

# CS147

## Low-fi Prototyping & Pilot Usability Testing

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### Introduction

BOLDer Team



Sofía D.



Chris M.



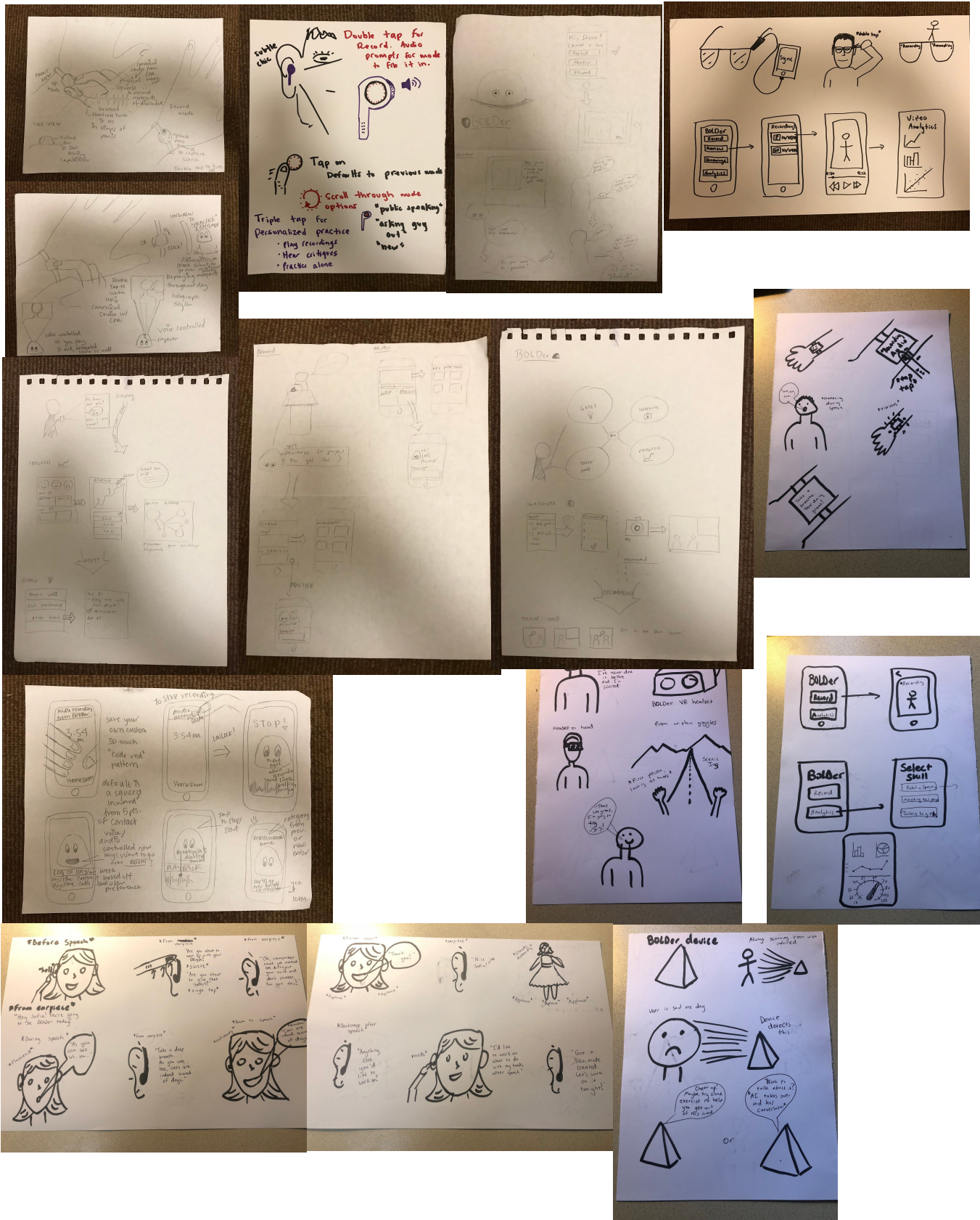
Abrahm D.



Starr J.

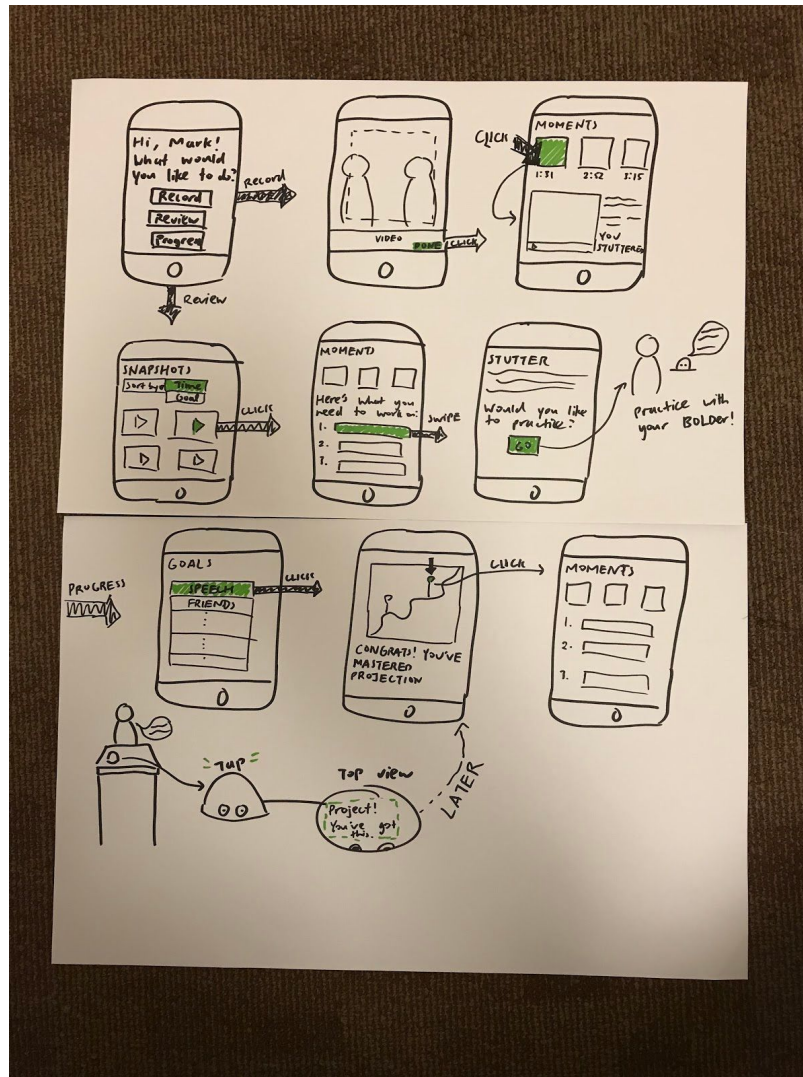
The BOLDer team is comprised of Stanford undergraduate students aspiring to enable young adults to better cope with stress in their daily life. Through various needfinding techniques we discovered both the necessity for getting out of our comfort zone to accomplish goals and the stress created by doing so. Whether it be meeting new people, public speaking, or finally getting the courage to talk to your crush, everybody needs a little push to try new things and reach their full potential. Our product enables, encourages, and prepares you to conquer your everyday tasks with confidence and ease. BOLDer: We're your rock.

# Sketches



# Top two designs

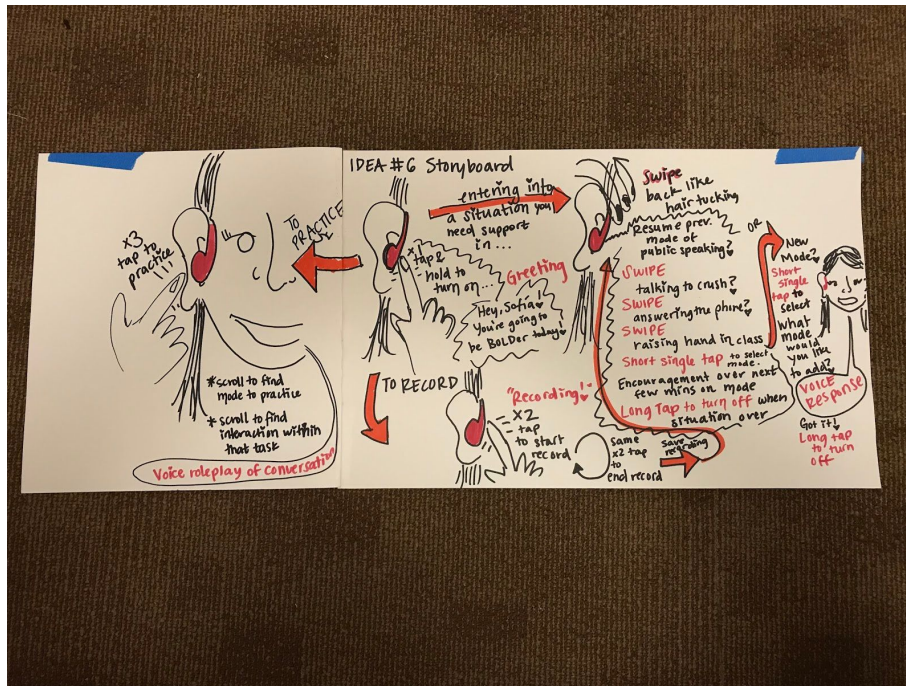
## Design 1



This design incorporates both a mobile phone application and physical "rock" for the user to interact with. The mobile phone application has record, review, and progress tasks that allow the user record interactions and review them later, and the rock can be carried around to encourage the user based on what the user reviewed.



## Design 2



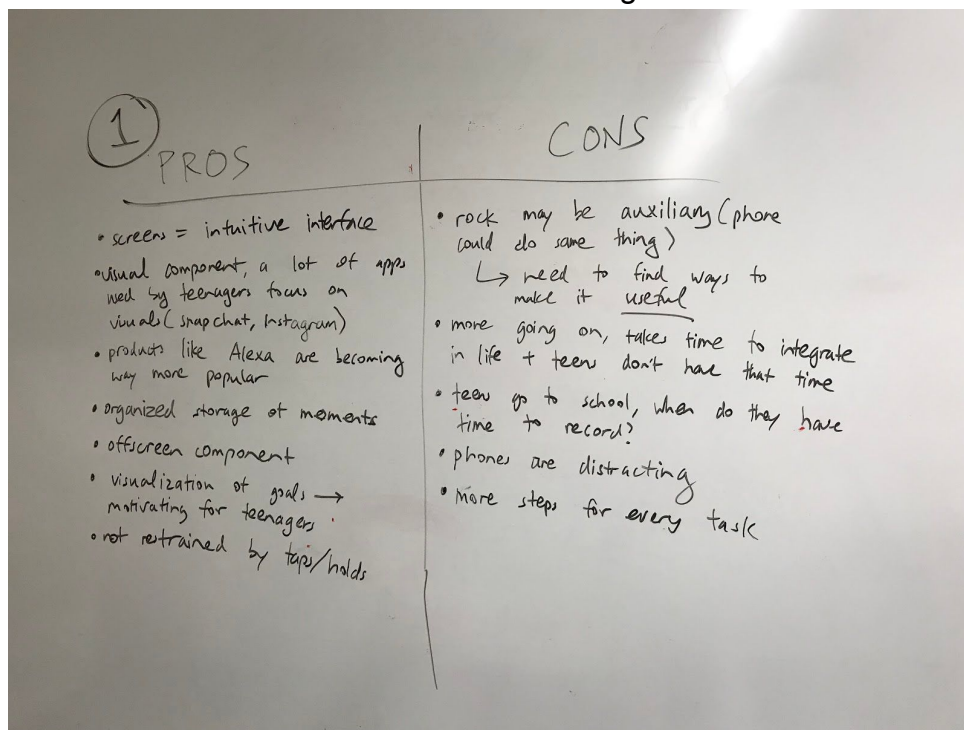
Design 2: This design incorporates both a mobile phone application and an earpiece that is used to communicate with the user. The mobile application allows you to review moments and see your progress, and the earpiece can communicate encouragement and advice to you, interactively practice situations, and allow you to discreetly record moments.



# Selected Interface Design

The selected interface design was Design 2, which incorporated the earpiece. This decision was made for a multitude of reasons, chiefly ease of interaction. While the “rock” companion both complemented our product’s name, BOLDER, and had a cute appearance aimed at comforting the user, it became apparent that the “rock” would be difficult to interact with. The “rock” could display words of encouragement and possibly record audio and video, but the user wouldn’t be able to easily interact back with the “rock”. In the case of Design 1, most of the functionality would be in the phone application, and not with the “rock”.

## Pros and Cons of Design 1



While we found a way for the application to interact with the user, we needed a better way for the user to interact back with the application. Additionally, from our needfinding exercises, we found a desire for offscreen applications. More precisely, a way to interact with the applications on one’s phone, but without the phone. The earpiece could accomplish these design goals by communicating information into the user’s ear, and the user could then communicate back via voice or touch. The earpiece would also be more discreet, more socially acceptable, and the user could adapt to treat the earpiece as apart of them.

# Pros and Cons for Design 2

2



## PROS

- ♡ Simple
- ♡ 1 modality
- ♡ discrete
- ♡ Inuitive motions
- ♡ Speaks to augmented humans
- ♡ Integrates into teen's looks
- ♡ Offscreen
- ♡ Organized

important to self-conscious high-schoolers

HSers said distracting

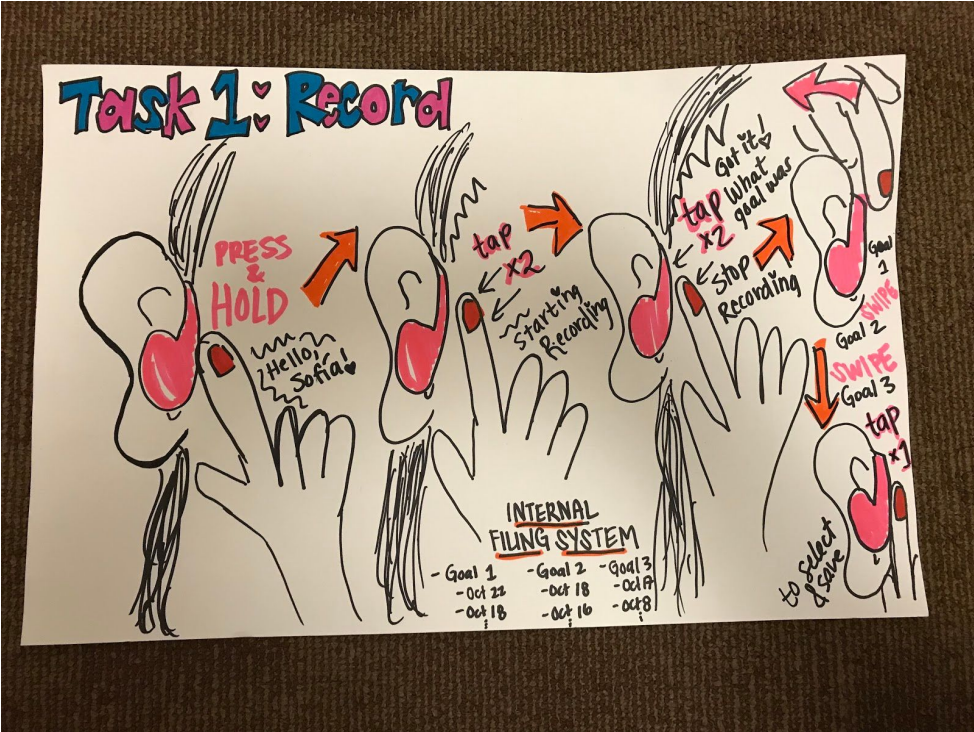
Interviewer already wearing headphones

## CONS

- ♡ No visualization component
- ♡ No Rock for BOLDer
- ♡ Need initial instructions so learning curve
- ♡ "Ear pieces" not common yet, but headphones/airpods are

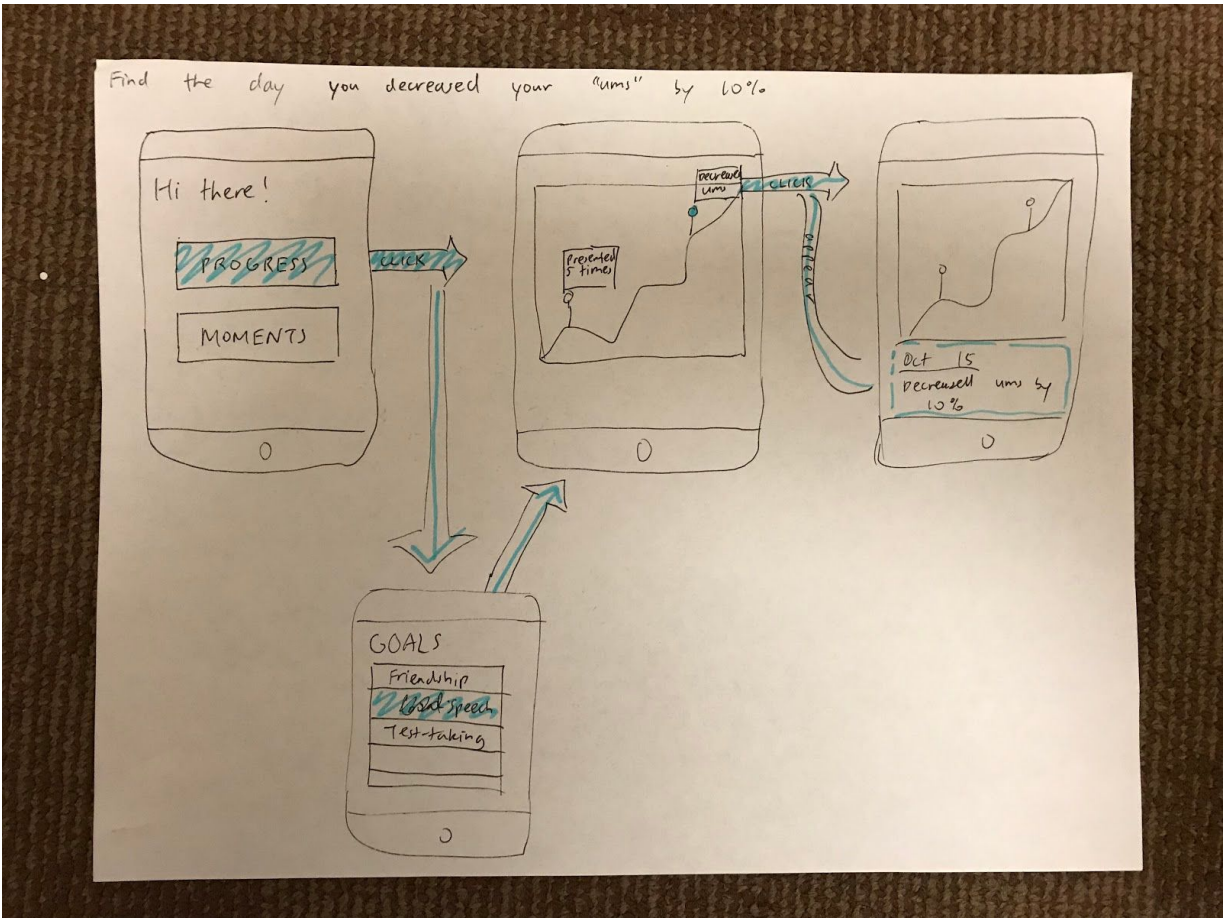
# UI Storyboards

Once we decided that Design 2 better fit our design goals, we tried to define the tasks a user could carry out. The first and simplest task was recording the audio an interaction. The recording could easily be started by by tapping the earpiece twice and the recording could be ended by tapping the earpiece twice again.

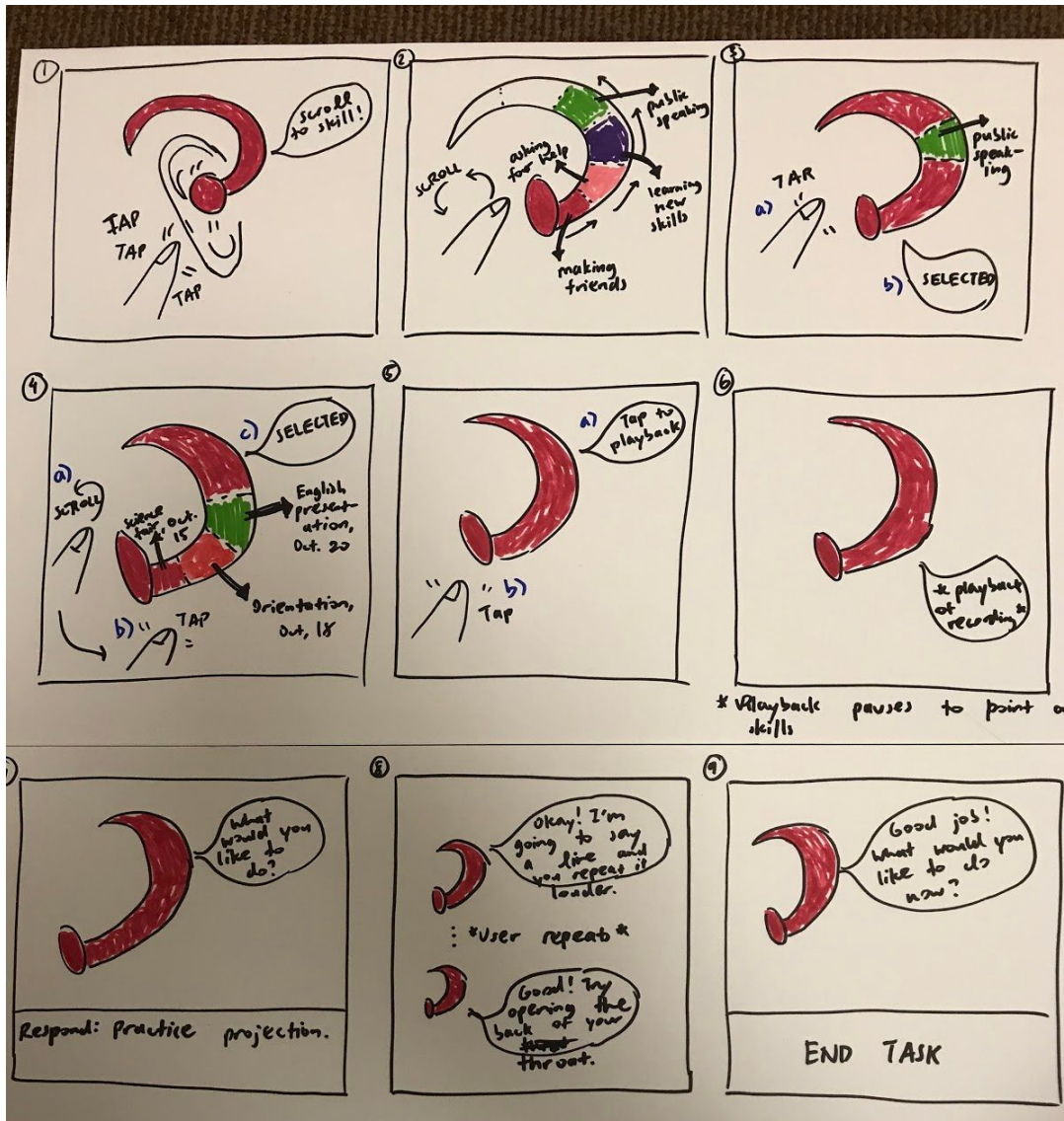




The second, moderate task was viewing your progress on a skill. This is achieved through the phone-side part of the application. Once you practice a skill and determine what you would like to work on, the earpiece records future conversations and tracks your improvement on that skill. For instance, a user might want to say "um" less when speaking. The progress part of the application could track this in future conversations and provide feedback.

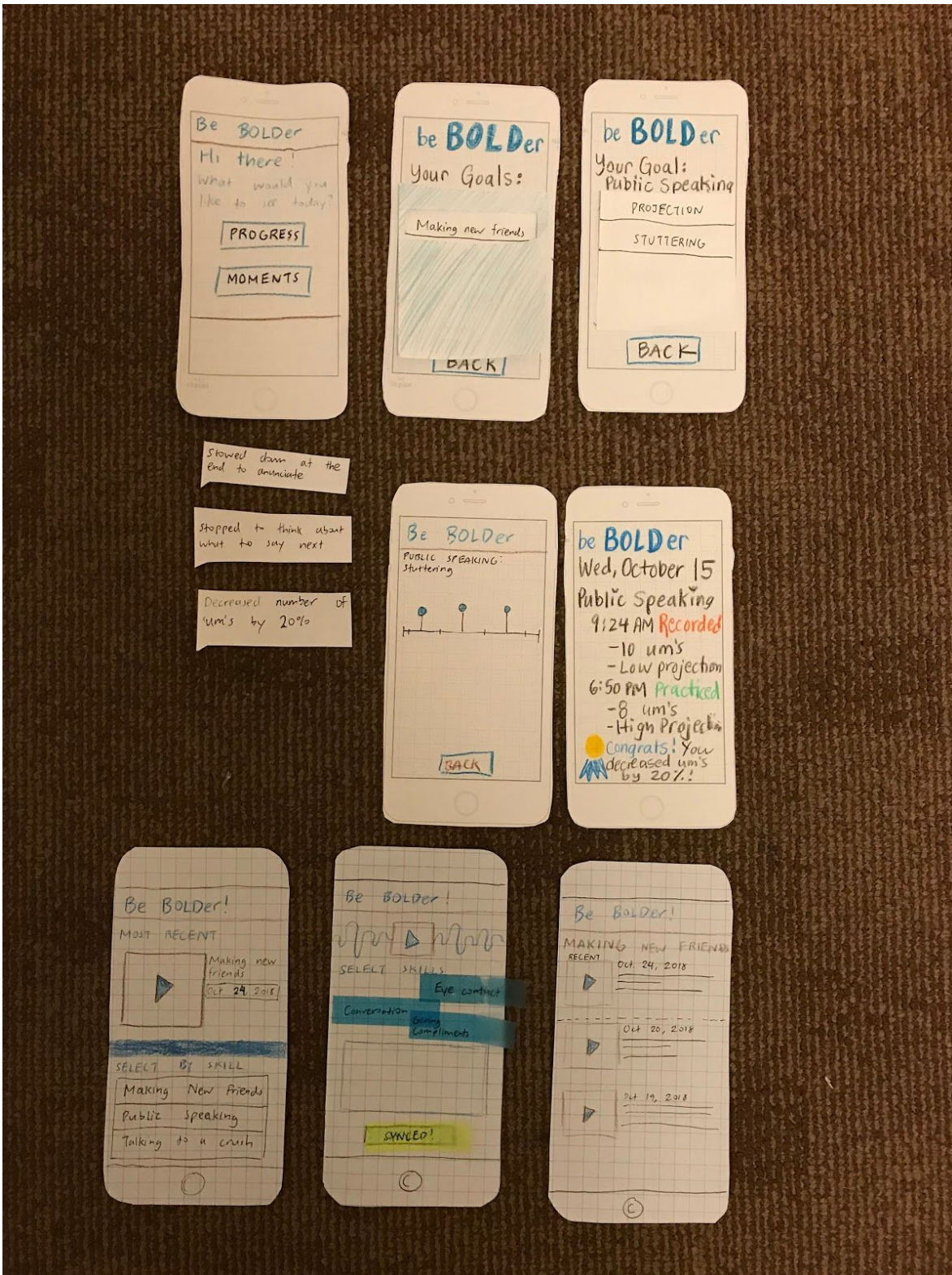


The third and most difficult task is practicing an interaction. The user would be prompted by the earpiece to select a "skill" that they would like to practice. If the earpiece says the skill that the user would like to work on, the user taps the earpiece once and the earpiece plays back a recording of an interaction they would like to work on. If the earpiece says a skill that the person doesn't want to practice, the user swipes up on the earpiece until the correct skill is stated, and then the user taps once to select it. The earpiece then listens to what the user would like to work on and provides advice.





# Low-Fidelity Prototype





The prototype replicates the phone-side part of the application while the participant pretends to have an earpiece in. The main pieces of functionality are “buttons” on the paper that lead the participant to the next screen, a “slide bar” that replicates a user scrolling through options, a “drag and drop box” that replicates a user dragging text boxes across a screen and dropping them into a bin, and the pretend earpiece that the participant interacts with by touching their ear or speaking.

The main interaction ideas that we wanted to test were whether or not the user would understand navigating tasks through touching the earpiece and speech easily and if a user could find specific data within the phone-side app via conventional means of navigating a smartphone.

If the participant believed they needed to use the earpiece to complete a task, they would either touch their ear or speak as if there was an earpiece there. One team member would then say aloud a response as if the earpiece was responding to their action. If the participant believed they needed to use the phone to complete a task, they would touch the prototype paper and navigate from page to page like a traditional smartphone.

## Method

The method we used to recruit participants was to just ask them if they would like to be tested for a class project. There was no compensation for the test, but rather we searched for people who seemed to be killing time and waiting around. The first participant we found was waiting between classes in the main quad, and the next two participants were found waiting to take a campus tour at the Stanford Visitor Center.

The first test was conducted outside of Olives inside the main quad on campus.



The next two tests were conducted inside the Stanford Visitor Center.



The first participant was a freshman student at Stanford, the second participant was a 13 year old girl from the North of France, and the third participant was a middle aged man with two young children.

All the test required was a table and enough seats for the participant and our team. The participant would be read a script by the team member with the “administrator” role and be given basic instructions on how to operate the earpiece. The participant would also be given the “home screen” to our app prototype on paper. They would then be given three different tasks, one task at a time. The task would be a concise statement on a piece a paper telling the participant what to do. It would then be up to the participant to navigate with either the earpiece or the phone to complete this goal. If the participant got lost at any time, they could say “help” into the earpiece, and the team member replicating the sound from the earpiece would tell them the basic controls.

For the first test, Starr’s role was the “Computer,” or the earpiece, Chris was the “Administrator”, and Sofia and Abrahm took notes. For the next two tests, Starr was the “Computer,” Sofia was the “Administrator”, and Chris and Abrahm took notes.

The three tasks were to start and end an audio recording to record a conversation, navigate to the progress page in the phone-side app, and find the recording they just made on the phone-app and select three things to work on.

The test measures included ease of navigation, times the user said “help,” and the enjoyment the user got from application.

## Results

All users were able to complete all the tasks that they were given. All participants thought the test was fun due to its interactive nature and novelty. The participants commented that verbal responses would have been a better option to navigate with the earpiece, rather than touching the earpiece. The way to navigate the earpiece is difficult to learn on short notice, and all users struggled to some extent. Verbal commands from the “Computer” were difficult for the participants to understand as well.

## Discussion

One positive thing we learned from these results was that the participants were enthused by the idea of an away-from-phone application. While we thought that users wouldn’t want to speak aloud to operate the earpiece to remain discreet, all participants



would have preferred verbal oriented navigation. One design change we proposed was giving the option for both verbal and touch navigation, and the user could choose which one depending on the situation. We also left out a “back” button both in our phone-side app and earpiece navigation, which left our users unable to return if they made an incorrect decision on where to go.

## Appendices

Consent form-

<https://docs.google.com/document/d/1zr3VrZDcTafNbeBL7AAsTB30ScQOPEf9xnYDE7iiW1M/edit>

Participant #1 data-

<https://docs.google.com/document/d/1ZeSTBFuVx5Z-ECc3IZjwWPrt9RJSmkEgpFmZ2mMil4o/edit>

Participant #2 data-

<https://docs.google.com/document/d/1p2T7sBponm3Gei5U9mRAuTXwJQWoorqznewoMLDLmFQ/edit>

Participant #3 data-

[https://docs.google.com/document/d/1YZiUzuGf0M2hFK\\_Ai-YJgmpgdRXAqNIYyOJa6B9\\_H2A/edit](https://docs.google.com/document/d/1YZiUzuGf0M2hFK_Ai-YJgmpgdRXAqNIYyOJa6B9_H2A/edit)