

Capitol Reef Sleeping Rainbow Ranch AR

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Initial Concept

Our concept began when Utah Valley University Digital Media partnered with the National Park Service to create a proof of concept for an interactive experience based around the site of the Capitol Reef field station.

The proof of concept is to include an augmented reality experience and a virtual reality experience. One experience for the field and another that can take visitors to Capitol Reef without leaving their home.

During our research we were able to learn about the history of the area, the family that settled and ran Sleeping Rainbow Ranch. We used these facts and stories to help shape what content would be included.



Ideation

After our research effort, we had to create for two experiences, the first, the pamphlet.

- What would the pamphlet look like?
- How would it interact with the AR aspect of the experience?

The second experience, the AR app.

- Should we host or build the app and its content?
- How would the general public access it in a remote area, like the ranch?
- Do we use existing 3D models to build parts or create our own?

Many questions came up as to how the pamphlet would deliver a solid tangible experience but also compliment the companion app that was the star of the show.

During ideation, we create moodboards based off existing content and proposed color themes to move towards a look for the pamphlet. We also looked at current AR technology to explore what could actually be done with AR and if it was possible to build with our skills and time frame.

Colors & Typography

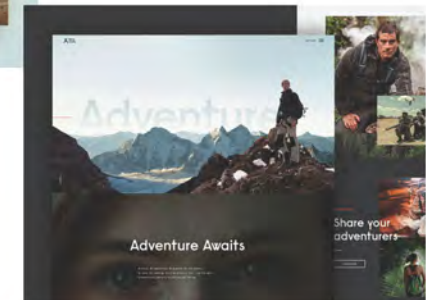


Fonts?

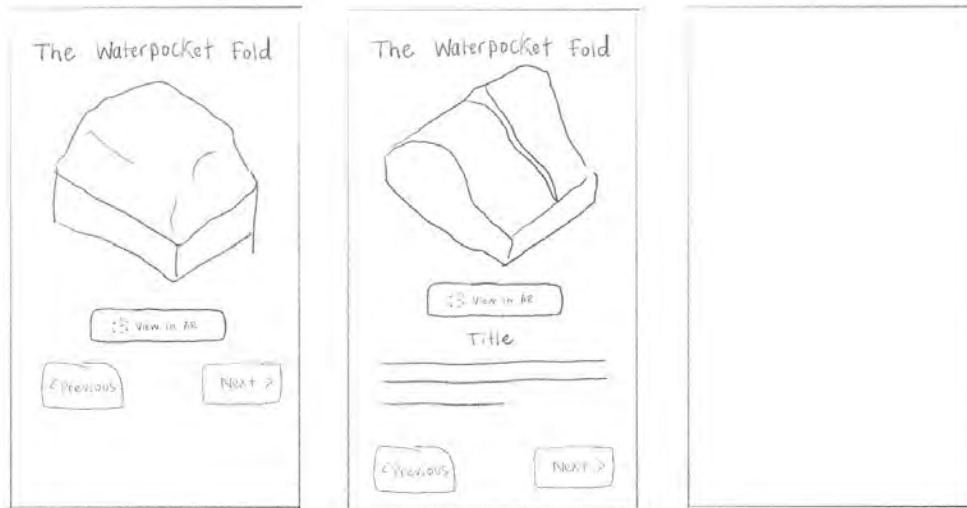
Line-based Illustrations



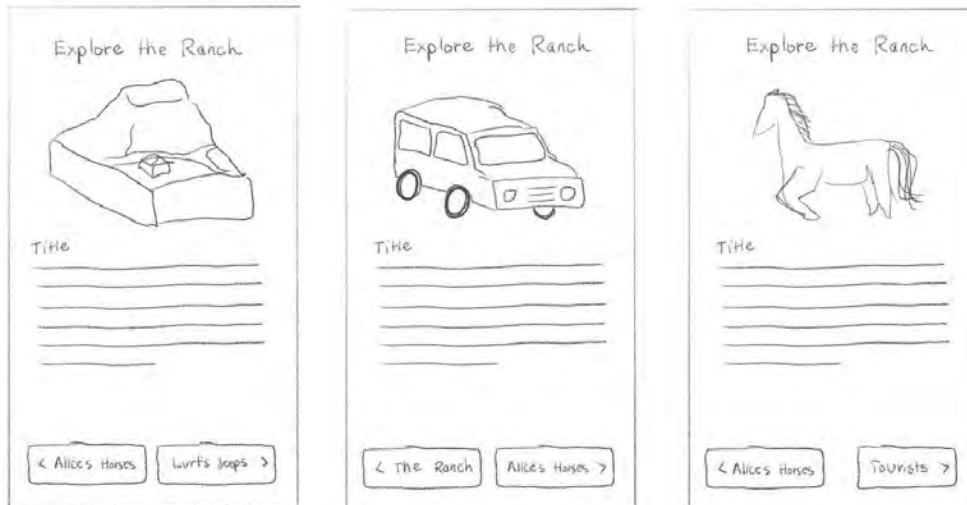
Photo and Text Emphasis



Waterpocket Fold



The Ranch



Case Study - The Mighty 5

Might be a good case study: <https://alexandrafuller.com/creative#/themighty5/>



Vector Illustrations



Build and Testing

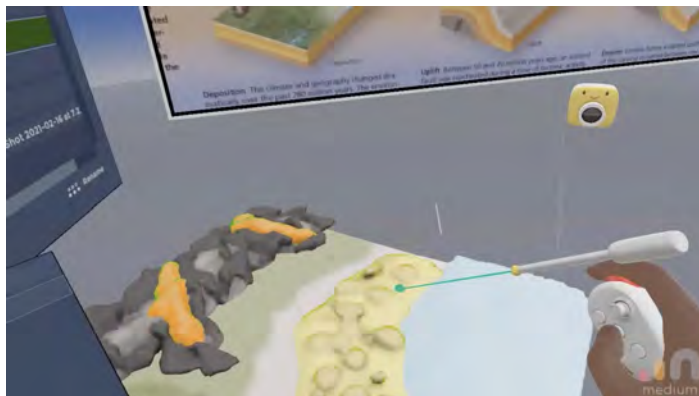
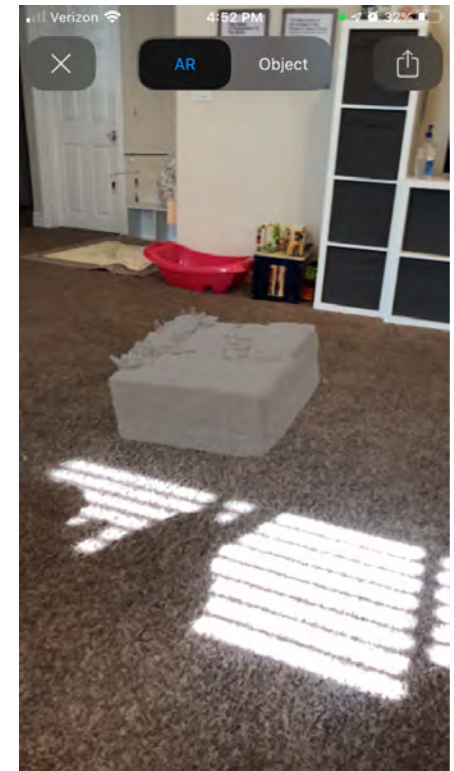
The most difficult part of this project was building the AR app. We originally started by trying to build it natively but we ran into issues such as:

- The app being confined to iOS
- Difficult development time and coding
- AR tracking issues

We were able to pivot during this time to build the AR experience in a web app. Ben Perkins and Tyson Omer led the development of building the web app which turned out to be better for the project as it made the experience more accessible and universal with it being web based.

With building the assets, Josh Wilsher used Adobe Medium in a VR setting to handsculpt custom 3D models that could be inserted into the web app. The custom 3D models were created to better fit the content we were creating for.

We also ran into testing issues with the 3D models as they would appear with no color which was crucial to the experience. We worked together to troubleshoot and research the behaviors of OBJ files and how color is read from those files. In the end we were able to correct the issues.



3D asset creation using the VR sculpting tool "Adobe Medium"

Proof of Concept (Final Deliverable)

For the final proof of concept we settled on three experiences for the pamphlet

1. AR 3D model of the site
2. Interactive AR models of the evolution of the geology
3. Living picture.

The 3D models are to allow a more in-depth look at the landscape of the ranch while the living picture is to convey more of the history of those who settled the ranch. The 3D models are scalable and can be viewed on the screen or in AR.

The living picture is viewed in AR to create a seamless experience. When the viewer show the camera a pre-defined image, it anchors to the image and begins to play a video like the image has come to life.

The pamphlet itself was design by Abby McPhail to give a continous experience. Each panel of the pamphlet feeds into the next and is most effective in helping present the timeline portion of the pamphlet.

THERE'S EVEN MORE TO THE STORY!

When you see a QR code like this...



1. Open the camera on your phone and point it at the code.

2. Tap the notification that appears in the camera to go to our web page

3. Once on the web page, tap this icon...



...to bring content to life in your own space!

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Introduction

Just south of the humble babbling of Pecosan Creek, tucked along the water pocket fold and cradled in the arms of the brilliant red rock, rests Sleeping Rainbow Ranch, or rather, her skeletal remains. Once a hyper-vital landscape frequented only by indigenous peoples, Sleeping Rainbow Ranch slowly evolved into a bustling landscape, complete with livestock, lodgings, and even outdoor excursions. The heaps of rotting wood and rusted nails on site today are mere memories of what has been, making the grandeur of what was meager pictures conjured in our own primitive imaginations. But what if there was a way to turn back time? Peep beyond the limits of our imagination and see Sleeping Rainbow Ranch in its glory once again. Thanks to facilitating advancements in technology, that very thing may well be possible. Come with us as we rediscover the alluring beauty and rich history of Sleeping Rainbow Ranch, restoring her majestic piece by piece.

Through the Years...

The Fremont Culture is known to have lived and thrived in the area along the waterpocket. Unlike the groups before and after them the Fremont people seem to have settled in the waterpocket area, rather than move with the seasons. Fremont is the name given to the group because we don't actually know what the ancient people called themselves. But there is evidence of their existence throughout Utah mostly through petroglyphs. Historians hypothesize that they were the most powerful group of people in ancient UT at the time.

Capitol Reef area officially becomes Wayne County and white settlers begin moving into the area.

Built a five bedroom home and the planted fruit trees blossomed which inspired the name "Floral Ranch", given by Ephraim wife Thelma Quiley Road.

Lurt Kneese purchased the ranch after his car broke down near the river. This purchase leads to the name changing of the ranch to Sleeping Rainbow Ranch. It begins to serve as a hill homestead, with Lurt offering room for visitors.

The ranch, defined mostly as a commercial tourist operation. The Great Depression greatly affected tourism, but recovery occurred after 1945 during the time that Kneese most greatly developed the guest ranch. During this time the ranch offered jeep tours, horse trail rides, and overnight lodging.

Capitol Reef national monument is expanded, which includes 390 acres of Lurt and Alice's property. By now, the Kneeses had built and maintained even an irrigation canal, spring and pump water system, and a telephone system on the property. The guest ranch also included 15 outbuildings, pastures, and corrals.

The Kneeses leave the ranch to Chip and Linda Ward, and continue to run jeep tours for the Ward's guests.

UUV Capitol Reef Field Station begins operation

6000 BCE

The Paleo Indians who are among the first noted ancient peoples in North America, have left evidence, however little, of their presence near the waterfold.

1600-1800

The Paiute tribe live in the waterpocket area and are the first historically recognizable group in the area since the Fremont people. A major drought that hit the area might explain the lull in time between the two groups. As the Paiutes settled into the area, other tribes moved in and around the area including Ute, Hopi, Navajo, and Zuni. The Paiute tribe was, however, the most consistent over these years, leaving behind the most evidence of occupation such as hieroglyphs, artifacts, etc.

1852

Ephraim Knowlton Hanks, called on behalf of the president of the Church of Jesus Christ of Latter Day Saints to settle colonies in southern Utah. The family originally built a small log cabin near Pleasant Creek. They grew crops and planted several trees on the land.

1896

Ephraim passes away. Floral Ranch stays in the family until 1916, then passes through several owners over the next couple of decades.

1940

Lurt builds a series of new buildings northeast of the original Hank House, and converts the property into a day-tour operation. It is at this point that the ranch officially obtains it's new name, "Sleeping Rainbow Ranch". According to Lurt Kneese in a 1992 interview, when he first built the ranch and realized it was adjacent to a national monument, his goal was to make it into a National Park.

1958

Lurt marries Alice, his second and final wife. She is also known as Capitol Reef's final resident, living out her life with Lurt on the ranch until 1995 when he passed away and she quit-claimed her rights to the park.

1978

The Kneeses close the guest ranch.

1978

The Kneeses passed the Ranch to the NPS (and the Church) in a deal that allowed for them to live out the rest of their days on the Ranch.

Proof of Concept | Living Picture

Lurt & Alice Knee

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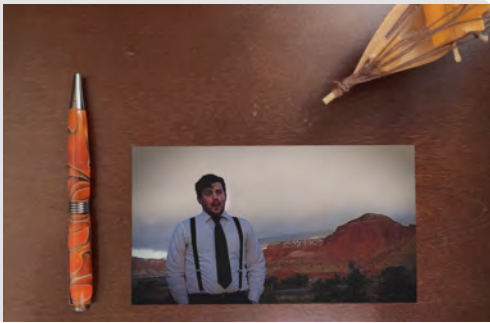


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Sleeping Rainbow Ranch

at Capitol Reef National Park



Proof of Concept | 3D Models



Lessons Learned

While this project was meant to include a VR element, the restrictions of COVID-19 prevented us from travelling to the site to gather assets for that portion, therefore we focused on the AR aspect of the project.

This worked in our favor as the AR portion proved to be a full project in and of itself. As mentioned previously, we each had to learn new skills and practically take a crash course into AR creation and development. We hit our bumps along the way but through testing and iteration we were able to solidify our experiences and create a solid proof of concept to present to the NPS.

We learnt of the difficulties of development for native apps as well as augmented reality. You might say that we set our goals too high but we decided at the start of the project that we did not want to settle for a hosted option like "zapworks". We wanted to explore the realm of AR from the ground up.

As we look back at our research, creation and testing, we believe we made right moves in the experience and know that there are areas we can improve in. Given more time and resources (such as an AR developer) then we could have elevated the experience more and most likely fine-tuned it.

For the proof of concept we created, we believe it stands as a great example of what can be done with AR technology and that while its hard work, its possible for other students and designers to participate in this technology.

We think that the experiences in this project are educational, informative and interactive to where it will entertain and edify those who have the chance to interact with it.

