Final Paper

INFO 3505

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Introduction and Motivation

Have you ever been hiking or camping? Did you get to smell the sweet scent of the trees and dirt while listening to the birds or the leaves rustling? Could you feel the warmth of the sun on your skin and see nothing but nature? For many people, the amount of them spent outdoors directly correlates to their happiness. Now picture yourself back in an urban setting. You can smell the fumes from cars and the heat from lamps as people rush around you. There are bright lights that allocate when you can walk and not walk and there's flashing pictures and signs everywhere. There are sounds coming from every direction of cars, people, heels on the sidewalk and construction.

I began this project with the disabled community in mind, as I wanted to explore the intersection between outdoor education and the disabled community. I was first truly introduced to the community through the National Sports Center for the Disabled (NSCD), where I was a black diamond junior volunteer. I trained for a couple of weeks where I learned about disability etiquette, worked with specialized equipment, and workshop different scenarios. I find the community to be such an interesting one as this is one of the only communities (that I can think of) that people aren't always born into. When I was working with NSCD, the culture around new people joining was incredibly flexible and welcoming. There was so much patience and willingness to help out. I've always been curious to delve back into and learn more about this community.

This summer, I worked as an outdoor educator working with teens at a Y camp in Washington. A part of the curriculum involves a reflection every night and some campers get the chance to do 24 hour solos. I've always found them to be very valuable parts of my trips and a great way to get away from all sorts of technology. It's so easy to close your eyes and just listen to your surroundings. When brainstorming this project, I realized that part of the reason the solo

was so fascinating for me was because hiking alone was not normal. Due to safety reasons and the constant changing of weather, most people choose to hike with others, however I've found that when you're alone outside, you have the option to reflect and recollect yourself quite easily. I also thought about the idea that someone couldn't hear certain sounds, or that people didn't have access to certain trails. I wanted to know if this was due to society's lack of inclusion to the disabled community but also if part of it was lack of knowledge as to where to find the accessible trails. Unlike an urban setting that has lights, sounds, ramps and other signals that are (usually) adaptable to deaf/ hard of hearing people, handicapped or blind people, the outdoors has none of that. I thought it would be interesting to understand how that intersection is different than other people's outdoor experiences. I'd also like to look into the safety that comes with being outdoors. What ways are there to ensure someone's safety- whether they're alone or not- when they can't always hear everything.

While I am still unsure what I can contribute, what I'd like to gain out of this, is a better understanding of not only how their community works but how people within that space are being empowered (in the outdoors), especially with the advancements of technology that we have been seeing improve every day.

Related Work/Prior Art

A lot of related work has been done for hiking as well as programs for the disabled. The No Barriers Youth program has provided opportunities for middle and high school youth with and without disabilities that give kids an opportunity to travel to places such as Peru, Costa Rica and the Southwest. It offers kids an opportunity to gain leadership skills and learn to unleash their best selves. It's a very empowering trip which includes workshops such as having the blind lead the blind (non-blind students who are blindfolded) on a hike. NSCD has done a great job providing services to people of all ages with the resources and tools needed to explore the outdoors further as well.

In regards to apps, AllTrails and MapMyWalk have provided people with services for hiking and exploring the outdoors. Alltrails' free version allows you to create your own trails

with GPS tracking, photos and text, and save or share them with others. The $50 a year membership gives you access to the pro version, the advantages of a partnership with National Geographic Maps, and the ability to print and edit maps.

While I am still unsure what I can contribute, what I'd like to gain out of this, is a better understanding of not only how their community works but how people within that space are being empowered (in the outdoors), especially with the advancements of technology that we have been seeing improve every day. I would like to add additional services to the app in order to allow people to be more independent, such as having access to call the medics and emergency contacts.

Conceptual Framework

A few of the main conceptual frameworks I'd like to focus on include: A few of the main conceptual frameworks I'd like to focus on include motivation and inequality and empowerment. All of these are very important to me and I find that these concepts are mandatory when it comes to education. For many people like myself, I tend to find that I learn best by doing. Field trips were always a great learning activity for me because I grasped things quicker and I could move around. I want to focus on curriculum that motivates people and allows people to know and understand their environment better. If a textbook won't do it, then a physical learning plan should be made. Ladner's *Design for User Empowerment* was a reading that inspired me. It showed me that I had never designed for user empowerment. And it made me realize that it was something I absolutely wanted to focus on. My work with the National Sports Center for the Disabled provided me a chance to empower, motivate and share my love of skiing to others. It was a two way street, as I also felt I gained a better sense of empowerment and confidence in my skiing. By using these concepts to guide my work, I would like to ensure that people are creating good memories out of their outdoor experience. The point of this app was to motivate people to get outside more, whether or not they had people to go with them. By making this app something that you could use independently, my hope was that it would encourage and empower people to do more- especially people with potential health issues that have affected them in the past. I

knew there was a lot of stigma around what certain people can and can't do, and I kept that in mind when I was creating this. Ultimately, I would measure how well this app performs by how many people would use it.

Methods/Work

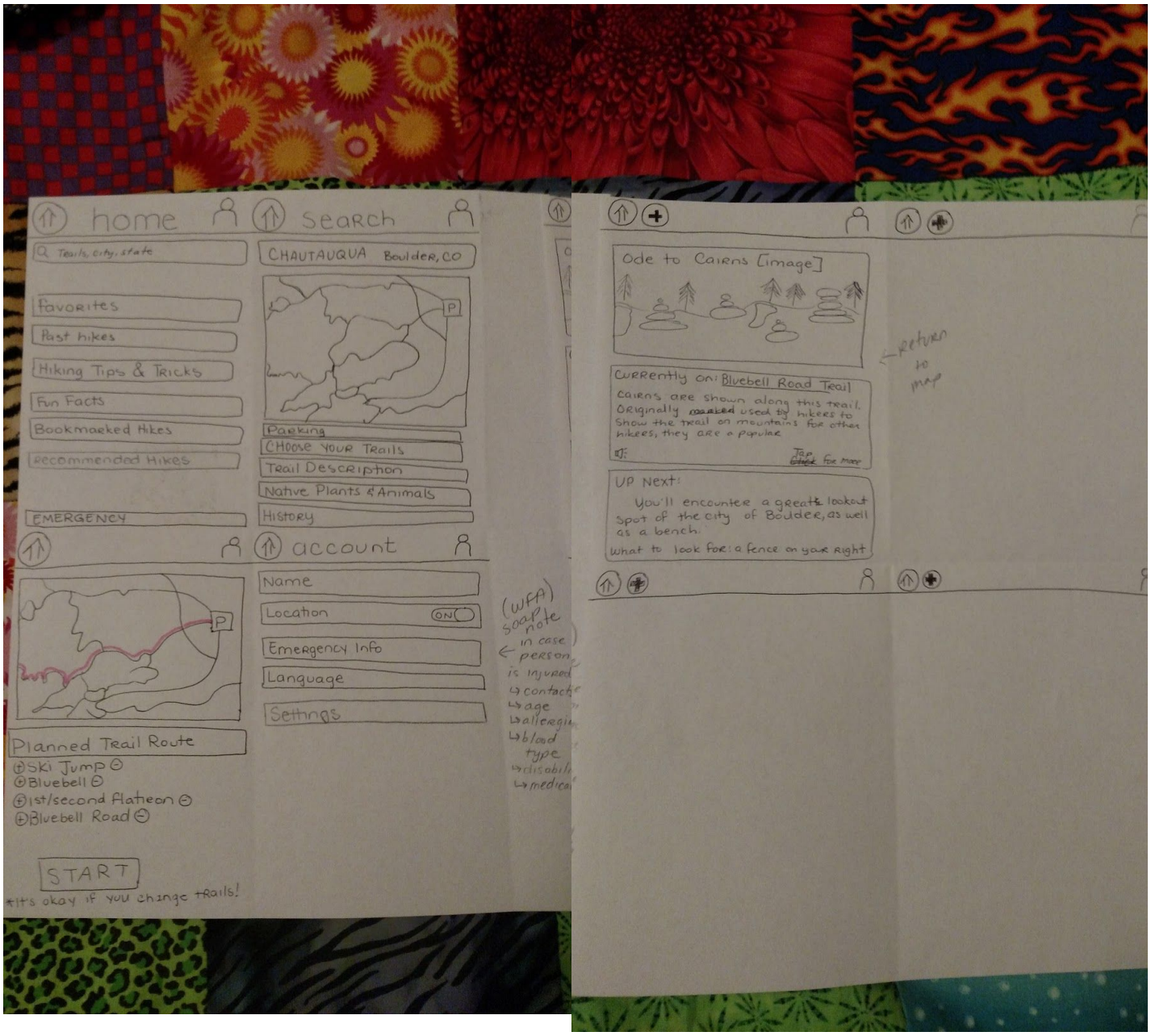
I first began by designing a workshop that would allow people to have more accessibility to explore the outdoors in a safe manner, both with others and alone. I was originally framing this as a school "field trip" that would provide an opportunity for students to become more familiar with this environment. I started by working on making it a workshop similar to a First Aid/CPR class to get practice. I wanted to make the outdoors as technology free as possible, however I also wanted to learn how to use technology in times of trouble and how to use it for educational purposes.

Another idea, that I began working on was creating representative workshops. The main idea behind that was to educate and allow people a place to practice and grow on their knowledge of the outdoors. Ideally it would demonstrate what other things could be observed or sensed that would make someone more prepared for an outdoor trip, whether it's just a hike or if it's a multi-day backpacking trip.

Because of this change in project, my stakeholders began to shift. The outdoor program here at CU Boulder is a great place for people to learn more about the outdoors, rent equipment, and plan out a trip. Before break, I reached out to Levi Dexel, who is the director of the Outdoor Program here at CU. I brainstormed with him and shared my thoughts about my workshop. He mentioned that it may be easier to prototype the workshop with just a few people and with only one disability. A lot of the resources I had from the talk I attended at the Diversity and Inclusion Summit were extremely useful for me. I found great keywords that furthered my research and a better way to approach disabilities, which I wasn't as comfortable with in the beginning.

I decided to workshop activities for people who are blind, because I had more resources and had higher chances of finding people to participate. I made a backup plan with a couple able-bodied friends to go on a short hike over break, using blindfolds in case the workshop fell through. However, both plans fell through due to scheduling conflicts which was a huge bummer. Part of the scheduling conflict arose from my side, due to me not communicating with my family and what their plans were for the break. In lieu of participating in the workshop, one friend let me talk through my ideas and project with them, which resulted in the idea that an app could still be possible.

I began paper prototyping a platform similar to an interactive tool that someone would use in a museum. As I began prototyping, something I realized I really enjoyed about this idea was that it could be used by anyone. Like a museum tour, one can read the signs posted around the trail, but for people who prefer to listen, or look around while listening, the app would have audio built in. A person could choose to listen or not listen, and if they feel they've learned enough about a certain topic, they can simply move on. I used maps from Chautauqua as a start and worked on how to make those trails more interactive. I felt like I had a hand up because I'd hiked there numerous times, which made it easy for me to determine what might want to be added to make it interactive.



These were a few of my first prototypes that I designed before I had some friends critique them. They gave me multiple ideas that helped me make a master list (which they actually helped create) of what one would want if they were hiking alone. A few things I didn't consider was making notifications of when water was available, or when there was a current stream that would be good for filtering water. It would also be helpful to have notifications of when there's a

bathroom nearby. However a few users stated that they wanted to be able to filter what they were seeing. For example, if they knew it was going to be a short hike, they didn't necessarily want to know when bathrooms were available. Another thing that people mentioned was not having a consistent home bar. People liked the idea of having the map be full sized and just a home button and an emergency button available. A final point that was given was to have a distance tracker as a part of the app. A lot of people seemed to not only know how much was left, but how much of the hike/trail had been completed. These were all incredible ideas and a great help since the majority of the website I tried to look at only provided me with basic ideas. I visited the cottage at Chautauqua to pick up more information on what I could feature within the app, but wasn't able to talk to the park ranger on duty that day. I still wanted to keep my focus on the disabled community, so I continued to make the app as accessible as possible. Something I ran into was creating the audio. I was able to find a website full of sounds but couldn't find a way to get the mini facts to be read out loud.

Part way through the project, I came across an app called *Kitestring* that was designed to help people get home safely (at night). What's different about this app is that it's based on *inactivity.* The idea is that you set a time that you plan on being home and you set a contact number to alert if you aren't home by that time. You can adjust the time as you want but if you don't respond that you are home by the time you specified, that contact is called. One of the creators wrote that "when you're really in danger, you don't have the time or the reflexes to enter your passcode on your iPhone and text or hit a special little button to tell someone about it. You won't have time to do *anything*. Thankfully, though, Kitestring will do it for you, if you let it." In general, I think it's a great app to have. In terms of my project, I realized that one of the most dangerous places to be when you're hurt is the outdoors- why not implement something similar? Especially when working outdoors with people who might not be in the best mental or physical state, it's crucial to have backups and extra caution in case something goes wrong.

Results/Interpretation

Throughout my research, a key point that kept coming back to me was how great of an equalizer the outdoors was for people with disabilities. At the Diversity and Inclusion Talk, Mike McNeal of Adaptive Adventures discussed how important it was to keep in mind the mental side of getting people back outdoors. Some people come into the activity asking "is it worth the climb?" "Will I get hurt?" and other questions. There's a very large gap between the real and perceived danger that one could encounter, which is so important to keep in mind. When I was making the app, I worked at making each trail as transparent as possible so people knew what they were getting into. Another thing that I hadn't factored in previously was that people with prosthetics don't always get feedback, so they have to do everything by sight. Phantom pains are common, but don't necessarily shift a person's mindset. Because so much is dependent on sight, I thought it would be smart to add pictures of the hike that people could look at while they were hiking. Someone at the showcase mentioned to me that it would be nice if people could add their own pictures of the hike, kind of like a crowdsource, in order for people to get multiple perspectives of the hike. Someone else stated that this would bring up some different social norms when hiking. As of right now, there seems to be people who use their regardless if there's wifi or not, people who use their phones only for pictures and some who try not to use it at all. By having an app that has the option to help you while you're hiking, it changes how much one uses their phone. I'm interested to know what more people think about this, as I realized that the majority of people I talked to for this project were college students.

Conclusion

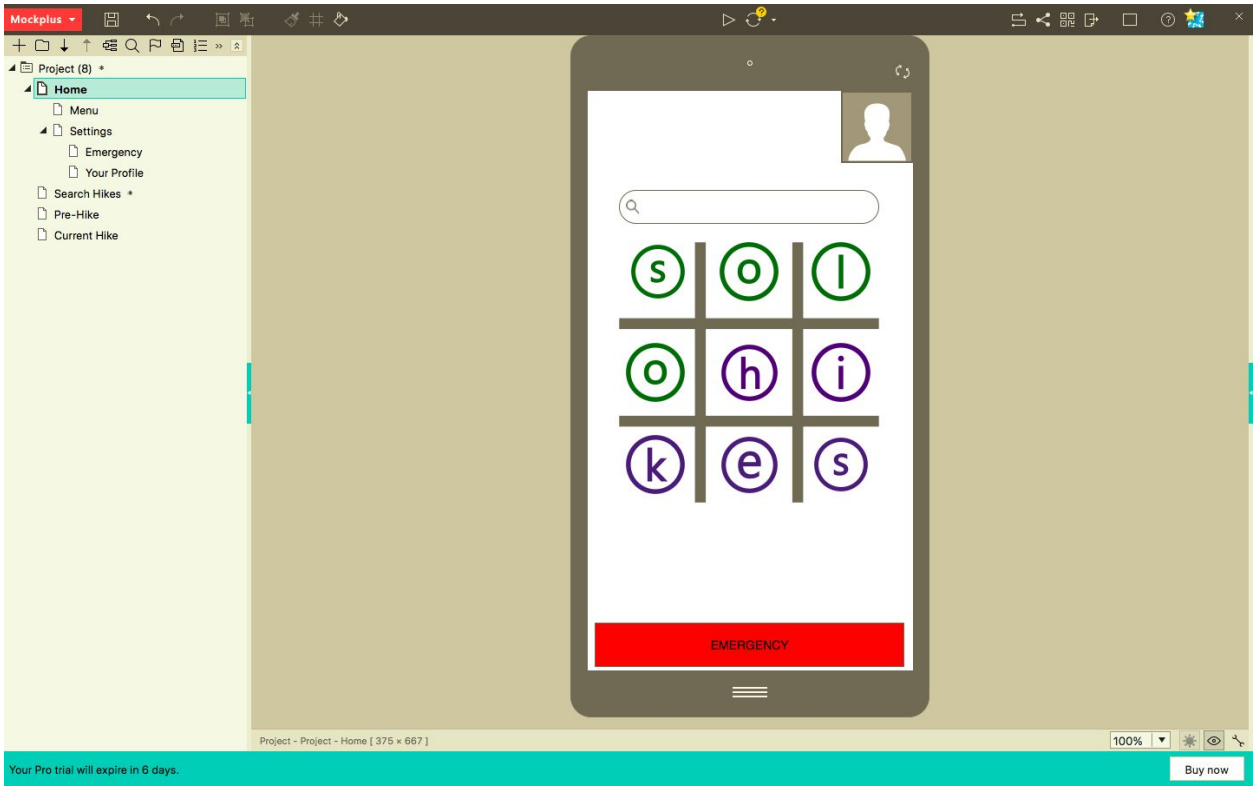
Something that I'd like others to learn from my work is that a) you can most certainly be safe when hiking alone and b) being able-bodied is not a requirement to be outside. I was really happy with all of the resources I found and the end product. A few of the resources that helped me immensely was Paradox Sports, Adaptive Adventures, the City of Boulder Expand Program, Wilderness on Wheels, accessiblenature.info, ignite adaptive sports, and NSCD. The outdoors is a great equalizer for people with disabilities, especially with water. Unfortunately, because

Colorado is land-locked, it would have been extremely difficult for me to attempt a workshop of any sort or test an app with a water activity. I realized I really enjoyed about this idea was that it could be used by anyone. Similar to Ladner's *Design for User Empowerment*, when they had a diverse group of people creating, the products were beginning to become more accessible for people who didn't think they needed it. When looking at hiking apps and other sorts of workshops, I realized that there quite a few apps/workshops that were designed for adults, by adults, with an adult perspective and experience in mind. It's always amazing to watch adults discover how much changes when they don't treat their perspective as the default human experience. Lately, I've found myself continuously self-checking to make sure I'm treating my own perspective as the default. This goes with anything I'm doing, whether it's teaching, showing, or even telling stories.

A few technical issues I encountered was working with Mockplus. I had worked with it last year, but found it difficult to link so many different things onto one page. It made me question how much data would need to be input into this app to make it work successfully, but because I was focusing more on the design, I felt okay about that. Another limitation that I had, was access to the community itself. I had my resources from NSCD, but that was about it. It was frustrating to try and find places around CU to try and conduct interviews, but I also knew that I did not know much about disability etiquette.

To take the app/project further, I would work on finding a way to use the microphone on their smartphone/device which would pick up any noises such as voices or birds and alert the user via vibration. That would include a lot of artificial intelligence (and time), but I think if it were to be successful, it would open up some new ways of learning for more than just the one community. It would be really neat to see the app designed for specific disabilities, which in theory is fine, but there is such a vast range of what people would and would not want on the app. I believe a personalized app is what would have to come out of that.

Pictures of the Prototype: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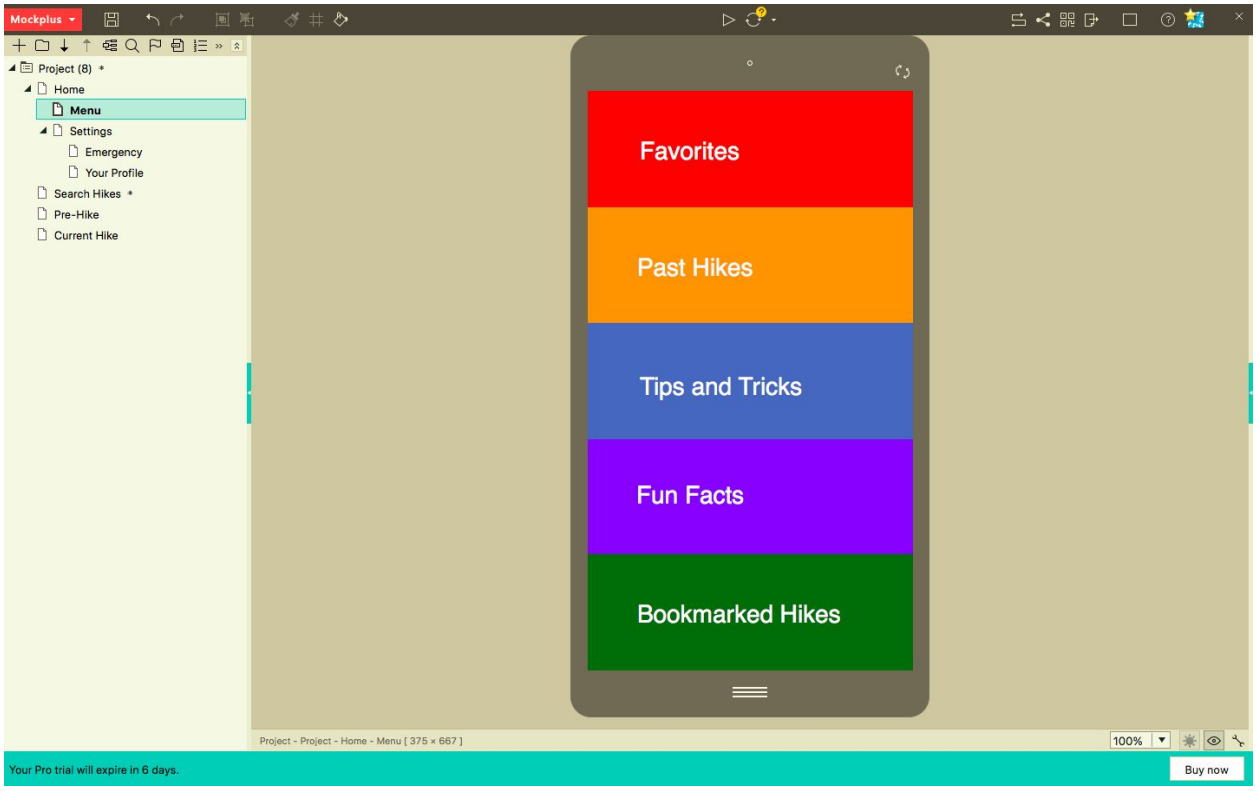
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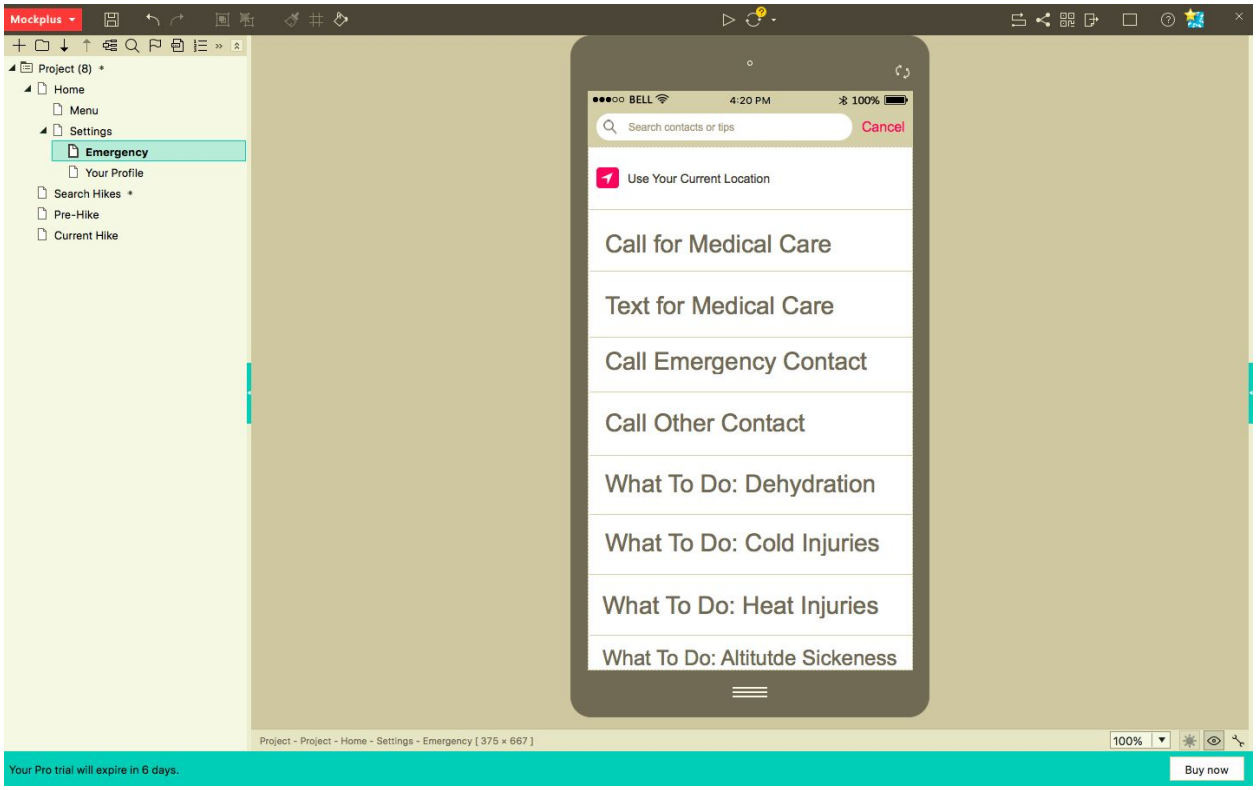
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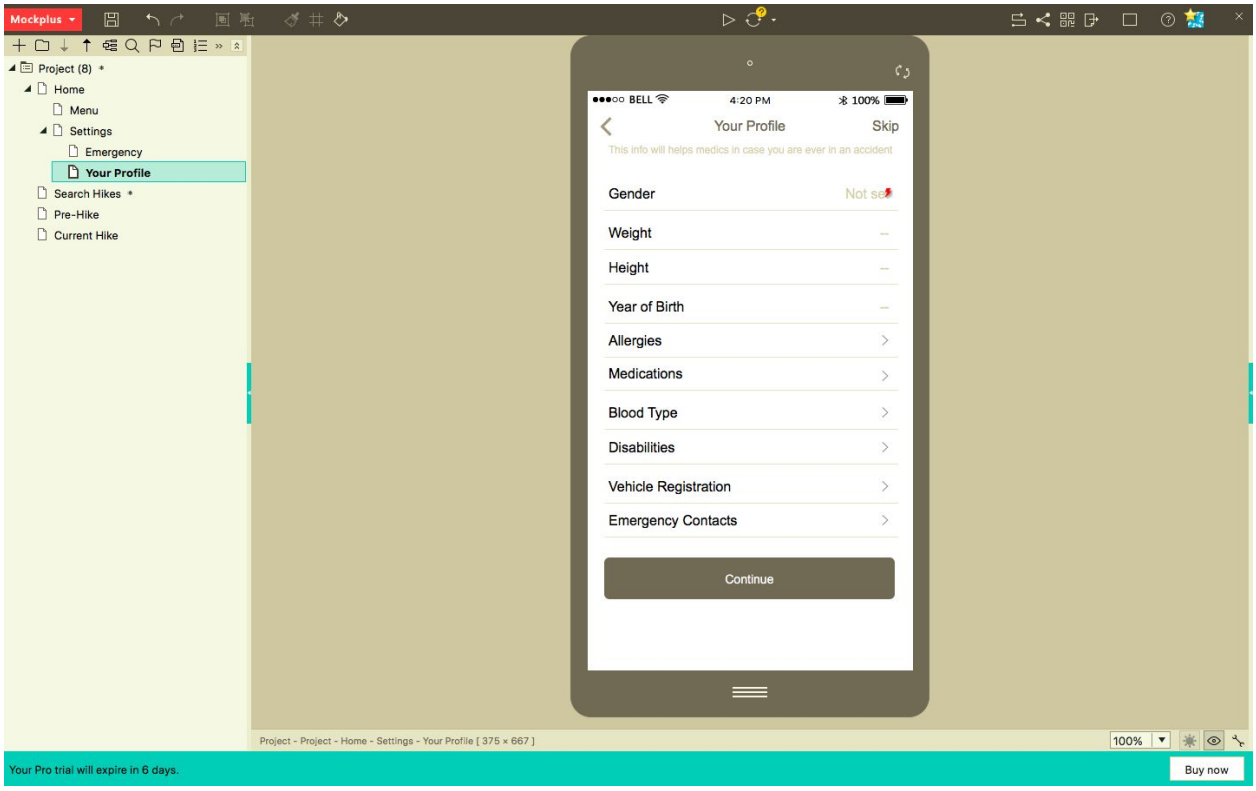
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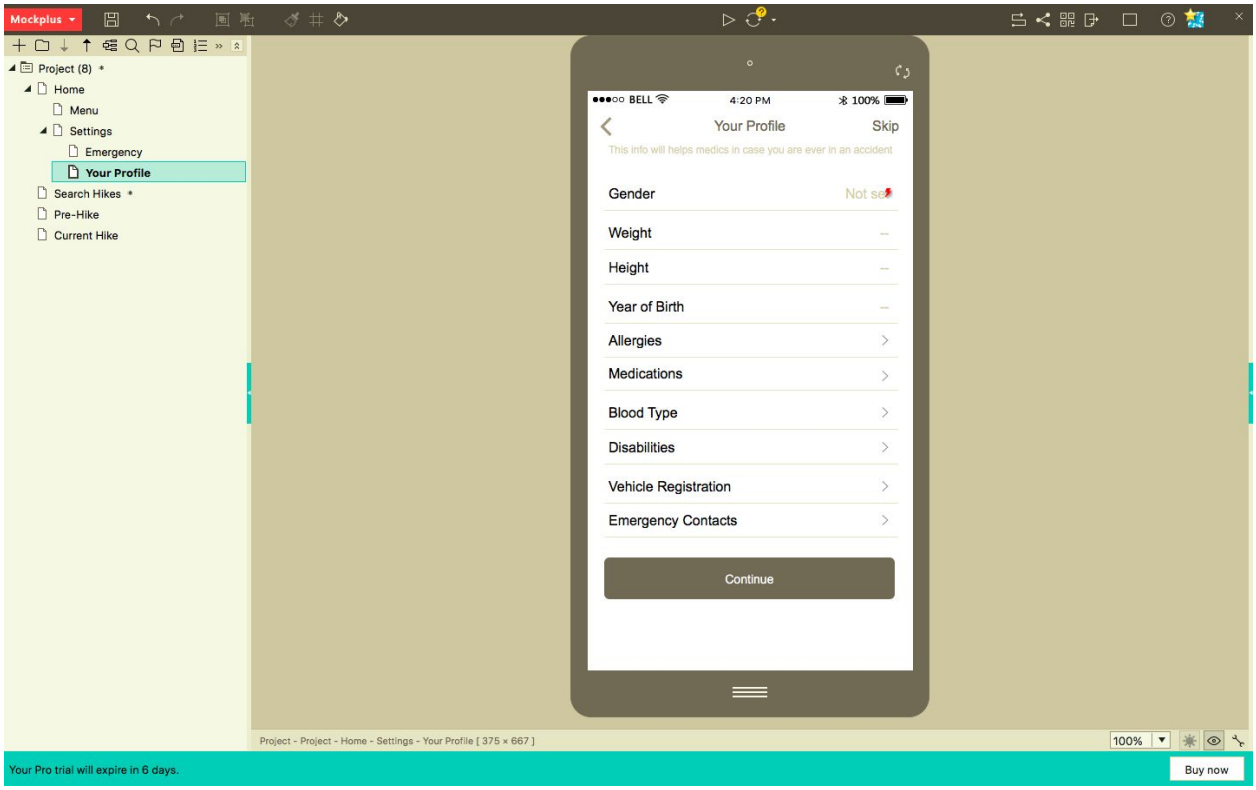
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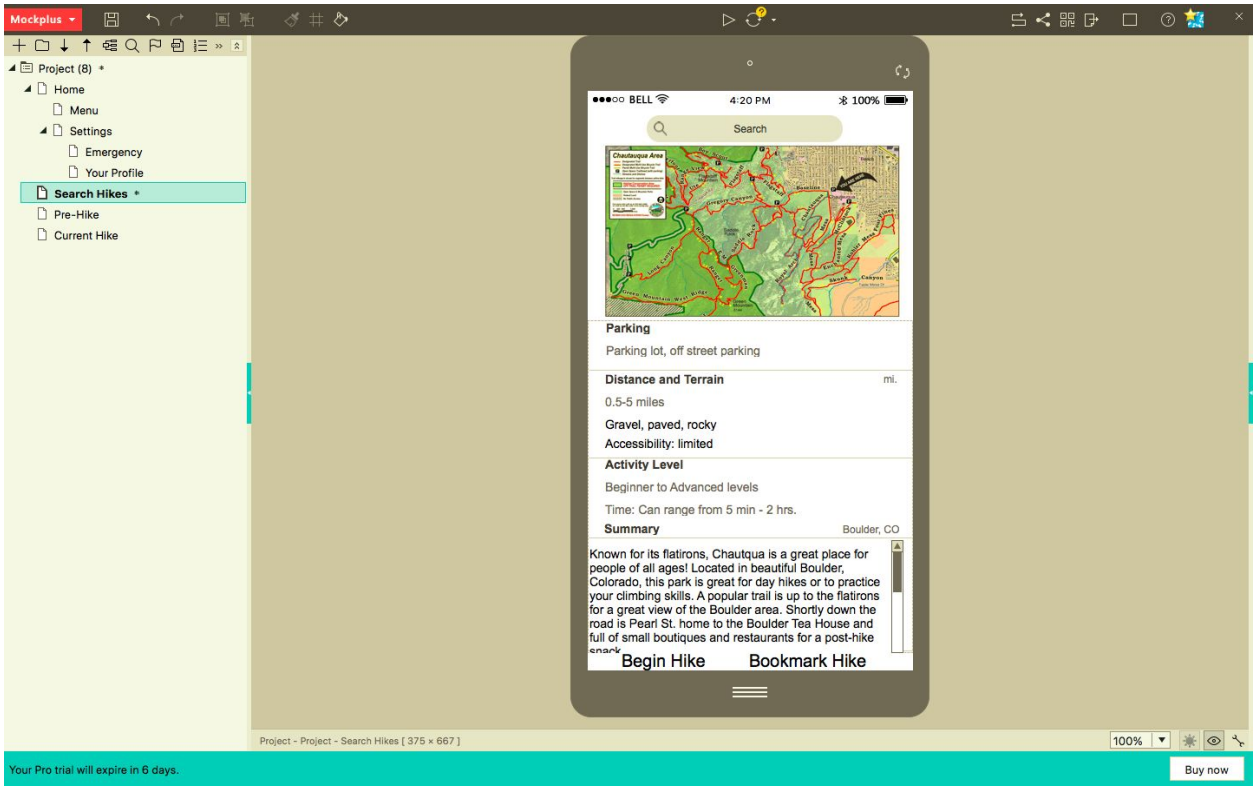
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Search
Chautauqua Area
Parking
Parking lot, off street parking
Distance and Terrain
mi.
0.5-5 miles
Gravel, paved, rocky
Accessibility: limited
Activity Level
Beginner to Advanced levels
Time: Can range from 5 min - 2 hrs.
Summary
Boulder, CO
Known for its flatirons, Chautqua is a great place for people of all ages! Located in beautiful Boulder, Colorado, this park is great for day hikes or to practice your climbing skills. A popular trail is up to the flatirons for a great view of the Boulder area. Shortly down the road is Pearl St. home to the Boulder Tea House and full of small boutiques and restaurants for a post-hike
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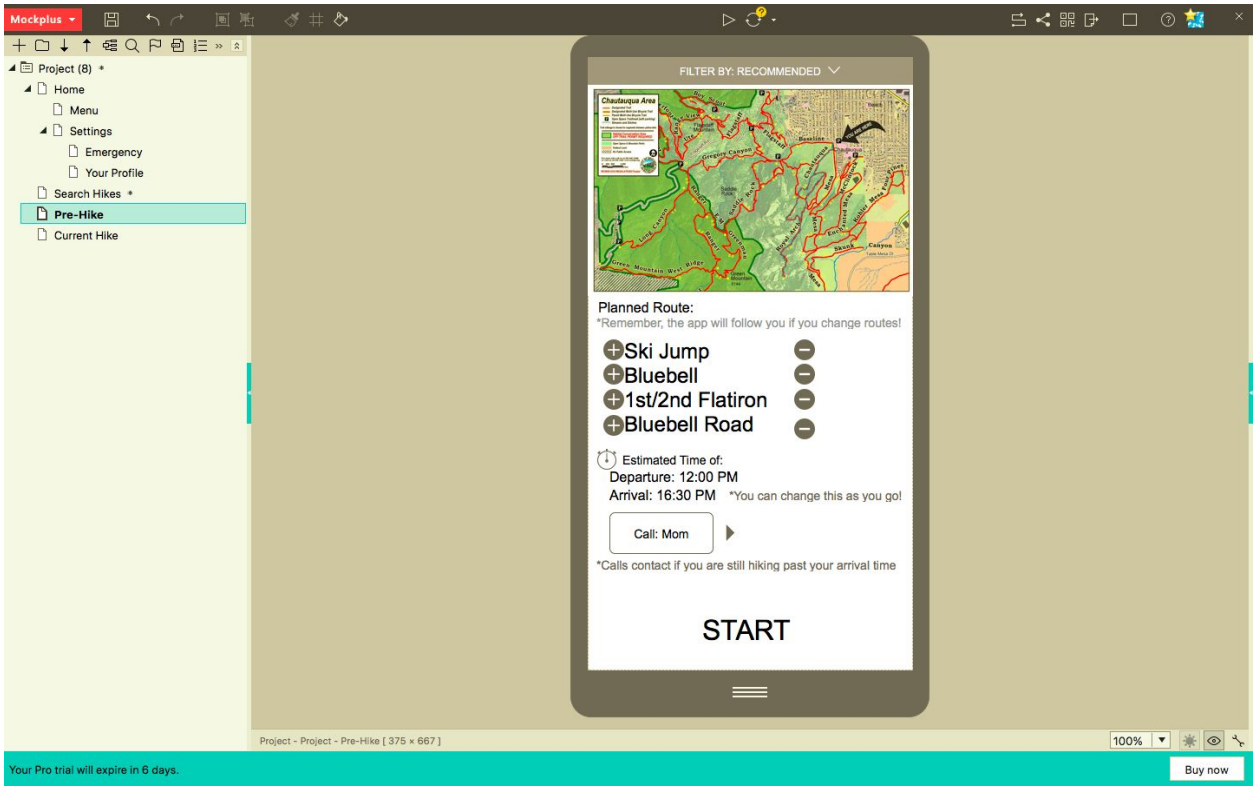
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Bluebell
1st/2nd Flatiron
Bluebell Road
Estimated Time of:
Departure: 12:00 PM
Arrival: 16:30 PM
*You can change this as you go!
Call: Mom
*Calls contact if you are still hiking past your arrival time
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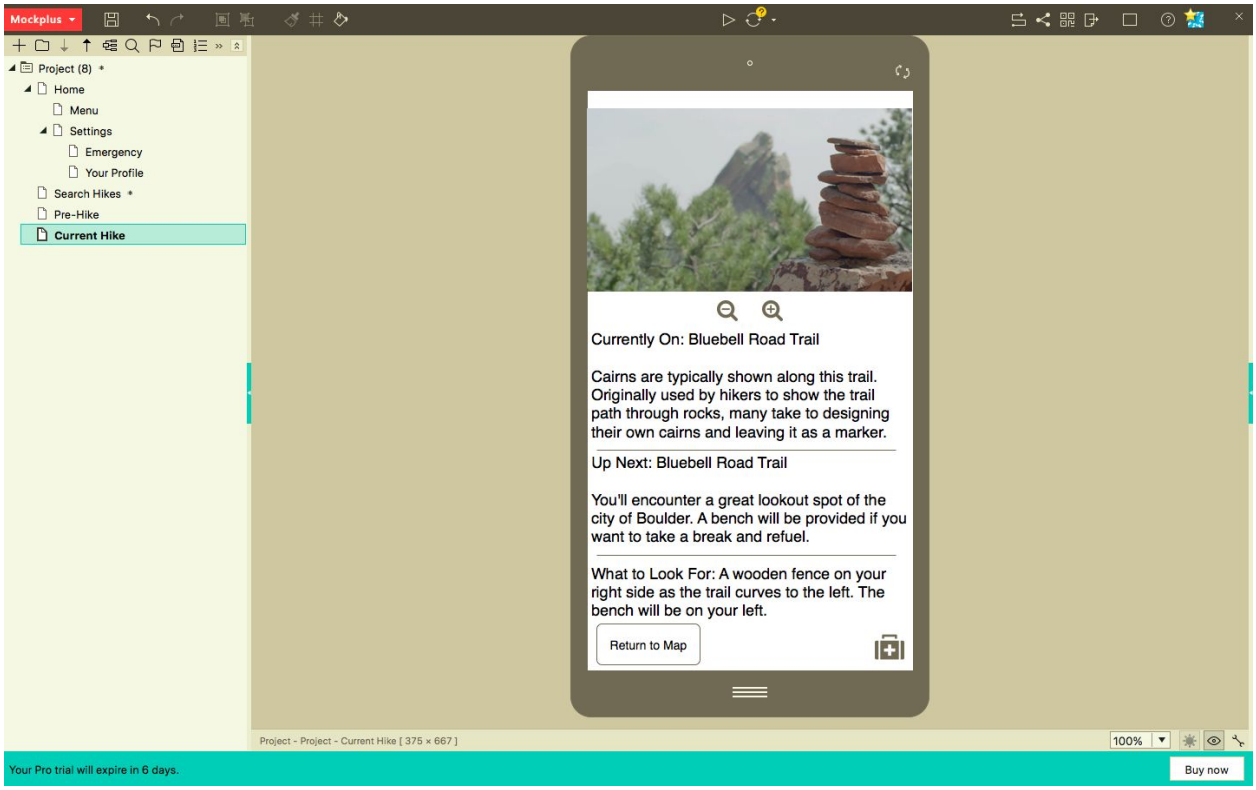
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Currently On: Bluebell Road Trail
Cairns are typically shown along this trail. Originally used by hikers to show the trail path through rocks, many take to designing their own cairns and leaving it as a marker.
Up Next: Bluebell Road Trail
You'll encounter a great lookout spot of the city of Boulder. A bench will be provided if you want to take a break and refuel.
What to Look For: A wooden fence on your right side as the trail curves to the left. The bench will be on your left.
Return to Map
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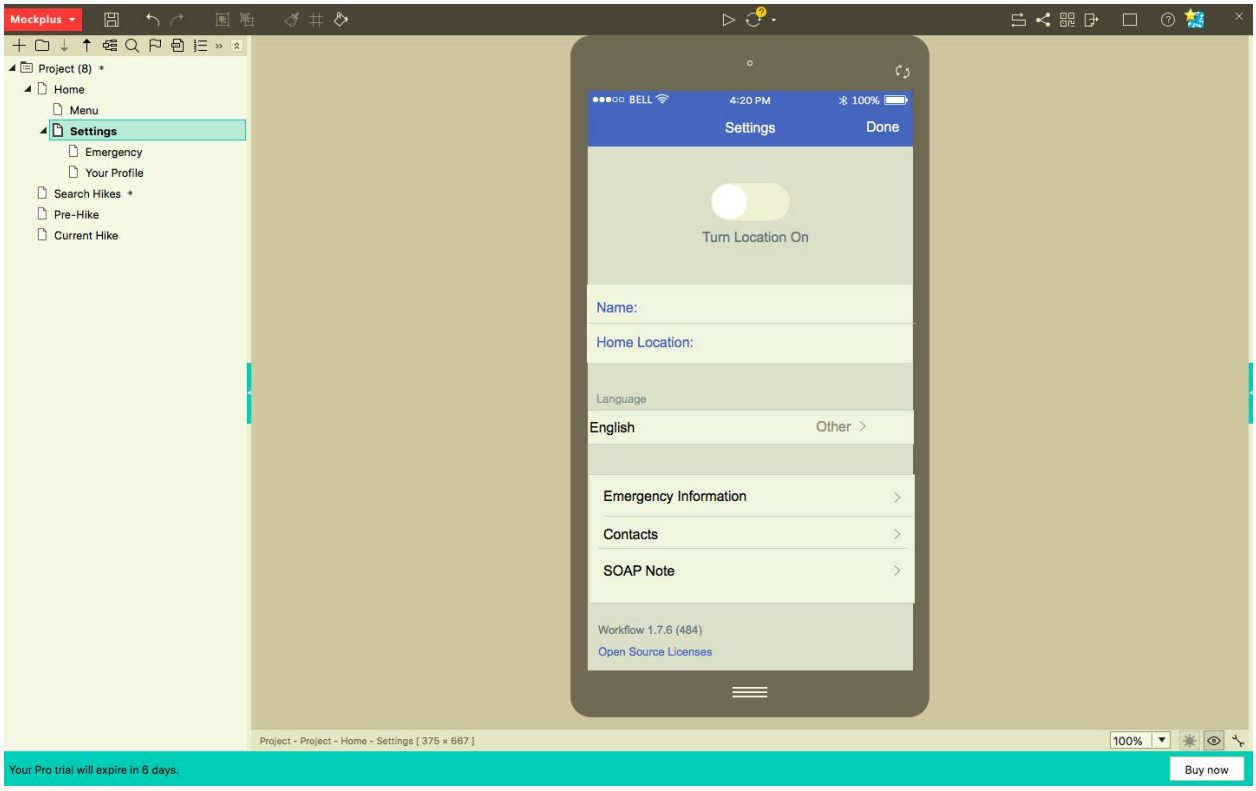
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