CS 147 - Voice Interaction Studio - Assignment 8

Interactive HI-fi Prototype

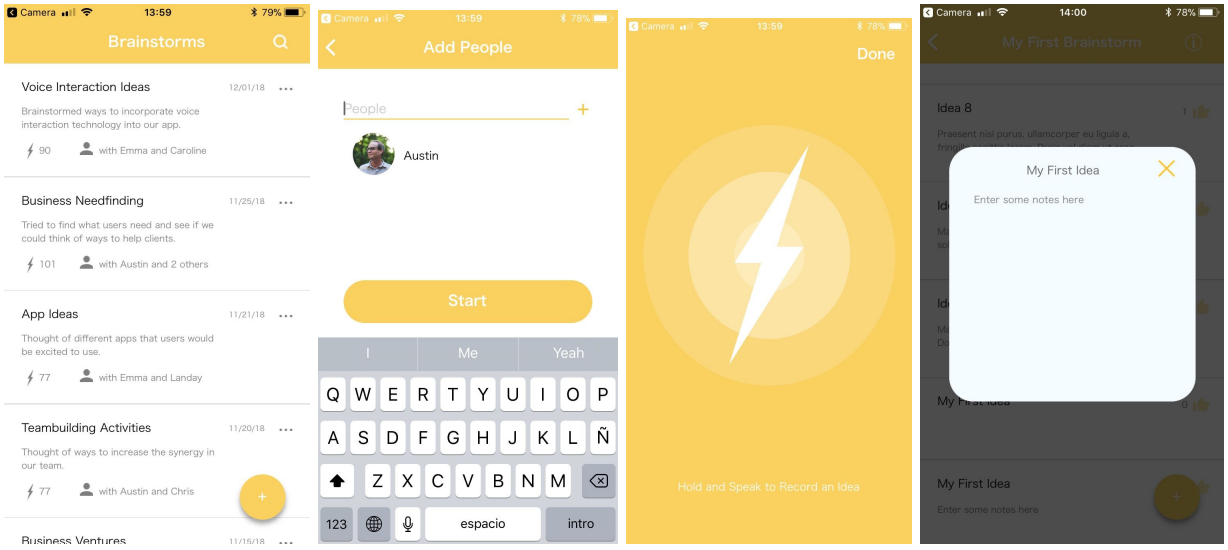
Problem and Solution Overview:

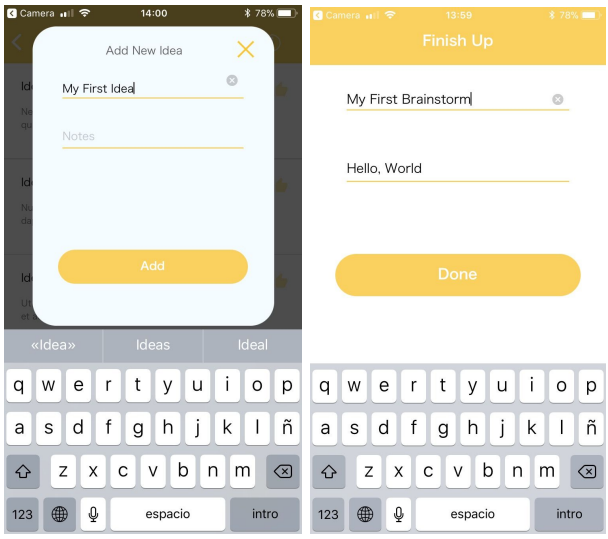
We identified a need for a better brainstorming tool that could be used remotely, too. Taking the writing aspect out of the process and replacing it with voice interaction allows for continuous productivity, engagement, and creativity. Our goal is to remove the need for pen and paper during brainstorm sessions, so people can move freely around the room and generate ideas verbally. Thundr allows you to brainstorm with friends and co-workers whether you're working locally or remotely, with real time updates on your chosen display.

Tasks:

Create and Share New Ideas (Simple)

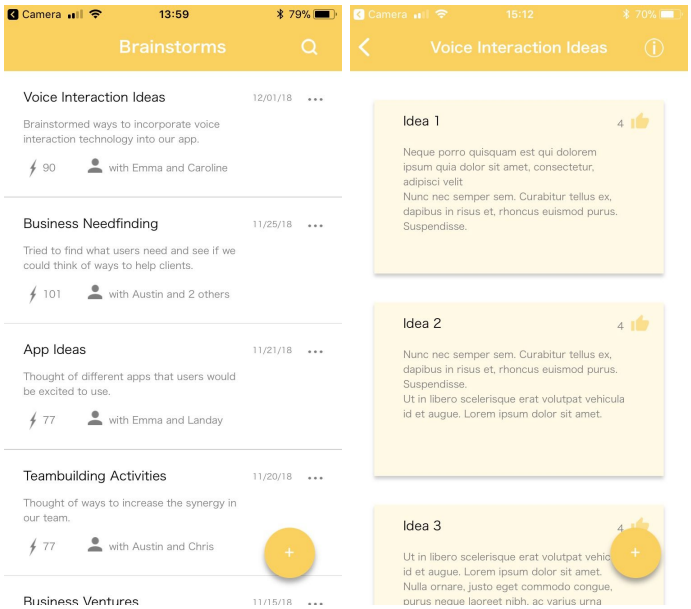
The user taps the floating '+' button from the home screen. This begins the brainstorm task flow. From here the user then adds people to the brainstorm. When the user then clicks start, the brainstorm begins. The user records an idea using voice, with the option to type to edit as well. When the user clicks add, the idea is added to the current brainstorm and displayed on the web app portion. When the user clicks done, the brain storm is complete and the user can edit the title and add notes.





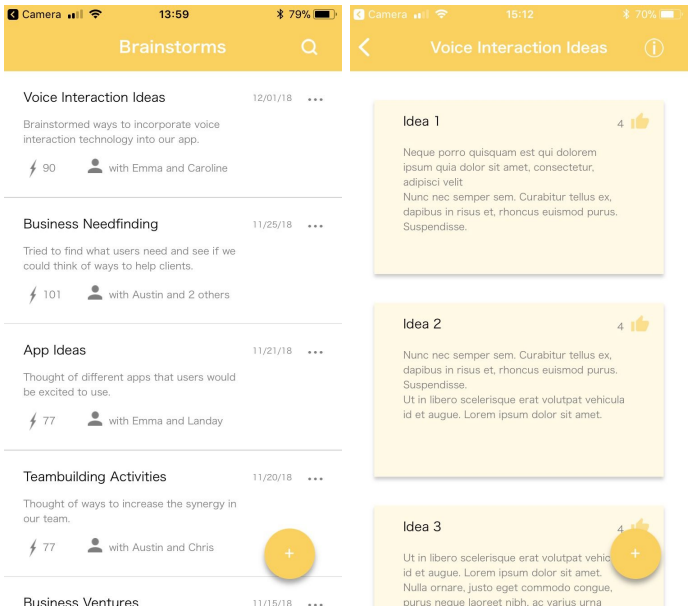
Access Old Brainstorm (Medium)

To access an old brainstorm the user taps on the desired brainstorm found on the homescreen. The user now views their past brainstorm ideas and can scroll up and down to view them. Clicking on an idea enables the user to edit it or add comments. You can add ideas here as well by clicking the '+' button.



Vote on and View rankings of Ideas (Complex)

To vote on and view the ranking of ideas the user first accesses an old brainstorm by tapping on the desired brainstorm found on the homescreen. The user now views their past brainstorm ideas in their ranked order, with the most liked ideas at the top of the list. The user can scroll down to view lower ranked ideas. The user can click the thumb on an idea to like or unlike an idea.



Design Evolution:

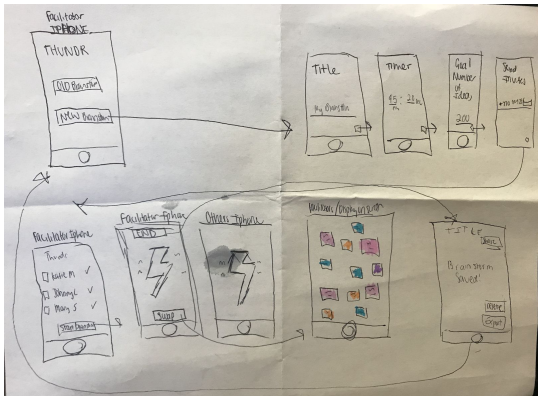


Figure 1. iOS Application

Task 1: Create and Share New Ideas

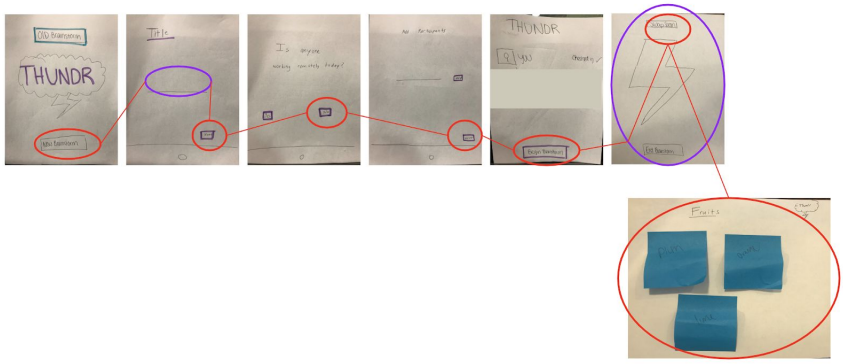


Figure 2. Task 1 flow (low-fi prototype)

Task 2: Highlight and Present Favorite Ideas

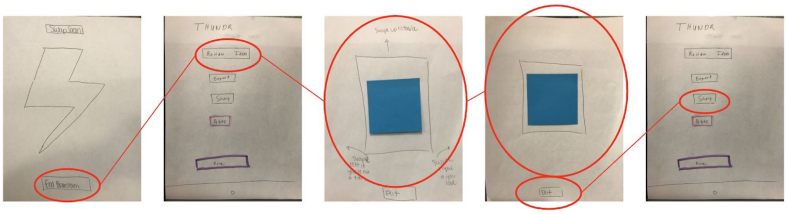


Figure 3. Task 2 flow (low-fi prototype)

Task 3: Work Remotely from Team

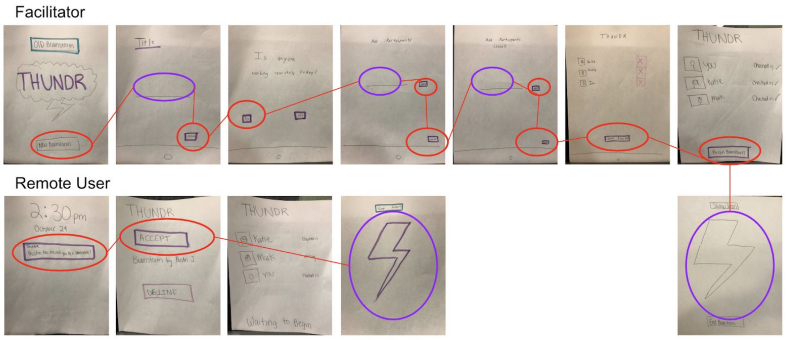


Figure 4. Task 3 flow (low-fi prototype)

In our initial UI sketch (Figure 1), we envisioned 3 major areas of our app: Creating Brainstorm, voting on ideas, and accessing old brainstorms. Navigation was handled mainly through buttons moving forward or backwards through the task flows and a switch screen between idea recording and the brainstorm list.The plan was to make a way in which the app could gain all the information needed for a brainstorm. We used this design for our low-fi prototype (Figures 2 to 4).

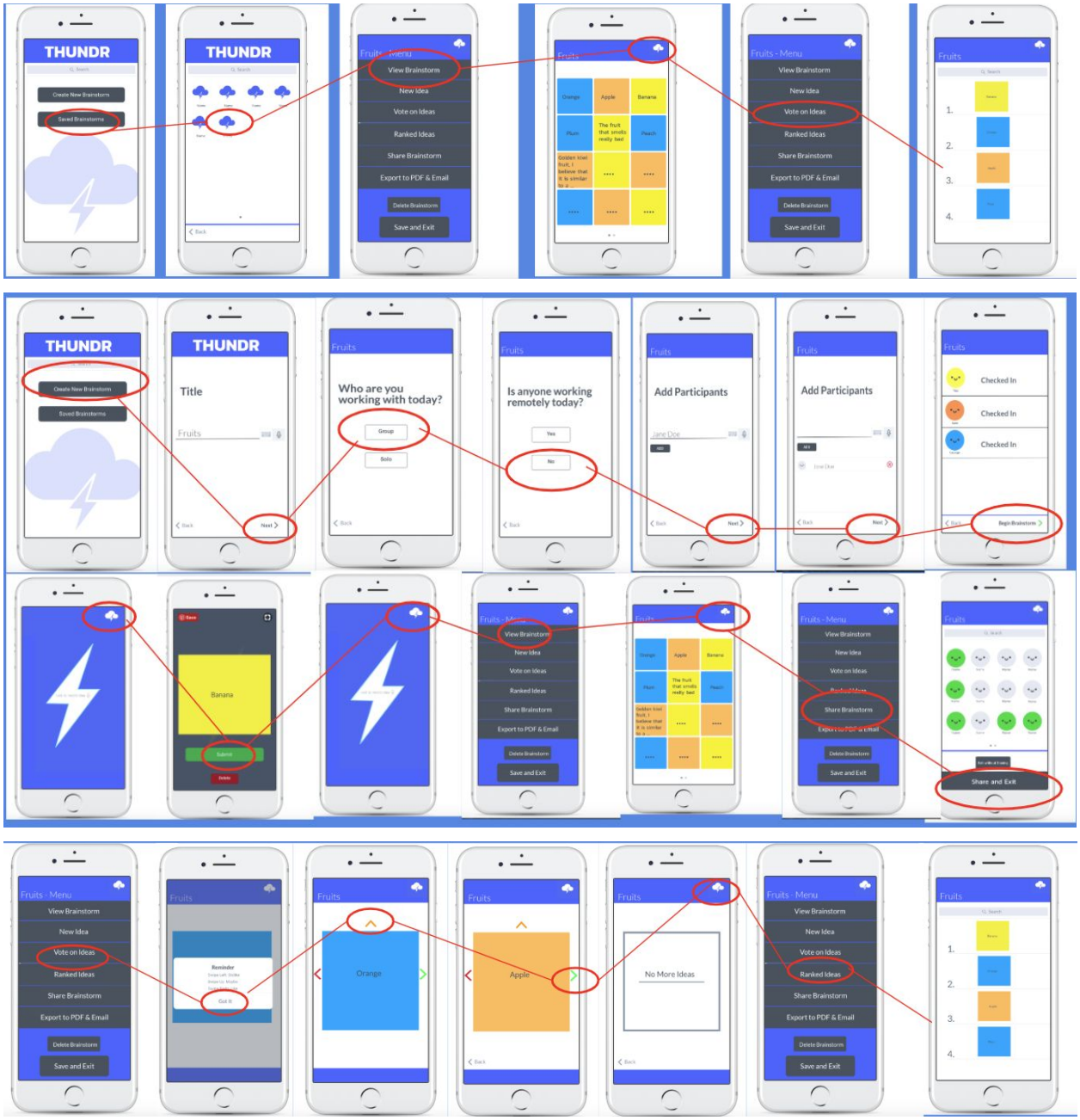
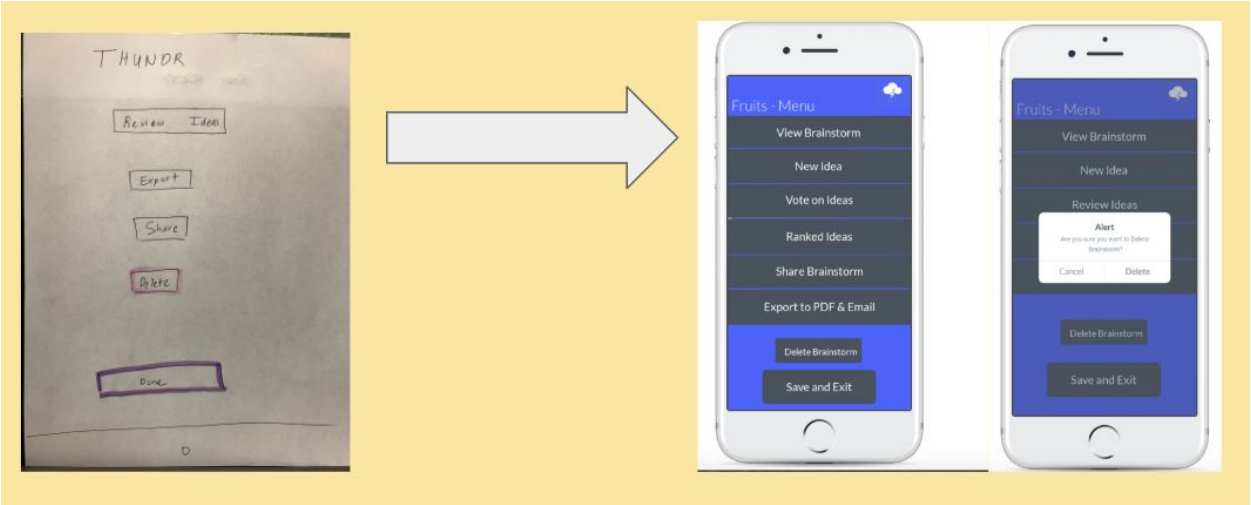


Figure 5. Medium-fi prototype

We used Marvel to create our new medium-fi prototype. Marvel was easy to use and allowed us to create an app we had envisioned. However, it did not allow us to create a collaborative project. Only one person could work on the prototype at a time. It also did not allow us to use voice interaction in our prototype, creating the need for "Wizard of Oz" techniques.

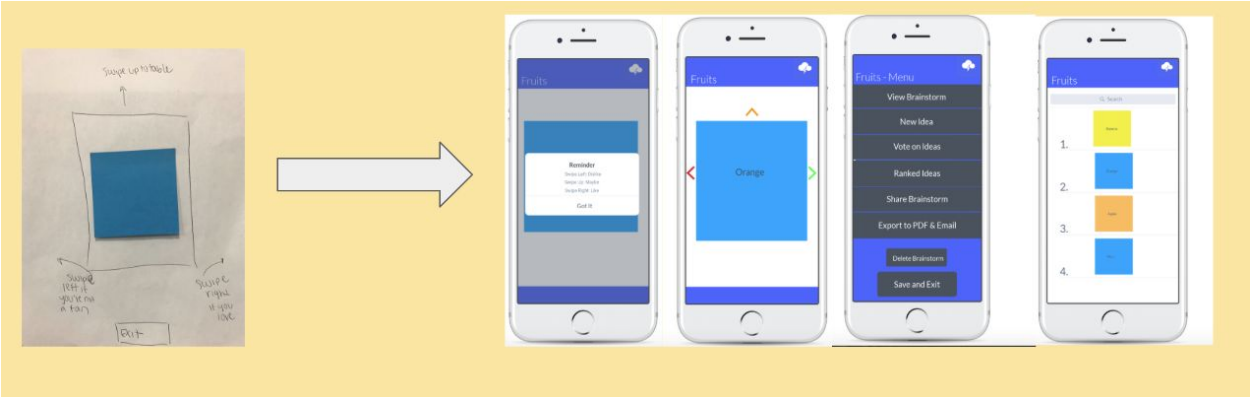
Based on feedback from our low-fi testers, we adjusted our medium-fi prototype in a couple different ways:

1. Clarified Wording



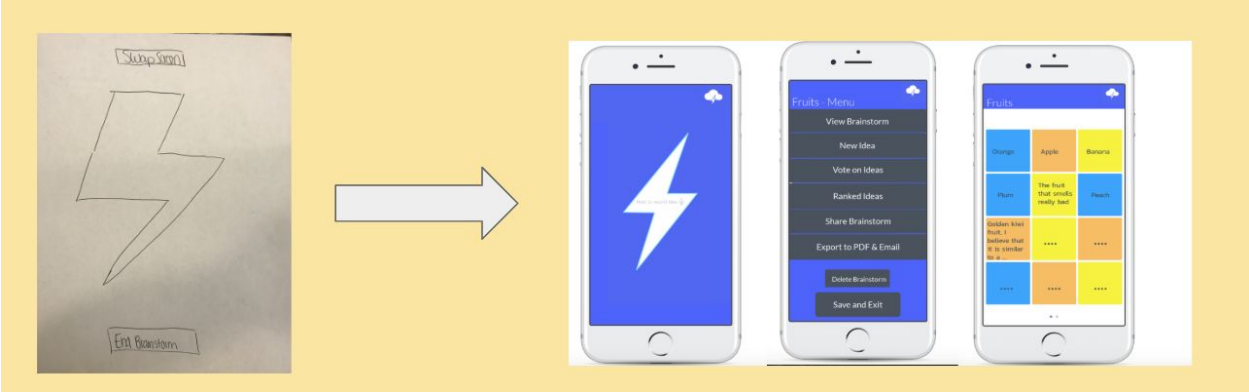
During user-testing, we found that many people were confused when they saw the "Delete" button on our paper prototype. We wanted to clarify the language so users knew that clicking this button would delete the entire brainstorm.

2. Rank of Ideas



During user-testing, our participants were often confused by the purpose of our “Vote” button, along with how they were supposed to interact with it. We first wanted to clarify that in order to vote, they needed to swipe. Additionally, we added a “Rank of Ideas” option, so users would see which ideas were ranked the highest after voting.

3. Swap Screen



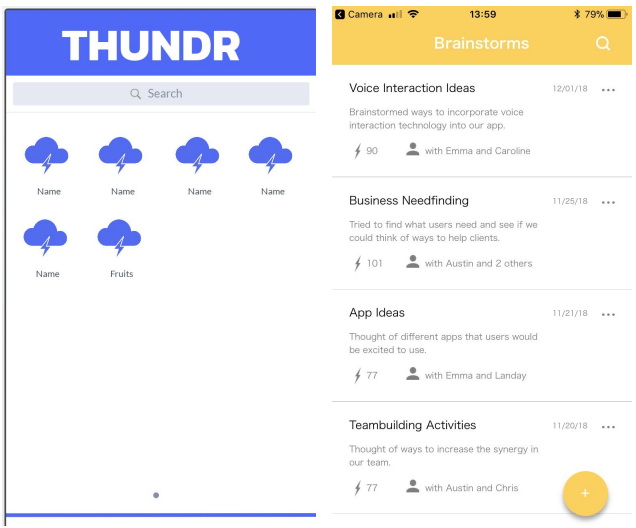
From feedback from the instructors, we changed the way that a user could access the brainstorm during the session. “Swap Screen” was unintuitive, so we made it part of the hamburger menu to “View Brainstorm” instead.

Major Usability Problems Addressed

Our major usability problems (levels 3 and 4):

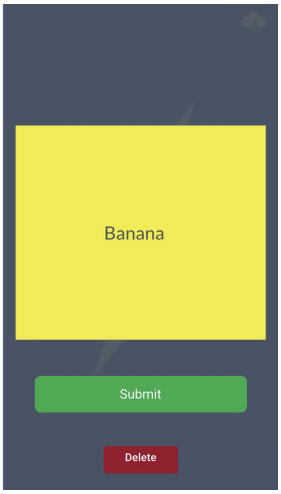
1. Searchbar

In our medium-fi prototype the “Homepage” and “Ranked Ideas” pages both have a search bar which seemed to be ambiguous what was supposed to be searched for. We addressed this by specifying the purpose of the search bar with example searches.



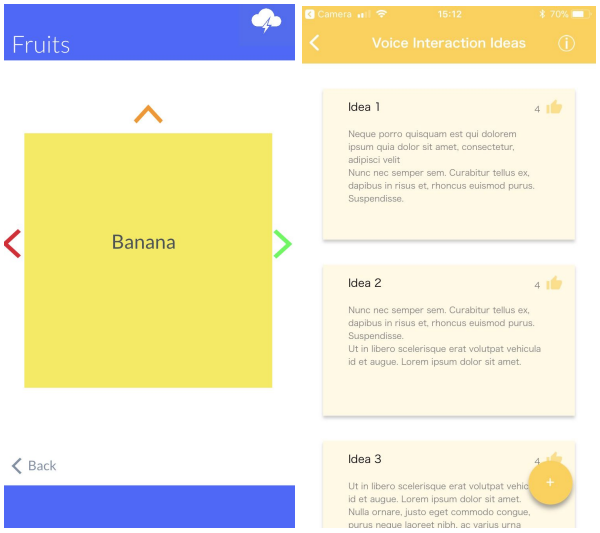
2. Idea submission

After an idea is submitted or deleted, there is no confirmation to indicate that it was successfully submitted. Had we had the time we would have addressed this by making the phone vibrate when an idea was submitted.



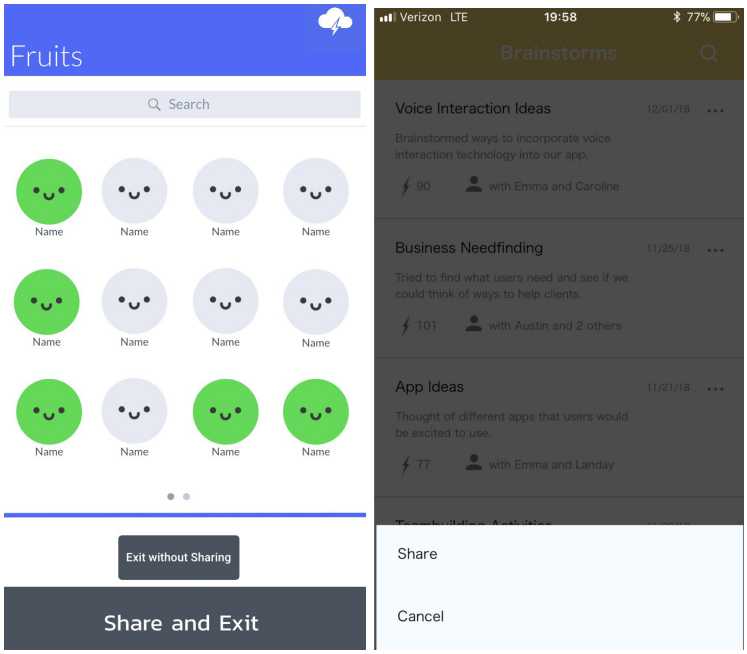
3. Idea Voting

When voting for ideas, there is an initial prompt that tells users what the different arrows mean. There is no guarantee that users will actually read this prompt or that they will remember what each arrow correlates to. Furthermore, the app depended on colors on the icon but this didn't cater for color deficient people. We addressed this by changing the voting system to use a simple thumbs up that was white when the user didn't like the idea and yellow when they liked it.



*******4.Profile Colors/sharing brainstorm

When sharing a brainstorm, some user profiles are green whereas the rest are grey difference between “share brainstorm” and “export to pdf & email” are unclear. It is unclear what the difference between these two colors are. This was addressed by eliminating this part of the app and having the user be able to share the brainstorm simpler.

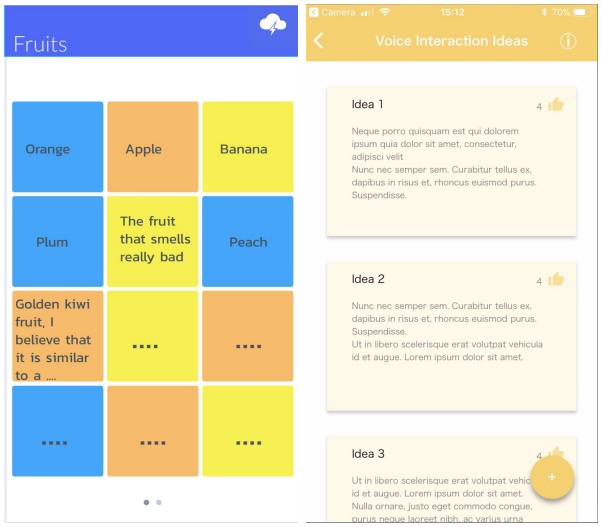


5.Help Menu

There is no information that helps users understand what steps need to be carried out for particular tasks. This can lead to a lot of confusion when using the app for the first time. If we had had more time we would have addressed this by adding a help menu.

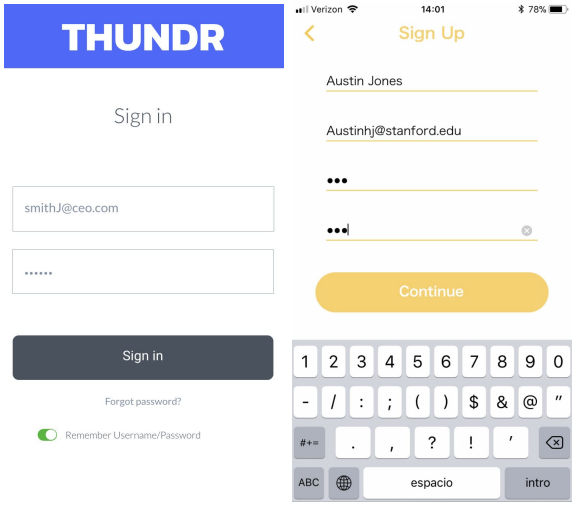
6.Thundr menu icon

When you're in any brainstorm, the Thundr icon button in the top right goes to a menu for that specific brainstorm. This was confusing and misleading for users. We addressed this by removing this link and configuring the app so that the user was always only ever one back arrow tap away from the home screen. Had we had more time we would have implemented a hamburger menu.



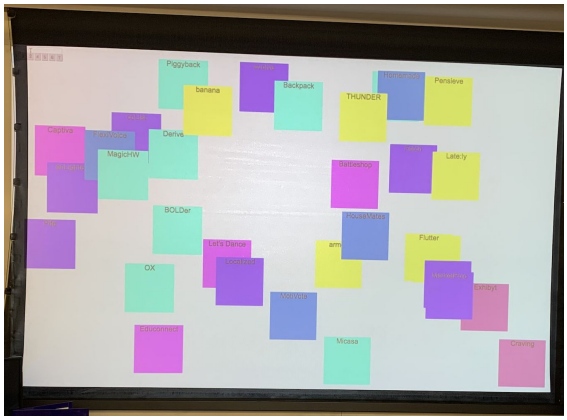
7.Sign up/Sign in

In the sign up page, there is an option for the user to switch to the Sign In Page in case they have an account. However, this is not the same in the Sign In Page where the user has no other option but to sign up. This is a bit restricting especially if the user does not have an account or wants to create a new account to begin with. We addressed this by creating back arrows and links between the pages.



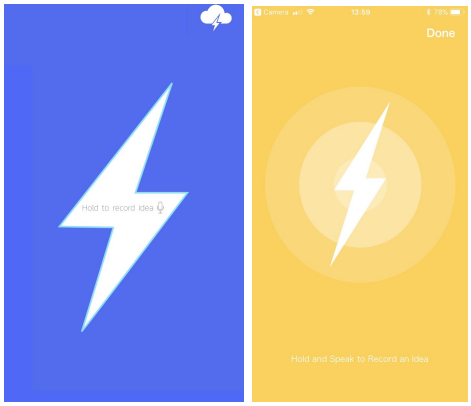
8.Sticky note colors

In both the “Ranked Ideas” page and “View Brainstorm” page, the sticky notes are color coded to represent each participant in the brainstorm. However, we depend on the user to recall what color corresponds to what user. We disagreed with this as the purpose of the sticky notes isn’t to tell whose idea is whose, but rather to indicate the diversity of people offering ideas.



9.Record Idea

When recording a new idea, the user is expected to click to record. However, there is no visual indicator showing what is going on i.e. whether it is recording successfully or not hence, might leave the user confused. We addressed this by adding a visual effect to show that there is some recording going on.



10.Verbal confirmation 1.0

When a VI interaction is carried out, there is no verbal confirmation that the task was carried out successfully. In particular, the “initiating brainstorm with group” task has no command that confirms to the user that the task is completed. Had we had more time we would have further implemented voice interaction and used a short response to confirm when a task is completed.

11.Verbal Confirmation 2.0

When a user asks for a certain task to be carried out, there is no confirmation prompt to ensure that the user is carrying out the task they intended. This is especially important in cases involving other people (for example, sending someone a brainstorm via email).Had we had more time we would have further implemented voice interaction and used a short response to confirm irreversible or critical actions explicitly and even allow undo after confirmation.

Based on some other heuristic violations, we are including the following changes:

1. Changed the color of the app.
   We felt this color was more appropriate and relevant to our app
2. Rearranged the structure of the app, having the past brainstorms be on the home screen.
   This was structured to similar to an email app so that it would be more intuitive and easier for users to understand
3. Added a floating button for creating a new brainstorm.
   This made the main task of the app easily visible and accessible.

Prototype Implementation:

We built our prototype using React Native. React Native let us build mobile apps using only JavaScript. It uses the same fundamental UI building blocks as regular iOS and Android apps. But you just put those building blocks together using JavaScript and React. It helped us to build our app faster because of compiling we could reload our app instantly.

However, there were some aspects of React Native that hindered our development process. For example we had very limited prior experience with

React Native, so we had to take the time to learn how to properly use it before we were able to progress forward with our prototype.

We used Wizard of Oz techniques for the following:

- Plan to use another computer appearing as if the display screen with brainstorm ideas. When brainstorm idea is added on the display, will type and display on computer screen.
- Typing in ideas as they're spoken to display on the web app portion.

We also hardcoded a lot of our data such as usernames, past brainstorms and past brainstorm ideas.

Many features are missing from the high-fidelity prototype. If we had time, we would add the following:

- A settings menu to help update info and profile pics.
- The UI flow to join add a person to a past brainstorm.
- A way to connect with colleagues and friends using the app as well as to invite those who aren't to join.
- Further implemented voice interaction to assist with app use.
- An introductory tutorial explaining the design of the app, particularly how to execute a brainstorm and vote.
- When creating a brainstorm, the app would offer group/people suggestions based on past brainstorms.
- Additional personalization as a way to categorize and vote more specifically on brainstormed ideas.

We did not add these features because they were not integral to our tasks, and we did not have time to implement them.

Summary:

Brainstorming in groups can be hard and difficult. It can be scary for more introverted people to speak up during these meetings. Studies have shown that quite brainstorms where people don't talk or stand and move around are less effective. It is our hope that with Thundr, groups brainstorms will be more energetic and effective. Throughout this quarter we have iterated on our application's design in order to make the app more intuitive and quicker to use

for our users. We started out with needfinding and learned how to find a real-world problem through observation and interviews. We then learnt how to take that problem to then brainstorm and design solutions. Finally we learnt how to rapid prototype, do user testing, and heuristic evaluations to ultimately create a viable product. Moving forward, our goal is to continue develop our Thundr app until it is fully functioning as well as to continue to apply the principles and lessons we learned in the creation of Thundr to future ideas and projects.