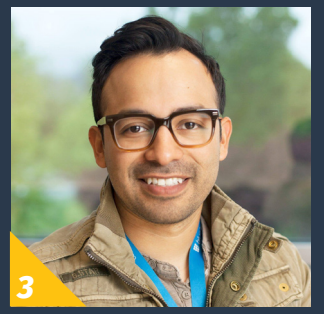
Capitol Reef Field Station

App Design Document
& Final Report

Contents

Our Team



1. Katelyn Earl
2. Trevor Bluth
3. Josue Hernandez
4. Tyler Searle
5. Braydon Powell
6. Evan Sorensen
7. Shane Frogley
8. Sunny Stevenson

1.0 Strategy

1.1 Personas

About

Age: 27

Occupation: Site Manager at CRFS

Status: Single

Hometown: Fruita, UT

Major: B.S. Biology from Creighton University

Hobbies: Skiing, Hiking, Mountain Biking, Running, Traveling

Goal

Gina needs an app that she can rely on to help her teach students & faculty visitors about the Field Station. She needs an app that can teach about Capitol Reef sustainability, geography, and history.

Tecnology

Computer: MacBook Air, iPad mini, and iPhone 5

Computer Savvy: Average

I would like a tool that I can refer students too in order to teach them important concepts about sustainability, and answer questions about technology that I am frequently asked.

Bio

Gina has been working as the CRFS site manager for a year and a half. Part of her job is to treat water for the facility and help students and faculty become more aware of their water usage and how it affects the environment. She is also responsible for teaching and answering questions about other sustainability technologies that the facility uses. While she is passionate about her job and loves teaching others about the environment, she has noticed that students often ask the same questions, which becomes tedious.

Gina Gilson

1.0 Strategy

1.1 Personas (cont.)

About

Age: 19

Occupation: Student

Status: Single

Hometown: Provo, UT

Major: Astronomy

Features: Outgoing, messy, hardworking, competitive.

Hobbies: Camping, reading, watching TV

Goal

Learn more about astronomy by visiting Capitol Reef, while having a fun time with her classmates and friends.

Tecnology

Computer: PC and iPhone 6

Computer Savvy: Average

I have heard the field station has a great night sky program. I'm excited to spend time with classmates under the stars, and learn what the field station has to offer.

Bio

Rachel is a student at UVU and she is majoring in astronomy. As a little girl, her dad used to take her camping and they would wake up before the sun came up so that they could have a clear view of the stars. She wants to get the most out of the college experience and likes to attend as many activities as possible. As an astronomy major, her class is taking a trip to the Field Station. Her professor referred her to the CRFS (Capitol Reef Field Station) app so they could learn about the park, and use it during their trip.

Rachel Smith

1.0 Strategy

1.1 Personas

About

Age: 45

Occupation: Professor at Utah Valley University

Status: Married

Hometown: Salt Lake City, UT

Major: Communications from Colorado State University

Hobbies: Hobbies: Reading, Skiing, Hiking

Goal

Plan a memorable trip to the field station, to provide his environmental communication students with a engaged learning experience.

Tecnology

Computer: MacBook Air, Kindle Fire, and Nexus 5

Computer Savvy: Average

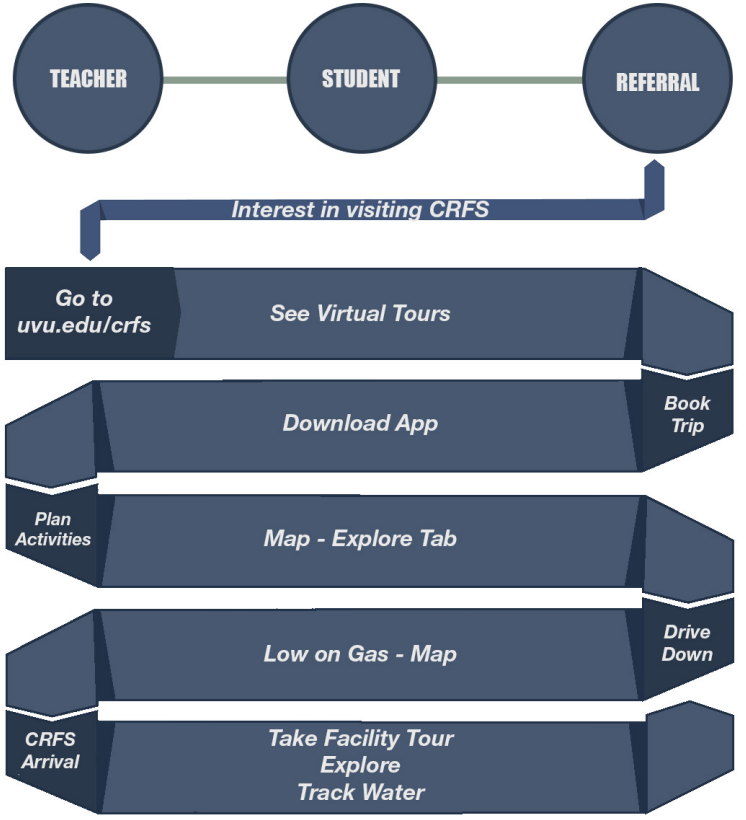
I need a research tool that will help me plan a memorable and educational trip to the field station for my class.

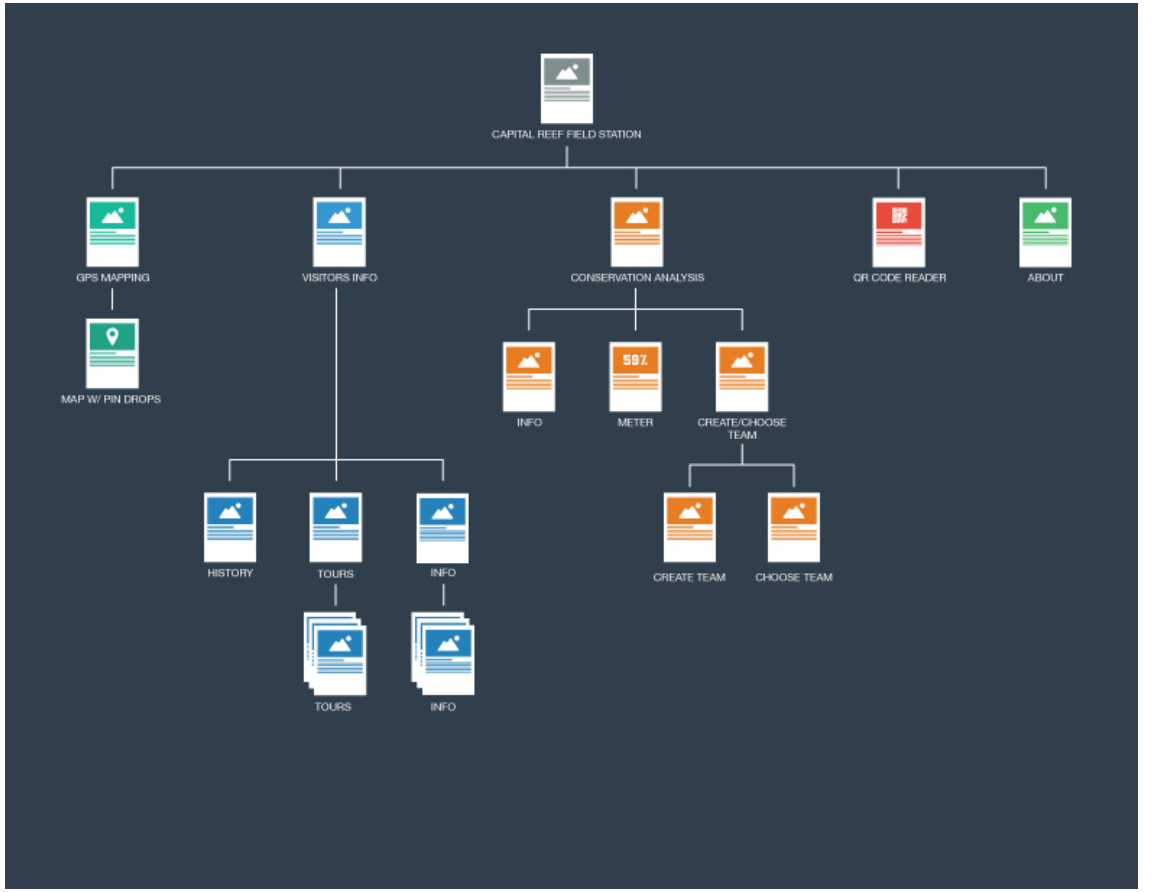
Bio

David is a communications professor at UVU. He enjoys being outdoors and works hard to provide memorable learning opportunities for his students. This semester, he is teaching a class on environmental communications and would like to give his students a first-hand view of why the subject is important, and the issues that are occurring in nature. He is taking his students to stay at the Field Station for a week, and wants to teach his class, but also have some fun. After talking to CRFS staff, he was referred to the app, which will help him research the park, and potential group activities and lessons.

David Cartwright

1.2 Experience Map & **App Screenflow**





2.0 Scope - **Features List**

STUDENT

Water Conservation Analysis/Tracker:

Need/Want: Get on the facility conservation leaderboard, and track water usage throughout their stay.

Solution: App will provide a water usage tracker, so students can monitor and make sure they are conserving as much water as possible.

QR Code Reader:

Need/Want: To learn about the different sustainability technology at the field station.

Solution: App will provide a QR code reader that allows students to scan a QR code, that opens a page about that technology within the app.

Map/Touring:

Need/Want: A reference to use as a source of information as they enter the park, and ride through Capitol Reef, to the field station.

Solution: They will be able to track their route, as well as look at upcoming landmarks that they might be interested in seeing, if their group does not allow them to make stops along the way.

FACULTY

Map/Touring:

Need/Want: A list of places the school gas card can be used, without requiring an strong internet connection or the need to use a website.

Solution: The map will provide all of the approved maintenance and gas locations.

Need/Want: Plan group activities for the class during their stay at Capitol Reef

Solution: The map will provide a way to see where different hikes and points of interest are located along their travel route.

Site Supervisor:

Water Conservation Analysis:

Need/Want: The site supervisor is responsible for treating the water and needs to keep track of the group water usage stats. She wants to encourage students to keep track of their usage as well.

Solution: The tracker will help visitors be more conscious about their usage and will help her make her point about how often they use water.

2.0 Scope - **Features List** *(cont.)*

QR READER

Need/Want: Communicate with visitors how sustainability technology works, the importance of saving resources, and how they can develop good sustainability habits in their daily lives.

Solution: Provide a QR Code Reader that takes students to pages within the app that give them the information the site supervisor wants/needs to communicate with them.

3.0. Surface

3.1 Color & **Font**

Colors were a big challenge in this project. We wanted the app to represent UVU and Capitol Reef but also use colors that would not take away from the app. First, we tried some different options in green to match the primary UVU color. After implementing it in the design however, we decided that green was not the right for this app. After trying other several options we decided to use blue as the primary color, because it is an earthy tone and contrasts well with the red rocks that make up Capitol Reef. To make the app look professional, modern, and clean, we decided to use blue in a monochrome color palette and use an light grey as the accent color.

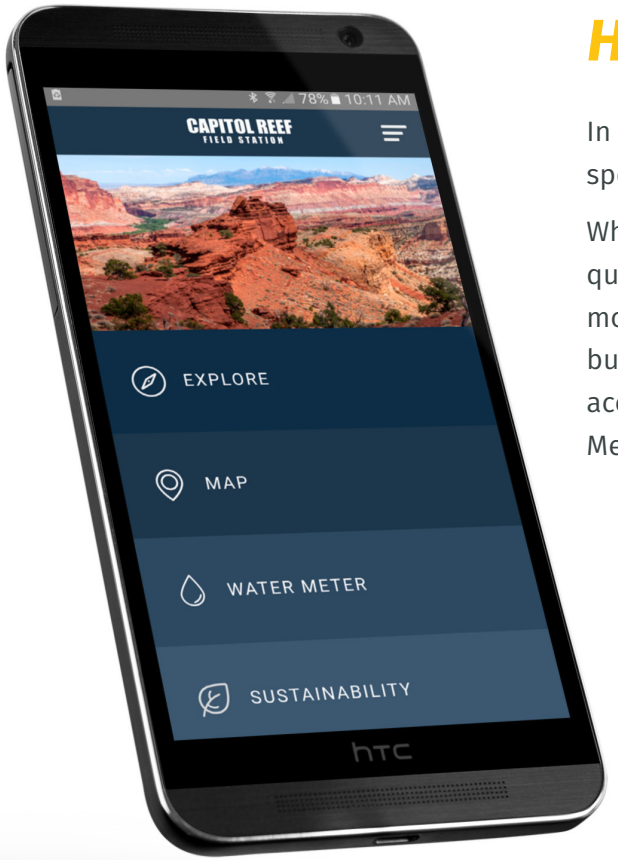
Color Guide

#2A394C	#203147	#394A60	#46586F	#AEAEAE	#7A9A92	#8A87A4

We felt that the font was a very important aspect of the app. We wanted a clean, modern looking font that was easy to read, but unique to the design. After looking at several fonts, we decided to use Geomanist by Atipo. It looks great in the app and it is very easy to read.

- Font: Geomanist by Atipo
- Headlines and subheadlines: Font-weight bold; Uppercase
- Regular Text: Font-weight: book; Sentence Case

3.2 Design **Implementation**



HOME PAGE

In this portion of the Capitol Reef project, there were four specific needs or problems that needed to be solved.

When solving these problems, getting to the solutions quickly made navigation critical to the experience. The most important functions of the app were made into buttons on the home screen of the app to allow quick accessibility. These functions include: Explore, Map, Water Meter, and Sustainability.

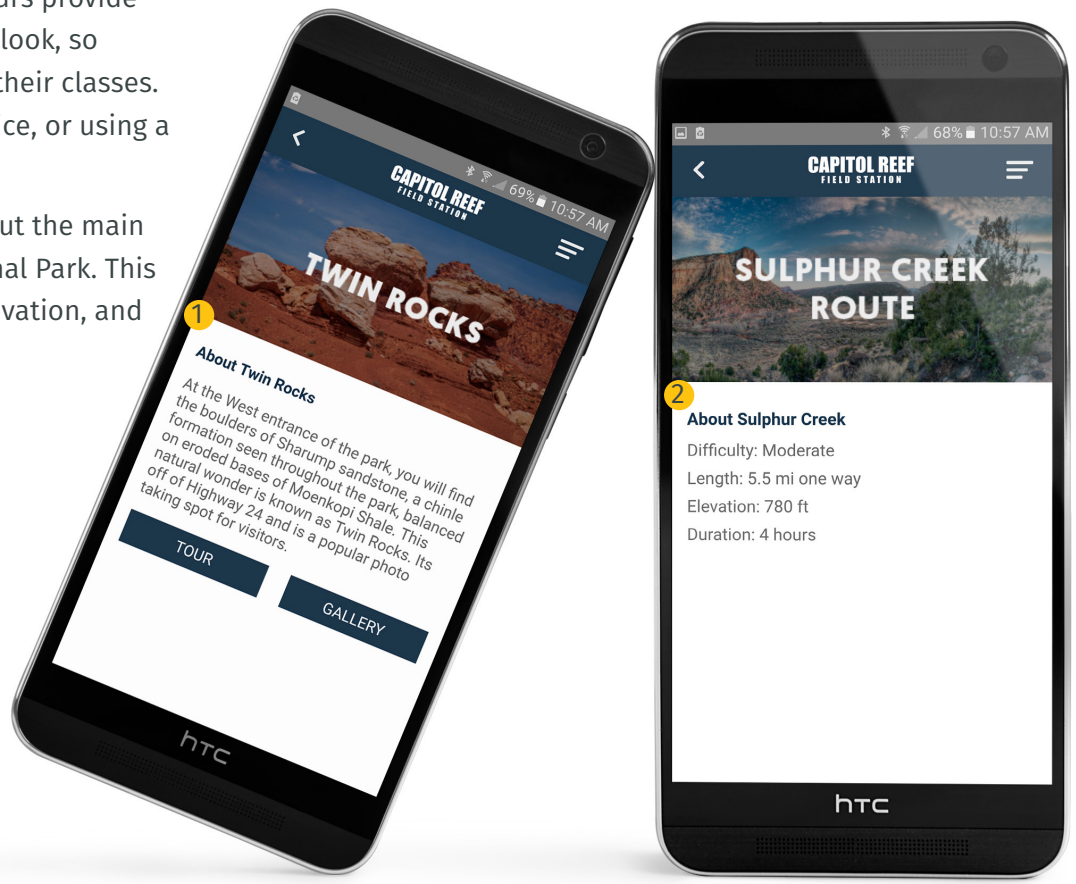
3.2 Design **Implementation** (cont.)

EXPLORE

The “Explore” section is meant to be an interactive tool for professors and students when preparing for their visit to Capitol Reef, so they can research group activities and learning experiences that will be worth their while. This section can also be used as a research tool when cell service is limited but travelers are seeing different points of interest during their drive through the park.

1 Some of the hikes and points of interests within the app allow users to take a tour of that spot. The tours provide a 360 degree view of each destination or overlook, so professors know what to expect when taking their classes. These tours can be viewed regularly on a device, or using a VR headset such as Google cardboard.

2 The Hikes section is full of information about the main hikes that are available in Capitol Reef National Park. This information includes the difficulty, length, elevation, and duration, for professors.

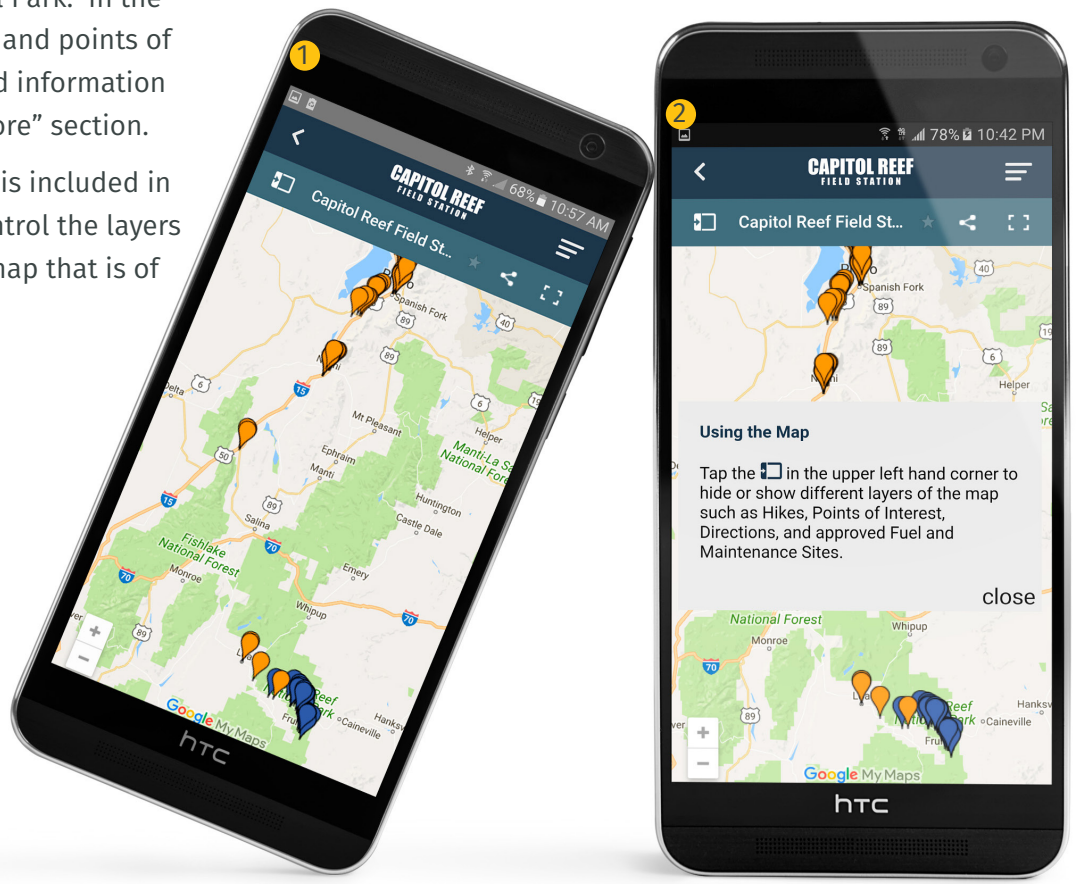


3.2 Design **Implementation** (cont.)

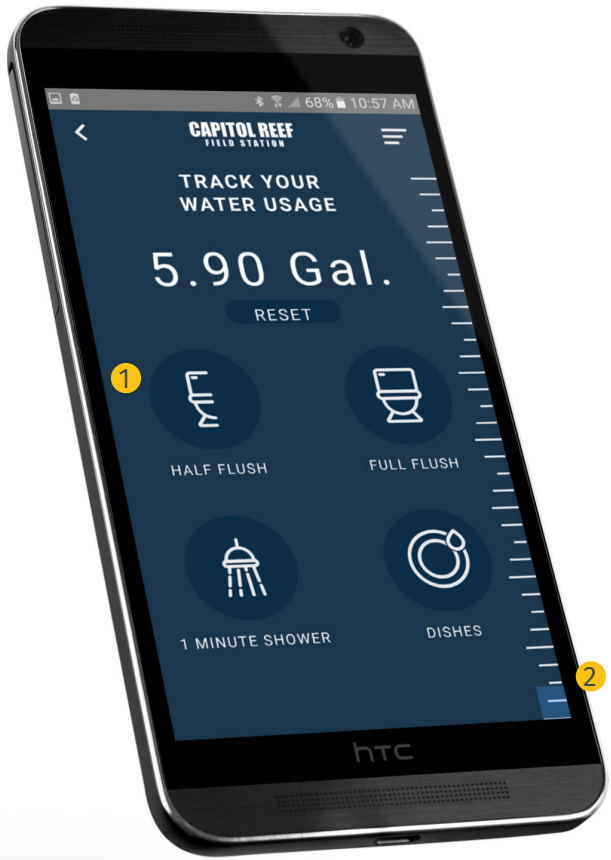
MAP

When traveling to the field station, there is a lot of information to keep track of such as the directions, UVU fleet service fuel and maintenance sites, and where and what points of interest are. The map feature is meant to combine all of that information.

1. Specific layers of pins have been added to the route that include approved gas and maintenance stations, hikes, and points of interest within Capitol Reef National Park. In the future, it is anticipated that each of the hikes and points of interest pins can be linked to their designated information page, that is currently accessible in the “Explore” section.
2. After receiving client feedback, the tutorial is included in the map so CRFS visitors can learn how to control the layers of pins, so they only see information on the map that is of interest to them.



3.2 Design **Implementation** (cont.)



WATER METER

One of the Field Station's main goals is to teach students resource sustainability and make them more aware of the resource usage. Because the site manager is responsible for treating all of the water used on the property, they have the ability to track how much water each group uses, which they use to show students and faculty how wasteful they really are. However, there is currently not an easy way to help students become more aware of their usage until the end of their stay, except for the individual statistics next to each of the sinks, toilets, showers, etc.

1 The water meter helps the user keep a close estimate of how much water is being used while they are in the Field Station. The are several options that measure the different ways people at the Field station use water. These include the toilet flushes, shower, and dish washing water.

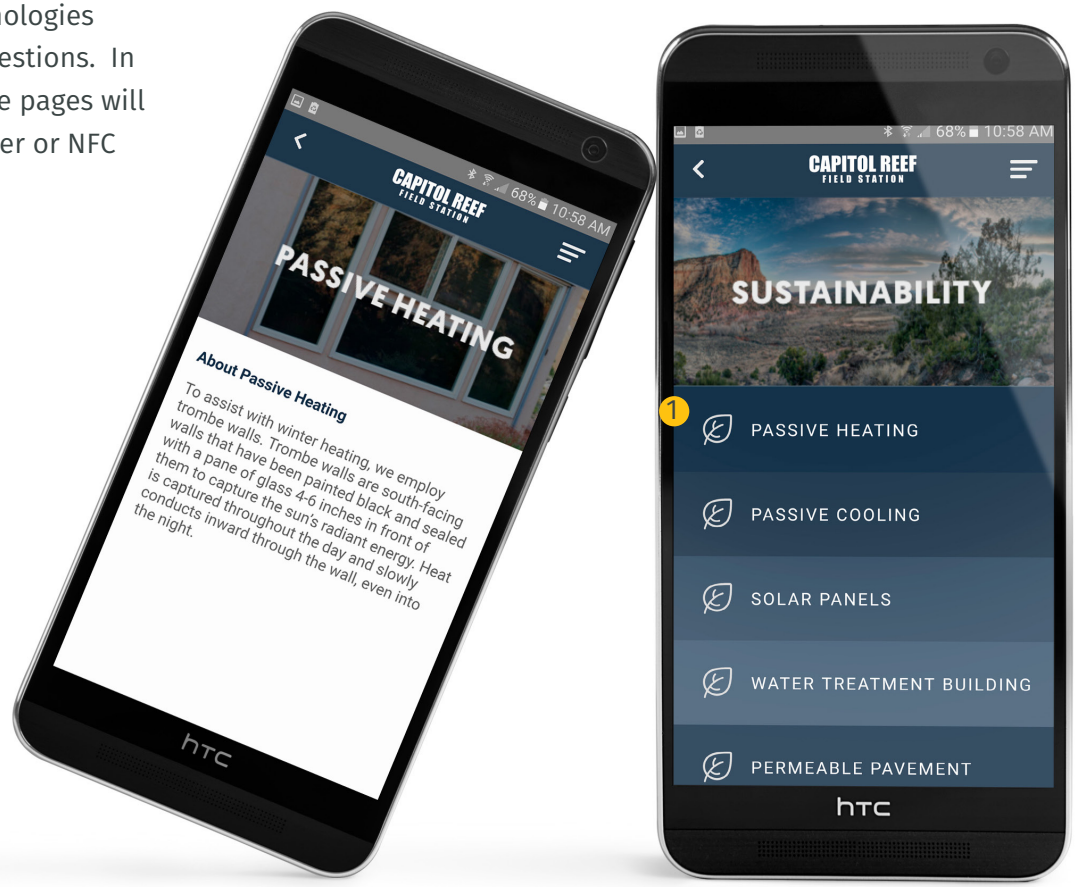
2 This ruler not only demonstrates the amount of water an individual is using, but also allows visitors to compare their usage to the 100 gallons that an average American uses per day.

3.2 Design **Implementation** (cont.)

SUSTAINABILITY

Because the Field Station's main goal is to teach visitors about the importance of developing sustainable habits in their regular routines, the property features a lot of sustainability technology. However, these features are not well marked or explained so student understanding is dependant on the site manager. The sustainability section of the app alleviates some of this dependence for the site manager and encourages self-taught learning as students and faculty explore the facility.

1 Currently, this section contains the list of features, each with an explanation about the different technologies that users can read about when they have questions. In the future however, it is anticipated that these pages will be easier to navigate to using a QR code reader or NFC technology, rather than a standard list.



4.0 Technical Specs & **Software**

PhoneGap: Our team will use PhoneGap as a development environment to create both an Android and iOS app using HTML, CSS, and JavaScript.

Chrome/Safari: Chrome and Safari dev tools are used for most live development and debugging the app.

Polymer: Using the Polymer framework, we will be able to more easily implement material design elements, and other front end Javascript elements.

Sketch and InVision: All app designs will be prototyped and designed using industry tools such as InVision and Sketch.

Adobe Creative Suite: Along with Sketch and Invision, Adobe Creative Suite will be used to create design elements such as icons, as well as project deliverables.

AutoPano Giga and Panotour Pro: Using these two softwares, we will be developing virtual tours of hike viewpoints to include for research purposes in the "Explore" section.

Git and GitHub: The app code repository is stored on GitHub at https://github.com/DigitalMediaUVU/CapitolReef. The repository contains all code and assets required to run and build the App. Here are a few things to note about the repository:

- Bower components and other other items which are normally left out of the repository are intentionally included because the build system pulls from the repository and must have these items. It won't do a bower install command to get them.

- To build the app you must go to build.phonegap.com and log in with an adobe ID, any creative cloud ID should work. Building the app is free but you must allow the build tool access to the github repository.

- The github account is managed by Michael Harper, but has a limited number of seats so you may not be able to give an entire team access. For our team access is limited to Tyler Searle and Braydon Powell.

Hosting: The tours are hosted by Paul Cheney at virutal.uvu.edu. Previously they were hosted at uvu.edu/crfs. However, the content management system was adding elements to the html and introduced bugs into the tours.

Important Notes:

The app should run on any Android device with Android 4.0 or greater or devices with iOS version 5.0 or greater. Due to licensing restrictions the only build available is for Android. However, if you install the phonegap App and and access to the code you can load it on either platform for testing.

4.0 Technical Specs & **Software** (cont.)

Important Notes:

The app should run on any Android device with Android 4.0 or greater or devices with iOS version 5.0 or greater. Due to licensing restrictions the only build available is for Android. However, if you install the phonegap App and and access to the code you can load it on either platform for testing.

The app is approximately 20MB. It will use that much data to download, and take that much space on a device. The tours are not stored in the app due to their size. To view the tours you must have a data connection of some kind.

The app has not been tested for accessibility although this will be a major obstacle to publishing through the school. As the app has gone through different iterations we have kept usability concerns in mind and attempted to make sure all images have alt tags, and that all html elements have valid semantic meaning to aid screen readers.

For more detailed information about the app architecture, refer to the files in documentation folder in the root of the repository. We have also made an effort to make sure the code is thoroughly commented.

5.0 Future **Improvements**

• **Map Points:** Currently, the points on the map and the pages that tell about those points are not linked in any way. Linking the pins to their designated page is a crucial part of improving the user experience in the next phase of the project. Due to development time limitations, and the size of this task it was determined that this was not a necessary part of our minimum viable product, and that it would be a better fit for the next phase of the Capitol Reef Field Station project.

• **Leadership Board:** While the leaderboard feature of the water tracker did not received positive feedback during user testing, we anticipate that the addition of a leaderboard and teams would get a better reaction once people are at the Field Station, because of the leaderboard posted on the wall, and the competitive drive when they realize they can try to break those records. It would also be a great way for staff to store the data from each group.

• **QR Code Reader:** This feature was part of our original list of future improvements, but after user testing we found that the QR code reader was not needed/wanted by our target audience. While the current Sustainability section includes a list of educational information, it is suggested that groups working on this app in the future research and test a different ways, such as NFC technologies, to provide this content to Field Station visitors that will be more useful and desired by them.

• **Conservation Education:** On of our goals for this app was to help the site manager educated students about the importance of conserving resources, especially water, and to make visitors more aware of how much water they actually use. While the water tracker does its job tracking water usage, to show you how much you are using, our user surveys pointed out there isn't anything else educational about it. In the next phase, it is recommended that the Digital Media team find possible ways to do this, and implement it to accomplish the second half of this original goal/need.

AppDesign Document **Sign-off Sheet**

Project Name: Capitol Reef Field Station

TEAM

Team Member Name	Team Member Signature	Date
•		
•		
•		
•		
•		
•		
•		
•		

CLIENT

Name: _____ **Title** _____

Signature: _____ **Date** _____

DIGITAL MEDIA ADVISOR

Name: _____ **Title** _____

Signature _____ **Date** _____

DIGITAL MEDIA PROJECT MENTOR

Name: _____ **Title** _____

Signature _____ **Date** _____

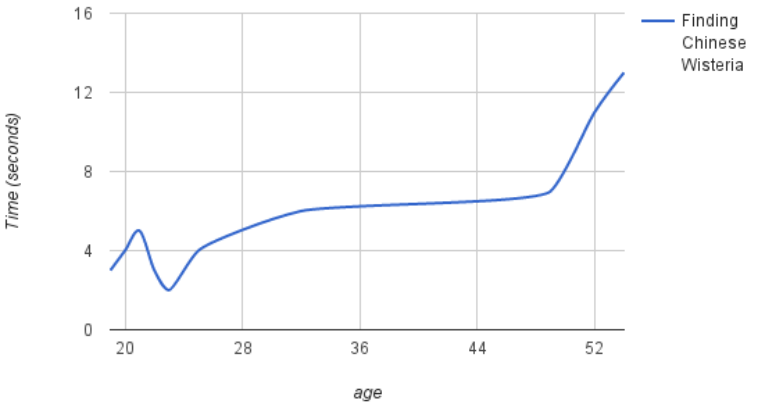
Final Report

I. USABILITY TESTS

1.1 Usability Test Plan

Our testing plan began with creating a prototype of the app using Invision, and testing it within our group. Each group member was assigned different testing scenarios, and were asked to notate the feedback and results within the prototype, so the design and development teams could make necessary improvements. After the app was developed for use on a mobile device further user testing consisted of selecting ten individuals, male and female, whose ages range from 22 to 54. The selected users were given a device with the app and a user survey with questions and tasks related to the usability of the app, which can be viewed in the appendices of this section.

1.2 Usability Test Results



1.2 Usability Test Results (cont.)

Each person was assigned the task of finding information about the Chinese Wisteria tree. This graph shows the differences in how fast people could navigate the app based on age. In this example, and the other tasks they were asked to perform, older people had to take more time in trying to do the specific tasks. This made sense however, because older people usually have a harder time with technological devices.

Not only was task completion timed to test efficiency of the app for users, but it was also important that we receive feedback on what testers felt about the app as a whole. This not only helped us to make improvements to the design, but also fix details that we missed when testing the app ourselves. Some of these responses included: “Why can’t I navigate or use the back button”, “Why is the fruita district completely empty?”, “Why do the 360 tours have square seams in them?” Others included:

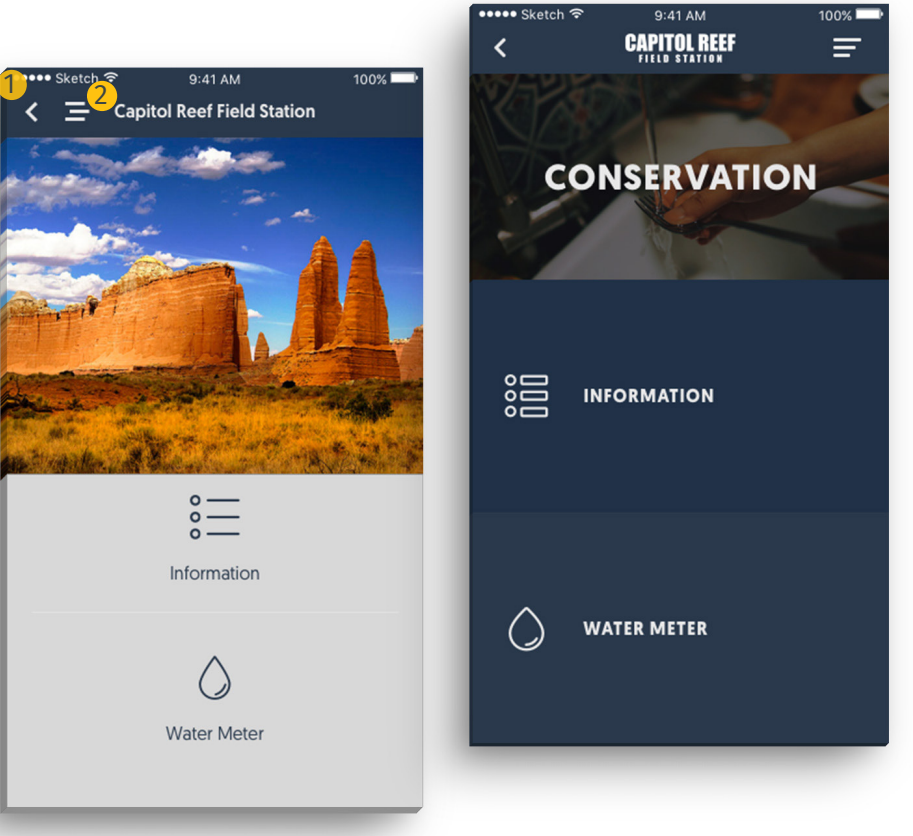
• “I don’t want to join a team. That’s stupid.” -Katie

• “I can’t push this back button very easily.” -Nick

• “I don’t use QR codes.” -Alec

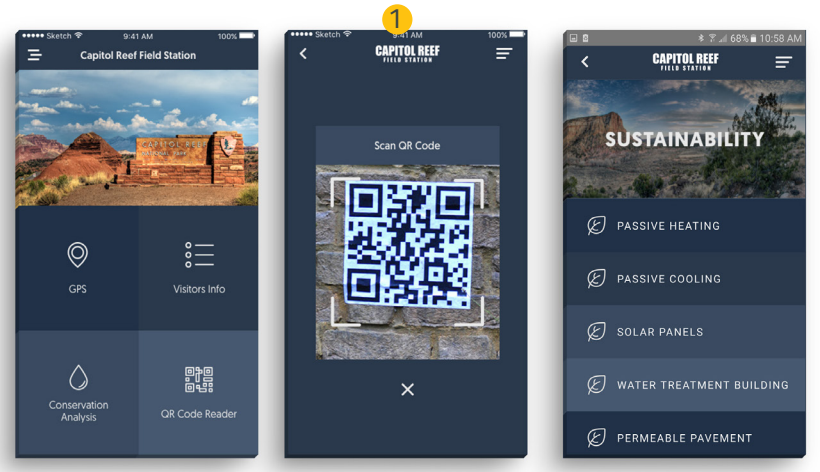
1.3 Usability Test Summary

Navigation: People often got confused about where they were when they got a few pages down in the navigation. They also had a difficult time pressing navigational buttons such as 1 the back button or 2 the menu button. This led to the removal of unnecessary pages in the Conservation section of the app and larger touch areas with navigational items.



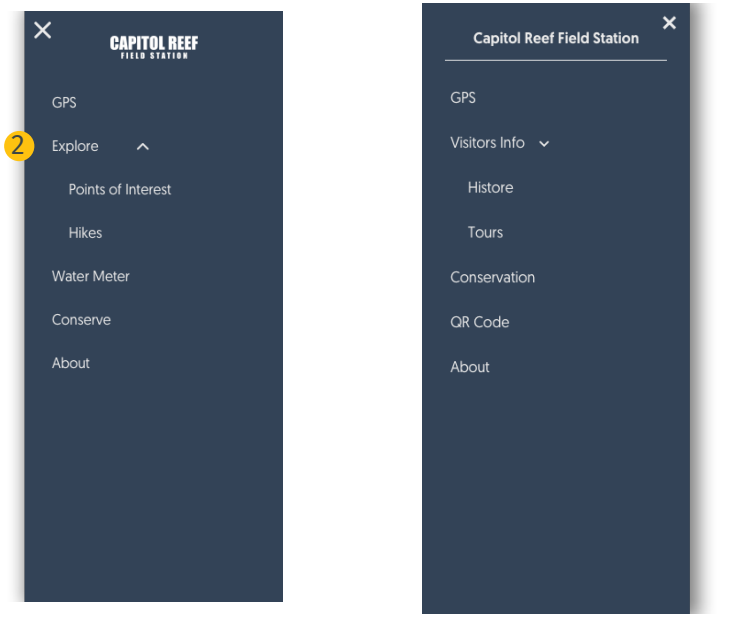
1.2 Usability Test Summary (cont.)

1 **QR Code Reader:** When asked about the QR code reader, most people said they wouldn't use it or didn't like it. This, along with other feedback, led to the decision to remove the QR code reader completely, by replacing it with a simple list of the different sustainability technologies that QR code reader would've provided.



2 **Wording:** Several of the people testing the app got confused at the wording of certain buttons or links. Some of them were changed for a clearer meaning, others were not changed. The one most commonly mentioned was the 'tour' button. Most of the people didn't associate that word with its action. They suggested 'visit', 'view', or 'explore'. It was eventually changed to say 'explore'.

Water Tracking & Teams: Most people, especially the students, didn't like the idea of joining teams and having competitions within the water meter. The teams and competition aspect of the app were not removed though. It was determined that when someone was visiting the Field Station, they might actually like it. Instead of removing it, it was redesigned to be less prominent and not add depth to the navigation. This feature is not currently in the app, but it is anticipated that it can be added in the future.



Map & Explore: Overall the Map and Explore features were well received and easily used. No major changes were suggested to those sections, and only minor visual changes have occurred there. These sections seemed most likely to be used and were put first in the navigational list.

2.0 Functional/Compatibility Testing

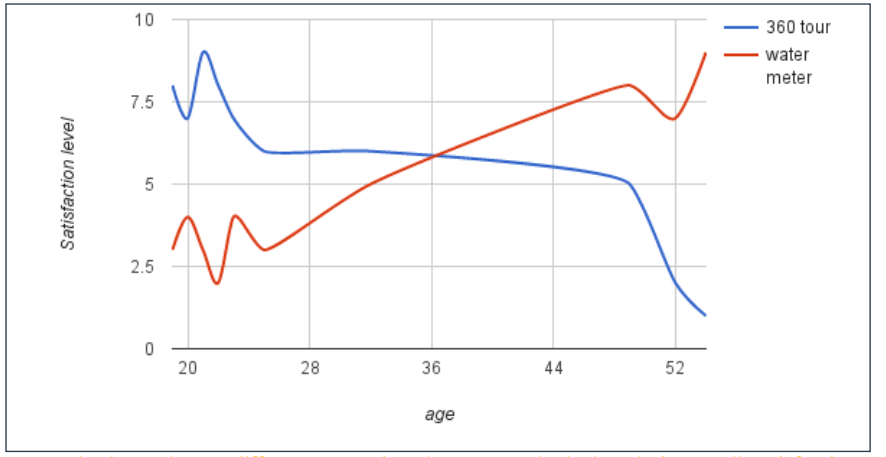
During the first phase of testing an Invision prototype was used. That was used to test primary functionality and navigation. After feedback from the prototype tests, adjustments were made and a working app prototype was created. That allowed for further testing to fine-tune functionality and establish platform and browser compatibility.

3.0 User Satisfaction Survey

3.1 User Satisfaction Survey Test Plan

We used the user survey to conduct and determine our user satisfaction data. An example of this survey can be seen in the Appendices of this report. We recruited users by seeking out individuals who matched our target audience of students, faculty, and a site supervisor. We were able to recruit four students within our testing group however we did not have any actual faculty or site-supervisors within our test group.

3.2 User Satisfaction Survey Results



As we had people test different scenarios, they were asked what their overall satisfaction was, on a scale of 1-10, with the process and results of completing those tasks.

• Feedback and questions that contributed to these satisfaction results included:

- "What is that tour button? I don't want to click that." -Lisa
- "I like the virtual pictures, but I don't think I'd use the water tracking part of it" -Raquel
- "That's cool! It looks like I'm there!" -Madi
- "I'm okay just reading about the hikes" -Sherie

3.3 User Satisfaction Summary

• **User Satisfaction:** The overall satisfaction of different features within the app depended on the age of the people we tested. The older our testers were, the more they thought that the water meter was a great feature. However, as our test users got younger, they didn't seem care as much. We decided to keep both features for all those that go to the Capitol Reef Field Station.

• **Criteria Evaluation:** While the app did not meet the criteria for student education in conservation techniques. This app succeeded in entertaining its users for a short time. However, it didn't provide insights into how they can use the technologies and methods at the Field Station in their own lives. As a result, the next Digital Media team working with CRFS will need to document and implement more educational content.

• **Survey Implementation:** This survey taught us of several changes that needed to happen before development took place. It caused us to remove added features to focus more on client and user needs. This is to make the function fit the needs.

• **Future Updates:** It's recommended that future updates be made to the app and the website to focus their functionality on education and content that will promote engaged learning.

I I.Post-Project Analyses

4.0 Schedule Analysis

Based on our original work breakdown structure, our team stuck to the original project schedule until May. Due to summer break, tour development took much longer than anticipated. With that being said, the tours were ready for testing and client review by the end of June, which was ahead of schedule for the Capitol Reef Field Station to use to promote to UVU faculty at the end of July. We ran into additional technical problems during revisions, and regulations being enforced by the university to publish the tours, but the problems were minor enough, that CRFS faculty could still use tours on the test site while we got the tours finalized and published. Seeing as the app was not a planned portion of the project, we were able to stay more or less on schedule with weekly sprints during Fall semester, but would plan time for some of these complications to occur in the future.

5.0 Cost Analysis

Because we only used a minimum number of hours per week in our original estimate, and the addition of the app requiring more development hours than expected, we came in over budget for this project. Overall, our estimated total came to $19,112.00. However, because our clients were not paying hourly wages, we budgeted that they would actually spend $1,832.00. With the addition of the app to our project, however, we chose to cancel our third trip in addition to taking fewer people on our first two trips, so only $709.00 was spent by the Field Station. When calculating hourly wages, the actual estimated cost of this project would have been, $27,281.50.

I I I. Lessons Learned

6.0 What We Learned

Mobile App Development: We learned that tools such as PhoneGap make it easy to develop mobile apps using web technologies

Design: We learned the importance of creating a design that works with both Android and iOS, and coordinating capabilities and designs with web development technologies.

Virtual tours: We learned to pay attention to detail, and the importance of planning out the entire map, and how all of the tours and nodes would connect together before starting the project.

Project Management: We learned how easy it is for scope creep to delay a project and increase the budget. We also learned that many parts of the project took longer than we typically expected, and that it is important to allow sufficient for unforeseen restrictions.

Accessibility: We learned that it is important to research all accessibility guidelines and laws when working for a government organization, and to make sure we know all guidelines and restrictions before we begin development.

7.0 What your team would do differently

Schedule: When looking at our projected schedule compared to the time things actually took, we realize we had a lot of room for improvement. While we stayed on schedule during the planning phases, we underestimated how much time the development phases would take, and would be more gracious with our time in the future.

File Management: Prior to developing our project, we had a clear idea of

how we would manage project assets. As we continued to work however, we found that our file management plan was no longer going to work. We could have handled this differently, by collaborating and figuring out a better solution to begin with, rather than saving things in different locations, because it all became unorganized and made it harder to collaborate.

Project Scope: If we were doing starting this project again, we would start by having a clear idea of what the project requirements were before doing anything else. While we had a scope in mind, the only part we ended up doing however, that was part of the original plan, were the virtual tours and we allowed our client to added to the project later. For this reason, we had problems with scope creep and our lack of a clear project requirements that continued to snowball and affect all parts of the project including our schedule, budget, and the product we were ultimately able to put out.

Assume Accessibility: Once the apps and tours were ready to be published, we ran into issues with the University, and their guidelines on accessibility. This was a factor that had never been brought up, and hadn't occurred to us until the project was almost done. If doing this project again, we would assume that those regulations would be enforced so we could research and implement the needed elements during the project, rather than going back and making fixes or finding loopholes, because we had already spend so much time on the project.

While we had briefly discussed what we would like the look and feel of the app to be, our team didn't start with a clear style guide as to what the app was going to look like on the surface. We ended up creating multiple versions of app styles for different sections of the app. If we were starting the designs on our app again, we would set clear guidelines before beginning surface comps. Had we done this with our project, we could have spent more time on development.

Appendices

Time Charts

Week	Person	Task	Time (hrs)
1/11-1/15	Josue	Ordering Google Cardboard and research	5
1/18-1/22	Josue	Research and testing panorama output	5
1/25-1/29	Josue	Research and work on proposal	6
2/1-02/5	Josue	Research and work on proposal	5
2/8-2/12	Josue	Research and work on proposal	6
2/15-2/19	Josue	Research and work on proposal	5
2/22-2/26	Josue	Research and work on proposal	6
2/29-3/4	Josue	Design document, meeting with Paul, grant applications	6
3/7-3/11	Josue	Design document, and trip planning	5
3/14-3/18	Josue	Trip to CRFS, prepping for trip	32
3/21-3/25	Josue	Meeting with Paul, brainstorm and decie to make app, research	5
3/28-4/1	Josue	Brainstorming more app ideas	8
4/4-4/8	Josue	Deciding on app development, research, wireframes	7
4/11-4/15	Josue	Research, app content gathering, wireframes	5
5/9-5/13	Josue	Trip to CRFS, prepping for trip	36
8/22-8/26	Josue	App designs	6
8/29-9/2	Josue	App designs	5
9/5-9/8	Josue	App designs	5
9/12-9/16	Josue	App designs	6
9/19-9/23	Josue	App designs	4
9/26-9/30	Josue	App designs	5
10/3-10/7	Josue	Team meeting & app designs	16
10/10-10/14	Josue	Team meeting & app designs	20
10/17-10/21	Josue	Team meeting & app designs	10
10/24-10/28	Josue	App designs	4
10/31-11/4	Josue	Team meeting & pp designs	3
11/7-11/11	Josue	Team meeting & app finishing touches	4
11/14-11/18	Josue	Team meeting & app finishing touches	3
11/21-11/25	Josue	App finishing touches & QA	4
11/28-12/2	Josue	Preparing for presentation & documentation	4
12/5-12/9	Josue	Final evaluations	1
		Total Hours	**242**

Week	Person	Task	Time (hrs)
1/11-1/15	Katelyn	Ordering Google Cardboard, research, contacting client and mentors	5
1/18-1/22	Katelyn	Research and testing panorama output	4.5
1/25-1/29	Katelyn	Research and work on proposal	6
2/1-02/5	Katelyn	Meeting with Annette and working on proposal	5
2/8-2/12	Katelyn	Meeting with Keith and Annette, working on proposal	5.5
2/15-2/19	Katelyn	Redoing and editing proposal and scheduling March trip to CRFS	4
2/22-2/26	Katelyn	Meeting with Annette about budget, project scope, and proposal	6
2/29-3/4	Katelyn	Design document, meeting with Paul, grant applications	7
3/7-3/11	Katelyn	Design document, trip planning, meeting with Annette	5
3/14-3/18	Katelyn	Trip to CRFS, prepping for trip	32
3/21-3/25	Katelyn	Meeting with Paul, brainstorm and decie to make app, research	5
3/28-4/1	Katelyn	Persona developemnt, stitching and photoshopping panoramas	10
4/4-4/8	Katelyn	Finishing panoramas, deciding on app development, research	7
4/11-4/15	Katelyn	Research, app content gathering	5
5/9-5/13	Katelyn	Trip to CRFS, prepping for trip	36
5/16-6/23	Katelyn	Putting tours together	30
8/22-8/26	Katelyn	Meeting with Annette and team	3
8/29-9/2	Katelyn	Writing app content, team meeting, work on tours	5
9/5-9/8	Katelyn	Work on tours, team meeting, app content, project brief	3
9/12-9/16	Katelyn	Write app content, team meeting, project brief	5
9/19-9/23	Katelyn	Prototypes and team meeting	3
9/26-9/30	Katelyn	Team meeting and prototyping	6
10/3-10/7	Katelyn	Team meeting and project management	2
10/10-10/14	Katelyn	Team meeting and finalizing virtual tours	3.5
10/17-10/21	Katelyn	Team meeting	1.5
10/24-10/28	Katelyn	Project management and app design	3
10/31-11/4	Katelyn	Team meeting, app icon design, and content editting	4
11/7-11/11	Katelyn	Team meeting, draft reviews, and testing	3
11/14-11/18	Katelyn	Tours, app finishing touches, final report and documentation	7
11/21-11/25	Katelyn	Tours, final report, documentation, app revisions	10
11/28-12/2	Katelyn	Final report, team meeting, and documentation	7
12/5-12/9	Katelyn	Final presentation and deliverables	6
		Total Hours	**245**

Appendices

Time Charts

Week	Person	Task	Time (hrs)
1/11-1/15	Evan	Ordering Google Cardboard, research,	4
1/18-1/22	Evan	Research and testing panorama output	6
1/25-1/29	Evan	Research and work on proposal	5
2/1-02/5	Evan	Working on proposal	7
2/8-2/12	Evan	Designing proposal layout	11
2/15-2/19	Evan	Redoing and editing proposal	10
2/22-2/26	Evan	project scope, and proposal	5
2/29-3/4	Evan	Design document, meeting with Paul	7
3/7-3/11	Evan	Design document	8
3/14-3/18	Evan	Prepping for trip	4
3/21-3/25	Evan	Meeting with Paul, brainstorm and decie to make app, research	7
3/28-4/1	Evan	Persona developemnt	3
4/4-4/8	Evan	Deciding on app development, research	3
4/11-4/15	Evan	Research, app content gathering	6
5/9-5/13	Evan	Team Trip to CRFS	0
8/22-8/26	Evan	App designs	5
8/29-9/2	Evan	App designs	6
9/5-9/8	Evan	App designs	3
9/12-9/16	Evan	App designs	4
9/19-9/23	Evan	App designs	4
9/26-9/30	Evan	App designs	3
10/3-10/7	Evan	App designs	2
10/10-10/14	Evan	App designs	1
10/17-10/21	Evan	App designs	2
10/24-10/28	Evan		
10/31-11/4	Evan	Design document prep	2
11/7-11/11	Evan	Team Meeting, final report and documentation	3
11/14-11/18	Evan	Final report, documentation	4
11/21-11/25	Evan	Team Meeting, final report and documentation	5
11/28-12/2	Evan	Team Meeting, final report and documentation	10
12/5-12/9	Evan	Team Meeting, final report and documentation	5
		Total Hours	**145**

Week	Person	Task	Time (hrs)
1/11-1/15	Shane	Ordering Google Cardboard, research.	5
1/18-1/22	Shane	Research and figuring out the new features in Auto panotour	5
1/25-1/29	Shane	Research and work on proposal	5
2/1-02/5	Shane	working on proposal	7
2/8-2/12	Shane	working on proposal	4
2/15-2/19	Shane	Redoing and editing proposal	6
2/22-2/26	Shane	project scope, and proposal	5
2/29-3/4	Shane	Design document, meeting with Paul	7
3/7-3/11	Shane	Design document, trip planning	4
3/14-3/18	Shane	Trip to CRFS, prepping for trip	20
3/21-3/25	Shane	Meeting with Paul, brainstorm and decide to make app, research	7
3/28-4/1	Shane	Persona developemnt, stitching and photoshopping panoramas	11
4/4-4/8	Shane	Help with finishing panoramas, deciding on app development.	5
4/11-4/15	Shane	Research, app content gathering	6
5/9-5/13	Shane	Trip to CRFS	30
5/16-6/23	Shane	Stitching Images together into HDR	10
8/22-8/26	Shane	Working on	4
8/29-9/2	Shane	Writing app content, team meeting, work on tours	3
9/5-9/8	Shane	Team meeting	1
9/12-9/16	Shane	Team meeting and prototyping	1
9/16-10-5	Shane	Team meeting Prototyping refining	3
10/10-10/14	Shane	Planning and prototyping	2
10/17-10/21	Shane		0
10/24-10/28	Shane	Team meeting	1
10/31-11/4	Shane	Photomatix HDR merging and photoshopping	5
11/7-11/11	Shane	Creating User questions/specific tasks they will do	2
11/14-11/18	Shane	User Testing	1
11/21-11/25	Shane	User Testing and sharing results.	5
11/28-12/2	Shane	Final Outline edits/graph making	4
12/5-12/9	Shane	Final Presentation, Revising documents	3
		Total Hours	**172**

Appendices

Time Charts

Week	Person	Task	Time (hrs)
1/11-1/15	Braydon	Team Meeting, Project Documentation	6
1/18-1/22	Braydon	Team Meeting, Research and Purchase Google Carboard	6
1/25-1/29	Braydon	Team Meeting, Installing Software, Trying out Google Cardboard	6
2/1-02/5	Braydon	Team Meeting, Server Setup Research	6
2/8-2/12	Braydon	Team Meeting, Watching VR Tutorials	7
2/15-2/19	Braydon	Mobile Application Framework Research	6
2/22-2/26	Braydon	Project Documentation	6
2/29-3/4	Braydon	Project Documentation	6
3/7-3/11	Braydon	Trip Planning Buying Supplies	6
3/14-3/18	Braydon	Trip to CRFS, prepping for trip	36
3/21-3/25	Braydon	Reasearch Polymer for use in mobile APP with PhoneGap	6
3/28-4/1	Braydon	Test app in Apple Xcode	6
4/4-4/8	Braydon	More Mobile app platform research	6
4/11-4/15	Braydon	Trip Planning	6
5/9-5/13	Braydon	Trip to CRFS, prepping for trip	32
5/16-6/23	Braydon	Team Meeting, App Skeletons, content Ideas	6
7/17-7/23	Braydon	Building a Test App in Phone Gap, Ruled Out polymer	8
8/22-8/26	Braydon	Meeting	1
8/29-9/2	Braydon	Team Meeting, Writing Location Description to use as content in the app	1
9/5 - 9/9	Braydon	Team Meeting with Trudy	1
9/12 - 9/16	Braydon	Content Writing	0.5
9/19 - 9/23	Braydon	Team Meeting, Developed Home page of App	4
9/26 - 9/29	Braydon	Reverse Engineering Zoom on Panotour Pro Google Map, Team Meeting	3
10/5 - 10/8	Braydon	Team Meeting	1
10/5 - 10/8	Braydon	Team Meeting	1
10/10 - 10/14	Braydon	Worked with Michael Harper to Setup private git repository	1
10/17 - 10/21	Braydon	Moved personal git repo to DGM repo on GitHub, updated design and started dev on visitor info section	8
10/21 - 11/2	Braydon	Team Meetings, working on app	42
11/2 - 11/9	Braydon	Team Meetings more app development	10
11/9-11/16	Braydon	Team Meetings more app development, bug fixes	5
11/16-11/23	Braydon	Team Meetings more app development, bug fixes	40
11/23-11/30	Braydon	Team Meetings more app development, bug fixes	40
11/30-12/7	Braydon	App Bug fixes, prep for presentation, documentation	30
		Total Hours	**331.5**

Week	Person	Task	Time (hrs)
1/11-1/15	Sunny	Research, discussing project with group	4
1/18-1/22	Sunny	Research of CRFS & Pano possibilities	3
1/25-1/29	Sunny	Work on proposal	6
2/1-02/5	Sunny	Continue research & work on proposal	6
2/8-2/12	Sunny	Continue work on proposal	4
2/15-2/19	Sunny	Work on proposal and budget	4
2/22-2/26	Sunny	Continue work on proposal & budget, begin planning of march trip	6
2/29-3/4	Sunny	Work on research for design document	5
3/7-3/11	Sunny	Work on design document	
3/14-3/18	Sunny	All of food shopping & preparation, Trip to field station	32
3/21-3/25	Sunny	Work on tours from trip, beginning of app research	4
3/28-4/1	Sunny	Continue stitching tours from March trip	6
4/4-4/8	Sunny	App research	3
4/11-4/15	Sunny	App research	4
4/18-4/22	Sunny	Research & planning for second trip	3
4/25-4/29	Sunny	Research & planning for second trip	2
5/2-5/6	Sunny	Research & planning for second trip	2
5/9-5/13	Sunny	Food shopping & prep Second trip to CRFS	36
5/16-6/23	Sunny	Begin stitching tours from second trip, off for summer	3
8/22-8/26	Sunny	Initial meeting for second semester, recap with Trudy	3
8/29-9/2	Sunny	Stitching Tours & Popup Images from May Trip	5
9/5-9/8	Sunny	Met with group members & Trudy. Worked to catch Trudy up on what our app is about	4
9/12-9/16	Sunny	Worked onproject brief describing/explaining our app	3
9/19-9/23	Sunny	Worked on design and prototyping of app	1
9/26-9/30	Sunny	Worked on design and prototyping of app	1
10/3-10/7	Sunny	Worked on points of interest for app	3
10/10-10/14	Sunny	Worked on content for app	6
10/17-10/21	Sunny	Helped with content & prototyping of app	8
10/24-10/28	Sunny	Reworked design & prototyping for app	6
10/31-11/4	Sunny	Finalized points of interest map,added images to locations	6
11/7-11/11	Sunny	Prep for app presentation with Trudy	3
11/14-11/18	Sunny	Finalized & uploaded remaining hike & point of interest tours	4
11/21-11/25	Sunny	Worked on images for app	1
11/28-12/2	Sunny	Usability test results & summary, file management	6
12/5-12/9	Sunny	Prep for Final Presentation	4
		Total Hours	**197**

Appendices

Time Charts

Week	Person	Task	Time (hrs)
1/11-1/15	Trevor	Ordering Google Cardboard, research, contacting client and mentors	3
1/18-1/22	Trevor	Research and testing panorama output	12
1/25-1/29	Trevor	Research and work on proposal	6
2/1-02/5	Trevor	Meeting with Annette and working on proposal	4
2/8-2/12	Trevor	Meeting with Keith and Annette, working on proposal	3
2/15-2/19	Trevor	Redoing and editing proposal and scheduling March trip to CRFS	5
2/22-2/26	Trevor	Meeting with Annette about budget, project scope, and proposal	0
2/29-3/4	Trevor	Design document, meeting with Paul, grant applications	4
3/7-3/11	Trevor	Design document, trip planning, meeting with Annette	15
3/14-3/18	Trevor	Trip to CRFS, prepping for trip	6
3/21-3/25	Trevor	Meeting with Paul, brainstorm and decie to make app, research	6
3/28-4/1	Trevor	Persona developemnt, stitching and photoshopping panoramas	20
4/4-4/8	Trevor	Finishing panoramas, deciding on app development, research	15
4/11-4/15	Trevor	Research, app content gathering	5
5/9-5/13	Trevor	Trip to CRFS, prepping for trip	35
5/16-6/23	Trevor	Putting tours together	15
8/22-8/26	Trevor	Meeting with Annette and team	3
8/29-9/2	Trevor	Writing app content, team meeting, work on tours	5
9/5-9/8	Trevor	Working on tours	4
9/12-9/16	Trevor	Working on tours	4
9/16-10-5	Trevor	Planning and prototyping	10
10/6-10-18	Trevor	Prototyping, testing, adjusting, user testing, readjusting	10
10/24-10/28	Trevor	Team meetings and prototype adjustments	4
10/31-11/4	Trevor	Photo merging and stitching	3
11/7-11/11	Trevor	virtual tour compilation	8
11/14-11/18	Trevor	last minute photo editing and virtual tours	4
11/21-11/25	Trevor	User testing, compiling information	4
11/28-12/2	Trevor	Preparing for presentation, writing reports	4
12/5-12/9	Trevor	Final evaluations, tweaks, and presentation	3
		Total Hours	**220**

Week	Person	Task	Time (hrs)
1/11-1/15	Tyler	Team Meeting, Project Documentation	4
1/18-1/22	Tyler	Team Meeting, Research and Purchase Google Carboard	4
1/25-1/29	Tyler	Team Meeting, Trying out Google Cardboard	6
2/1-02/5	Tyler	Team Meeting, Met with Annette and Keith	6
2/8-2/12	Tyler	Team Meeting, Researching best practices for embedding virtual tours within uvu.edu	6
2/15-2/19	Tyler	Mobile Application Framework Research	6
2/22-2/26	Tyler	Project Documentation	8
2/29-3/4	Tyler	Project Documentation	6
3/7-3/11	Tyler	Trip Planning Buying Supplies	6
3/14-3/18	Tyler	Trip to CRFS, prepping for trip	32
3/21-3/25	Tyler	Designing wireframes for site	6
3/28-4/1	Tyler	Continue Stiching tours together	6
4/4-4/8	Tyler	App Research	6
4/11-4/15	Tyler	Finishing up mockups on UVU test site	8
5/9-5/13	Tyler	Trip to CRFS, prepping for trip	26
5/16-6/23	Tyler	Team Meeting, putting virtual tours on UVU server and building CRFS test site	6
8/22-8/26	Tyler	Meeting	6
8/29-9/2	Tyler	Team Meeting, Designing app wireframes/high-fidelty, research Phone gap and play around with it	6
9/5-9/8	Tyler	Finish up designs and solidfying content	6
9/12-9/16	Tyler	Meeting with team to finalize design and development choices	3
9/19-9/23	Tyler	Meeting with team, working on designs.	3
9/26-9/30	Tyler	Meeting with team, designs	3
10/3-10/7	Tyler	Meeting with team	2
10/10 - 10/14	Tyler	Meeting with team and coordinating dev process	4
10/17 - 10/21	Tyler	Meeting with team and dev study on app	3
10/24 - 10/28	Tyler	Fall break and dev study on app	3
10/31 - 11/4	Tyler	Meeting with team and I've been working on app	5
11/7-11/11	Tyler	Team Meeting, working on App and OU Campus	6
11/14-11/18	Tyler	Team Meeting, and meeting with uvu team about app.	6
11/21-11/25	Tyler	Worked on getting tours on server, and fixing app errors	8
11/28-12/2	Tyler	Working on moving tours to virtual.uvu.edu with paul and doing house keeping items.	7
12/5-12/9	Tyler	Final Presentation and Deliverables	6
		Total Hours	**219**

Appendices

User Surveys

User Survey

We'd like to know what you think about the Capitol Reef Field Station App. Please answer the questions before beginning:

Name:	
Age:	
Gender:	
Occupation (optional):	

Please complete the following tasks:

- ❑ Find out how much water was used after 3 (half) flushes
- ❑ Locate and view the "Sulpher Creek" virtual tour
- ❑ Navigate to the Rain Catchment Barrels
- ❑ Find the "Chinese Wisteria" point of interest
- ❑ Find the point of interest "Goosenecks Trail"
- ❑ Navigate to a location us the GPS
- ❑ After completing any of the following tasks, navigate back to the app main menu

After completing the above tasks, please answer the following questions:

1. What do think about the overall feel and look of the app?

2. What are your likes or dislikes about the app?

3. Do you like the app icons?

4. What do you think is the main purpose of this app?

5. Was the task of navigating to the rain catchment barrels easy?

6. Was finding the point of interest "Chinese Wisteria" easy?

7. What is the function of the QR Code Reader and how likely are you to use it?

8. How likely are you to use this app in the future?

Appendices

Detailed Schedule

Phase/Task	Duration	Start Date	End Date	Person(s)	Actual Start Date	Actual End Date
Launch Capitol Reef project	TBD	11/19/15	12/16/16		11/19/15	12/6/13
Project Initiation	35 days	11/19/15	2/29/16		11/19/15	2/29/16
Conduct kick-off meeting	1 day	11/19/15	11/19/15	Paul, Trevor, Annette	11/19/15	11/19/15
Prepare Creative Brief	4 days	1/9/16	1/12/16	Team	1/9/16	1/12/16
Creative Brief Approval	0 days	1/13/16	1/13/16	Paul	1/13/16	1/13/16
Define Scope	6 days	1/19/16	1/26/16	Client	1/19/16	1/26/16
Prepare Proposal	11 days	1/27/16	2/10/16	Team	1/27/16	2/10/16
Client Review Proposal	5 days	2/11/16	2/17/16		2/11/16	2/17/16
Revise Proposal	3 days	2/18/16	2/22/16	Evan, Katelyn	2/18/16	2/22/16
Client/Advisor Sign-Off Proposal	5 days	2/23/16	2/29/16		2/23/16	2/29/16
Design and Planning	13 days	3/1/16	3/17/16		3/1/16	3/17/16
Prepare Design Document	4 days	3/1/16	3/4/16	Team	3/1/16	3/4/16
Client Review Design Document	1 days	3/7/16	3/7/16		3/7/16	3/7/16
Revise Design Document	1 day	3/8/16	3/8/16	Katelyn, Evan	3/8/16	3/8/16
Client/Advisor Sign-Off Design Document	0 days	3/9/16	3/9/16		3/9/16	3/9/16
Plan Research Trip	7 days	3/10/16	3/17/16	Team	3/10/16	3/17/16
Tour Development	10w	3/9/16	6/1/16			
Tour Popups	41 days	3/9/16	5/30/16		3/9/16	7/12/16
Content Writing	25 days	3/9/16	4/12/16	Annette	3/9/16	4/25/16
Insert Text Content Into Template	6 days	4/13/16	4/20/16	Tyler	4/26/16	6/3/16
Insert Popup Pictures	5 days	5/16/16	5/20/16	Tyler	4/26/16	6/3/16
Client Review Popups	2 days	5/23/16	5/24/16	Annette	6/25/16	7/12/16
Revise Popups	3 days	5/25/16	5/27/16	Tyler	N/A	N/A
Client Sign-Off Popups	0 days	5/31/16	5/31/16	Annette	7/12/16	7/12/16
Picture Development	4 days	3/18/16	5/14/16		3/18/16	7/30/16
Spring Trip	2 days	3/18/16	3/19/16	Katelyn, Tyler, Josue, and Shane	3/18/16	3/19/16
Summer Trip	2 days	5/13/16	5/14/16	Team	5/13/16	5/14/16
CRFS Website	75 days	3/21/16	5/30/16		3/21/16	
Create Test Content	13 days	3/21/16	4/6/16	Team	3/21/16	4/21/16
Create CMS Template	13 days	3/21/16	4/6/16	Tyler	6/23/16	6/25/16
Client Review Template	4 days	4/7/16	4/12/16	Annette	6/25/16	7/30/16
Revise Template	4 days	4/12/16	4/15/16	Tyler	N/A	N/A
Client Sign-Off Web Template	0 days	4/16/16	4/16/16	Annette	7/30/16	7/30/16
Insert Final Content	36 days	4/16/16	5/22/16	Tyler		
Client Review Final Content	2 days	5/23/16	5/24/16	Annette	8/25/16	9/1/16
Revise Final Content	3 days	5/25/16	5/27/16	Tyler	9/1/16	10/25/16
Client Sign-Off Website	0 days	5/31/16	5/31/16	Annette		
Picture Processing	13 days	5/13/16	5/22/16		5/13/16	6/23/16
HDR Photo Merging	2 days	5/13/16	5/14/16	Team	5/13/16	5/17/16
360 Panorama Stitching	4 days	5/13/16	5/14/16	Team	5/17/16	6/23/16
Software compilation	7 days	5/16/16	5/22/16	Team	5/17/16	6/23/16
Testing and Delivery	43 days	4/16/16	6/1/16			
Cross Browser Testing	36 days	4/16/16	5/22/16	Team	8/1/16	8/25/16
Mobile Testing	36 days	4/16/16	5/22/16	Team	8/1/16	8/25/16
User Testing	5 days	5/15/16	5/20/16	Team	8/1/16	8/25/16
Revisions From Testing	1 day	5/21/16	5/22/16	Tyler	9/1/16	10/25/16
Launch Website	1 day	6/1/16	6/1/16	Tyler and Annette	11/7/16	12/6/16
App Development						
App design and development was done not with a detailed schedule, but with weekly sprints where team members typically worked 3-5 hours a week.						

Final Report ***Sign-off Sheet***

Project Name: Capitol Reef Field Station

TEAM

Team Member Name	**Team Member Signature**	**Date**
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•		
•		
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•		
•		
•		

CLIENT

Name: _____ **Title** _____

Signature: _____ **Date** _____

DIGITAL MEDIA ADVISOR

Name: _____ **Title** _____

Signature _____ **Date** _____

DIGITAL MEDIA PROJECT MENTOR

Name: _____ **Title** _____

Signature _____ **Date** _____

CONTACT INFORMATION

PROJECT MANAGER:

Katelyn Earl

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