SEECQUEL Preliminary Design Document

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I. SEECQUEL

A Carnegie Mellon Entertainment Technology Center project for Oglebay's Schrader Environmental Education Center

II. Nature Quest

Nature Quest is an augmented reality quest experience targeted towards children ages 8+, and parents visiting the center with children of a slightly younger age.

III. Copyright

IV. Version

Currently Nature Quest is in version 1.1 Alpha.

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Section 1: Experience Overview

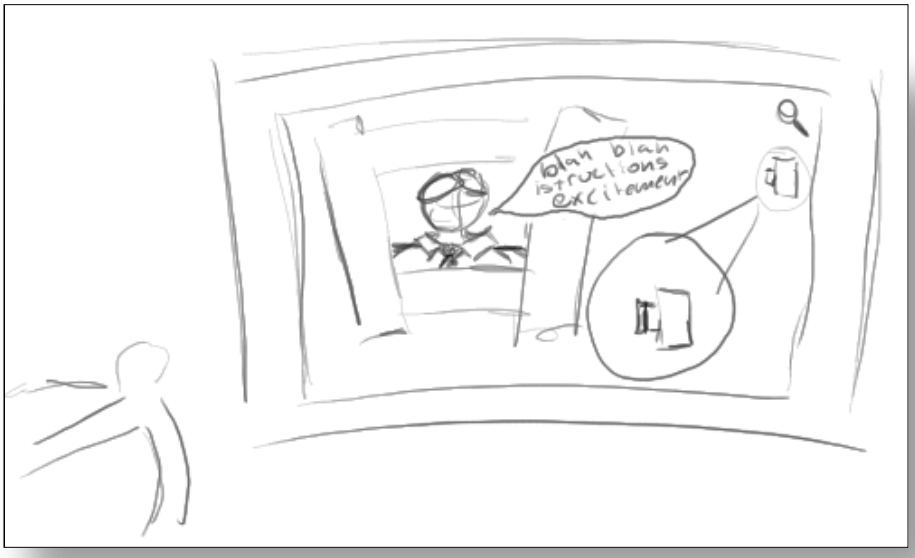
1.1 Experience Concept

Nature Quest is an augmented reality quest experience targeted towards children ages 8+, and parents visiting the center with children of a slightly younger age. The experience is designed to help the Schrader Center achieve a number of goals. Primarily they would like to: use technology to supplement the experience of exploring their park, reduce costs, and free up some of their expert staff for other activities and projects. One key design feature they have requested again and again is that the experience, while engaging and technology base, not take the focus off actually being outdoors and actually enjoying the environment. They also have suggested the while the program should be educational it should not be too education heavy.

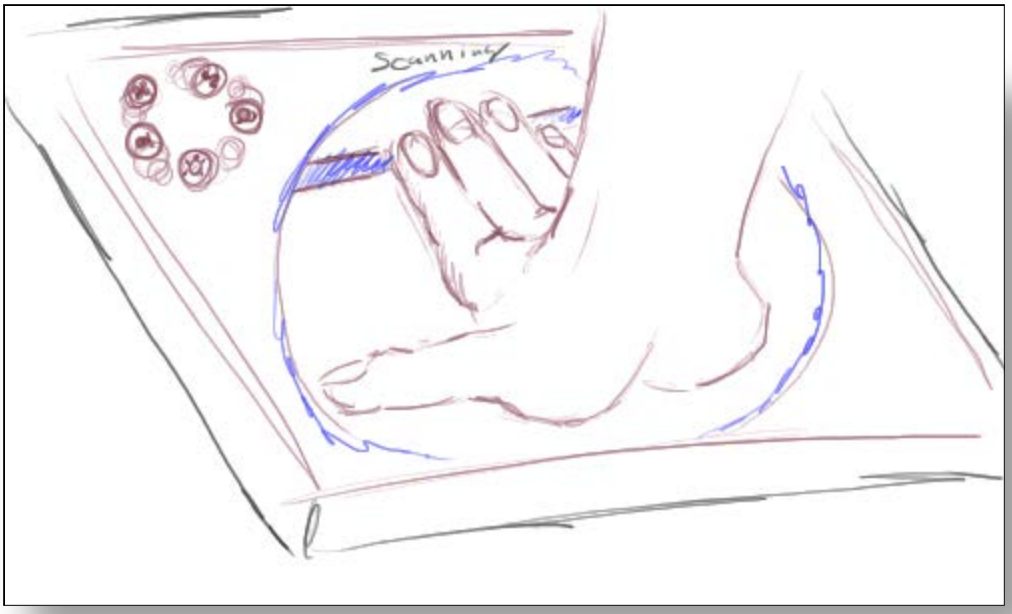
We originally pitched three ideas. Once was a game similar to the Oregon Trail where kids would receive resources, challenges, and achievements as they reached certain GPS locations. Another was a game where the kids would be able to see the park as it was 100 years ago (as a cow pasture) and build it into a thriving forest as they traveled through down the paths learning about the environment. Finally we pitched a questing experience where children would scan QR codes at different points along the trail and be presented with different information and activities to accomplish at each point. Our colleagues at the Schrader Center were very enthusiastic about this final idea.

1.2 Feature Set

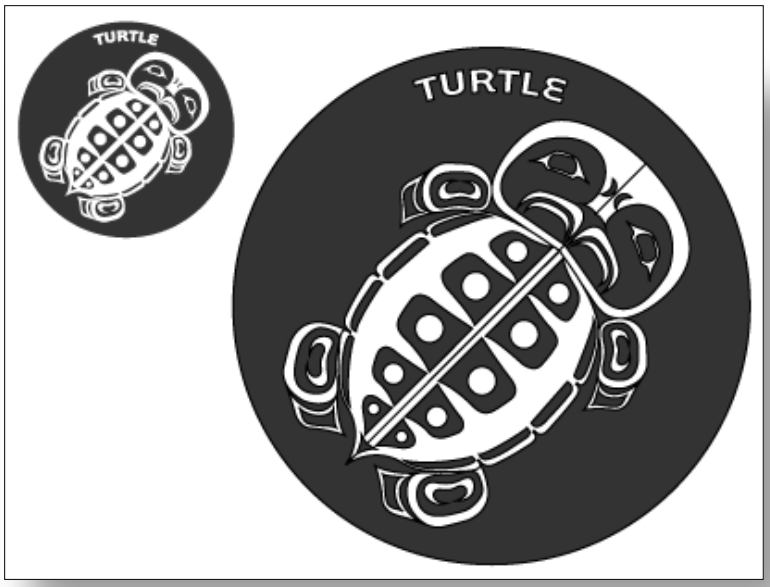
The game is activated at the electric owl which was installed by project SEEC last semester at the Schrader Center. An avatar who will serve as guide is presented on the television screen and gives an introduction and some basic instructions on how the guests will be using their tablets.



The kids are then broken up into teams. This may not be necessary; however in most cases the Schrader Center will be accommodating school groups of 20 or more students. Currently we are developing the experience so that each of anywhere from 1 to 6 kids can use a single tablet. To facilitate sharing of the device the children will be asked to “scan” their hands on the surface of the tablet to receive a totem animal. This totem animal will be used to later to identify which student should be using the tablet and different stages of the experience.



The totems they receive will look something like the ones shown on the next page. The larger icons will be shown when the kids are initially assigned a totem animal (at random) and the smaller icons will later be used during the experience for prompts.



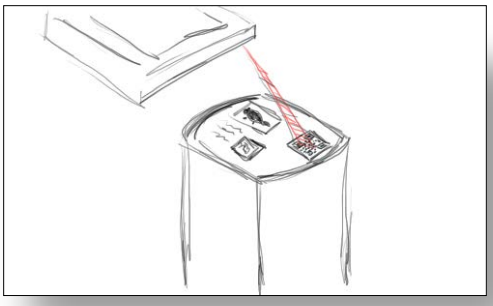
Large Icon
- Textured with bark, leaf, etcetera. The color related to the animal.

Small Icon
- Two color the main color derived from the texture of the large icon.

Testing of this feature will be crucial as we are not sure yet whether children in this age group will scoff at the idea of the hand scan. It is possible they will think it is neat; it is also possible that they will be aware that a table is not capable of this feature and think that we are somehow cheating them. An alternative to a hand scan is a “spirit stone” or spiritual connection. A final possibility is that we could just have the students pass the tablet around, press a button, and they will be assigned an animal. However, we like this last idea the least as it seems the least engaging and fun.

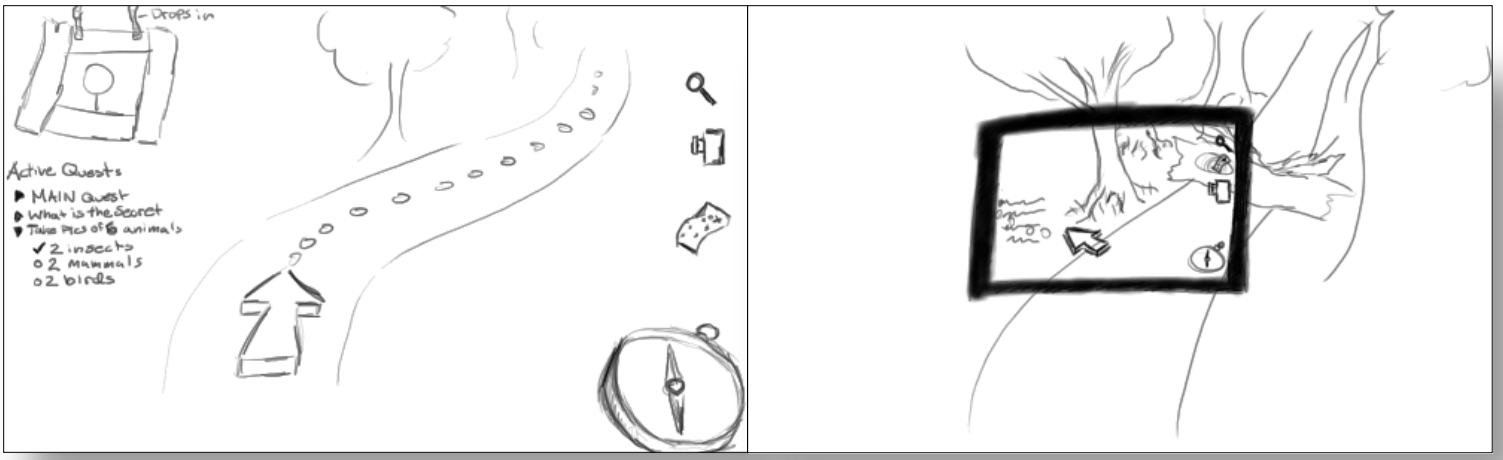
We have chosen to theme the guest identifiers as Native American style totem art because of there is a lot of Native American history associated with this area and the Schrader Center has some Native American cultural education activities that they engage in every year.

After the guests receive their totem animals they will go out on a section of the park’s trails that we have mapped out for the quests to take place on. Their primary quest will be to visit all the podiums, scan them, and follow the instructions given to them or learn something at each location.



They will scan some podiums twice; once on the way out and once on the way back. They will be given some side quests they can complete if they choose to. Some possible side quests include: discover the secret animal (by receiving clues at stages along the trail), take pictures of a number of different things, find tracks, bug board flip, have your volunteer guide photograph your team, travel a certain distance, create your own field guide, think of a good group question to ask on return to the center, visit the bonus podiums.

The tablet provides an active camera where the environment around them is always shown with a UI overlay. The UI includes: a drop down, a side menu display quests and status, an arrow pointer showing them the direction to their next podium, a compass to help them navigate for certain activities, and icons to activate the map, take pictures, and scan a podium. The UI will also include popups from time to time to do things like prompt them to trade off the tablet and display content.



1.3 Target Audience

As mentioned previously we are targeting our experience primarily at children 8 and up, and parents visiting the Schrader center with their kids of a slightly younger age. We believe it may be difficult for children younger than 5 or 6 years of age to understand this experience or to complete a circuit of the course. Primarily we are designing the experience with group use in mind, as Oglebay often hosts school groups, however that our tablets will sometimes be operated by a single guest (usually a parent guiding a child).

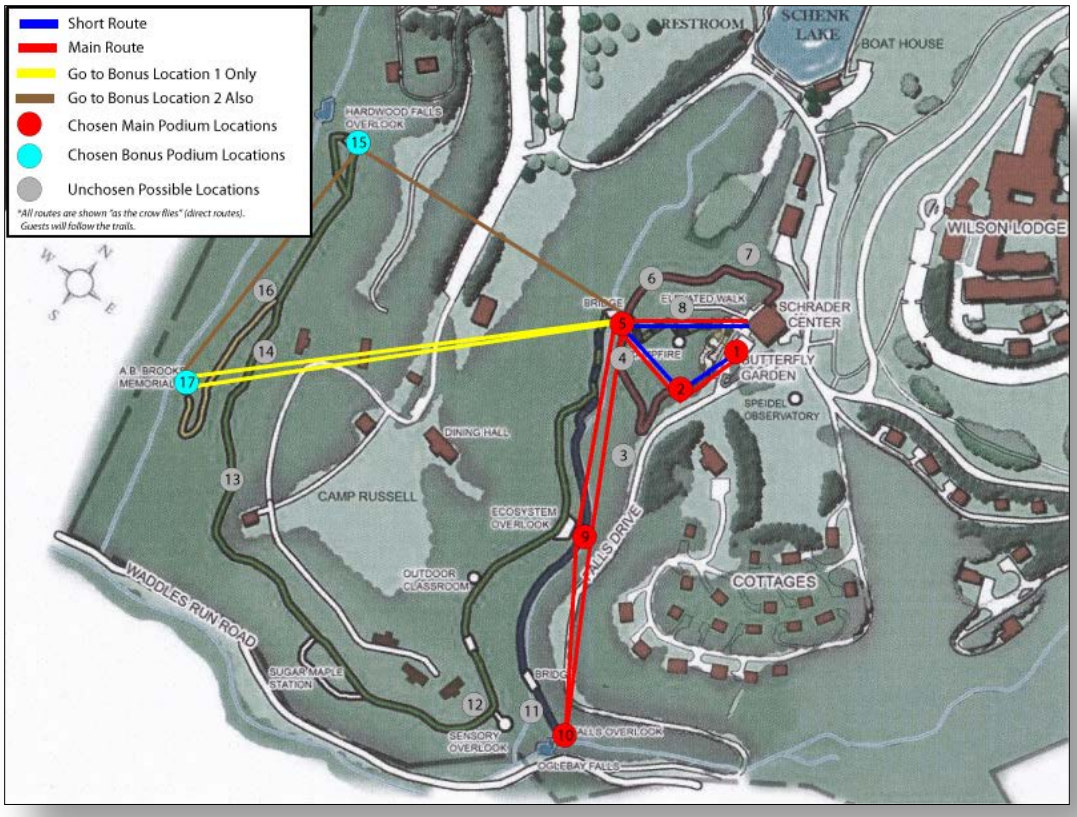
1.4 Experience Flow

For younger children there will be a shorter course made up of the first part of the trail. At the beginning of the experience users will be asked if they are parents traveling with young children. They will then be asked if they would prefer to do a shorter experience, and told that the longer

experience takes roughly an hour and a half to complete. If they say yes they experience will be programmed to send them back to the center when they reach a certain location fairly early in the experience.

The story behind the experience is that the avatar A.B. Brooks, the original naturalist to give tours of Oglebay, is training the children as junior naturalists. Every child who completes a course, whether it be the full experience or the shorter one, will receive some kind of take away. In the case of the children who complete the longer course they will possibly receive some kind of certificate "signed" by A.B. Brooks (we have his signature). Another idea put forward by our client was to have them receive junior naturalist achievement badges/patches, and we also have thought about pins. We are a bit concerned about the costs of these later two ideas, however ultimately what the client chooses to use as takeaways will be up to them. In the case of children who complete the shorter circuit they will receive some kind of hand stamp. We believe this will work well for this target age group as they often like stuff like body paint and temporary tattoos, and they also tend to have shorter attention spans than older children. The client also suggested that if they do not want to receive a stamp on their body they can always get a stamp on a slip of paper.

Below is a map showing Schrader Center's Brooks Discovery Trail System overlaid with the points we have discussed placing podiums with our client and the routes chosen to design around.



These routes were chosen after visiting the center multiple times, much careful consideration, and extensive discussion with our client. The points, along with possible information to be learned and activities to do at each, are as follows:

1. The Butterfly Garden
    a. A quick orientation point visible from the center
    b. Butterflies are here in the afternoon (June, July, and August)
    c. Butterflies put out wings to gather heat
    d. Possible activities
        i. Find butterflies or insects
        ii. What do butterflies eat? Identify things like milkweed
2. Sugar Maple Tree
    a. The first tree to colonize the area
        i. Notice what is different about the tree vs others in the forest.
    b. This is an area where bug-boards are put down to create habitats for insects
        i. Good for flip the bug-board activity
    c. This is the state tree of WV
3. Pine Tree Grouping
    a. Notice no undergrowth
        i. Because the Pine Trees change the PH of the soil
    b. On the edge of the area you will find White Snake Root growing
        i. Flowers around when school starts (folklore says teachers hate to see it)
        ii. Cows can eat it but humans can't
        iii. When Cow's eat it they produce poison milk
        iv. Abraham Lincoln's Mother died from drinking milk from a cow that ate White Snake Root
4. Planting Ground
    a. A place where new trees are being planted
        i. Kids can learn the importance of reforestation
5. Norway Maple and Bridge
    a. Learn about identifying different species
        i. You can identify and differentiate the Norway Maple from the indigenous Sugar Maple by the spacing of the leaves and the sap you find on the inside of a leaf stems.
    b. Learn about invasive species
        i. Norway Maples are invasive because they can outcompete the Sugar Maple
6. A ground where invasive species are being cleared
    a. Students can learn about the effects of invasive species and why there is a project to remove them
7. Grain Silo

    a. The Snake Pit
        i. People used to drop snakes in the pit
        ii. Kids can learn about history and the fair treatment of animals
    b. Grain for the cows in the pastures
    c. Used to pen animals in that area for a primitive zoo
    d. The trees around there look like Sycamore and are London Plane Trees (ornamental)
8. Forest Walkway
    a. Elevated so people can see things they might not usually like red oak leaves up close
    b. Grape vines growing on elms
9. Below the overlook
    a. Interesting geological formation, limestone
        i. A good place to talk about the geology of Oglebay
10. Waterfall
    a. Interesting geology
    b. Eroding areas
    c. Landmark, very popular place to photograph
        i. A good place to set up a location marker to have teams take pictures from to create a time lapse gallery compiled out of photos made by “junior naturalists” who have visited the center over time
11. River/Stream running down to the Waterfall
    a. Good place to look for bugs
    b. Erosion
    c. Fish and Salamanders
    d. Talk to kids about water being a key to life and ask about examples of life they can find in the area.
12. Maple Sugaring Station
    a. Pipeline running between all the trees
    b. Process of tapping trees for sap
        i. Late February to Early March
        ii. 40 gallons of sap produces 1 gallon of syrup
        iii. Can talk about how different peoples have done it from Native Americans to early American Pioneers to Wheeling Steel (Co?)
    c. This is a place where Sugar Maples dominate the landscape
13. Heavily carved beach tree
    a. Talk about how carving into trees may seem novel but is very harmful
        i. Fungus and infection can start growing into a tree
        ii. Any time you cut into a tree it can get infected, just like any time you get cut

14. The huge fallen tree split 5 meters or more up
    a. Plants were growing down within the tree itself
    b. A runaway wind swept through the area blowing down large trees all along the side of the hills
15. Platform over the river
    a. Another site to learn about Pine trees and White Snake Root
    b. Hemlock
16. Head of A.B. Brooks favorite trail
    a. Goes down into a natural bowl
    b. Much older trail with higher natural diversity
    c. A good site to find ring neck snakes
17. Site of the A.B. Brooks Memorial Plaque
    a. At the end of his favorite trail
    b. A good overlook point
    c. Set up almost like a small amphitheater

As the groups travel the trails they will scan each podium and be instructed to complete different tasks or presented with different information. This information may help them to complete side quests or simply educate them (they may be "quizzed" on what they learned later). At some podiums they will be prompted to visit other podiums a second time. The main experience will flow as follows: the guests will visit podiums 1, 2, 5, 9, and then 10. After they have visited podium 10 they will be prompted to visit site 9 again which will prompt them to visit site 5. At site 5 they will be told that if they are feeling adventurous they should visit a very special podium at site 17 or they can return to the center. There they will receive a special congratulatory message for making it all the way out there from their avatar guide A.B. Brooks who will explain this was his favorite trail. At site 17 Brooks will tell them that if they still feel they have enough energy to go further and still make it back they could go out to site 15. At site 15 they will be given a special achievement for achieving everything that can be done (provided they didn't skip anything) and told they should now return to the center.

1.5 Look and Feel

We are trying to keep some of the look and feel established by the SEEC project. However, we want to incorporate some aspects of a certain rugged adventurer "je ne sais quoi." The theme for the quest is something like Richard Francis Burton adventuring through West Virginia. Thus stuff like the mid to late 1800's dry plate camera icon, and Native American totems. While these things predate A.B. Brooks we feel that it is not necessary to be whole to the 1940s time period. We will also go with a stylized, slightly cartoony feel to appeal to kids. For example, the final totem icons will be rounded and bubblier, and A.B. Brooks himself will be more cartoonish than true to life.

The whole experience should feel fun and exciting. Like an adventure that just happens to be educational.

1.6 Project Scope

We have to carefully plan the scope of this project. The whole main experience should take about 1.5 hours to complete (provided they do not pursue the bonus side quests). While we want to create solid content with some animations or videos for every podium, on the second scan of some podiums we will probably not limit the content to audio and still images only. At site 15 we will award them an achievement and play audio, but will not use any animations. The animation at site 17 will be icing on the cake and may need to be converted into a panoramic video with voice over.

To reiterate, as it stands we are planning 7 experiences along the main trail triggered by scanning the podiums (two of them twice) with some content of one type or another presented at each spot. In addition to this we are planning 2 bonus podium locations. At location 15 we will have an achievement awarded with accompanying audio, and at location 17 we will have a message from A.B. Brooks with an accompanying animation (which may get scaled back to a scenic video).

In addition to the multimedia content that must be developed, there is the UI art to be created, Unity extensions and interface functionality to be developed, podiums to be designed, achievements plan, and a great deal of planning to be done in terms of scripting what and how to present information and activities at every podium. Each time a podium is activated we will have no more than 30 seconds to 2 minutes to present information and instruct kids to do something. Carefully planning activities and how long they will take on average is also going to be crucial. Kids should spend no more than 5 to 10 minutes at each location. We want to keep the main experience limited to 1 main quest and a maximum of 3 side quests with the bonus trek counting as 1 side quest which expands into 2 if they choose to take it that far.

Section 2: Gameplay and Mechanics

2.1 Gameplay

Game Progression

Specifics of quests and challenges

What follows are some activities (for the different main podiums) that we have gotten from the client and comments on feasibility:

- The Butterfly Garden
    - Observe the wildflowers in and outside the fences. What is the same and what is different?
        - This is a good first task, the question will be how to test this knowledge and how to reward the kids for answering questions correctly.
    - Count the number of wildflowers.
        - Counting the different types of flowers is an easy enough first task for kids to get acquainted with interface. I wonder about the level of engagement.
    - Find and photograph different types of pollinators.
        - The issue is when we can rely on insects to be there.
    - Observe an insect pollinating a flower.
        - Again, can we rely on insects to be there on a consistent basis? If we can then this would be a good first activity as it is pretty simple and will help familiarize the kids with the interface.
    - Look for pollen sacs on the legs of bees (bee's knees).
        - How often will we see bees there? Will bees we around in late fall? Also many children may not be comfortable with getting close enough to the bees to see these.
    - Look for Larva of an insect.
        - How often are larva there? Will they always be able to find them?
    - Find 4 metamorphic stages of a butterfly (egg, caterpillar, chrysalis, adult)
        - This will be too hard for a first activity
    - See like an insect
        - This could be very fun, change the screen to look like a multifaceted bug's eye and maybe take a picture of a flower they might pollinate.
- The Sugar Maple
    - Measure the angle of the branches on the maple tree.
        - This may be hard to accomplish without supplemental technology. It is a cool idea and we may be able to have them take a picture and then draw two lines with a finger using vectors, one up the trunk and then one down the branch with a finger on the surface of the tablet. The program would

then calculate the angle being formed by these two lines. However, this may not be possible, if it is it may not be a good use of our time, the question would be how to use this information in a fun and exciting way.
    - Search for maple seeds and throw them in the air. How many paces can the seeds fly?
        - Wouldn't the number of paces the seeds flew depend on the strength of the child throwing it? We could use a timer to do some measurements. While throwing seeds seems like a fun activity I'm not sure that answering this question will have much relevance.
    - Try to find three different types of plant seeds (acorns, aggregate fruit of sweet gum, and samaras of sugar maple).
        - Sometimes this tree doesn't have seeds. This would be a problem for the consistency of the experience.
    - Look under the bug boards and search for detritivores and predators.
        - This seems like a low tech fun activity that kids can really get involved in nature and have some fun doing.
- Bridge
    - Time the speed of leaves flowing down the stream
        - Maybe even have a boat race type activity; we can definitely add a timer to the interface. This could be a lot of fun.
    - Notice the exfoliating bark of the river birch
        - Maybe something more interactive and engaging.
- Shale and Sandstone Overhang
    - Find some sandstone and shale
        - Identify the properties. Maybe have a multiple choice selection, does it grind up or is it too durable? Ask a number of quick questions to see if they have correctly identified sandstone and shale
    - An interactive diagram of a delta where people could control erosion and water speed and see how sediment falls out of the stream at different times, then add heat and pressure to form it into a rock.
        - The problem with this is twofold 1) it is a large experience unto itself 2) it might take the kids interest away from nature too much and move the focus strongly onto the tablet for the entirety of this station.
    - Look for big white oak, look at plants that like to grow in the deep shade of the valley, notice hemlocks
        - This would be easy to do and we could test their knowledge.
- Falls
    - Identify how the vegetation is different from that of the valley.
    - Take pictures of the falls from a specified location to contribute to a time lapse display.

The objectives for the experience are to: engage the children in a meaningful and educational outdoor experience create a shared experience between groups that go on the quest, and make young guests feel like they have been on an adventure and accomplished something.

How does the experience flow for each guest?

2.2 Mechanics

Rules of our experience (implicit and explicit)?

How do we govern movement?

How do we work with objects in the environment?

How do we instruct actions?

Systems of control (direct / indirect)?

Screen Flow?

Do we have any specific user options (like parents traveling with kids, or brighten darken your screen, subtitles)?

Screen descriptions (what is the purpose of each screen)

2.3 Story and Characters

Details of our specific story (what is A.B. Brooks going to say)

Back story, do we have any, does A.B. Brooks explain any?

Game progression, we talk about history or progress any kind of plot as we go

Supplemental Characters (any outside of A.B. Brooks)?

Section 3: Interface

3.1 Visual System

HUD what controls the easiest way to explain what they do to users

Menus, do we need them (maybe if we have options)?

Rendering System?

Technology (Scaleform, Android, Unity, Tablet and Features) and the whys

3.2 Control systems

How do the users use them?

How can we quickly and simply explain them?

How can they be reiterated without wasting time?

3.3 Audio overview

3.4 Music

Do we have any? (probably at least for the podium presentations, but maybe it would be fun to have some adventure music playing as they travel)?

3.5 Sound Effects

3.6 Help System

Section 4: Technical

4.1 Target Hardware

Android: the Asus Transformer Eee Pad TF300T

Phones and other devices we could support with a downloadable app

4.2 Development hardware and Software

We are developing for the ASUS Transformer TF300 tablet, running Android 4.0 Ice Cream Sandwich. This tablet is powerful enough to handle the constant camera operation and 3D UI features that the project requires. We picked this device because it provides us with features that we require, specifically the E-Compass and GPS support for a reasonable price ($379.99/pc). Additionally, the devices will need to be ruggedized for survivability in an outdoor, uncontrolled environment; this requires a military-grade ruggedizing case at a price of $50/pc.

Because we are developing for Android, any device that contains the required features could also use this application. While cross-platform development is not a priority, theoretically it should be possible for any guest to use our product with their own device, provided it meets required specifications. This would allow for a greater integration of the product into the average guest's experience without adding additional resource strain on SEEC.

Our game engine and editor is Unity 3D Pro version 3.5 with several add-ons. (See below.)

As the project will heavily depend on the user interface, we're using Autodesk Scaleform as our interface engine. It's an industry standard. Unity is rather limited in its user interface abilities. Limiting ourselves to its built-in features would be a very large amount of work that would lead to a sub-par result. Scaleform is likely to increase our productivity by a large factor.

The assets are developed using Audodesk Maya, Autodesk 3D Studio Max, Adobe Photoshop. These are all standard.

4.3 Development Procedures and Standards

Our main version control will be the Unity Asset Server. It is the best way of keeping projects properly synchronized with Unity, mostly because of the Unity's mixed use of text, binary and markup formats.

We are still considering using GitHub for the non-Unity programming, if we find out that the volume of such code requires version control.

We intend to use the standard .NET coding styles and keep as close as possible to best practices.

4.4 Game Engine

Our game engine is Unity 3D Pro 3.5.5 with several add-ons, such as zxing (pronounced “Zebra Crossing”) for C# or Vuforial for augmented reality. As mentioned earlier, Scaleform is our main tool for the user interface.

4.5 Scripting Language

All of the in-Unity code will be in C#. Some of the code will have to interact with the Android system directly and that part is partially in Java and partially in C++.

Section 5: Game Art

5.1 Concept Art

We have some, some is in this document, we can include preliminary stuff from Dan's posters, also bob the blue bird.

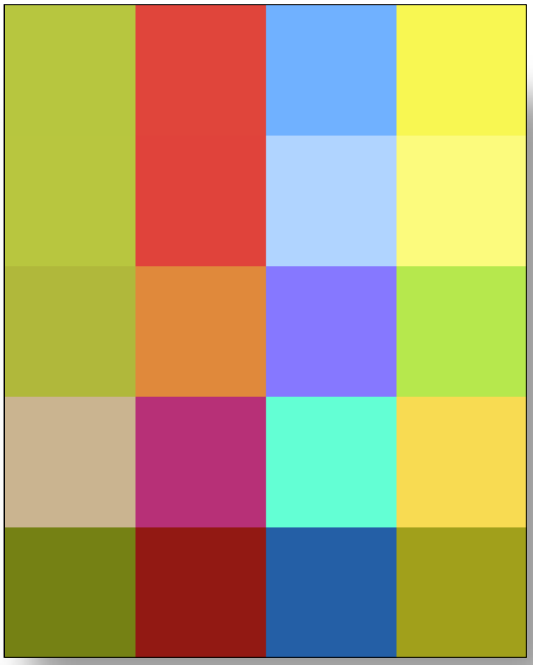
5.2 Style Guides

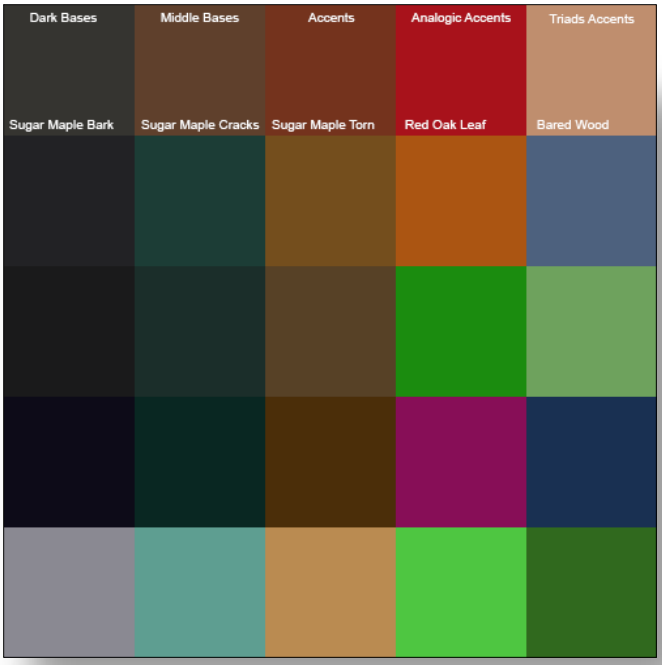
Main Statement of Style:

We seek to convey a cartoonish style depicting an adventurous Midwestern mountain theme. One way to describe it might be, "You feel like Richard Francis Burton exploring West Virginia while hopping across rivers on perfectly rounded stones."

Key Words: rugged, aged, bubbly, childlike, friendly, adventurous, natural, high chroma, high contrast, colorful, vibrant, balanced

Sample Color Schemes:





On the left is a high chroma scheme for use in icon outlines/highlights, prompts, and special effects. On the right are colors that may make up the main scheme of icons and other UI elements, and can be used for reference when selecting textures.

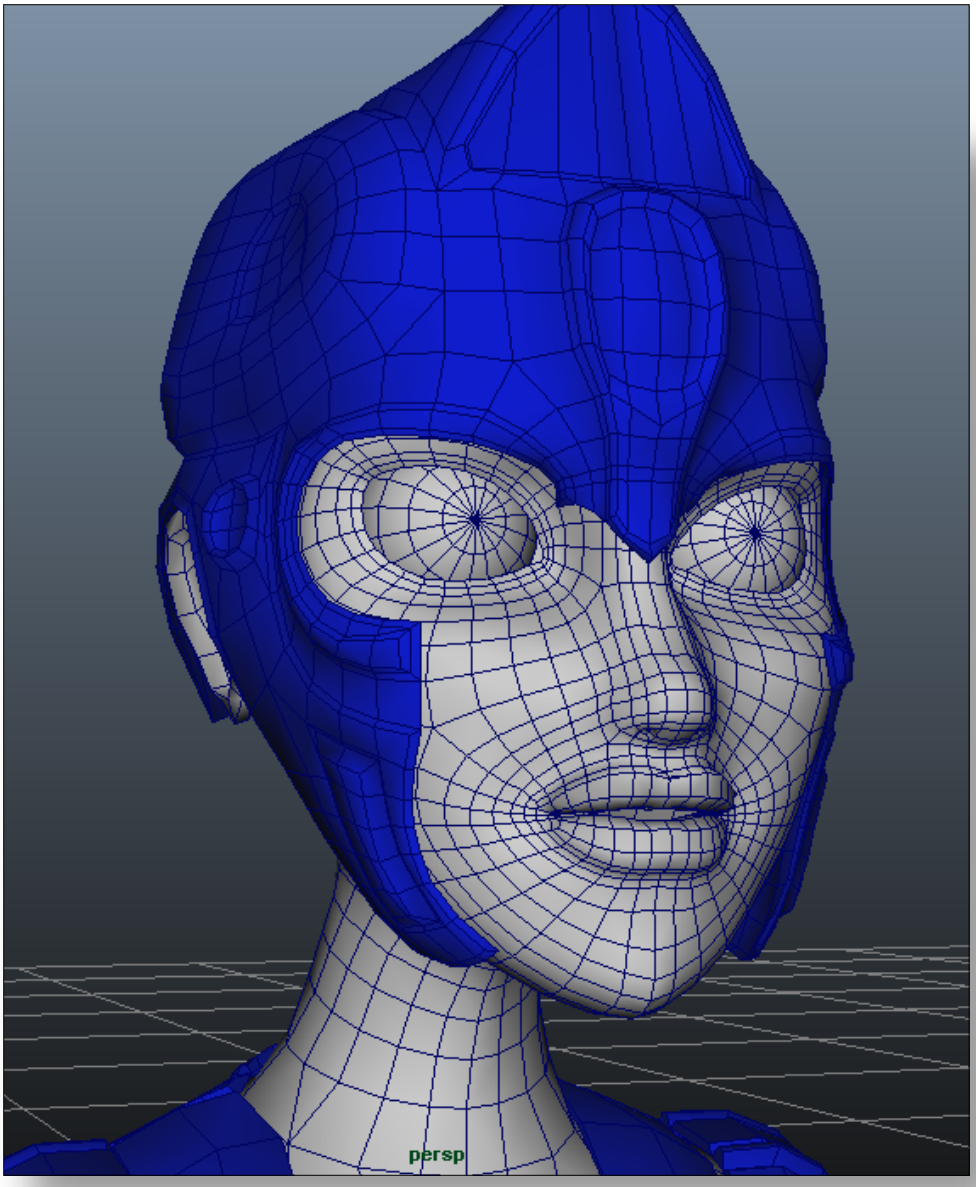
Below is a mockup concept of what a totem icon might look like using the above color schemes.

Note that the main color is high chroma as this is not a tool. It is the background is the red oak lead from which we derived the red oak leaf color for our pallet. There is a bubble to the icon, and the mystical nature of the totems gives a sense of adventure. The green highlight green that is used compliments both the red oak leaf and the triad purple. The shadowing is done with the base purple in our pallet that borders on a rich black.

5.3 Characters

Keywords: Friendly, cartoony, stylized, smiling, ebullient

The character of A.B. Brooks will be displayed in bust form (upper chest and above), so much will depend on facial expressions and head movement as he will not be able to use hands. We will not seek to overcome the uncanny valley but rather embrace a more stylized version of the character. Below is a reference image from some art I have worked on independently what shows the type of modeling we will be using to achieve this effect:



Maya hair will not work in Unity, however unity will support cloth. So hair will be created as polygons which will be turned into passive colliders and tweaked to get the desired effect.

5.4 Environments

Bright, colorful, natural, saturated

One problem with onboard device cameras is that they often wash out the images they display. The camera settings can be altered to up the saturation so that the image displayed on the screen appears brighter and more vibrant than it usually would. This will allow us to capture and display the environment as true to how it looks in real life as possible. We may not be able to achieve completely true to life colors at all times and much will depend on lighting. If it is slightly more vibrant it won't hurt.

5.5 Icons and Miscellaneous

On two separate occasions we have previously addressed our concepts for developing totem icons; however we should review some source material. We are deriving inspiration for these icons from Native American art and those who have been inspired by this style. Here are some images that were used as inspiration while developing the Fox icon seen above.

In addition to the Fox and Turtle, we plan to use other animals native to West Virginia. As of now we believe it may be prudent to keep the totem animals somewhat gender neutral so that kids will not reject their assigned animals as "to girly" "gross" or "unfair" (to give some

examples of reactions they might have). Right now the animals we are thinking about are: Owl, Hawk, Fox, Deer, Turtle, Frog, and Bobcat.

Icons that represent tools that provide functionality will be slightly different. We do not want them to appear annoying and constantly drawing the eye. We want them to be consistent with the adventurer theme we are establishing. These should have a natural or old feeling, icons should feel created out of older materials like carved wood, cast brass or bronze, and that they might have been owned by an adventurer from the late 1800s to early 1900s. Examples of the icons and interface items we are thinking about thus far are: an old dry plate camera, a yellowed heavy weight hand drawn map (with interactive elements), a decorative magnifying glass with bubbled glass (to represent the QR scanner), an old brass compass, etcetera. Here are just a few of the images we plan to use as reference: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Section 6: Management, Budgeting, and Testing

6.1 Detailed Schedule

This Schedule is Subject to change:

WEEK	PROGRAMMING	ART	SOUND	DESIGN	MISC	Notes
3				rough story		
4					Order target platform by end of week	
5 (QUARTERS WEDNESDAY)	Tech demo with as many features ready as possible	Rough UI in Unity	Placeholder Sounds. Post quarters, get a voice sample to client for approval	Design doc started	Website, Logo, Poster, Half Sheet, Touchscreen	
6	Addition of any remaining features		Recording Sessions	Finish podium design	order materials for podiums	INDIECADE and SIEGE are this weekend, half the team will be gone Friday
7	Finish any remaining features for Friday playtest, start documenting code.		Recording Sessions		Playtest Friday	
8	Implement playtest feedback, document code	3d model of AB Brooks started	Recording Sessions, "final" sound effects		Playtest Friday	
9 (HALVES)	All promised features implemented, code well documented	Polished UI	All final sounds recorded or gathered. Ideally, sound is "done" by halves, to allow focus on art	Completed Design Doc by 1/2s	Playtest Friday (Sat if 1/2s)	

10		3d model modeled by Friday to allow texturing to begin			Playtest Friday and tweak	
11	NEW FEATURE CUTOFF FRIDAY	Rigging, Animating, Texturing			Playtest Friday and tweak	
12	Pre Softs Polish	Rigging, Animating, Texturing	All sounds fully implemented		Rough Cut for Project video(s) by Friday. Possibly a Playtest.	
13 (THANKSGIVING BREAK WEDNESDAY-FRIDAY)	"Pre-Softs Tweaks, finalize existing features	Final art due Monday to allow integration on Tuesday	Final sounds due Monday for integration on Tuesday		Final Cut needs to be done by Tuesday for Softs.	We need to be Softs ready by end of day Tuesday. No one is required to come during an official break.
14 (SOFTS MONDAY)	Shippable Product	Production quality art	Production quality sound			
15	Finalize, finish any remaining documentation	Finalize	Finalize			

6.2 Budget

Current Budget:

Item	Cost per Unit	Units	Total
Scaleform UI plugin for Unity	$295.00	5	$1475.00
Asus Transformer tablets	$349.99	2	$1049.97
Asus Transformer tablets (rush order)	$379.99	1	$379.99
Ruggedizing kits for tablets	$59.99	3	$179.97
Misc	$100		$100
Total			$3184.93

6.3 Testing Plan

As previously mentioned we hope to test with children in the 8+ age (8 to 12) range and parents of children of a slightly younger age (5 to 6). According to research done by the Pew Research Center[1] roughly 75% of American women become mothers between the ages of 20 and 34. This means we will be looking to test with Women roughly between the ages of 25 and 40. While we were unable to find data on the average age of fatherhood for Men, however according to the US census Bureau the average age of marriage for Men is about two years older than Women[2]. Also, 65% of children ages 0-17 live with married parents[3]. Using this data we can target men ages 27 to 42. While we will test with any parents with kids in the 5 to 6 age range, identifying these adult age ranges will allow us to also test with people who do not have kids and may not be married to enlarge our sample data.

Early on we plan to test primarily on usability. We want to answer a number of essential questions.

- Does the guest quickly understand the interface without third party instruction?
    - After starting the experience does the guest have enough information to start questing?
- Does the guest experience the interface as consistent but the experience as varied and interesting?
- Do sounds from the interface give meaningful feedback?
- Does the interface feel non-intrusive?
- Does the guest feel involved quickly?
- Are we shortening the learning curve by using trends already established by the gaming industry that kids in our target age range will be familiar with?

As we progress in the development process, actually get out to the field and make the activities, add animations and build the story into the experience we will want to answer more questions about this content:

- Does the guest have a sense of immediacy at the beginning of the game?
    - Does the guest feel motivated to play by a reason that relates to them?
- Does the guest feel connected to the guide and respond well to him?

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[1] The New Demography of American Motherhood, Livingston et. all. Aug 2010 : http://pewresearch.org/pubs/1586/changing-demographic-characteristics-american-mothers

[2] http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_B12007&prodType=table

[3] http://www.childstats.gov/americaschildren/famsoc.asp

    - The player is interested in this character because they feel like he is 1) like them, 2) interested in them, 3) the character develops as actions occur.
- Is the guest getting relevant context sensitive help as they progress on the quest?
- Does the guest understand the story line as a single consistent vision?
- Is the guest interested in the story line?
- Does the guest feel like they have control over their actions?
- Does the guest feel like the outcome of the experience is fair?
- Does the experience give the guest a level of personal involvement emotionally (specifically thrill, reward, and excitement)?
- Is the guest always aware of their current goals?
    - Does the experience have clear goals, present an overriding goal early and clearly, and also present short-term goals throughout the experience?
- Do the rewards given in the experience immerse the player more deeply in the experience by expanding their capabilities (unlocking secrets, giving them bonus locations or new tools, etc)?
- Is the pace good?
    - Does the pace apply pressure to complete the experience in a timely manner that fits working with school groups but not frustrating?
- Do some challenges feel more difficult than others, and do the rewards feel appropriate to the difficulty of the challenge?
- Are all the challenges adding positively to the experience rather than creating negative feelings?

Starting on October 12th we plan to test every week on Fridays (so October 12, 19, 26, and November 2, and 9). While we will need to do some testing at Oglebay with some visiting groups of children it will not be practical for us to do so very frequently. In addition we will not really need to do this early in the testing process when we will mostly be testing our user interface. In addition to testing at Oglebay we plan to work with the Carnegie Mellon Science Center, the Children's Museum, Liz Ford Middle School (Small Lab), and the children of parents at the ETC. We can also do a call for students and staff members in our target age range from departments other than the ETC, HCII, or CS. We want to avoid people from these departments because the results we get from people from these departments may color our data given the possible proficiency level of these individuals.

While we do plan to give a limited number of written surveys, for the sake of streamlining the testing process we plan to document heavily with video and then collate the data we gather later. Our plan is to record all tests at a group level and then take individual video statements from each tester. This gives us the flexibility to ask people to elaborate on the questions we ask, and perhaps get more detailed responses than we might get when we ask them to write out answers. Later we will enter data into excel sheets so that the data can be modeled for display so it is easier for us to visualize and easy for us to present.

Section 7: Script, Acting, Music, and Musical Artists

7.1 Story Script

We need lines outlined for each location at the end of this document once everything else has been established.

7.2 Actors

Who is going to do our acting?

We need a signed release form as part of this document from that person giving the terms under which they are providing those services.

7.3 Music and Audio

A list of all music and audio we are including and any licensing information if we are licensing anything

7.4 Original Compositions

If we are including any original music it should be attached here and credited.

If we get original music from an outside source we will need a release form from the artist.