
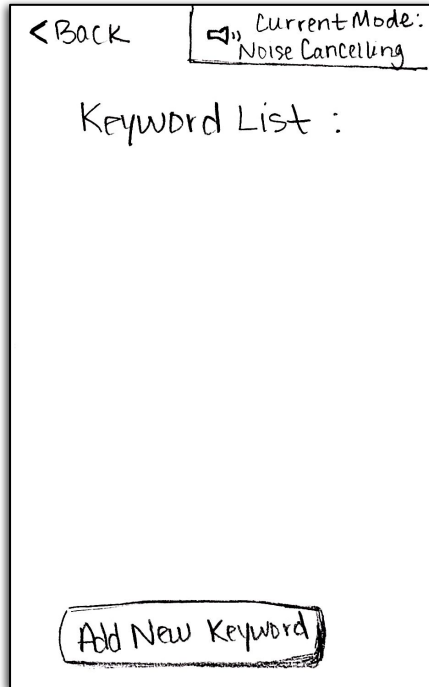
# Final Paper Prototype

## Task 1: Filter and Reduce Sound



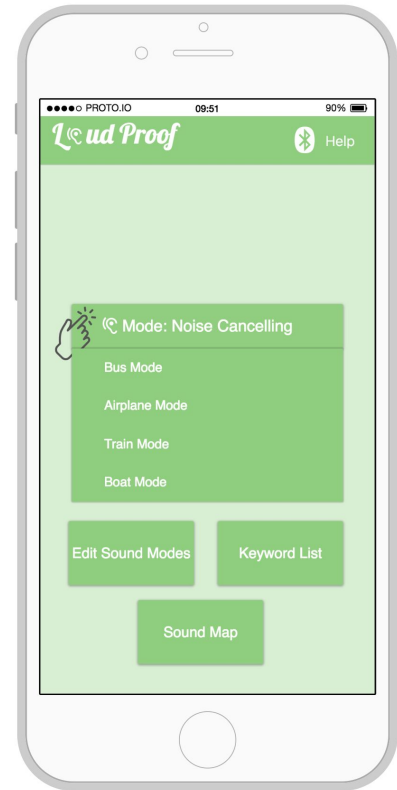
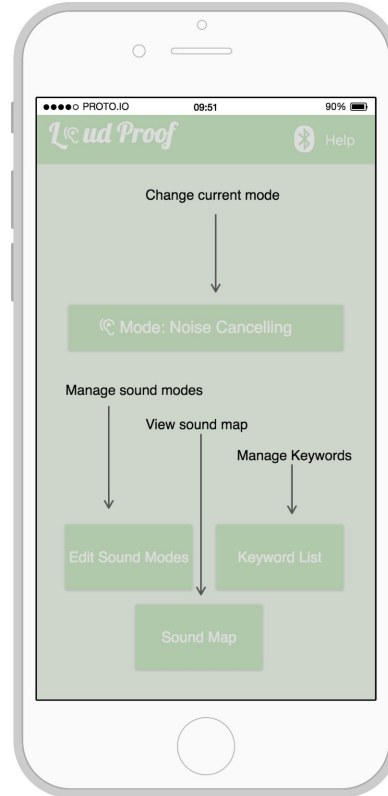
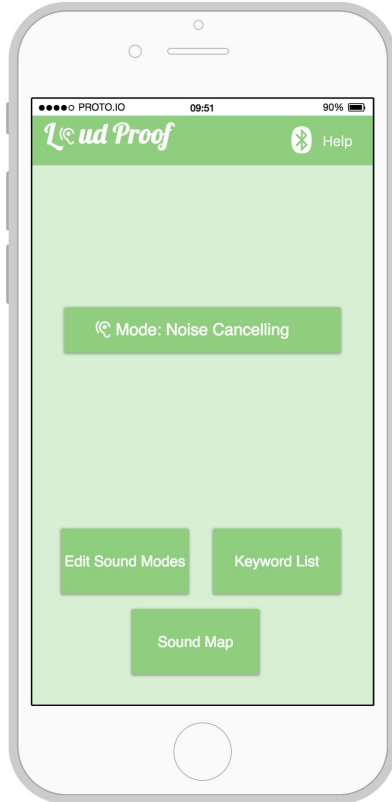
# Final Paper Prototype

## Task 2: Enable Communication



# Digital Mockup

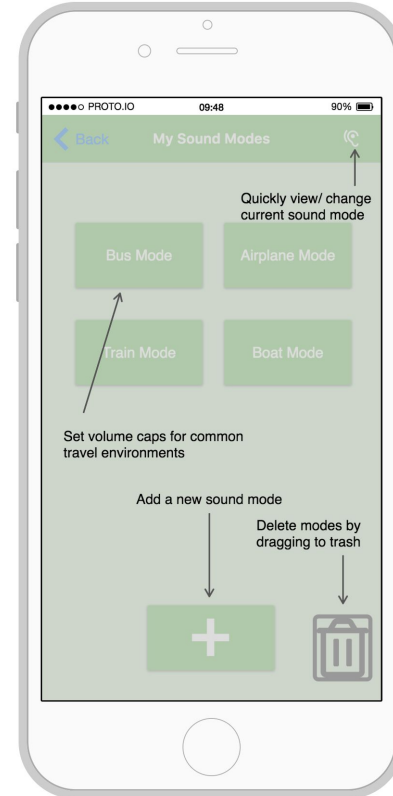
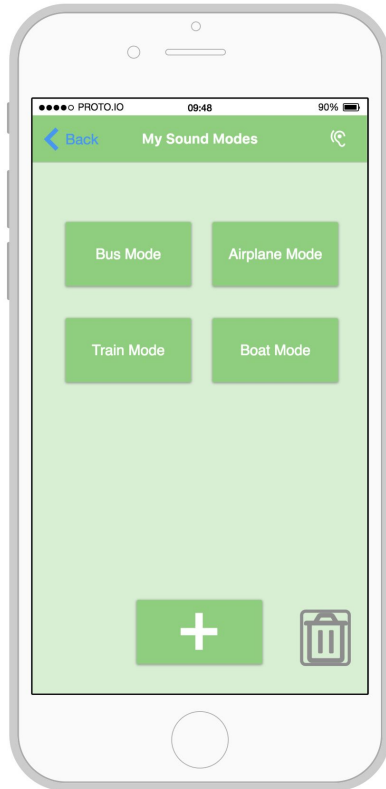
## Task 1: Reduce Sound





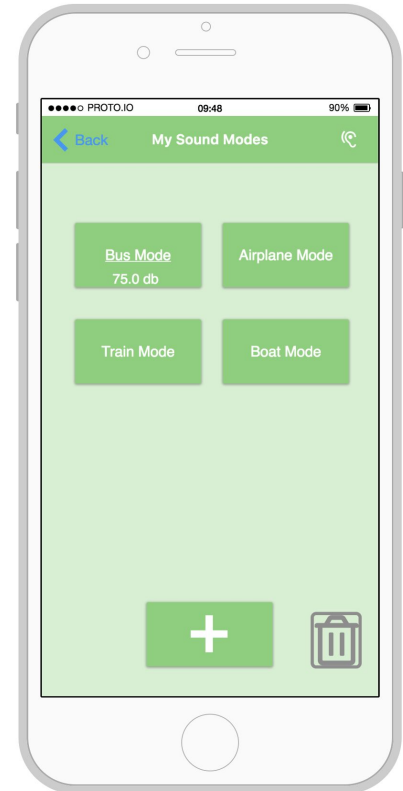
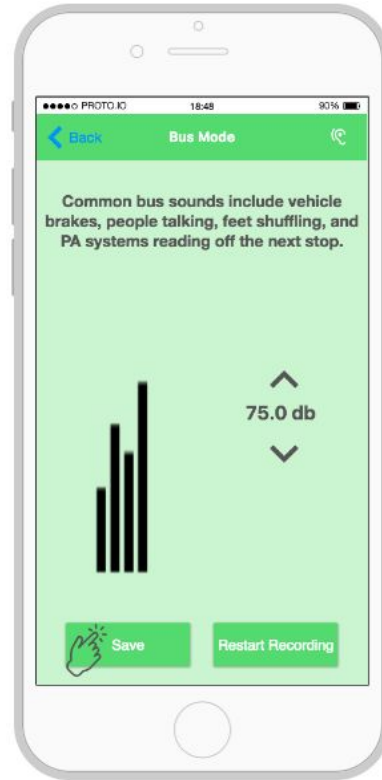
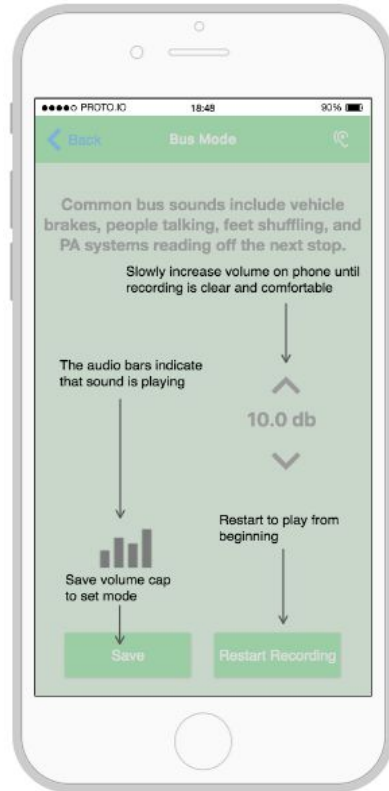
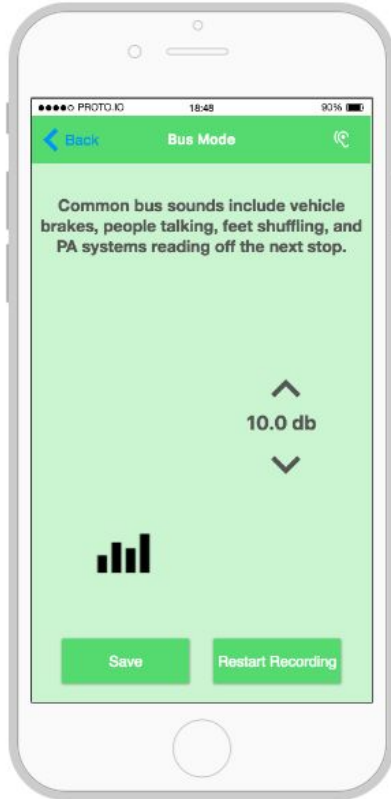
# Digital Mockup

## Task 1: Reduce Sound



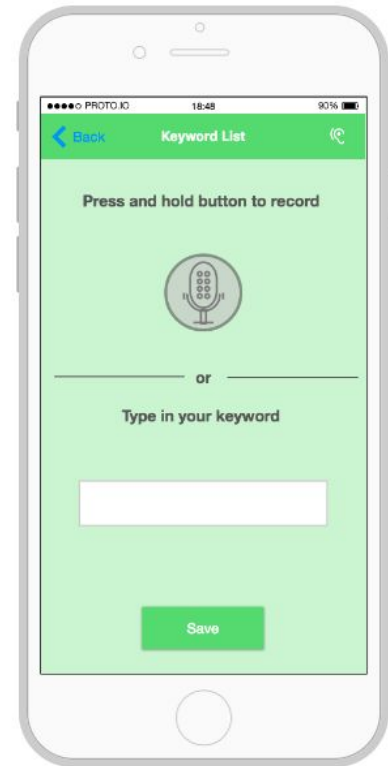
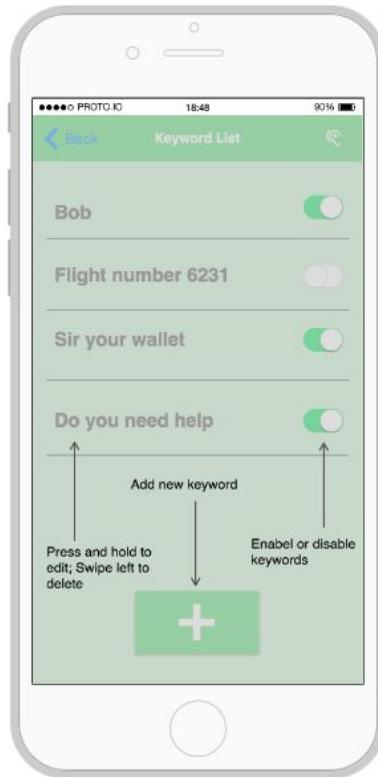
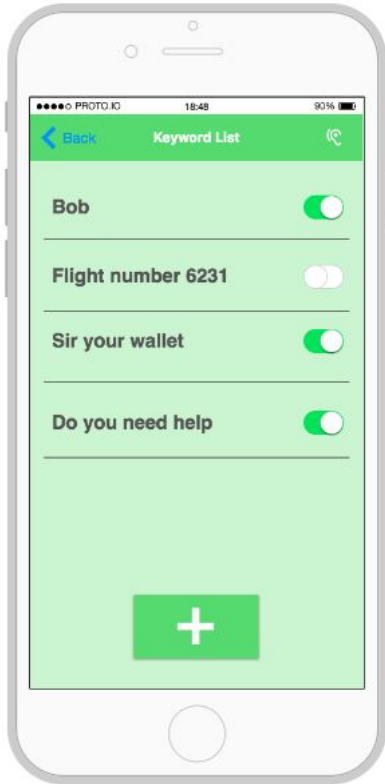
# Digital Mockup

## 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?*