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CS 147 Final Project Report

buckets
dream together. do together.

1. Problem & Solution Overview

We all have dreams - goals that we've always wanted to accomplish, skills that we've always wanted to learn, fears that we've always wanted to overcome - but, all too often, we lack the motivation to accomplish them. What if we could find someone with the same dreams as us? *buckets* taps into the power of group motivation to help people turn dreams into stories, building and strengthening relationships along the way.

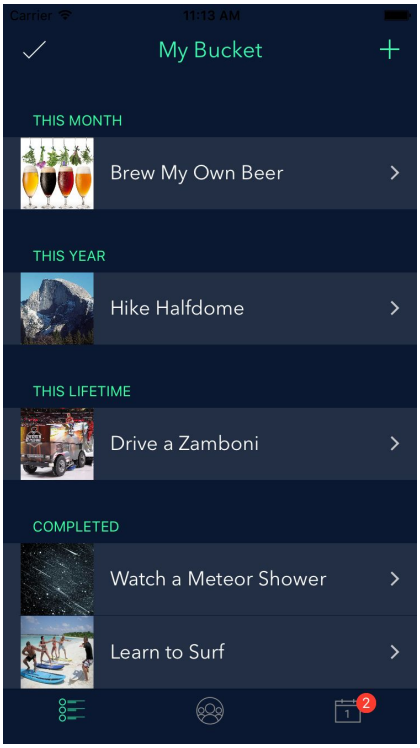
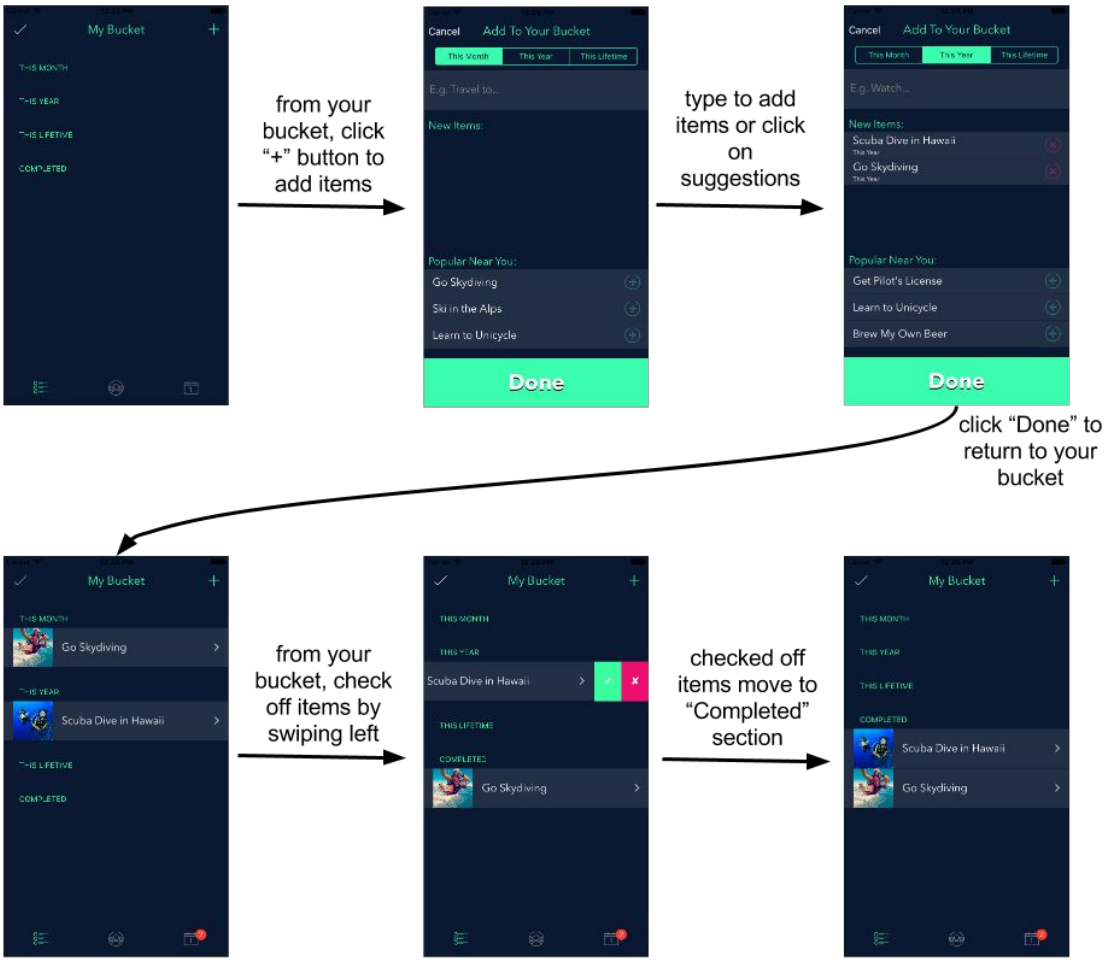


Fig 1. Image of design

2. Tasks & Final Interface Scenarios

Task #1: Keep track of things on your bucket list (simple)

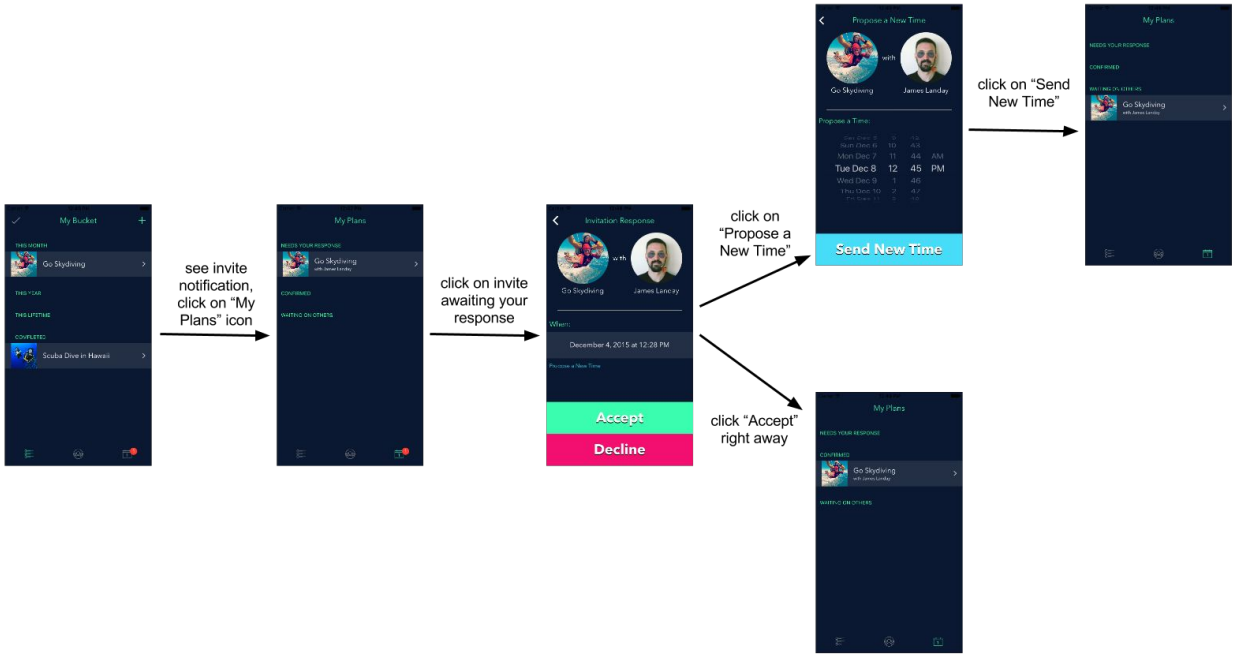
The people we spoke to told us they have things on their bucket list - places they've always wanted to go or activities they've always wanted to try. However, they feel that they'll never get around to actually accomplishing these goals if they just keep these ideas in the back of their mind. We chose this task because we think it's important to give people a place to keep track of their bucket list activities, both to remember them and have a place to check them off after accomplishing them.



Storyboard 1. Adding items to your bucket list and checking them off

Task #2: *Accept an invitation from someone to do something on both of your bucket lists (moderate)*

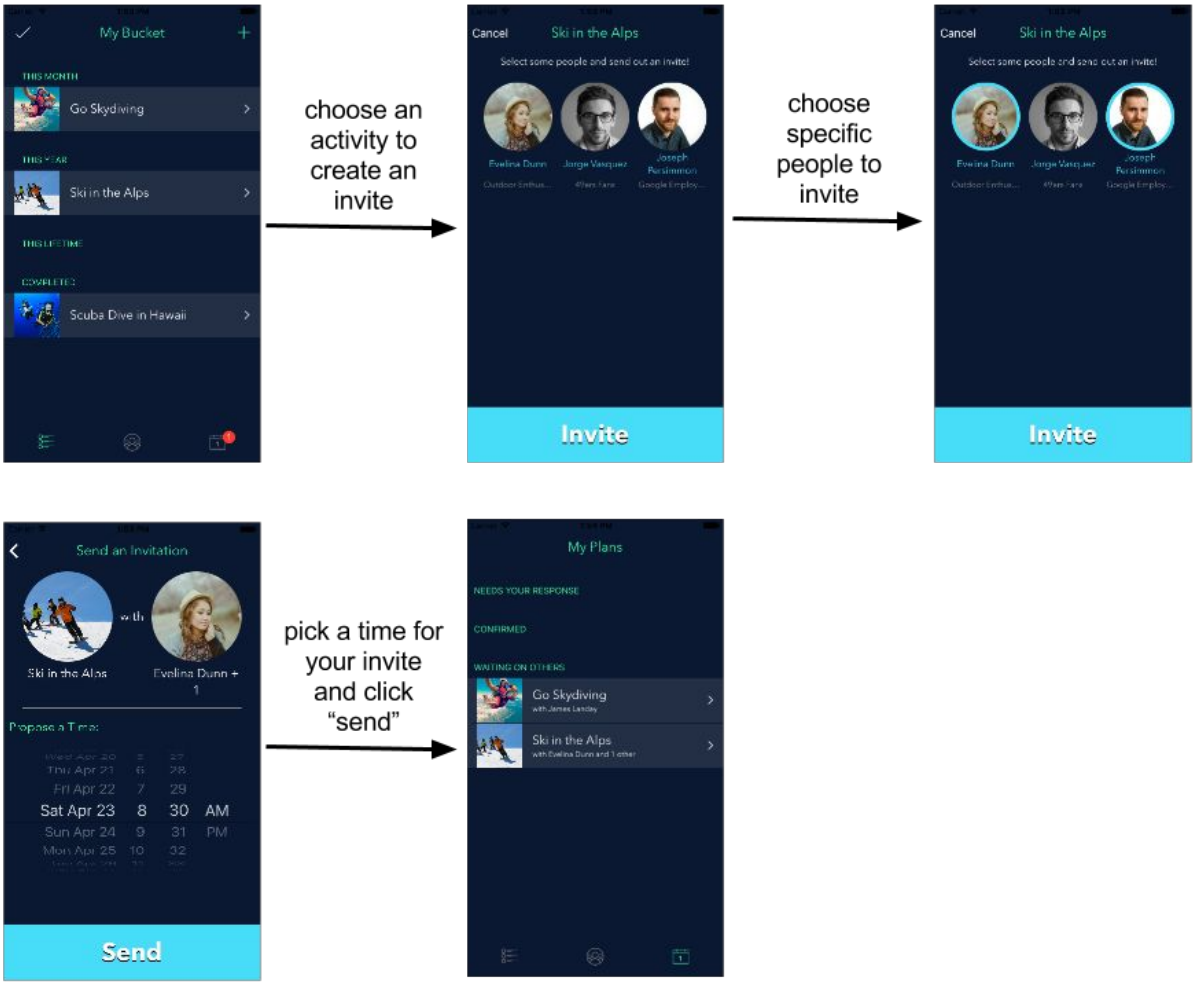
During our need-finding, we spoke with Dr. V, a professor of engineering at Stanford who has always wanted to learn how to unicycle. We developed an experience prototype that allowed him to learn how to unicycle with someone who was also trying unicycling for the first time. The feedback we received for this prototype was extremely positive, which confirmed our hypothesis that shared goals and activities help people form stronger connections. Thus, we chose this task so users would have the opportunity to accomplish things off their bucket list alongside people with similar goals.



Storyboard 2. Respond to an invitation

Task #3: *Invite someone to do something on both of your bucket lists (complex)*

This final task is designed for advanced users who are actively trying to find and invite others to accomplish shared bucket list items. Most of the users we spoke to said they are excited about meeting people who enjoy the same activities; however, they expressed reluctance and uncertainty about reaching out to someone for the first time. Thus, this task is designed either for advanced users, who have already accepted invitations and feel comfortable with the experience of using our app, or power users, who are confident and/or proactive enough to reach out to people with common bucket list items.



Storyboard 3. Create and send an invite

3. Design Evolution

Step #1: UI Sketches

Initially, we used rough UI sketches to explore a variety of possible interfaces for our application. We began with common interfaces, such as a smartphone app, tablet app or website, then explored more unusual ideas, including augmented reality, a smartwatch, and a car interface. From these options, we felt that the smartphone and watch interfaces were the most mobile and accessible options. Here are some samples of our initial sketches:

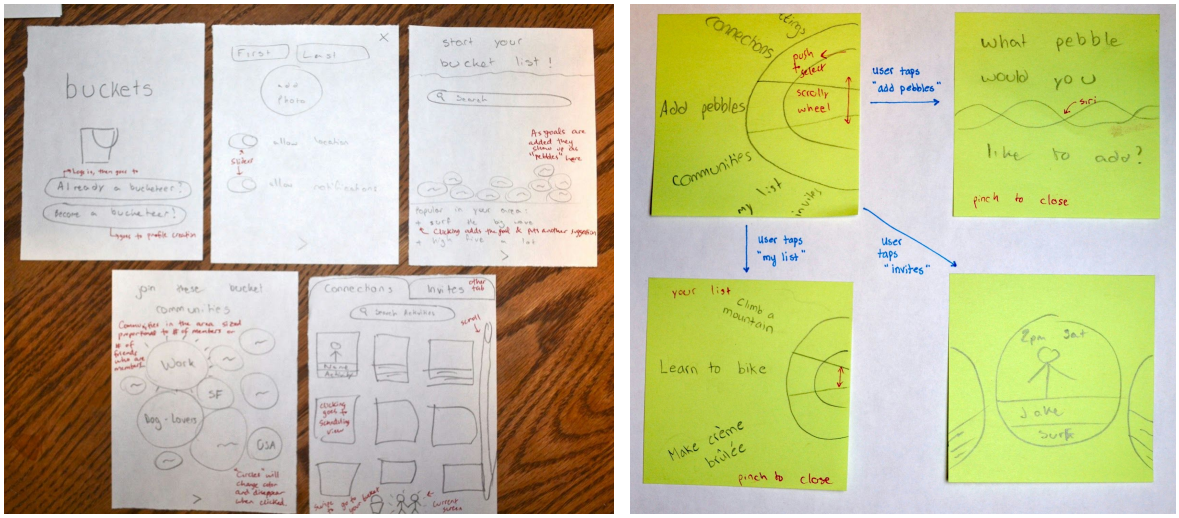


Fig 4. Smartphone and smartwatch UI sketches

Step #2: UI Storyboards

Next, we developed storyboards for each of our three tasks. At this point, we were focusing more on flow (i.e. how users go from one screen to another to complete a task) than the specific UI elements on each screen.

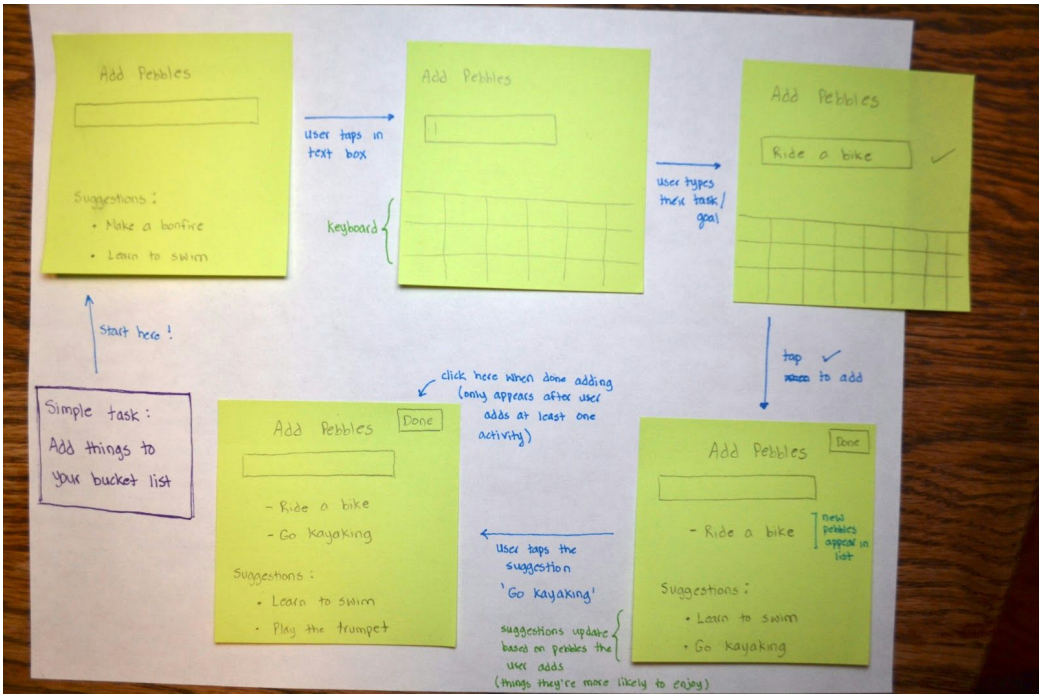


Fig 5. UI storyboards for simple task

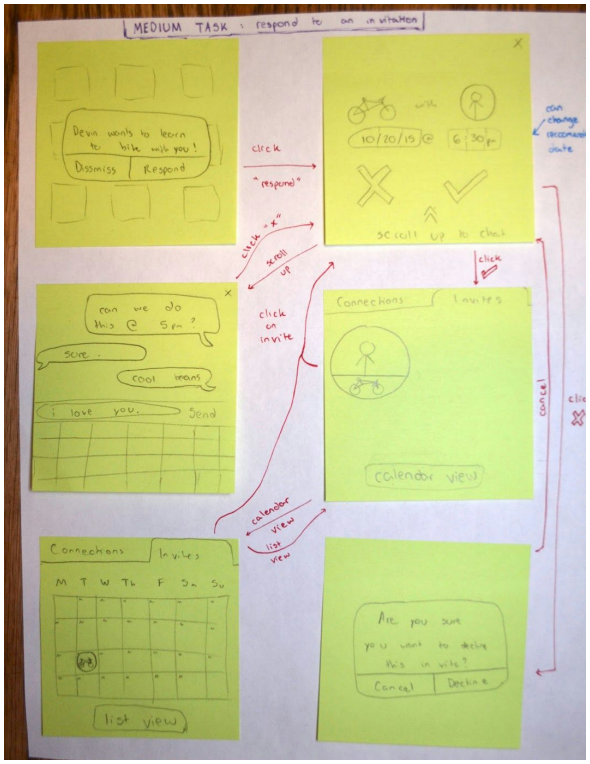


Fig 6. UI storyboards for medium task

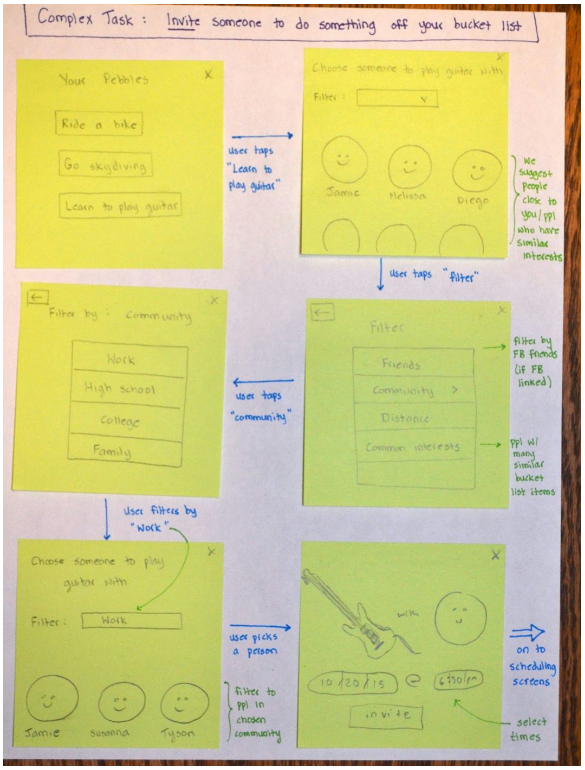


Fig 7. UI storyboards for complex task

Step #3: Low-Fidelity Prototype

With our storyboards as a reference, we created a low-fidelity (paper) prototype so we could test our interface with users. Our prototype consisted of four task flows: set-up, adding items to one's bucket list, responding to invitations from others, and sending invitations to do an activity.

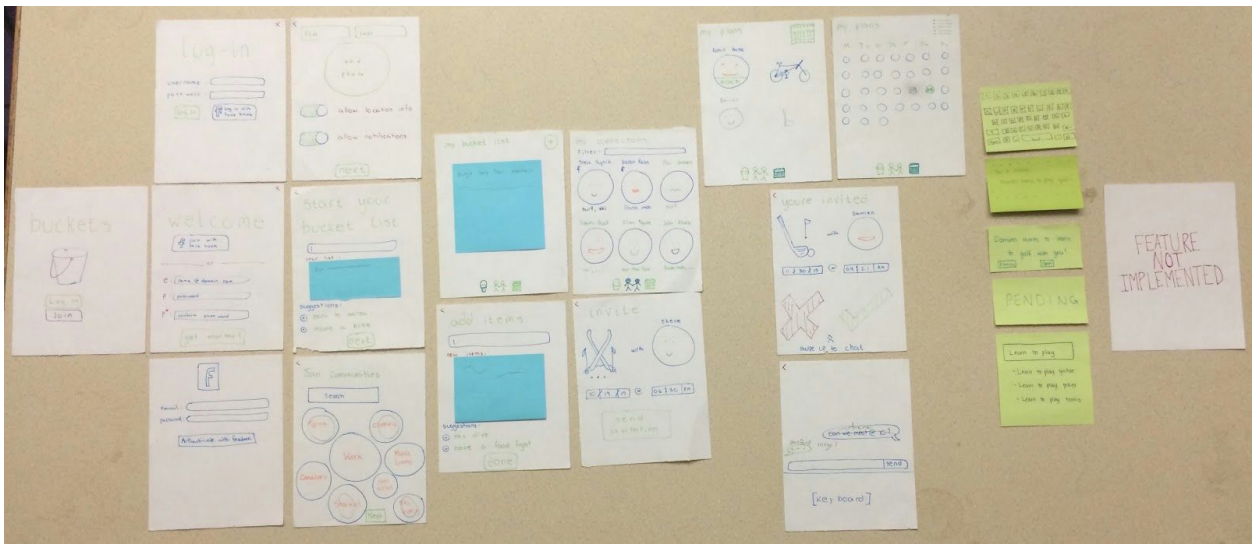


Fig 8. Overall layout of low-fi prototype

The set-up process is illustrated by the images below. Remarkably, the corresponding screens in our high-fidelity prototype draw heavily from these initial designs.

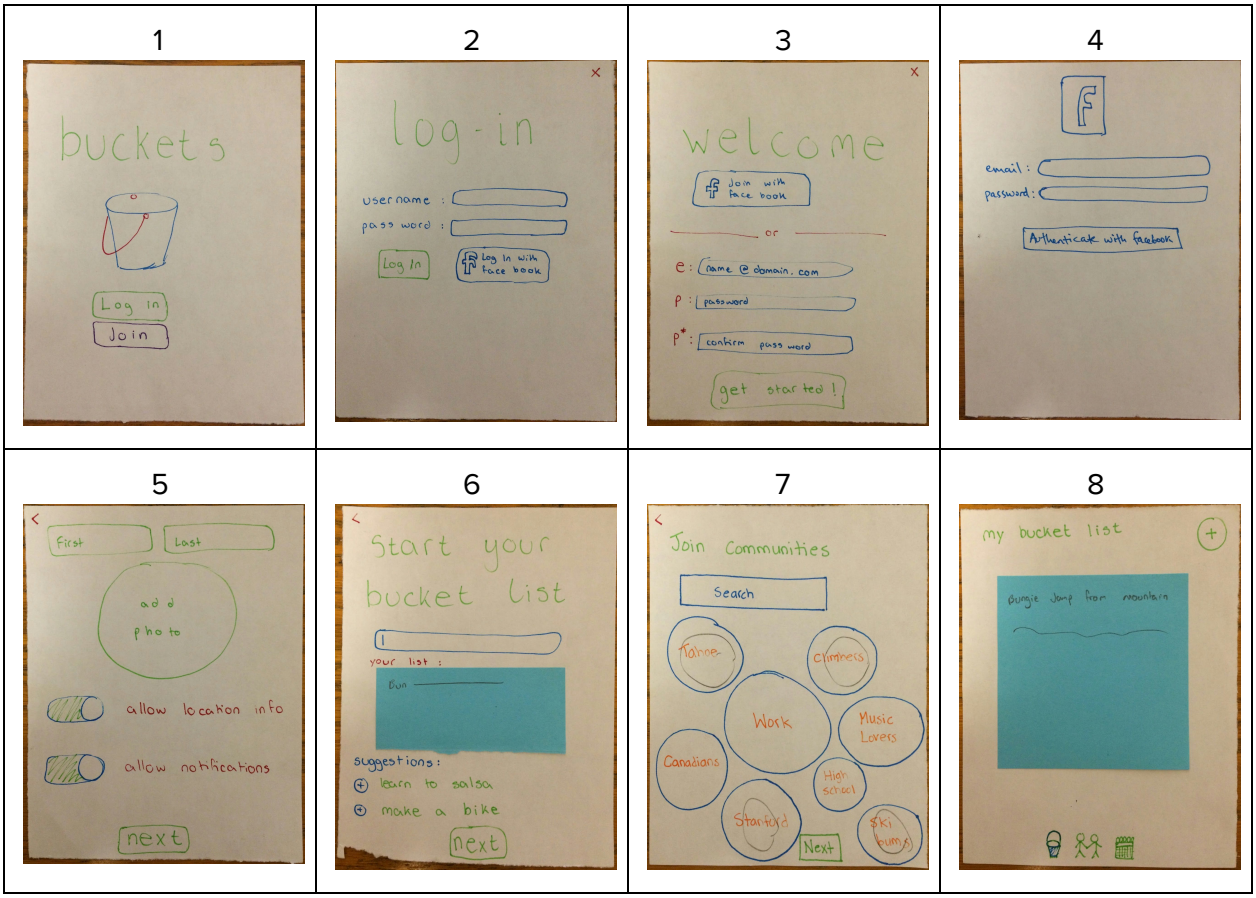


Table 1. Setup flow for our low-fi prototype

The following screens provide functionality for the remaining core tasks: adding items to your bucket list, receiving invitations, and sending invitations.

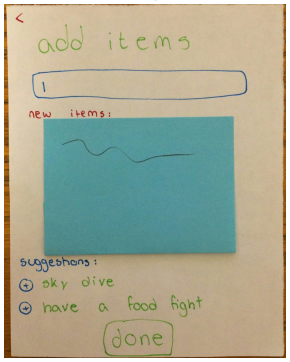
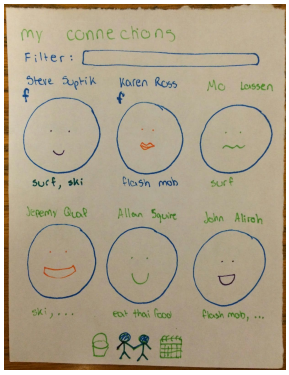
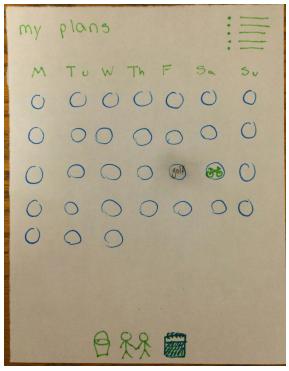
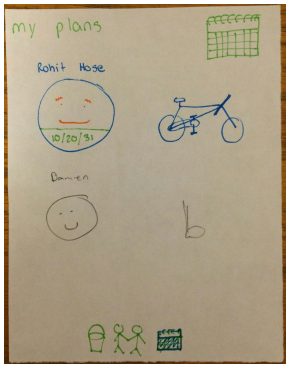
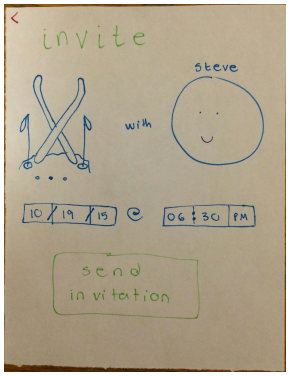
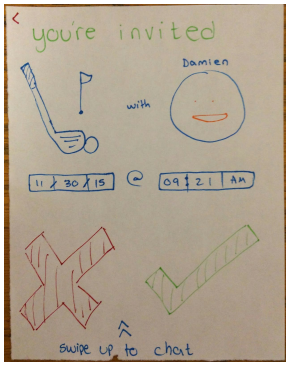
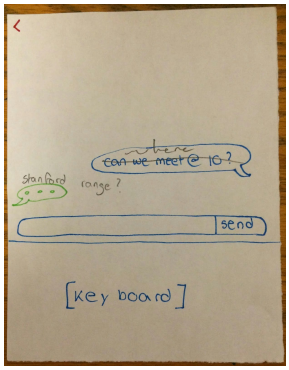
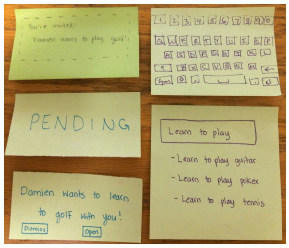
9. Adding items	10. Connections[1]	11. Plans as calendar	12. Plans as list
			
13. Send invite	**14. Receive invite**	**15. Chat**	**16. Pop-up screens as Post-Its**
			

Table 2. Additional functionality in our low-fi prototype

During this design iteration, we decided to drop the word “pebbles”. As shown above, our UI sketches and storyboards made references on various screens to adding “pebbles” (i.e. bucket list items). This is because in our concept video, we represented bucket list items as pebbles/rocks in an actual bucket. When designing our low-fi prototype, we realized that users who had not seen our video might not understand this metaphor, so we decided to refer to bucket list items simply as “activities” instead. We did, however, decide to keep the bucket metaphor by naming our app “buckets” and calling the screen that displays the user’s bucket list items “My Bucket”.

We tested our low-fi prototype with three users. We started each test by telling our participants that they had several goals they wanted to accomplish (i.e. bucket list items), and that a friend had recommended a new app for them to try. We then handed them the initial screen and observed how they interacted with it. Each time they clicked a button, we gave them the corresponding new screen or added a Post-It note to represent user input. As we conducted these tests, we noted critical incidents that informed the design of our medium-fidelity prototype.

[1] At this stage of our design, “Connections” are people with whom you share one or more bucket items.

Step #4: Medium-Fidelity Prototype

Based on our user testing, we made several interface modifications when creating our medium-fidelity prototype. We discuss each of these modifications in the subsections below.

Bucket List screens:

- The user's bucket list is now segmented by time frame (This Month, This Year, and This Lifetime). This adds more organization to the list, making it easier to scan through and view items you've added. Furthermore, we think that giving bucket list items a concrete timeframe helps to make them feel more achievable.
- The text box where users enter a bucket list item contains a prompt (which is randomly selected each time they go to this screen). This change was directly based on our user testing: 2 out of our 3 user testers got stuck when they reached the "Start Your List" screen, which showed us that we needed to help users generate ideas for bucket list items. Participant #2 found it much easier to think of items for her list when given a prompt in the text box like "Learn to...".

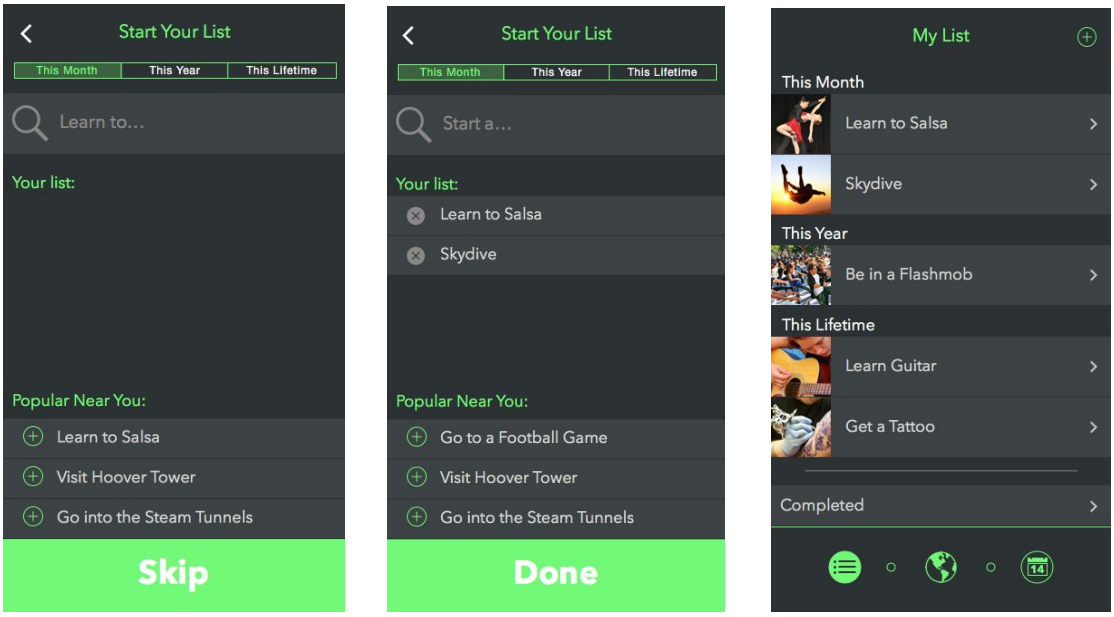


Fig 9. Bucket list screens in medium-fidelity prototype

Communities screens:

- We changed our terminology for this part of the app from "Connections" to "Communities". We needed a better name for these screens because our user testers were initially confused about what connections represented. We think this is because the term "Connections" is reminiscent of LinkedIn-type business contacts, not (potential) friends. In contrast, "Communities" implies shared interests, which better reflects the actual purpose of communities in our app.

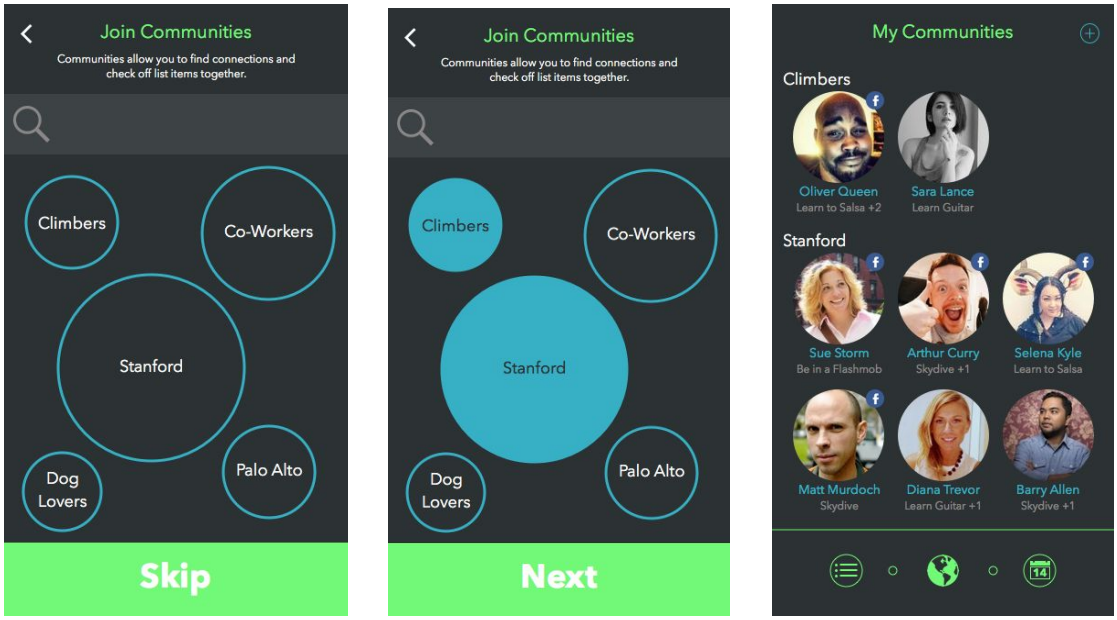


Fig 9. Communities screens in medium-fidelity prototype

Invitation/Plan screens:

- We allow users to create group invitations in addition to individual invitations (i.e. when creating an invitation, users can select an arbitrary number of other people). This modification was a response to our user testing, in which Participant #2 noted that she would feel uncomfortable doing a one-on-one activity (because it could feel like a date).
- iOS date pickers have replaced the date and time widgets that we drew in the low-fi prototype. Since users are already familiar with date-pickers from other iOS apps, this makes our app easier to use.
- We eliminated the calendar view, and instead just show plans and invitations in a table view. We did this for simplicity - we felt that both formats could effectively convey the same information, and table views are far easier for us to implement.
- Users can propose timeframes like “This Weekend” rather than having to select a specific date and time like “Saturday, September 1 at 2:30pm”. This change was also driven by our user testing: when we tested the ‘Invite Creation’ task with users, Participant #2 mentioned that she would prefer to propose a vague timeframe and allow the invitee(s) to select the specific time that works best for them. Ultimately, we decided not to include this feature in our final design because it isn’t essential to the core task and made both the task flow and implementation more complex.

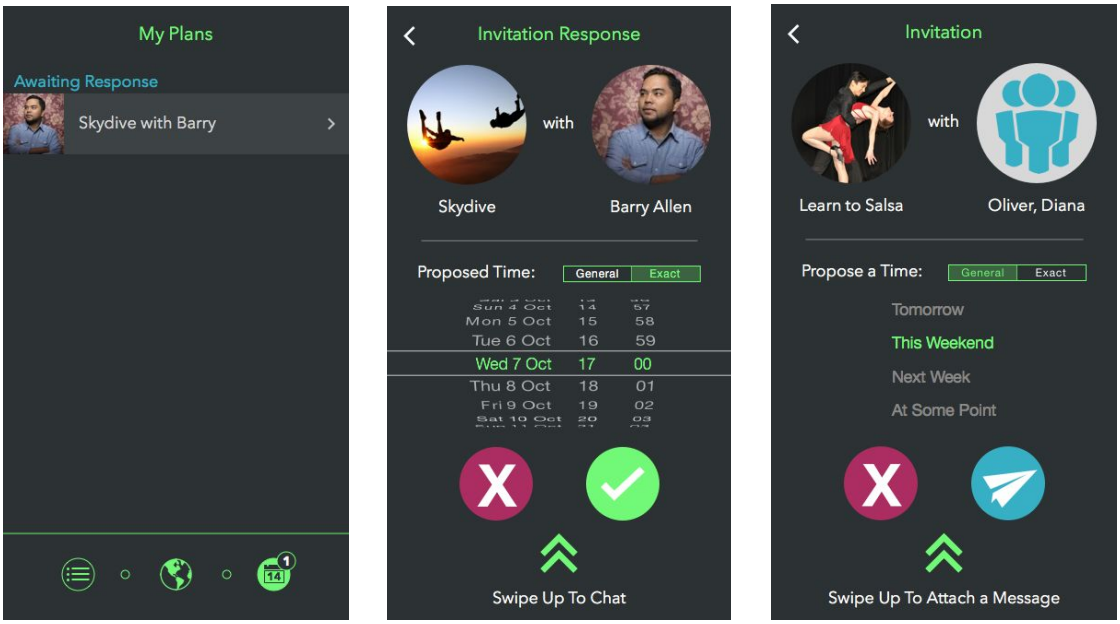


Fig 10. Invitation/Plan screens in medium-fidelity prototype

4. Major Usability Problems Addressed

Our heuristic evaluators highlighted several issues with our app, both aesthetic and functional. We tried to respond to the most pressing issues, but there were others that we felt were unrelated to our main tasks so we didn't make any changes. All level 3 and 4 violations are highlighted below along with a summary of how we responded; a few level 1 and 2 violations are included as well since we thought they were influential in improving our app.

[H2-1 Visibility of System Status] [level 3] - "It is unclear how "Invitation Response" screen that proposes new time is different from the original "Invitation Response" screen."

> Even though there is functionally little difference between initially responding to an invitation and proposing a new time once you have already accepted an invitation, in response to the feedback we made these screens visually different. The initial invitation response screen has clear "Accept" and "Decline" buttons, as well as the option to propose a new time. On the other hand, when viewing an invite from "My Plans" the plan detail screen simple has an "Edit" button, which will then take you to another screen to propose a new time or decline the invite. We think that there is now a clear distinction between the initial response to an invitation and editing/changing your response in the future.

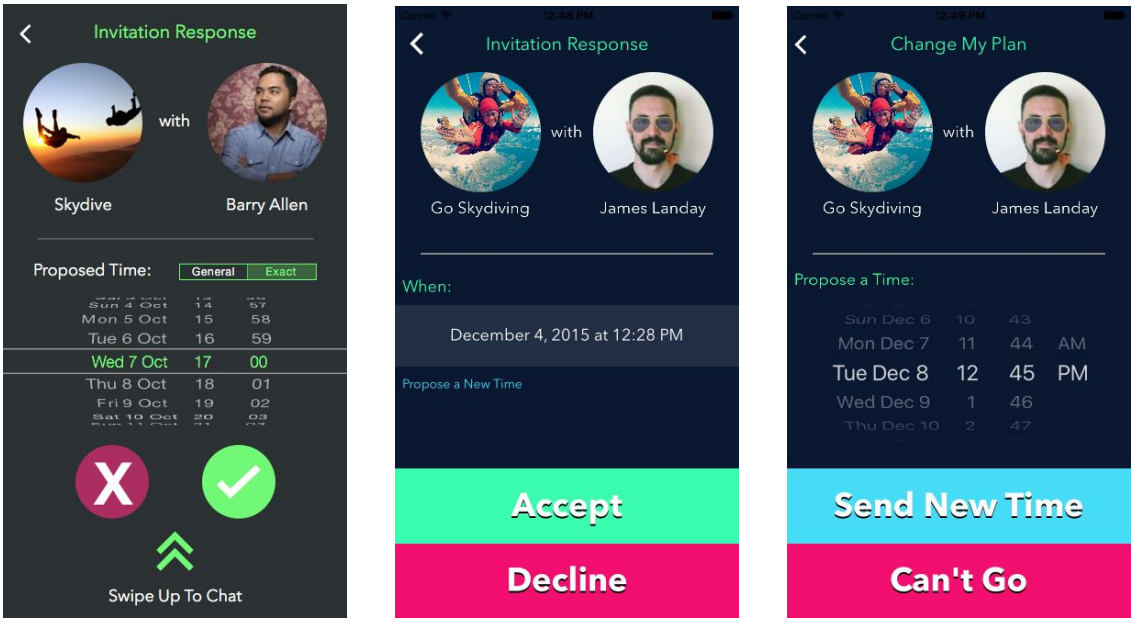


Fig 11. Left: screen for both responding to an invite and editing it in the med-fi prototype; Middle: respond to an invite in the hi-fi prototype; Right: edit an invite in the hi-fi prototype

[H2-1 Visibility of System Status] [level 4] - “There is no central way to manage all chats. The calendar icon for “My Plans” does not sound like it would include chat.”

After brainstorming ways to make chat more intuitive, we eventually decided to remove the feature entirely. We were hesitant to centralize chat due to concerns that that app might devolve into a general messaging service and users would lose sight of completing activities together, However, we agreed that the current chat situation wasn’t intuitive. Since chat wasn’t a core task/feature of the app and making it better would take a significant amount of time, we scrapped the feature.

[H2-2 Match System and Real World][level 4] & [H2-10 Help and Documentation] [level 3] - “Unclear how join community navigation will work. How are communities curated?”

In response to this feedback, we added more information to the “Join Communities” screen to give users a better idea of what a community is and why they should join. Since there is no obvious “skip” button, we are hoping users will select at least one community from the list before continuing. If users don’t join any communities, they can still use the app although the list of people to complete activities with will be purely based on location. The original description of the “Join Communities” screen was “Communities allow you to find connections and check off list items together”, and we changed it to “Communities connect you with people of similar interests and goals with whom to check off bucket items” to make it clearer what the communities were for.

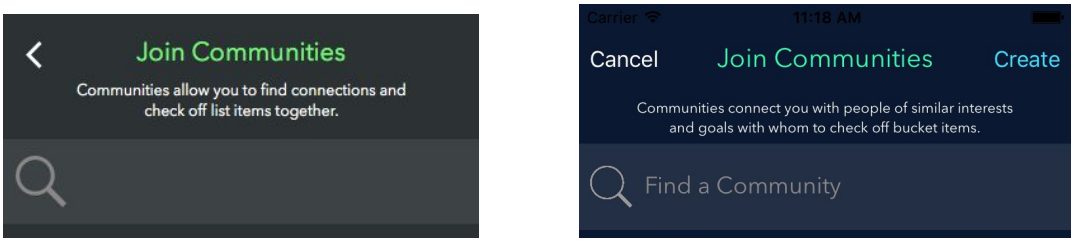


Fig 12. Left: Top of the "Join Communities" screen in the med-fi prototype; Right: Top of the "Join Communities" screen in the hi-fi prototype

[H2-2 Match System and Real World] [level 3] - "I can see endless hassle with a back and forth [trying to schedule an activity]. I suggest taking you into a when2meet type calendar-matching app."

Unfortunately, this was one of the suggestions we received that we agreed with but weren't able to complete for the hi-fi prototype. We agree that having a date picker with a very specific date and time isn't ideal and may lead to some confusion over scheduling. However, implementing a when2meet style calendar would have been a lot of work, and we're not sure it would have been the ideal solution either. Given more time, we would give users the ability to propose multiple times or a range of times.

[H2-3 User Control and Freedom] [level 3] - "There is no clear way to leave "My Communities", "My Plans", or "My List" pages. Add a home button that takes users to "My Plans". Also there is no way to go back to the previous page from these screens."

This feedback really confused us since "My Communities", "My Plans" and "My List" are the three main features of the app, and all are equally important. Since the beginning, we have designed the app to have three main tabs accessible from a navigation bar at the bottom of each page. This allows users to quickly switch between tasks with one click. A home page would just make navigation less intuitive while not adding any benefits, so we chose to keep the original three-tabbed design. Similarly, a "back" button would also be confusing since the 3 main tabs aren't intended to be viewed linearly, users can use the tab bar to jump between them in any order they want.

[H2-3 User Control and Freedom] [level 3] - "There is no clear way for the user to view her own profile and edit her profile. " & [H2-3 User Control and Freedom] [level 4] - "Is there a settings page"

This feature would also be nice to have, and given more time we would have implemented it. However, it's not a core feature of the app, nor is it related to the 3 main tasks (adding items to your bucket list, creating invites, and responding to invites). We give users the ability to join additional communities as well. The only things they can't do in terms of managing their profiles/settings are change their profile picture, edit notification settings, and leave communities.

[H2-10 Help and Documentation] [level 3] - “On “My Plans” page: how did I suddenly get here from a messaging screen? I confirmed Barry’s invite but it wasn’t clear what time I selected. Make it more clear how plans are scheduled”

The confusing navigation was taken care of when the chat feature was removed from the app. We made scheduling plans more intuitive by moving “Propose a new time” to a separate screen when responding to an invite. See the middle panel of Fig. 11.

[H2-8 Aesthetic and Minimalist Design] [level 1] - “The color palette of the app looks a little too similar to the Spotify app, medium-gray background with neon green and blue highlights.”

Although this wasn’t intentional (none of us use the Spotify app), we decided to change the color scheme slightly to reduce the resemblance to Spotify.

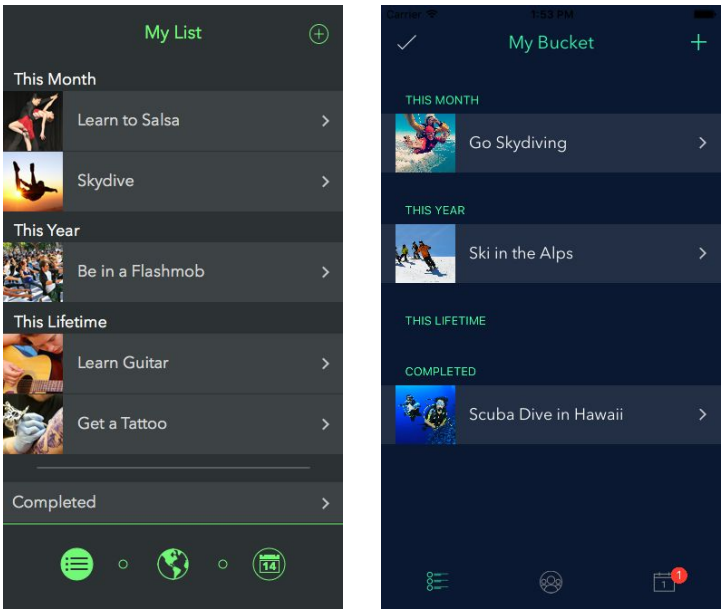


Fig 13. Color palette from the medium-fi prototype (left) compared to the high-fi version (right)

[H2-8 Aesthetic and Minimalist Design] [level 2] - “Why is there a giant red X on the invitation screen? Do you want users to abandon creating an invite to fulfill their bucket list at the last step?”

We agree, making the cancel button the same size as the send invite button was weird because it seems like users are expected to carry out both of these actions with the same frequency. We changed the cancel button into a back arrow on the screen where users send invites, however, we kept the buttons on the “responding to invite” screen the same size since it’s equally likely that you will accept or decline an incoming invitation.

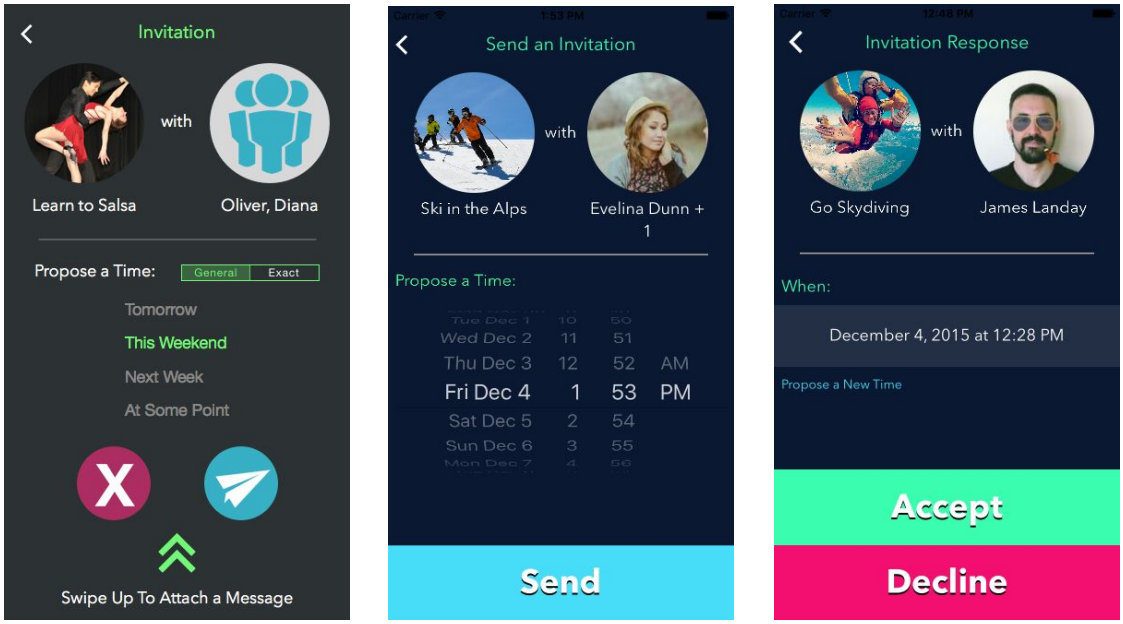


Fig 14. Left: Original screen in the medium-fi prototype with both buttons the same size; Midde: Updated send invite screen; Right: Updated respond to invite screen

[H2-2 Match System and Real World] [level 1] - “The icon at the bottom of the communities page suggests location more than anything else”

We changed the icon to be more representative of a community or group.

Fig 15. Left: Navigation bar on the med-fi prototype; Right: Updated navigation bar on the hi-fi prototype. Notice the change from a globe icon has been changed to a group of people. Also, the other two icons have been simplified.

[H2-3 User Control and Freedom] [level 2] - “There is no clear way to edit the user’s invitation”

When users click on a plan from “My Plans” they are now taken to a “plan detail” screen which allows them to view the details of a plan as well as edit it.

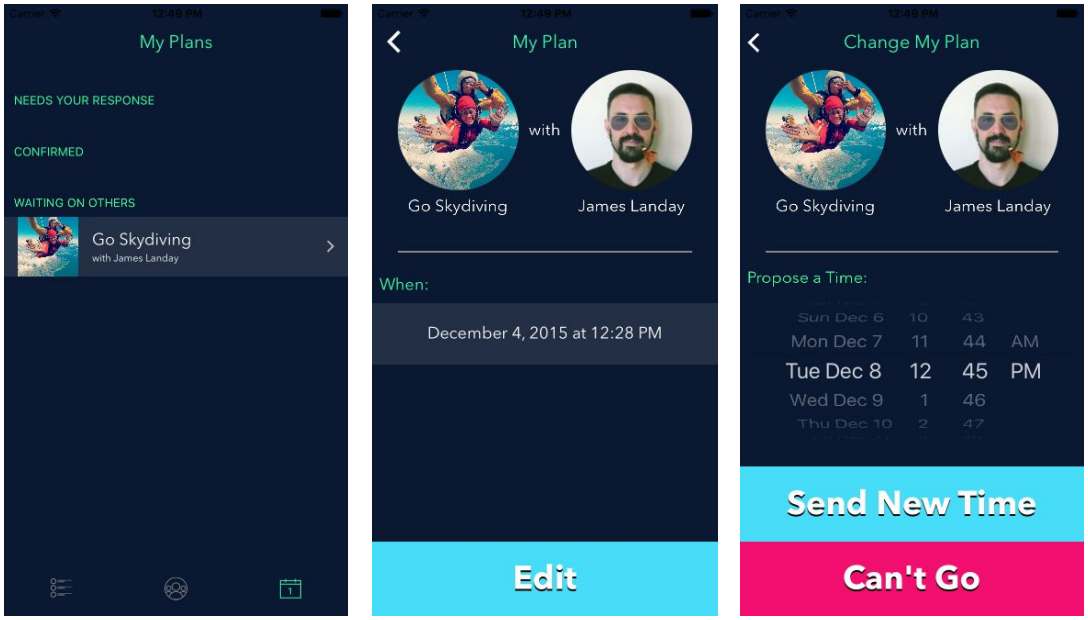


Fig 16. Clicking on a plan from the “My Plans” screen (left) takes you to the plan detail screen (middle). Clicking on “Edit” will allow you to edit or decline the invite from the screen on the right.

[H2-4 Consistency and Standards] [level 2] - “The word “bucket” or “bucket list” doesn’t appear on the app at all.”

Good point. “My List” has been renamed to “My Bucket” and the documentation on the “Join Communities” screen explains that communities help users complete bucket items together.

[H210: Help & Documentation] [level 2] -“On “Learn to Salsa”: when I click two individuals to invite to activity, it is not clear whether I am inviting them each individually or inviting them as a group”

Invites are as a group, this is now more clear (see image below).

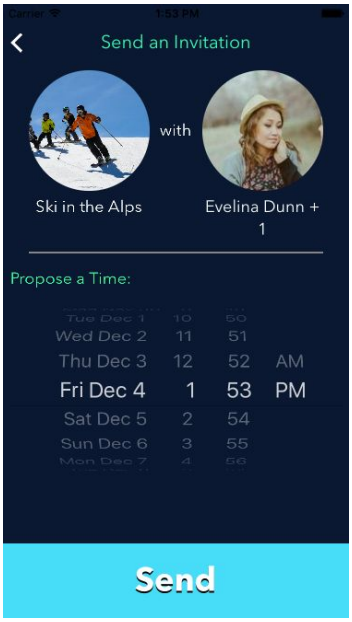


Fig 17. Invites now clearly show group, “Evelina Dunn + 1”

5. Prototype Implementation

A. Tools

We developed the high fidelity prototype for iOS using Xcode (coding in Objective-C). The storyboard interface builder was a feature of Xcode that really helped with the development of the design. It allowed us to readily visualize our app and how the screens would interact with one another. This tool did, however, have its limitations (proving it to be a hindrance at many times). There is minimal customizability for native objects, which frustrated our design; for example, we could not change the font of bar buttons to match our font.

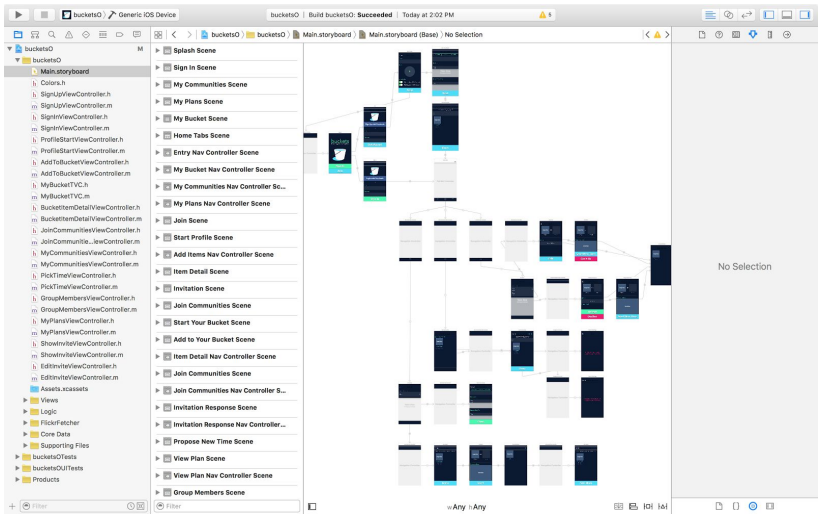


Fig 18. Storyboard file in Xcode shows how we visualized the app during development

Another useful feature of Xcode was core data. Core data made it very easy to set up the objects in our database and also set up the functions necessary for some hard coding and wizard of oz techniques.

B. Hard-Coded Data

The final implementation of our app will need a backend to connect users, communities, and invites. We did not develop that backend for this prototype. Hard-coded into the app we have a set list of other users, communities that can be joined, and “Popular Near You” bucket item suggestions with associated images. The figure below shows how someone running the prototype would interact with this hard-coded backend.

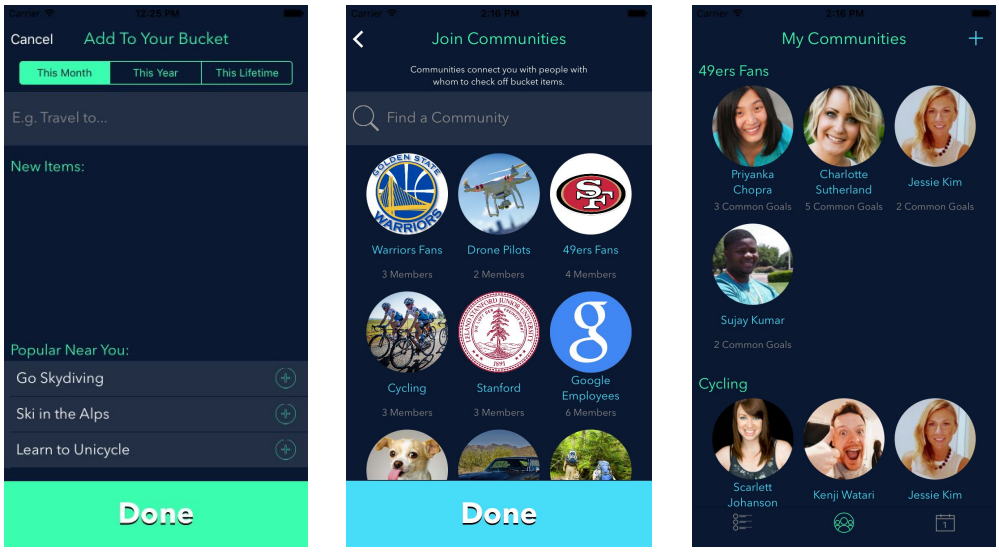


Fig 19. “Popular Near You” suggestions (Left), existing communities (Middle), and other users ((Right) are hard-coded into the app and set up during the first launch.

C. Wizard of Oz Techniques

We used Wizard of Oz techniques for features that would normally require a real backend and other real users. One core task for us was to have users accept an invitation. Since there was no other actual users to send those invitations, we ran a function that generated a random invitation to the user after they added something to their bucket list. We used a similar strategy when it came to creating invitations. Since we gave users the ability to add anything they wanted to their bucket list (including items not hard coded to any other users) we wanted them to be able to see who else wanted to do that activity. For each item the user added to their buckets list, we added that item to several of our built-in other users as well. That way, users feel like they can invite others to do their custom bucket list activities, as well as the built-in options.

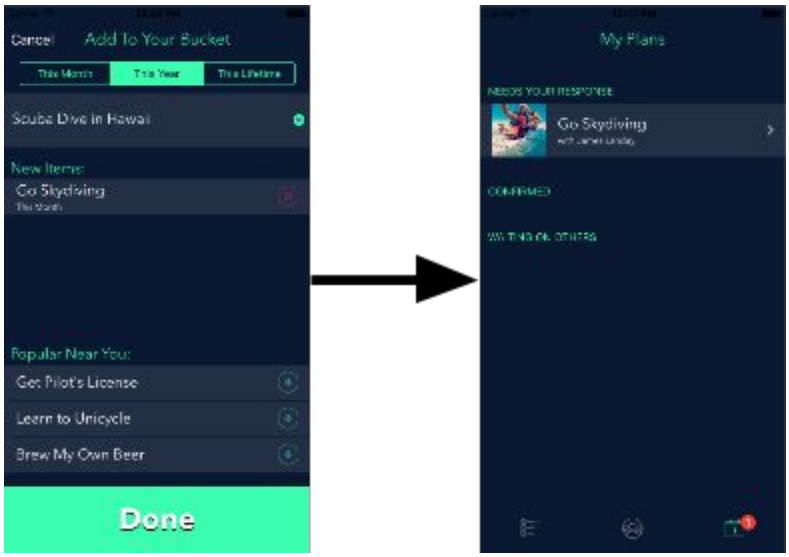


Fig 20. (Left) Adding an item to your bucket triggered a random invitation be be received

D. Limitations

At the end of this prototype iteration, there are certainly still limitations and features that we will add in the future. One missing aspect is giving the user the choice to edit the timeframe goal of their bucket list items once they've been added. Another is viewing others' bucket lists and communities (i.e. other users' public profiles). On the Communities screen, it is not yet possible to search for a community, create your own community, or invite users to join communities. We have also not implemented fetching images for custom items that you add to your bucket list. These limitations are a result of us setting priorities for what we wanted to get done and what were the most import things to do related to our core tasks. We feel that you can still explore the world of buckets without any of these features.

In the future we hope to close these gaps in the functionality of our app, as well as add more features. Integration with the Facebook API is also one of our top priorities (we currently have a placeholder “Login/Join With Facebook” button on our initial screens). Once this functionality is implemented, community suggestions will be based on your Facebook groups, friends, locations and more. The user will also see how many of their friends are in a community, which will hopefully make them feel better about joining it. The familiar aspect of seeing and/or doing activities with their Facebook friends will help users become comfortable with buckets before trying riskier things. Another possible addition would be an unobtrusive way to nudge users about items that they have not acted upon in their given timeframe (e.g. push notifications at key times, like the end of a month). Finally, another feature that we hope to add (based on feedback from our heuristic evaluation) is allowing users to modify their privacy settings so they can curate a private bucket list along with their public one.

6. Summary

Buckets is a social bucket list app that harnesses the power of group motivation to help people turn their dreams into stories, building and strengthening relationship along the way. We do this by helping users curate their bucket list, find people with similar goals, and plan and do things with other users. The process through which we developed our high fidelity prototype involved a lot of user-motivated iteration. The idea for this solution was born out of need finding, which revealed an unsatisfied desire to achieve long-standing dreams and meet people with common interests. Our idea then grew through several prototypes, which each revealed further opportunities to focus our solution. We collected feedback during each step of this project, with very specific expert feedback driving the changes in our most recent prototype. Our high-fidelity prototype was built in Xcode and provides a native iOS solution with which people can explore the world of buckets! Of course, the product is not yet finalized; there are features not yet implemented and further ideas not yet explored. As a team, we are proud of the product that we have made and excited about its potential future.