CHOREOLAB

HIGH FIDELITY PROTOTYPE

Section 1: Problem and Solution Overview

Like many creative processes, choreography is one driven by spontaneous inspiration. Dancers, however, often struggle to maintain this creative energy, and end up abandoning ideas without fully exploring their potential to be refined into inspiring pieces of movements. ChoreoLab facilitates the creative process by providing a novel and collaborative outlet where the short choreography contributions of individual dancers are eventually unified into a final compilation video. The platform provides a means of creating a single piece that creates a

flow of continuity among a global network of dancers of different styles and backgrounds, allowing individuals to contribute a piece of self-expression to a larger project.

Section 2: Tasks and Final Interface Solutions

Our three tasks are Create, Contribute, and Discover. These tasks were derived from our initial needfinding results. We found that many dancers often don't have the time, energy, or focus to see choreography projects to completion. Our creation task allows users to capture these moments before they are abandoned and lost. Our contribution task gives users a more structured opportunity to create in those moments where their creativity needs direction. Our discover tasks allows users to interact with other dancers' creations and experience different interpretations to expand their dance vocabulary.

Simple Task: Discover

The goal of this task is for the user to discover and view existing projects from other users. The user begins on the Discover Feed (Figure 1, far left), which features the most popular finished and unfinished projects. The user can also use the Search field to discover more specific content. From the project detail page (Figure 1, right), users can continue to discover by navigating to the profiles of any of the contributors to discover other projects that user has created or participated in. Users may also like and bookmark projects.
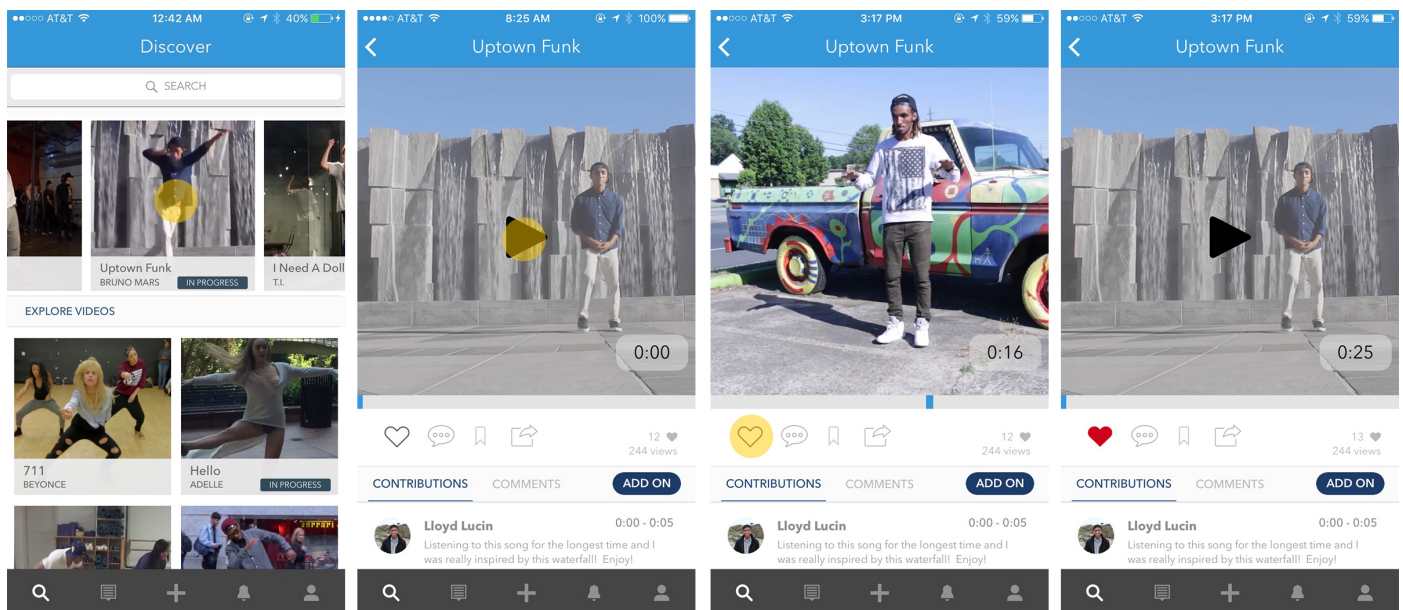

Figure 1: Discover task flow with final interface

Medium Task: Contribute

The user's goal in this task is to contribute a short piece of choreography to an existing project. The user can find an unfinished project from the discover process and contribute to it. Alternatively, the user may have requests from friends in the Notifications tab (Figure 2, top

left) who would like them to contribute to a project. From the Project Detail page, the user can select the add on button which will send them to the record screen where they will record their contribution.
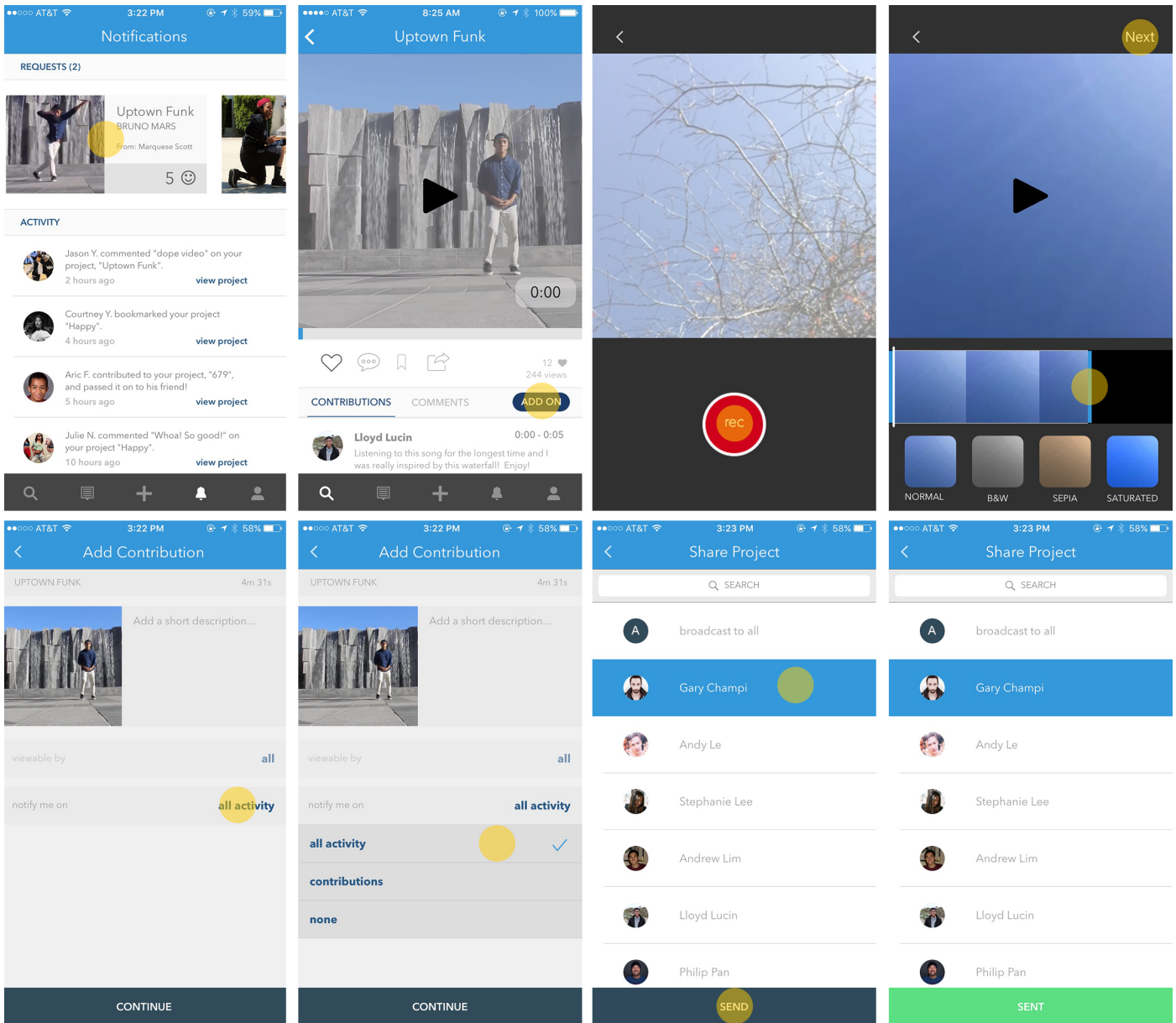

Figure 2: Contribution task flow with final interface

Hard Task: Create

In this task, the user creates their own choreography project that others can add to. Using the Create tab at the bottom of the screen, the user begins the process by selecting the song for the project. Then, the user selects the start and end time of the project. On the Record screen, a 5 second count down plays with the song, and the recording starts at the selected starting point. When finished, the user stops the recording and trims the end of their clip to the end of the choreography. Next, the user adds their contribution description to the project, selects the project and notification settings, and chooses a friend to pass the project to.
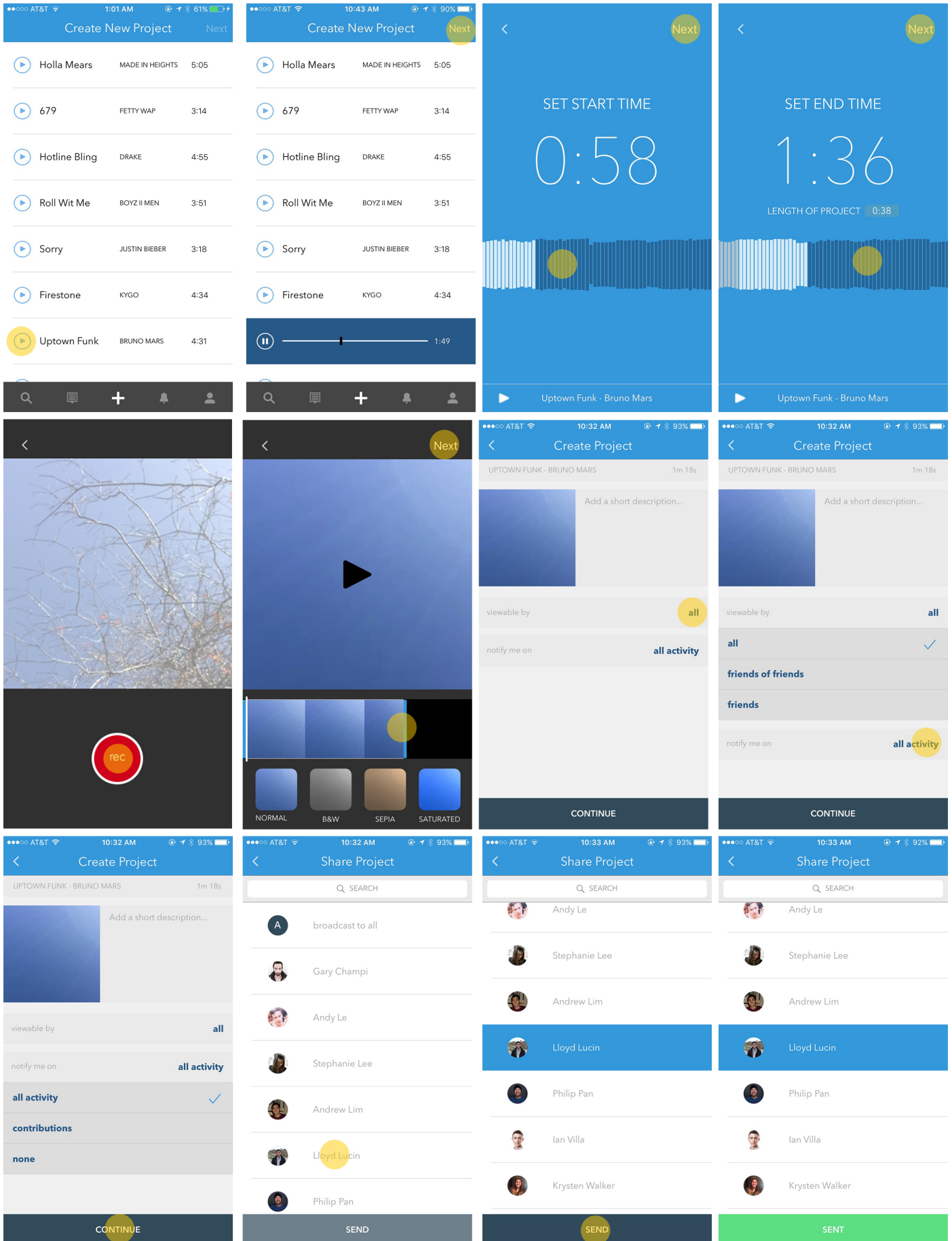
Figure 3: Create task flow with final interface
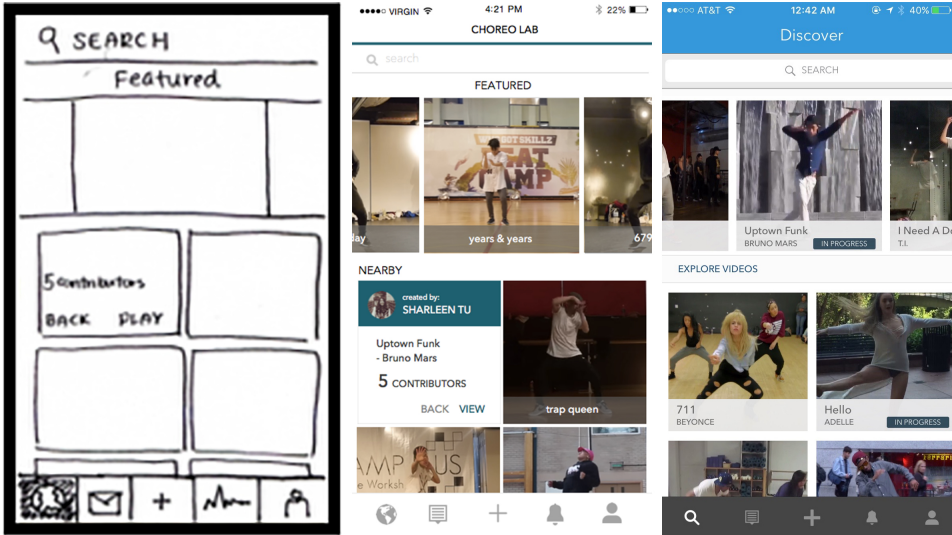
Section 3: Design Evolution

Figure 4: Discover screen from low to medium to high fidelity prototypes
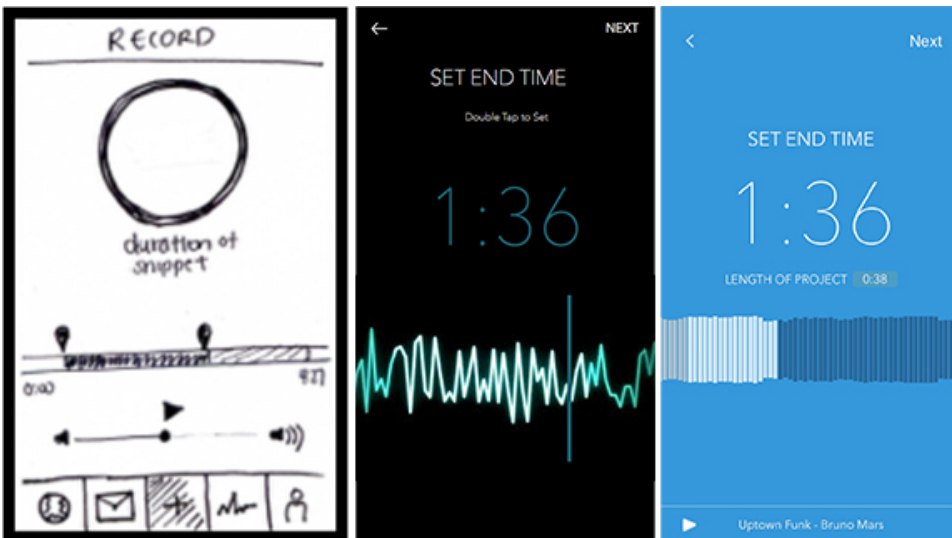

Figure 5: Project length screen from low to medium to high fidelity prototypes
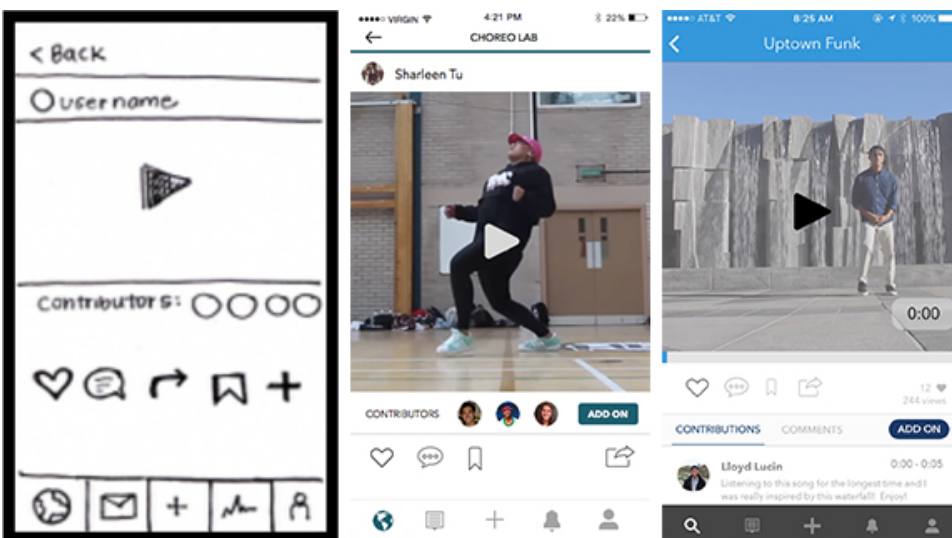

Figure 6: Project details screen from low to medium to high fidelity prototypes

Our design process was very user-centered. Through testing our low fidelity prototype, we were able to discover many of the high level issues with our idea. For example, we found that some of the terms we had been using did not translate well to users. We were originally calling each contribution section a "snippet" but users didn't understand what that meant (Figure 5).

After conducting user tests on the low-fidelity prototype, we created a medium fidelity prototype using Sketch and Marvel. Our classmates acted as experts and evaluated the details as well as the experience of using our medium fidelity prototype, and we used their feedback in making some of the changes seen in the high fidelity prototype discussed below.

Finally, we conducted a last round of user testing with a few dancer friends that helped us refine the fine details of the interface before the project fair.

Section 4: Major Usability Problems Addressed

The heuristic evaluation of our group contained 38 violations. There were 7 severity 3 violations and no severity 4 violations. Many of these violations overlapped or were results of prototype fidelity. After sorting, categorizing, and assigning our own severity ratings, we found 11 issues that needed to be addressed in the final prototype.

Summary of Violations

Category	Count	Errors
[H2-1: Visibility of Status]	1	Users cannot see how many people have liked a project
[H2-2: Match Sys & World]	1	Globe icon is used for notifications in Facebook
[H2-3: User Control]	1	Users might want to record for longer, but they will have to go back to the previous screen and re-record
[H2-4: Consistency]	2	Creator is separated from the contributors on the project detail page Time selection screens had a different color scheme
[H2-5: Error Prevention]	2	It was not clear whether the end time was project length of project or time in the song Double tapping to set the time might change the selection just slightly if you're not quick enough
[H2-6: Recognition not Recall]	1	Users must go to the project detail page in order to see if a project is open for contributions
[H2-7: Efficiency of Use]	1	There is no way to preview the music when creating
[H2-8: Minimalist Design]	1	The information on the project cards on discovery is too small and hard to interact with
[H2-9: Help Users with Errors]	1	Users can get stuck on what to name their project and won't be able to move on until they think of something
[H2-10: Documentation]	0	

Discover Screen

Many of our evaluators thought that the size of the text on the discover cards were too small and that the colors were misleading because it didn't feel like the back button was clickable. We decided to remove the discover cards, so users are taken directly to the project detail page from the project thumbnail.

We also received feedback that it was unclear which projects were complete and which were open to contributions, so we added an "in progress" label to the discover screen.

Our evaluators thought that the world icon for the discover tab was confusing because Facebook uses the world icon for notifications. We decided to use a magnifying glass icon for this tab, modeled after Instagram's search and explore features.
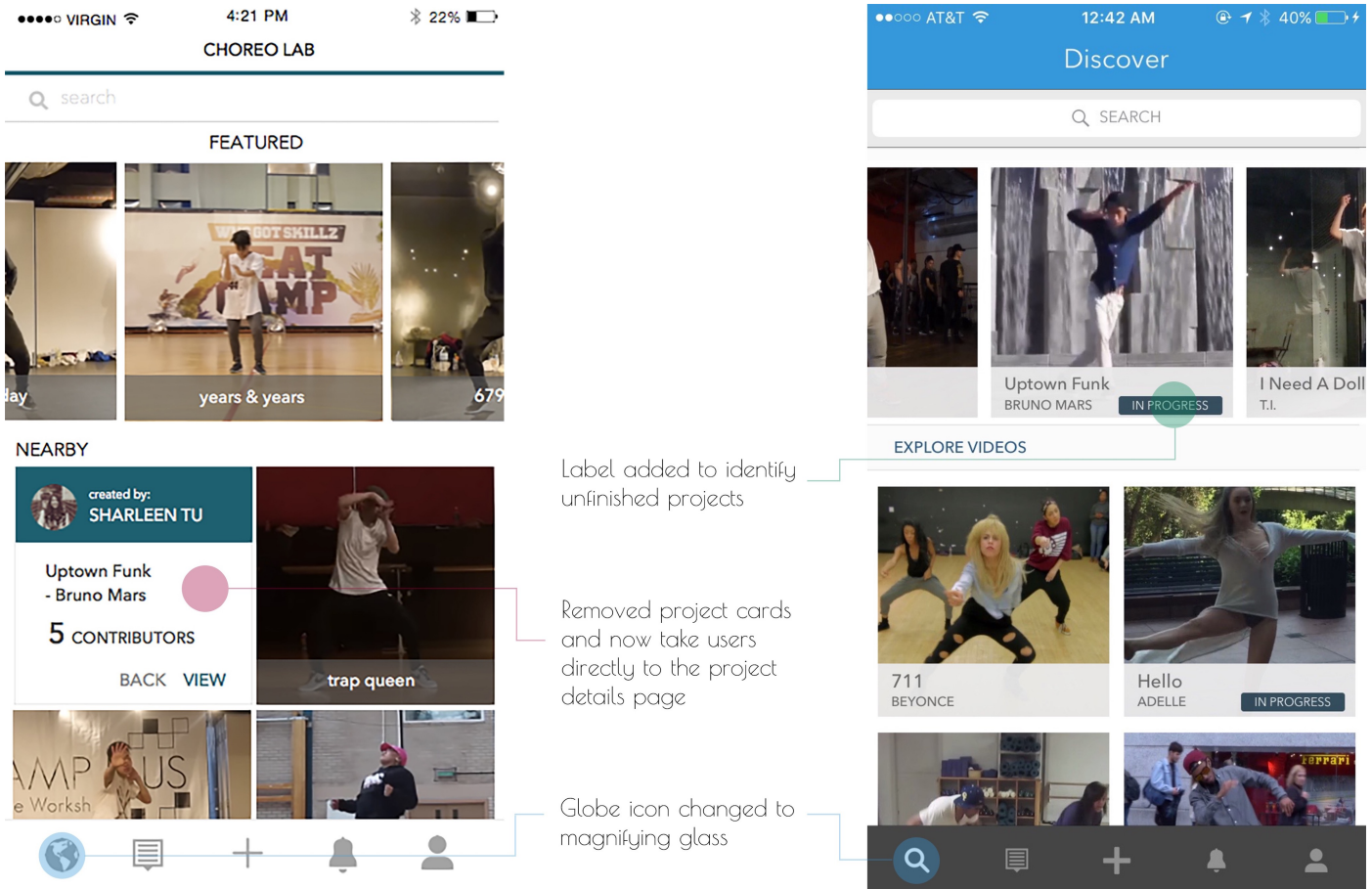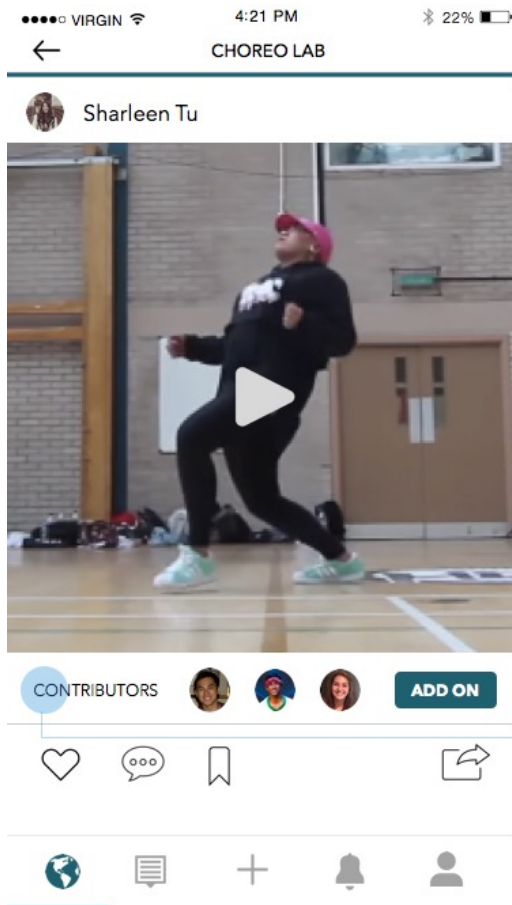

Label added to identify unfinished projects

Removed project cards and now take users directly to the project details page

Globe icon changed to magnifying glass

Figure 7: Discover screen annotated with major design changes

Project Detail Screen

Our evaluators thought that it didn't make sense to have the creator and the contributors separated on the screen, and we agreed. The project doesn't belong to the creator and so we added all of the project's participants below the video.

We also saw concerns over what would happen if a user doesn't know what to name his or her project or if the contributors want to edit the project name. We decided to get rid of the idea of a project title, and now the creator and contributors add a short description of their portion of the collaboration video. Adding your own description gives equal value to each user's choreography.

Finally, we also added data on likes and views onto this screen because there was previously no way for this data to be seen.
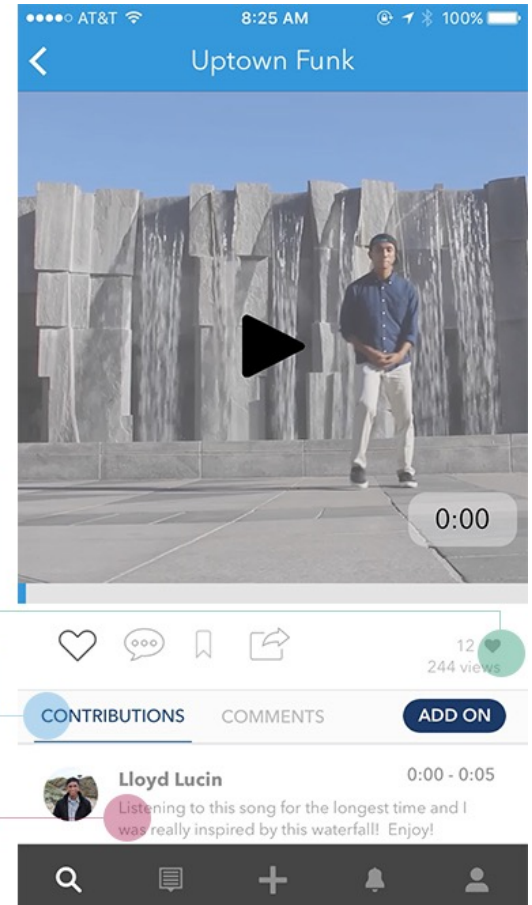
Figure 8: Project details screen annotated with major design changes

Creation and Contribution Flow

On the project time selection screens, we updated the color scheme to match the rest of the app. We also added a play button at the bottom of the set start and end time screens so that users can preview their audio selection before recording.

Our evaluators said that it was unclear whether the timestamp at the top of the project time selection screen was where you are in the song or the length of the project, so we added a length of project label.

Another major piece of useful feedback was that users might be nervous that when double tapping to set the time, the screen might move just slightly and change the start time of their project. So we just removed that entirely and now you select the time by clicking the next button at the top of the screen.

One of the evaluators mentioned that if the contributor was really into their choreography and wanted to add an additional few seconds, they would have to abandon their recording, go back, change the time, and record again. We've solved this by removing the time selection screen from the contribution flow. The length of a contribution is now set by the user in the post-editing screen. The record screen plays the music and counts them down, starts

recording, and then the user walks up, turns off the camera, and crops the clip on the end to the right length.
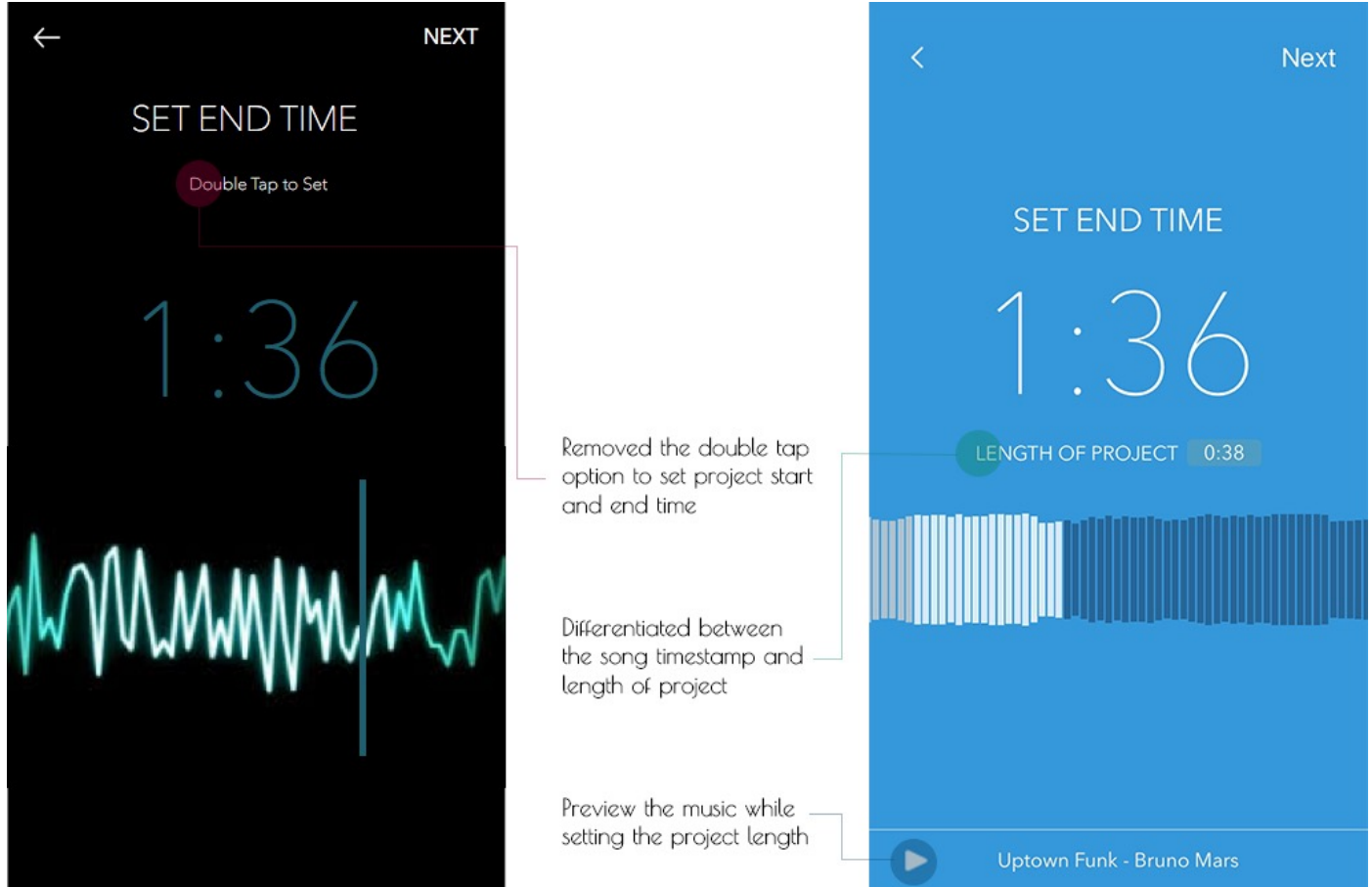

Figure 9: Project time selection screen annotated with major design changes

Section 5: Prototype Implementation

Our prototype is a native iOS application free of any Wizard of Oz techniques. This prototype is written in Swift and Objective C and built with XCode. In order to test our application on our actual mobile devices, we requested an Apple Team developer account from a TA.

In order to bring our new Sketch mock-ups to life, our developers, who had no previous iOS experience, explored new tutorials, queried StackOverflow, and explored existing libraries. The major and most complex accomplishments of our application lie within our creation and contribution tasks. These significant technical feats include support for scrubbing through dynamic music waveforms while setting project start and end times, recording video while playing music, merging videos into one, and video editing. For simultaneous recording and music playing, we consulted a TA who got us started with a basic view that played music, displayed a visual five-second countdown, and recorded video. We were able to expand heavily from this functionality by adding custom recording buttons, resizing the video to

square dimensions, saving the recorded video, and even supporting video trimming and filtering. In addition, we also were able to a build music and video players with custom sliders.

Some areas that at first seemed straight-forward but were surprisingly non-trivial in XCode included adjusting the relational spacing between view elements, changing fonts for section headers, setting page titles, and supporting horizontal and vertical scrolling. XCode also seems to be buggy with regards to file paths of image and video assets, which led to some confusion as to why certain images and videos were not rendering.

Due to time constraints, we were not able to implement a database and had to rely on hard-coding all images, profiles, and videos. Each video thumbnail, request, and activity cell link to the "Uptown Funk" Project Details Page when tapped. Finally, we set the Feed and User Profile pages to be scrollable images with a caption saying, "This feature has not yet been implemented." We thought this would be appropriate since those pages were not directly relevant to our main tasks.

In the future, we hope to implement a database and login system which our views can dynamically link to in order to fully create a collaborative experience amongst a community of dancers. Other desired features that we hope to address in the future include optimizing the speed at which our video filters are applied, actual iOS implementations for the Feed and User Profile views, and support for all unimplemented features (commenting, searching, bookmarking, sharing, etc).

Section 6: Summary

For many dancers, sustaining creative energy and motivation is difficult; the effort required to transform an initial spark of creativity into a performance ready piece is often significant enough that dancers abandon potentially promising ideas. ChoreoLab inserts itself as a platform to express these sparks of creativity in a quick manner that allows short choreography to be explored in a collaborative manner. Throughout this quarter, we have attempted to create an experience that enhances the dancing experience. We have iterated on our application's design over the quarter in order to streamline the creation process and allow dancers the freedom to capture dance ideas in a variety of settings, ultimately contributing a short segment to a longer compilation video. Moving forward, our goal is to continue building out the platform and support the dynamic creation of the first authentic ChoreoLab compilation.