

Travel Teddy

Making traveling with kids BEARable

Ionic View App ID: 652BB290

High-fidelity Prototyping Report

Joseph P, Carla R, Karen W

Introduction

Mission Statement & Value Proposition

Travel Teddy is a mobile app and teddy-bear AI interface that educates and entertains children during travel with location-relevant information. Travel Teddy directs children's attention to the real world outside the window instead of simply distracting them with a shiny screen. Our value proposition is to "make traveling with kids BEARable!"

Problem & Solution Overview

During our needfinding process, we found that every parent struggled with keeping their kids entertained during long trips. At the same time, parents did not want to expose their kids to technology, which they believe agitates young children and reduces their attention spans. After many prolific rounds of ideation, we proposed the solution of creating an interface that would facilitate the kid's interaction with the local environment they are traveling through, while freeing the parent to focus on keeping their eyes on the road. Content for the app is fully customizable by the parent. Parents choose content for trips and are tasked with creating their own content to be added to a crowdsourced content library.

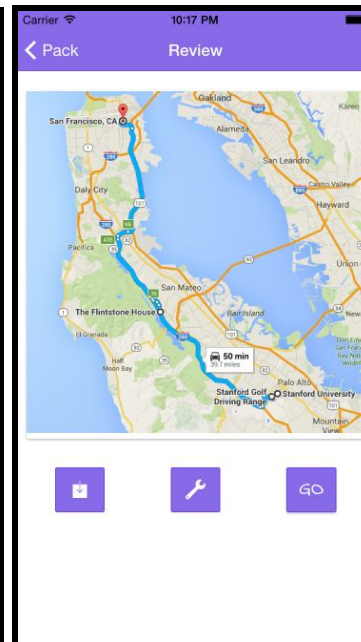
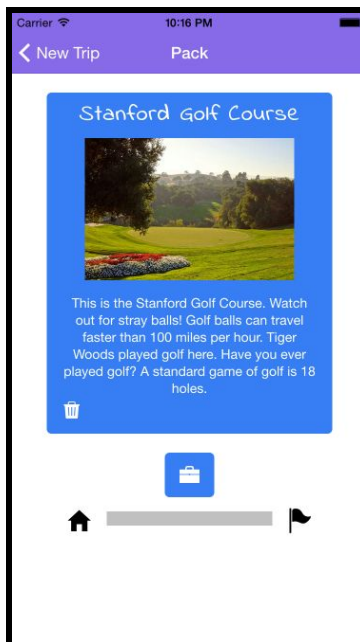
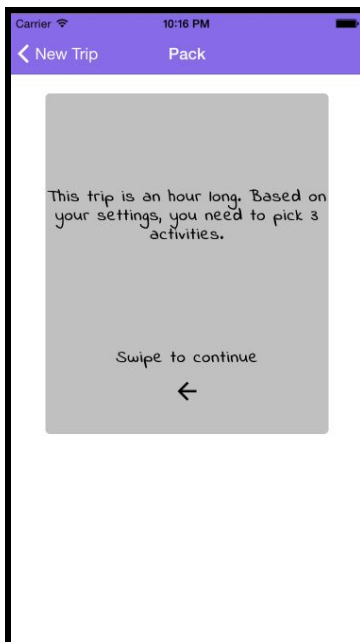
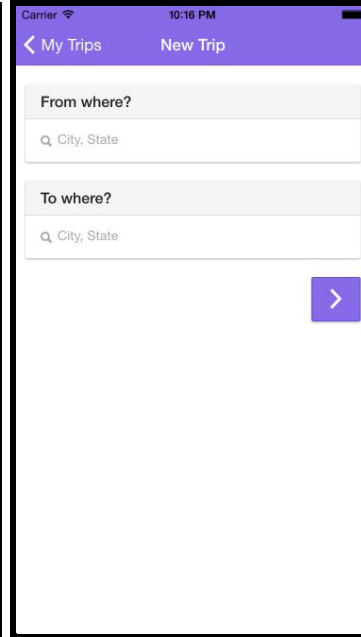
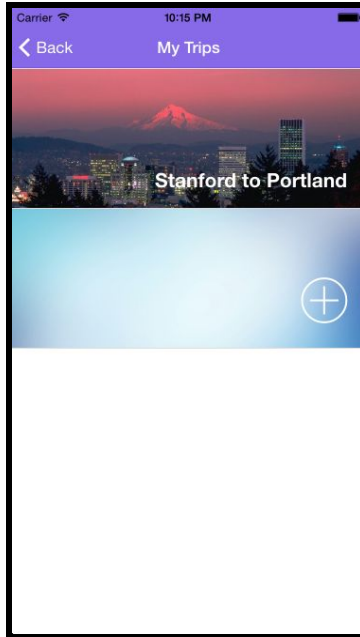
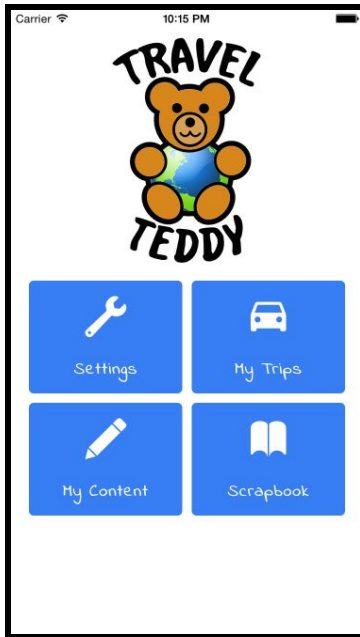


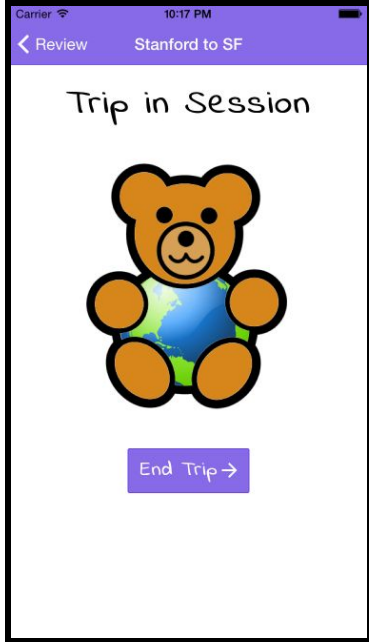
User Tasks

- Simple Task: Make a new trip from Stanford to San Francisco and “pack” content.
 - This is the task a user would do most often and is the core functionality of our app. Therefore, as our simple task, this task indeed needs to be the simplest and easiest to use.
- Medium Task: Rate the content of the trip you just took.
 - The content for our app is crowdsourced from other users. We want all content to be reach a set standard, so we need users to rate content they have experienced in order to do this.
- Complex Task: Create new content for future trips.
 - We want users to contribute their own content for all users to use. This is our complex task because it involved the most engagement from the user.

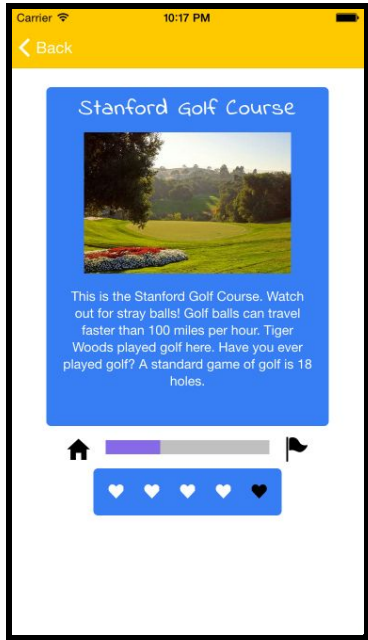
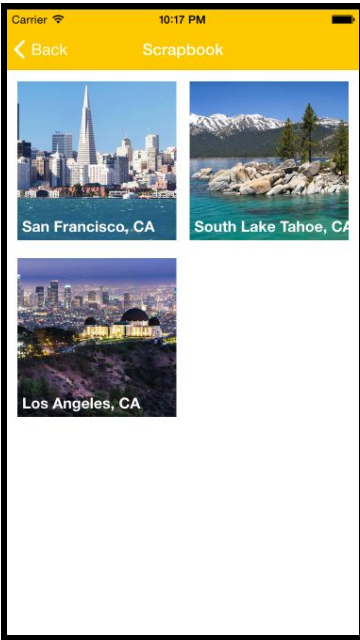
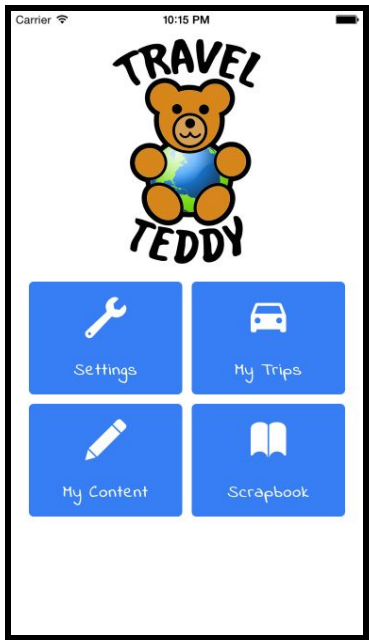
Task Walkthroughs

Simple Task: Make a Trip

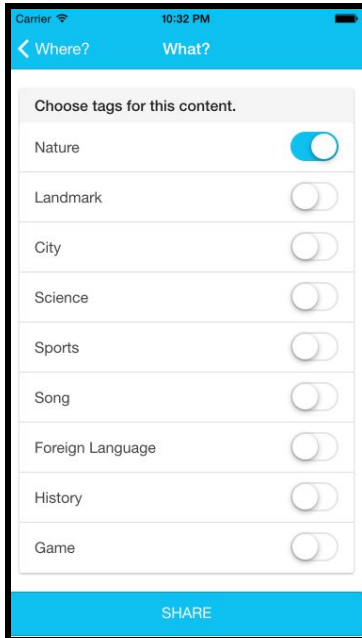
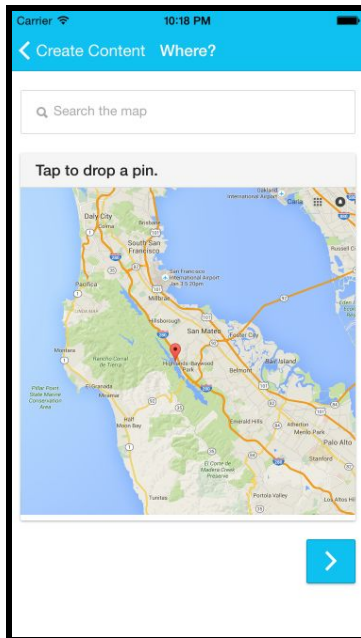
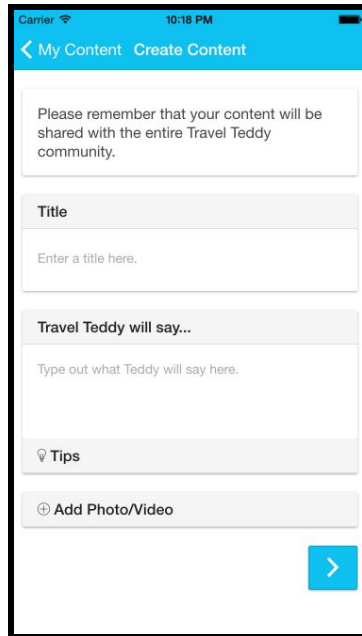
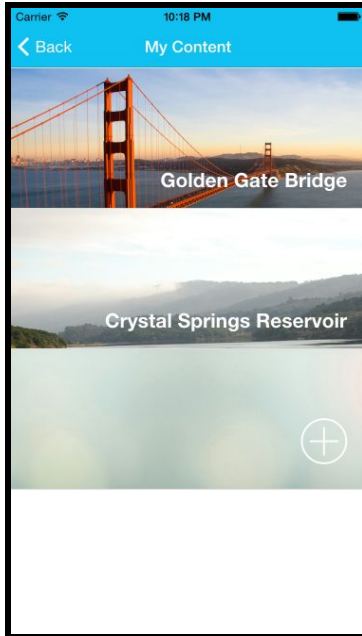
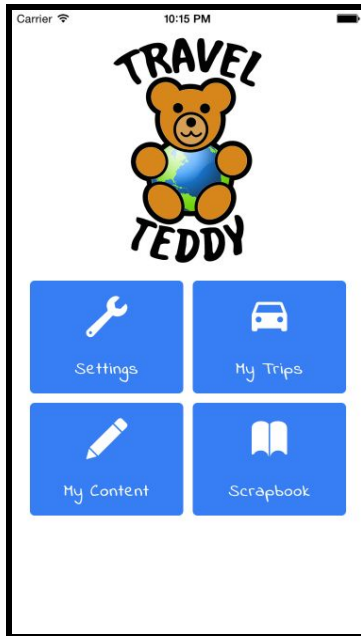




Medium Task: Rate Content



Complex Task: Make Content



Design Evolution

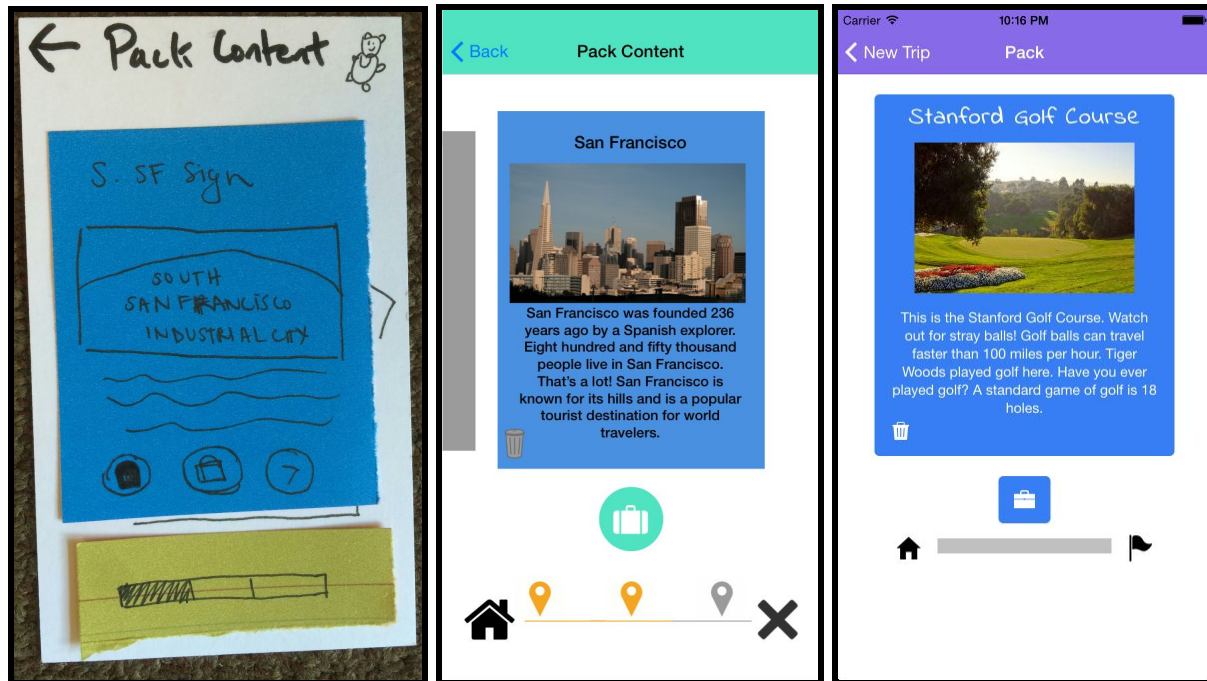
Here's an overview of the design evolution of the three aspects of our app that experienced the most change.

Homescreen Evolution: Button confusion



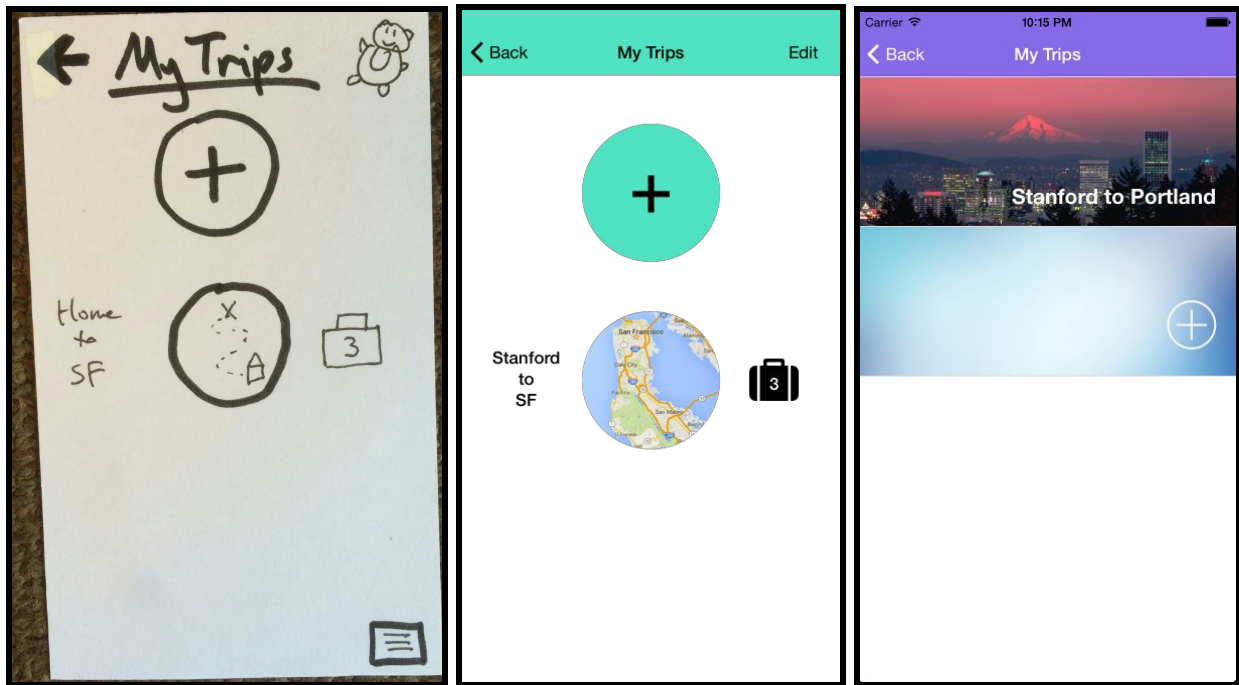
The biggest difficulty our low-fi prototype test participants experienced was figuring out what was a button on the homescreen. In our low-fi prototype, two out of three of our participants didn't realize that the center "Let's Go" was a button. Admittedly, this result could have been because of our shoddy drawings, but nevertheless we decided to make this a separate button (the car icon). Then expert evaluators in a heuristic evaluation told us that it is not immediately obvious what each icon means. Therefore, we decided to keep the icons for easy recognition by expert users and to add text below them so that even novices know what each icon represents.

Content Cards Evolution: Refinement



In our lo-fi prototype user testing, users were confused about what the icons meant here. Confusion about the trash can and arrow led to confusion about the suitcase as well. In our med-fi prototype, we chose a carousel animation to illustrate clearly that there were multiple cards to be swiped through. We made the trash can less prominent, making the suitcase the biggest attention-catcher. However, expert evaluators in our heuristic evaluation were still confused about what the trash can did: did it remove that card from this trip? Did it remove the card forever? The latter is correct, so we added a popup confirmation to explain the consequences of the button. Furthermore, we changed our progress metaphor at the bottom from a bar to a more geographical based one for aesthetic reasons. Then we changed the X to a flag to avoid that users think the X is clickable.

My Trips Page: Reorganizing Info

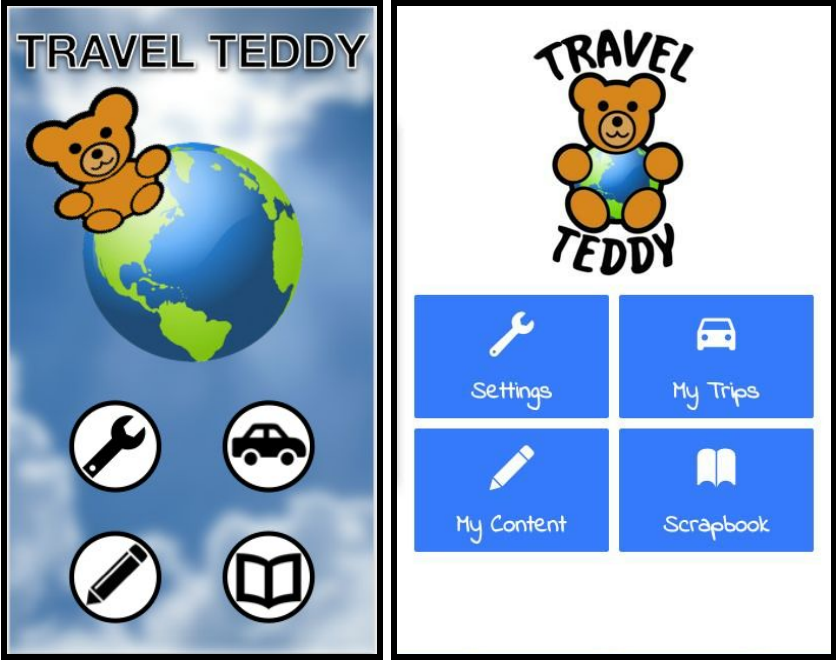


In our original designs we used circles. In our low-fi prototype we used a similar screen also for the My Content page. In our user testing, some users didn't notice the difference between these pages. Therefore, in our med-fi prototype we made these two screens have different colored headers to differentiate different contexts of use in the app. Teal was for trips, brown was for the scrapbook, and blue for content creation. Our expert evaluators for our med-fi prototype found the large plus button too eye-catching. Therefore we moved it to the bottom and made it stand out less in our hi-fi prototype. We also shifted from circles to wide images because they are more visually appealing than maps and better utilize the screen space.

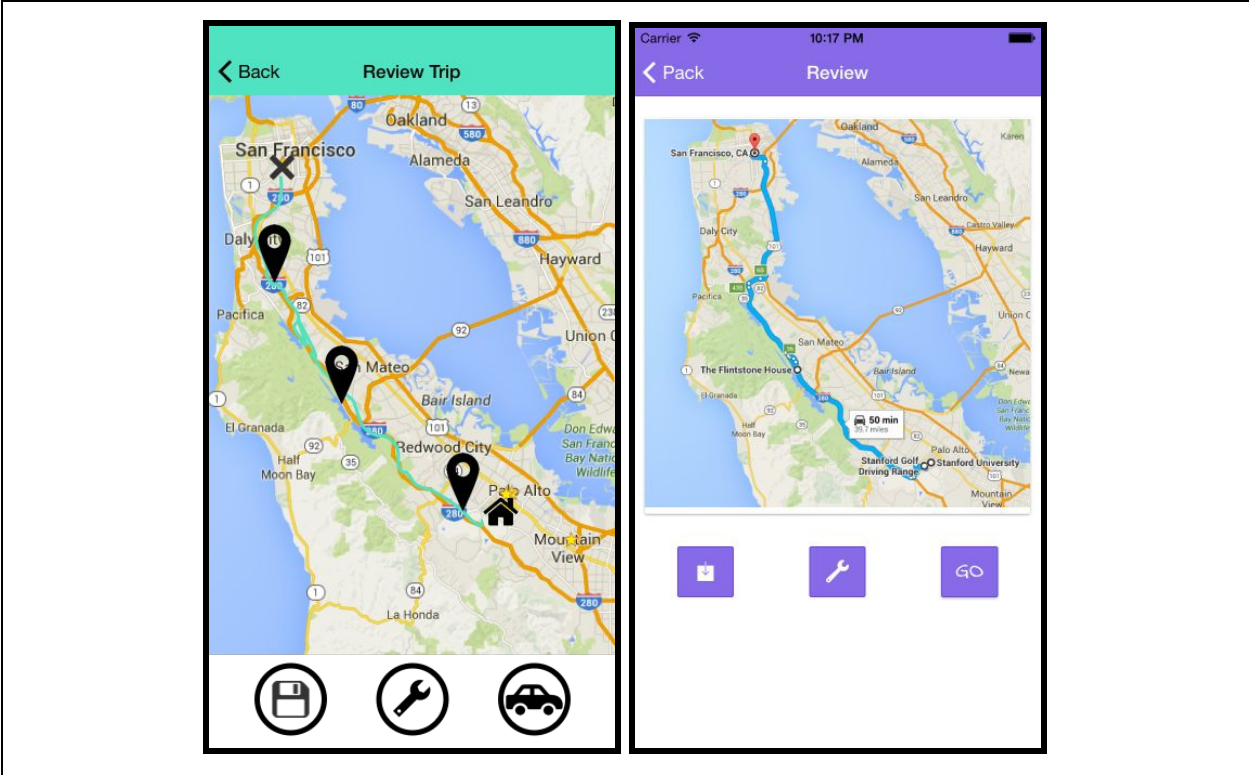
Major Usability Problems Addressed

Severity 4 Violations		
Violation	Problem	Our Response
H2-3: User Control & Freedom	The back buttons didn't lead to the previous page on some screens.	This is a problem with our implementation. Our back button logic became complicated and convoluted in Invision. This was fixed when we started using Ionic.
H2-6: Recognition rather than	Icons on the homescreen are	We added text to the buttons

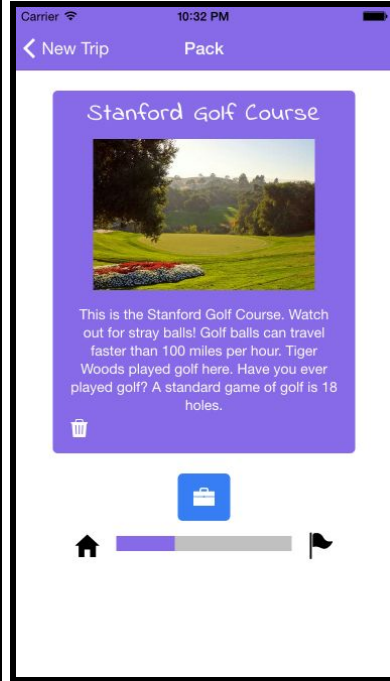
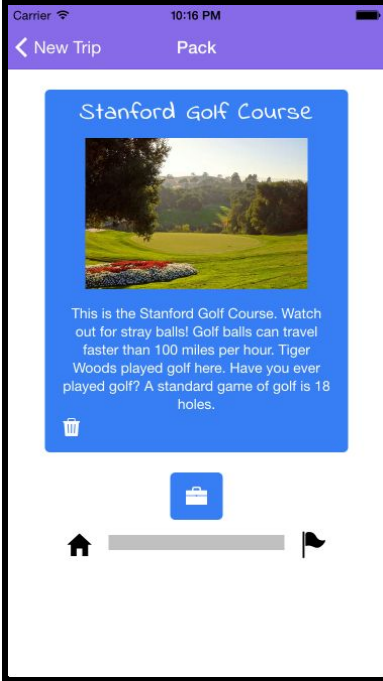
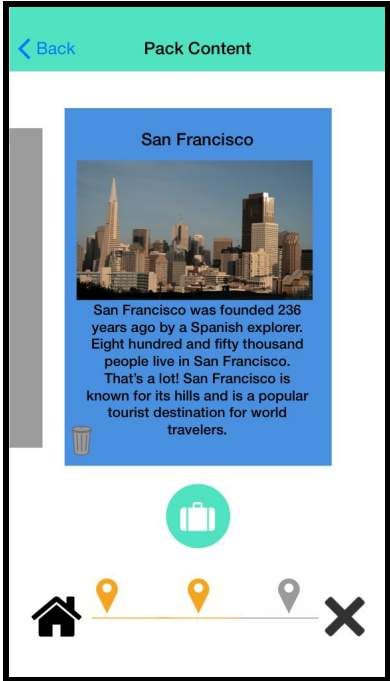
<p>Recall</p>	<p>not immediately understandable.</p>	<p>so that there's no confusion for novices. We keep the icons so that experts can use the app more quickly.</p>
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<p>H2-8: Aesthetic and Minimalist Design</p>	<p>The turquoise line on the map screen is hard to discern.</p>	<p>This line was scribbled in for our prototype. Instead we have used Google Maps to draw the path, so now the line is easy to see.</p>
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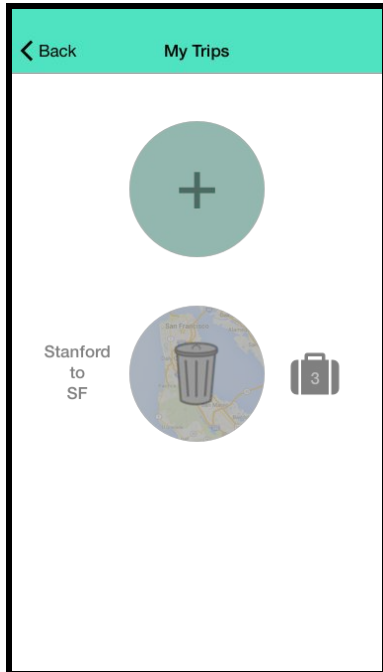
Severity 3 Violations		
Violation	Problem	Our Response
H2-1: Visibility of System Status	There is no feedback to indicate that a content card has been successfully packed.	After clicking on the pack button, the cart is highlighted to indicate a selection, and then the user must swipe for the next card themselves, instead of the carousel advancing to the next card automatically.



H2-4: Consistency and Standards

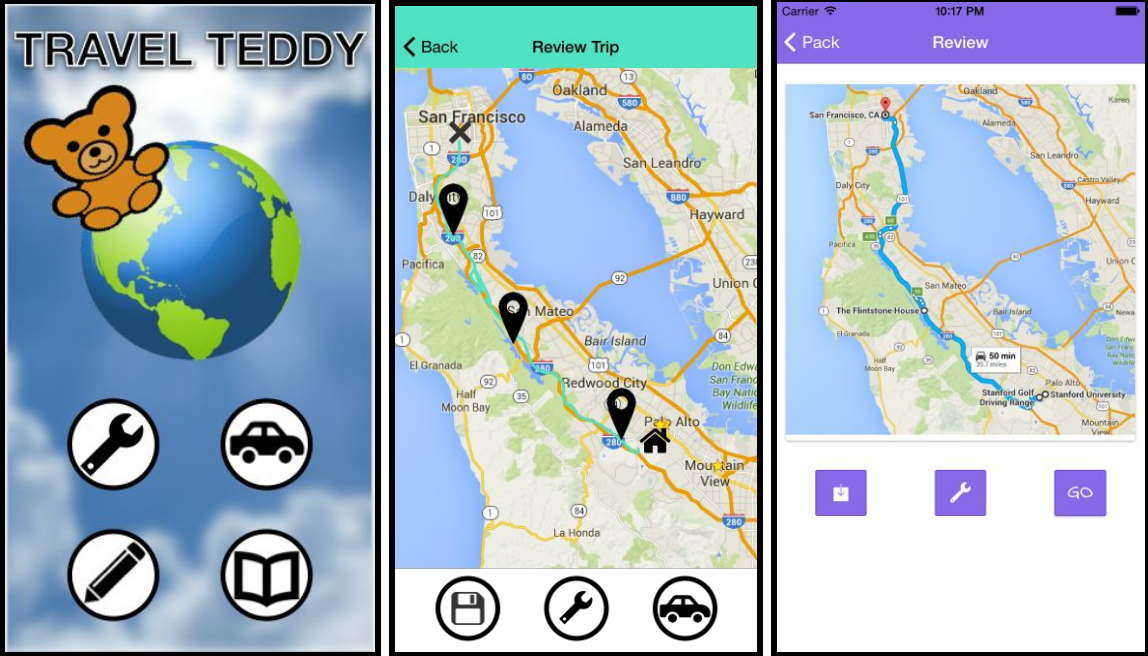
After pressing the edit button, trash can icons appear on the trips. In most apps, editing involves changing not deleting.

Basically any iOS app uses this paradigm. No change.



<p>H2-4: Consistency and Standards</p>	<p>Colors are not consistent.</p>	<p>We've made colors consistent for cards, buttons, and text. However, we've kept the header colors different to differentiate sections of the app which correspond with different contexts and tasks (like in Snapchat).</p>
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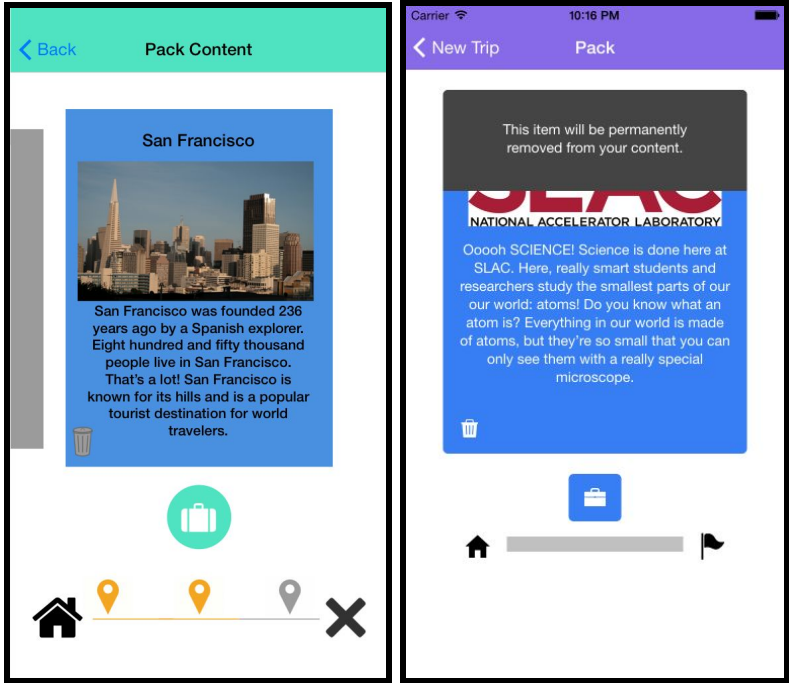
<p>H2-4: Consistency and Standards</p>	<p>"Start trip" icon and "All trips" icon are the same.</p>	<p>We've changed the "Start trip" icon to say "GO".</p>
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<p>H2-5: Error Prevention</p>	<p>During the "packing content task", it is unclear if a card swipe right equates to clicking on the green luggage button or if it is just a card skip.</p>	<p>We call this "Tinder" interference. This is a problem because of our implementation. There's no animation in our med-fi prototype, so it's hard to see that the cards are on a carousel. Also, highlighting a card to more clearly indicate a selection (as mentioned above), will help as well.</p>
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<p>H2-5: Error Prevention</p>	<p>It's unclear what the trash can icon on the cards does.</p>	<p>We've added a popup screen to explain the consequences of</p>
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clicking trash (i.e. the card will be never seen again).



H2-7: Flexibility and Efficiency of Use

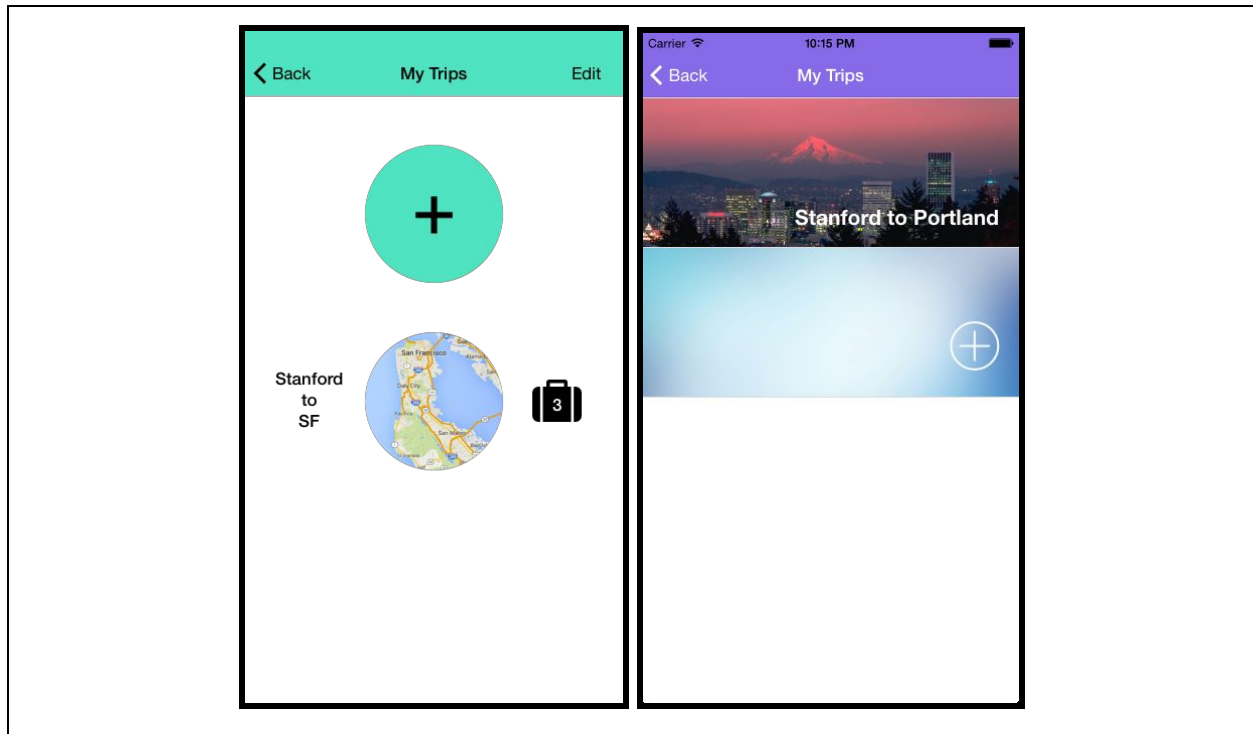
We should add shortcuts for common actions like “Favorite Trips” and “Common Commute Times.”

This app is meant for longer travel, like road trips, and not for daily commutes or shorter trips. (Parents tend to use technology with their kids only when it’s absolutely necessary, which is on longer trips. Furthermore, due to limitations in content quantity, the only content for short trips would be “entertainment” like songs, which is not the kind of engagement parents want their kids to have with technology.)

H2-8: Aesthetic and Minimalist Design

The plus button on the trips page draws too much attention.

We’ve moved the button to the bottom of the list (like in iOS’s Weather app)



Changes from Severity 1 & 2 Violations

- It is more obvious from the beginning that all content a user creates is intended to be shared.
- Buttons and text are now more uniform across the app.
- The trash can icon is now more distinguishable from the background color of the cards in packing content mode.
- The progress metaphor for packing content (a path from home to X, marking the destination) has been altered slightly, changing the ending X to a flag icon to avoid that users think the X is clickable.
- The instructions for packing a trip are no longer a saturated yellow since this could be perceived as a warning or error. A more neutral color is used.

Prototype Implementation

Tools

We implemented our hi-fi prototype using Ionic, an “Advanced HTML5 Hybrid Mobile App Framework”. Since none of us have iOS programming experience but we do have experience in HTML, CSS, and AngularJS, we chose to use this to make the coding an easier and quicker process. Although there was an unavoidable learning curve, we were able to start coding quickly within a few hours of using the framework. Ionic comes with many useful ready-to-use features that such as header bars, buttons and form input that have a number of beautiful preset formatting

options. That said, beyond these preset formatting options, it was much more difficult to create our own custom formatting. For example, after reading a few tutorials and toying with the project's many different .css and .scss files, we were unable to do something as simple as customize header colors. (HealthMap told us they also had this problem.) Because of difficulties like these, there are some aspects of our intended design that we needed to change in order to conform to Ionic's capabilities. One aspect of Ionic that we really appreciated was the ability to test in the browser. Rather than having to use the clunky Xcode and iOS simulator, we could have our app refresh instantaneously with every change and take advantage of the powerful Chrome inspector.

Wizard-of-Oz Technique

The most prominent aspect of Travel Teddy we're faking using the Wizard-of-Oz technique: the animatronic teddy bear that speaks to the child, directs attention, and responds to the child intelligently. Instead of the real thing, we're using a normal teddy bear like a puppet.

Hard-coded data

All data in the app is hard-coded. Because there is no database, there is no content beyond what we have hard-coded in the app. Content in the future will be crowdsourced. Currently the app only supports a trip from Stanford to San Francisco, including the content cards for the trip. Our app is also currently stateless, meaning that this one trip is simultaneously the only trip that can be created and the only trip that has already been taken. We decided to take this approach to save time in the coding process.

Future Features

A real animatronic teddy bear like the one from "AI" by Steven Spielberg. Real crowdsourced content. Beyond that, we can also imagine Travel Teddy being expanded to take a more educational approach. Right now Travel Teddy is meant to be used on longer car trips (think, a road trip). However, parents drive their kids a lot also on shorter trips, such as during errands or commutes. Our premise of engaging the children with the environment outside of the car doesn't work very well on short or repeated trips, as it would be difficult to have novel content for every trip. Therefore, we imagine Travel Teddy in the future offering educational lesson leveraging the passing environment of the car instead of just pointing out places or things of interest. Imagine Travel Teddy teaching colors or vocabulary by pointing at things outside of the car, or Travel Teddy teaching about engineering by pointing out cars and trucks, explaining how they work. When AI and computer vision reach this point, Travel Teddy will be a general education tool for children in any environment, even beyond the car.

Summary

Thanks to our expert evaluators who did our heuristic evaluations we gained some key insights into refining the user experience of Travel Teddy, making the experience easier to immediately understand, more aesthetically pleasing, and less prone to errors. With our hi-fi prototype, programmed more easily and quickly thanks to Ionic, we hope to offer everyone a more realistic glance into the future of traveling with kids. A less stressful, more educational, and more satisfying travel experience featuring a new way to use tech with kids: Travel Teddy by Team Boba. Godspeed.