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Exploring Historical Events Through an Interactive Timeline

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May 5, 2021

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Exploring History Through an Interactive Timeline

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May 5, 2021

Chief Advisor Professor Mike Strobert

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Exploring Historical Events Through an Interactive Timeline.

Parsuree Vatanasirisuk

Abstract

Learning history in school commonly takes the form of reading from textbooks and memorizing dates, places, and names. However, students have an array of different learning styles, and not everyone is good at learning by memorizing. Young students tend to lose interest in the subject and are not inspired to seek more information about what interests them in the material when they're outside the classroom. Learning history is not only about knowing names and dates; it is more about understanding the relationships of events that occurred in the past and how they relate to and affect others. That's why schools usually start by introducing the beginning of mankind in prehistory and the early civilization period to students in middle schools. However, experiencing a time period such as "5,000 BCE" is far more than young learners can imagine. Students must be able to visualize the connections and sequences between events that happened in the same period of time in different places in order to engage them in a meaningful way.

Young learners are familiar with using digital devices in their everyday life. They're interested in games, picture books, or movies that are sometimes based on historical events. This shows that history itself is not boring for them, but it's the way they learn about history that matters. One effective way to engage them in learning history should be in a fun and lively way. Complicated ideas in history can be interesting if presented in intelligible terms *(Gombrich, 1935)*. According to the National Council for the Social Studies, historical events always occur in time and place. To incorporate history and geography together is one important solution to provide a deeper understanding and a complete picture of historical events. By creating an application with an interactive timeline and map, young learners will have the flexibility to explore knowledge beyond the classroom. They should feel that history is about real people in real places; therefore, they will feel history comes alive *(Paige, Rich, and McGrath, 2004)*.

The scope of this project is in the pursuit of creating an interactive web application that will assist students in secondary education and above, as an effective way to learn global history beyond the classroom. Data visualization of a timeline and map will be presented as the main navigation. It will allow users to compare historical events that occurred in different parts of the world, focusing on the early civilizations period. Users can explore a timeline of history by selecting a specific time period, comparing and seeing connections between time and places, and experience historical events across the centuries with the interactive timeline and map.

Keywords

Data Visualization, Interactive timeline, Historical events

Table of Content

Introduction

This project aims to make the experience of learning about historical events more fun and engaging. Younger adolescents are the main audience of this tool, but it is not limited other age groups using it. There are a lot of existing history exploration or learning tools available online. Each serves different purposes and goals of learning. In this project, we will focus on learning through“ play.” Learning history can sound overwhelming because children are forced to memorize the events they can hardly relate to. Making this tool ‘fun’ to explore and incorporating ‘play’ while making the interaction as simple as possible can be one interesting way to engage learners.

The project got its initial inspiration from Google Doodle and ‘Today in history.’ The idea of Google Doodle is to commemorate holidays, notable historical events and figures with delightful visual styles and simple interactions. Like this project, this tool aims to enhance users to explore historical events and their connections in a simple, fun and engaging way. The focus will be on exploring historical events, starting from what happened today in history around the world, letting users connect the dots of the events as they explore the site. The interaction will allow users the freedom to search and start exploring at any point in time or place in the world with the simple interaction. The experience should be simple and seamless.

The project started with a broad scope of history learning tools through gamification, then scoped down as the project got executed to keep the interaction simple. Many possible ideas and concepts are iterated and progressed during the first half of the project. The first two months of this project are dedicated to re-scoping and iterating concepts, while the second half is focused on refining and developing the chosen idea.

Context: Historical events & Fun facts

There are always surprising fun facts to discover when it comes to historical events. We don't usually have an opportunity to see events across the globe that happen parallel to one another. Some of these fun facts keep us entertained while also teaching us about history, including people, culture, science, and so on.

Did you know?

In 1902 - A teddy bear doll was first created; it is named after U.S. President Theodore "Teddy" Roosevelt, who was 26th President of the United States at the time.[1]

In 1937 - The original Disney's Snow White premiered, Daffy Duck debuted, The Hobbit by J. R. R. Tolkien was published, Toyota Motor was founded, the Golden Gates bridge was built, and Amelia Earheart disappeared. All these events happened in the same year.[2]

In 1940 - McDonald's was founded, one year after World War 2 happened. Also, in the same year John Lennon and Bruce Lee were born, one month apart from each other.[3]

4,000 years ago - The last Woolly mammoth was still surviving on Siberia's Wrangel Island, while the majority of them had disappeared at the end of the Ice Age 10,500 years ago.[4]

These are a few findings that could then lead the user to explore more about certain topics or the events that happened in that time period.

Methods

Development of Ideas

During this project, one of the most challenging things is going through different concepts and ideations. Timeline and location are the two main dimensions that should be represented, and there are multiple ways to represent them.

Ideation 1: Timeline and Map

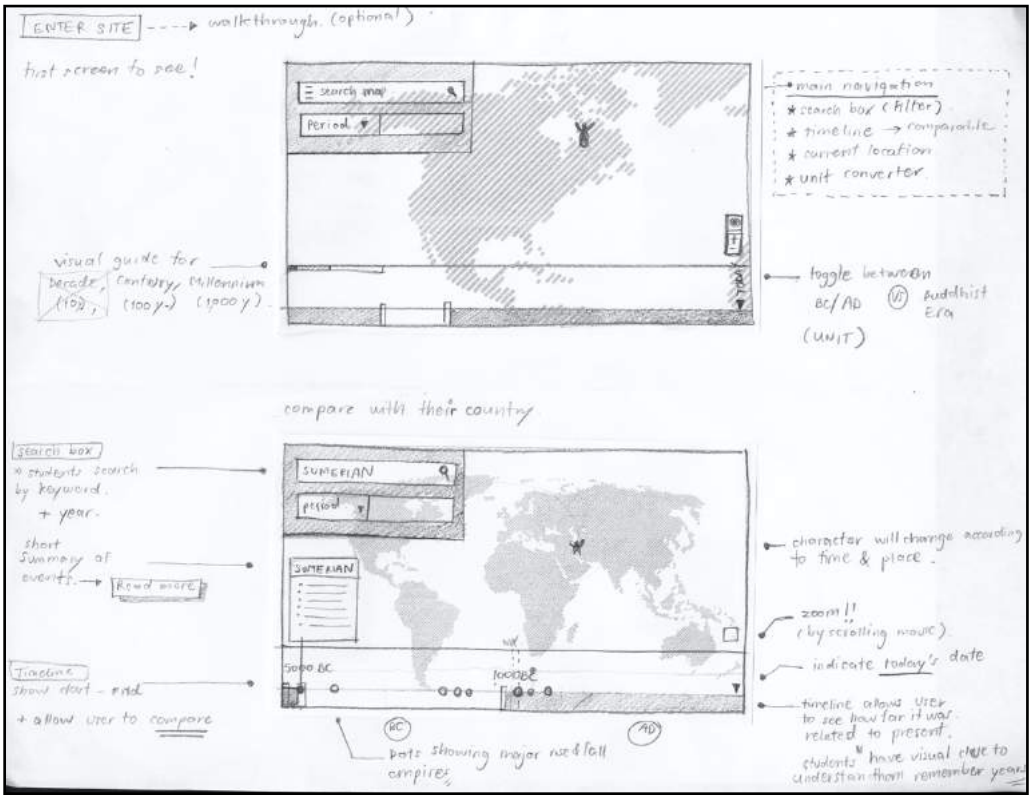


Figure 1: Sketches of early ideas

A two-dimensional map with the search box at the top right. This representation is borrowed from Google Maps. Users search keywords and select the timeline they want to learn about in the search box, then results will show up on the map. However, the major drawback of this concept is that it still requires an effort from users to add input before they start exploring.

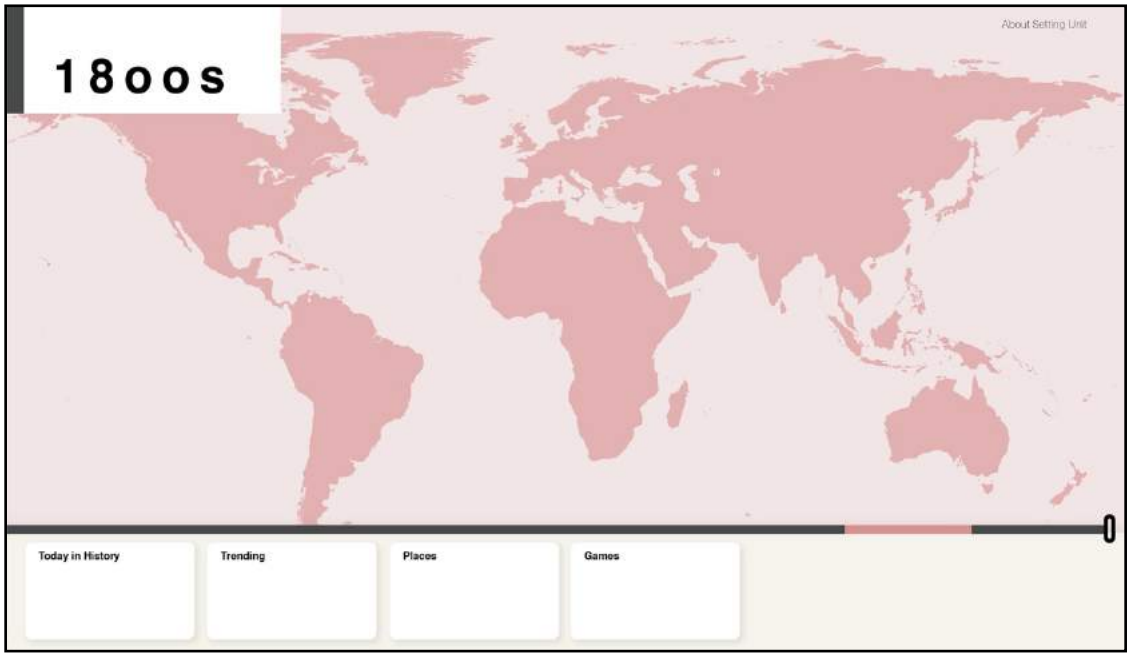


Figure 2: Wireframe in higher fidelity of ideation 1

Ideation 2 : Globe and timeline as an orbit ring

A representation of three-dimensional earth, with an orbit ring as a timeline going around it. The dots on an orbit ring represent the events that happened in the selected year. This concept is one step closer to the final version but still takes up too much empty space on the side. Another setback of this concept is that the bottom half of the globe was cut out of the scene.

The timeline orbit in perspective cannot clearly present time in an accurate perception.

However, the core concept of this ideation leads to the development of ideation 3.

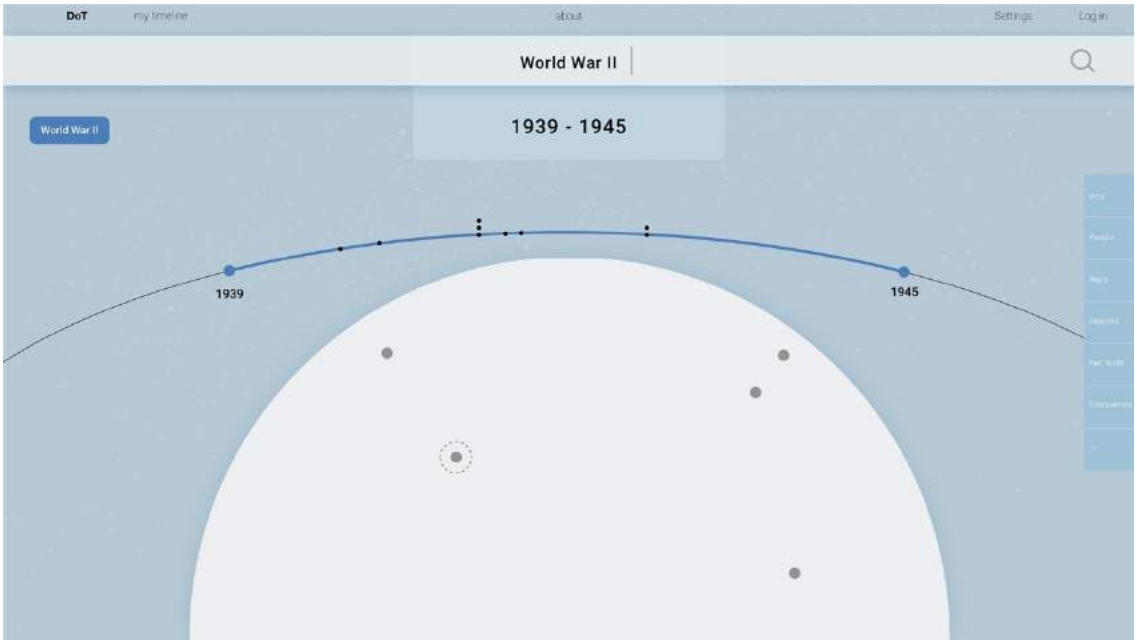


Figure 3: Wireframe of ideation 2

Figure 3 is a wireframe of ideation 2. The key parts of this idea are the globe to represent location, the timeline, the search bar, and the categories picker on the right nav.

Figure 4: Visual and detail exploration ideation 2

This image is an exploration of a visual style as a parallel effort with the globe and timeline design.

Ideation 3: Full view of the 3D globe and multiple orbit rings

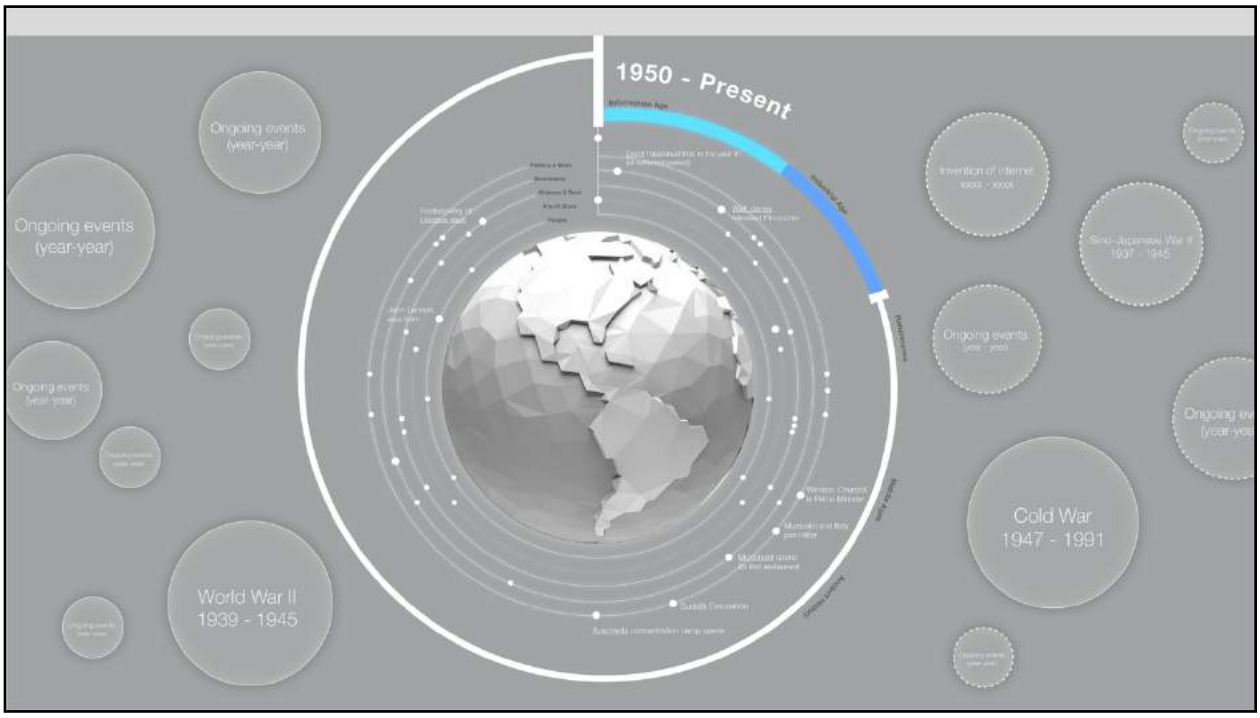


Figure 5

Note: The globe shown in this sketch is a still image as a placeholder, the next step is to create a 3D globe that will rotate as the user interacts with the timeline.

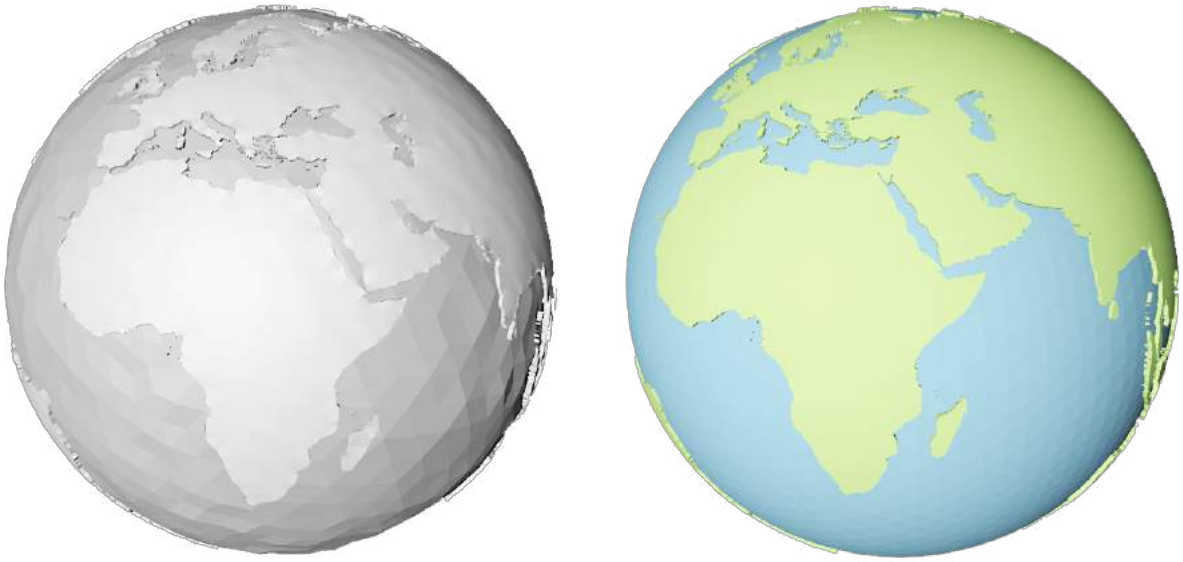
Ideation 3 shows the globe as the center of the screen. The orbit rings surrounding the globe represent the timeline. The timeline goes clockwise, starting from the past on the left to the future on the right. The multiple rings are to showcase different categories of historical events. The bubbles floating on the left and right sides of the screen will be a shortcut link to each story or event that users click on.

Further refinement and development

The making of the globe

Tools: Cinema 4D

The globe is a balance between polygon mesh and a realistic portrayal of the earth. Its goal is to have it detailed enough to resonate users with the real locations but simplified by leaving out the terrain and weather condition.



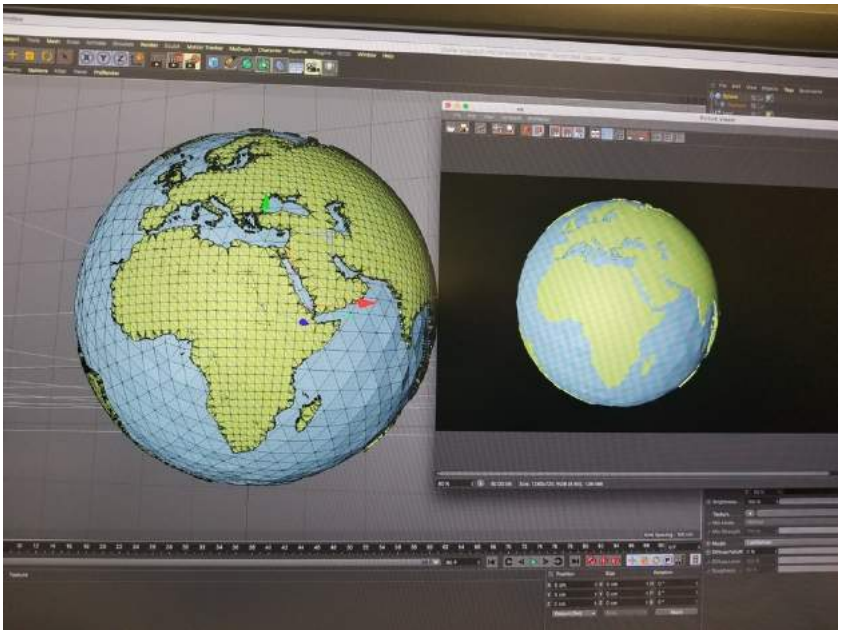


Figure 6: Note that the images shown above are prior to final color selections and visual style decisions.

Visual Style, Colors, and Typography

The key to the visual style of the site is to ‘keep it simple.’ We want to engage the audience, not only through interaction but also through visuals. In this project, the aim is for a clean-looking site that attracts a younger adolescent audience. Users should understand what they need to do once they look at it without distractions.

Keywords of the visual style:

Modern, Fun, Vibrant, Playful, Outer space

Colors

Analogous color. Primary Color is Purple. Secondary color is Blue.

The gradient color is applied in the background, and the globe is solid shades of the blue color scheme. The image below is an exploration of the look and feel that will be applied to the designs.

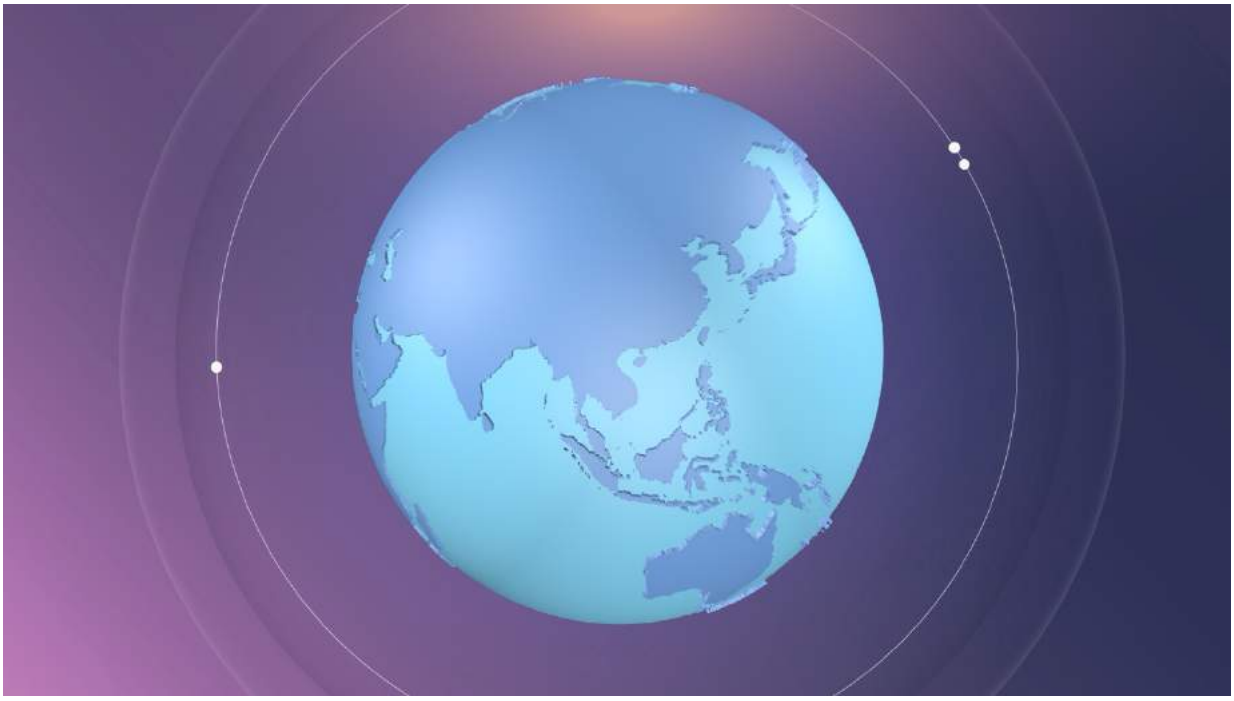


Figure 7

Typography

The Gotham font family is the main font used in this project. It is known for its simplicity and readability, with a wide variety of weights to choose from.

Logo

To keep it consistent, Gotham is used for the main letters but with a twist of adding a simplified globe shape as a part of the ‘O’ in the logo.

Figure 8

The logo can be used in white on dark background or a dark color on a white background

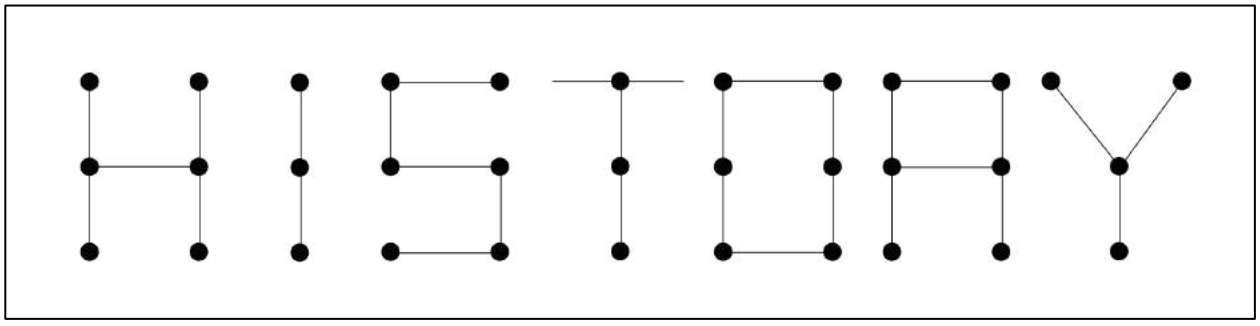


Figure 9

However, before landing on the final logo, a few ideas have been explored with “Connect the dots” concept. However, due to its poor readability, this idea was not used.

Putting them together

The first draft of the visual style is leaning towards a grayscale color. Th goal is to minimize any distraction and make it feel neutral. However, the color contrast doesn't show up well in this version, and the colors still lack of playfulness.

Figure 10

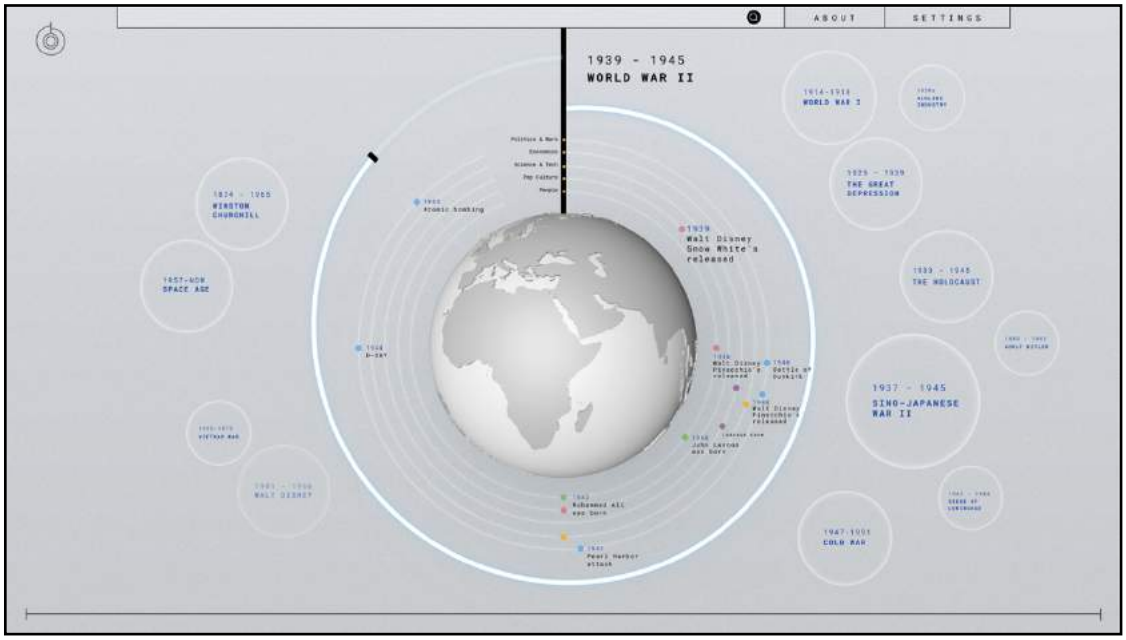


Figure 11

The next version has more colors to it. The color scheme is kept to purple and blue to represent the feeling of space or galaxy. The gradient colors are applied in the background, but in most of the elements, flat, solid colors are used.

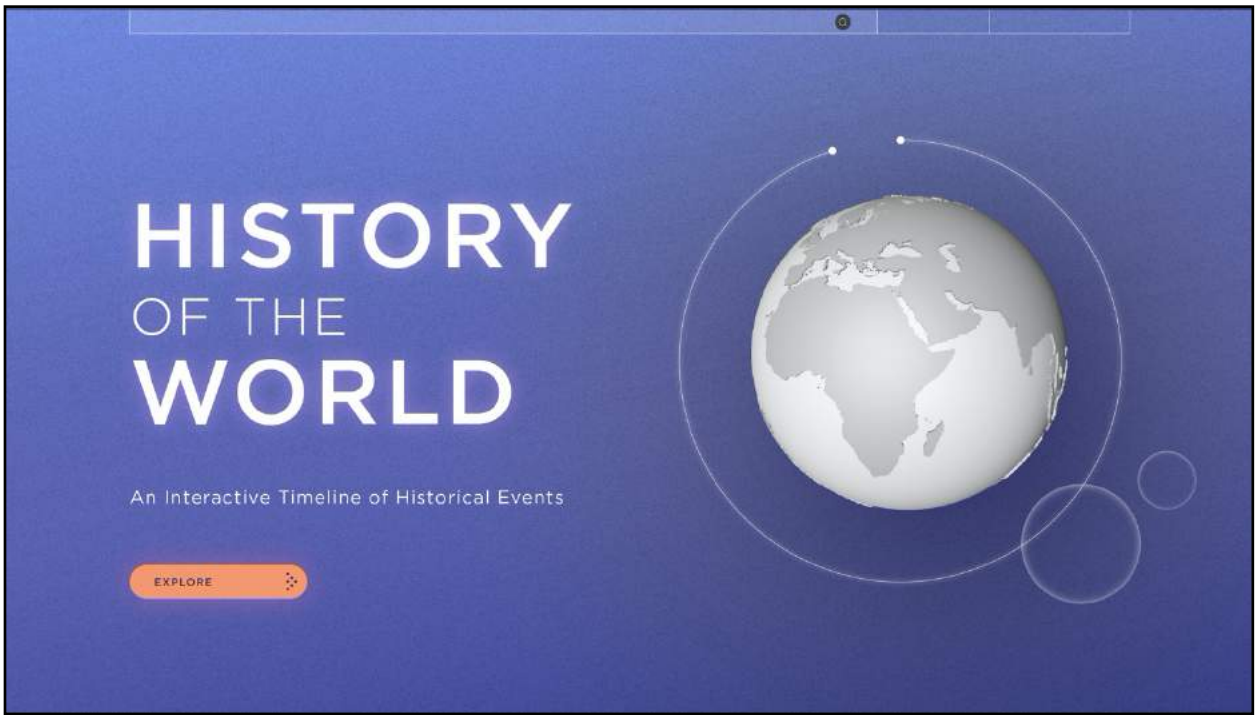


Figure 12

Figure 13 below is the final version of the visual style of the landing page.

Figure 13

Results

The final design will be used in web application on the desktop screen. Due to the scale of the targets and the density of information, a mouse can be used to select the event dots precisely.

Home Page

The user first arrives at the landing page. The user will then click explore buttons, where the arrow dots will float as the screen transitions to the main screen.

Figure 14

Landing Page (Main screen)

Figure 15

The main screen consists of the top navigation, the footer, the globe, and the 2D rings surrounding the globe with colorful dots that represent each historical event within the selected time range. The default timeline on the landing page is set to 1900 to the current year. This will be a starting point, but users could click on the event shown on the screens or select a new time range from the top nav, or even search for specific locations or keywords.

Top Navigation

Top navigation consists of search input, timeline selector, and home button. The timeline on the top nav will be used to control the year range and the search bar to search for a specific year, keywords, and places.

Figure 16

Globe

The globe will rotate slowly in the middle of the screen if no event is selected. Once the event is selected on the timeline, the globe will spin to the area where the event happened.

Category rings

The multiple rings surrounding the globe represents different categories for the events. The main categories are based on Wikipedia's list of major topic classification.[5] (This was under the assumption that in the possible future, the content would be pulled in from Wikipedia.) The categories selected are

1. War
2. Economic
3. Technology
4. Culture
5. People

Footer

The bottom left displays the time range selected on the screen. The bottom right consists of ‘About’, ‘Help’, and ‘Sharing’ options.

About Page

A brief, concise explanation of what elements are on the main screen.

Figure 17

In-depth Screen

Once the user clicks on the dot, the screen will transition to display a more in-depth detail of the selected event. The image below shows an example of the screen after the user clicked on “World War II starts” in 1939.

Figure 18

This in-depth screen will show the events related to the event that the user originally clicked on. The user only has to scroll down vertically to read brief information. The Zoom-in view of the globe will spin to show the location each event happened. Users can still see the colorful dots on the rings, representing the other events that happened around the same year.

For example, McDonald’s started its first hamburger restaurant in 1940, during the year that World War II had just started in Europe. The user will then read a brief history of McDonald’s and see the events that happened around the same time in other parts of the world that they might not know before. For example, Disney released its ‘Pinocchio’ movie in the US, the Lascaux cave was discovered in France during that same year, etc.

Figure 19

Search by keywords

On the main screen, the user can also search by typing in keywords, as shown in the image below.

Figure 20

The whole timeline of 6,500,000 years of history can be selected to learn about prehistoric fun facts and see an overview of the important milestones in each time period.

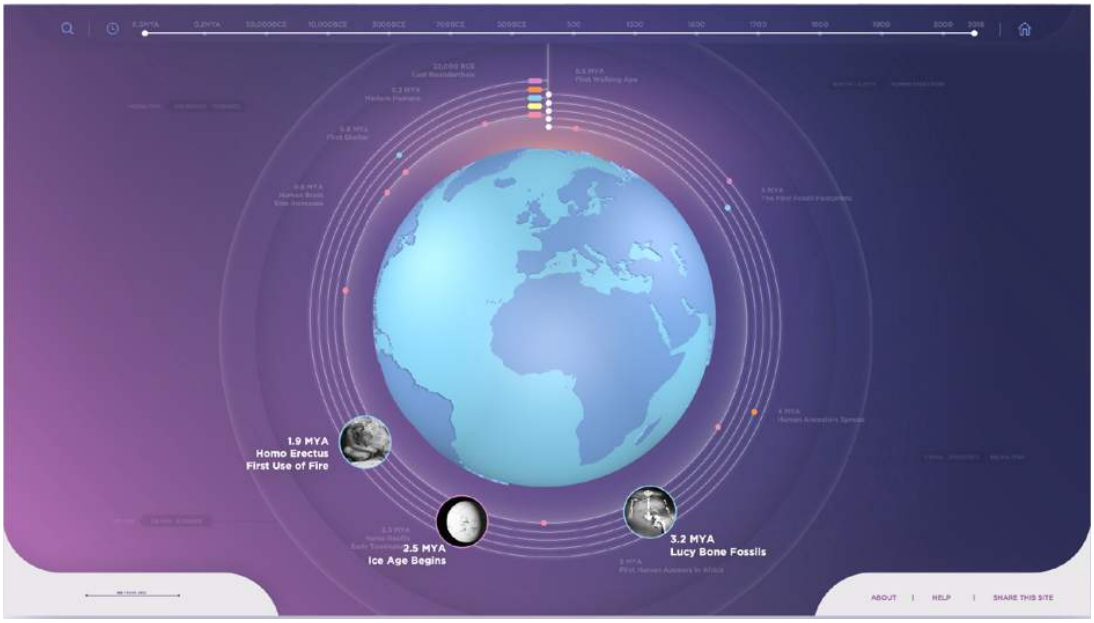


Figure 21: Timeline showing 6,500,000 years of history

Figure 22: Timeline showing 500-3000 BCE

Evaluation & Discussion

The goal of the project is to explore a new idea and make a tool that is engaging for younger adolescents to explore fun facts and events in history. Many previous concepts have been iterated before landing on the final version. Feedback has been received during the Imagine RIT 2018 through observations and interviews. Around 5-10 children aged 8-15 showed interest and wanted to play with the site. The clickable prototype was not available at the time, but it was a good sign that they wanted to see the site become real.

Future Opportunities/ Next Step

Clickable prototype

Configure how to make the site interactive and allow people to interact with it to get more detailed feedback from user testing. This will involve working heavily with developers and possibly 3D artists to help craft the geography of the globe in a different time period.

Content

How to implement the content needs to be considered. Entering each data point manually is not ideal. One possibility is to pull in the information available in Wikipedia or other open-source sites that allow information to be pulled in and automatically updated. This will involve working with developers and subject-matter experts.

Other features

• Search by place

For future development, the site should allow users to search through locations by clicking directly in any area on the map instead of having to search by typing in keyword.

• More comprehensive categories

The categories are limited to five categories for the current version. This is to keep it simple and easy to display in the main screen, but in the future, this could mean having more categories added. A filter can be in the form of multiple checkboxes.

• On-boarding experience

A brief step-by-step guide to introduce first timers how to interact with the site. This should be no longer than 5 steps, as the site is already easy to use.

• More personalized experience

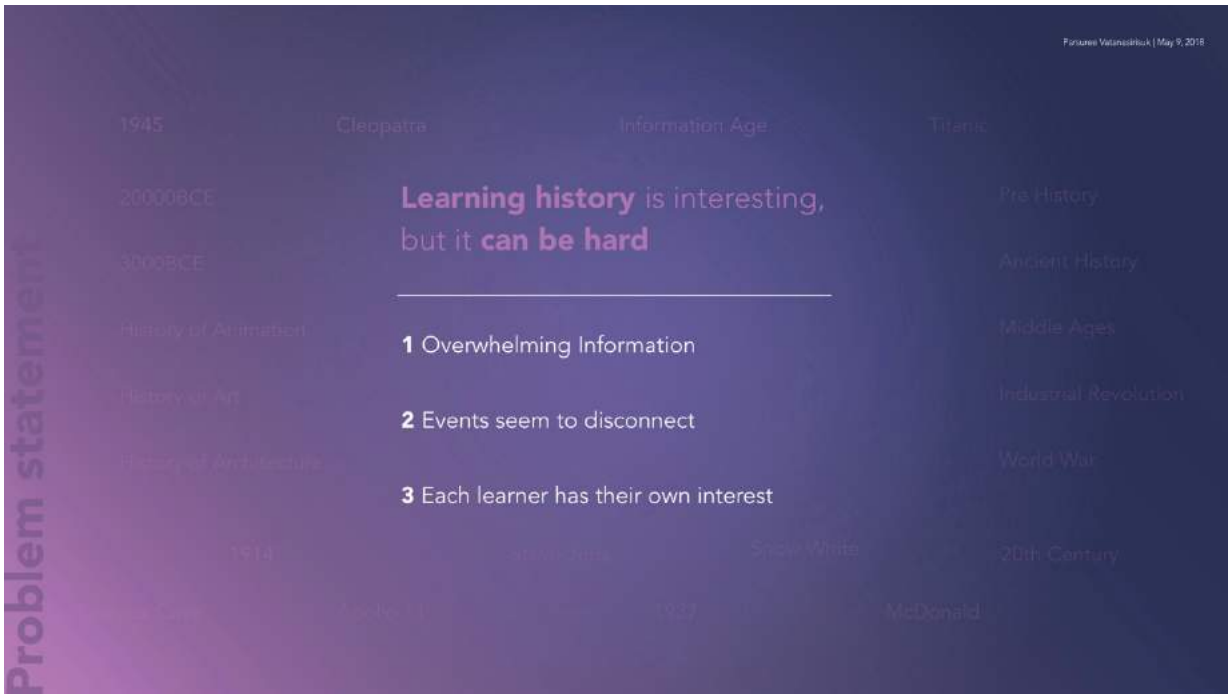
The users can save events that are their favorites, so they can come back and learn about it later.

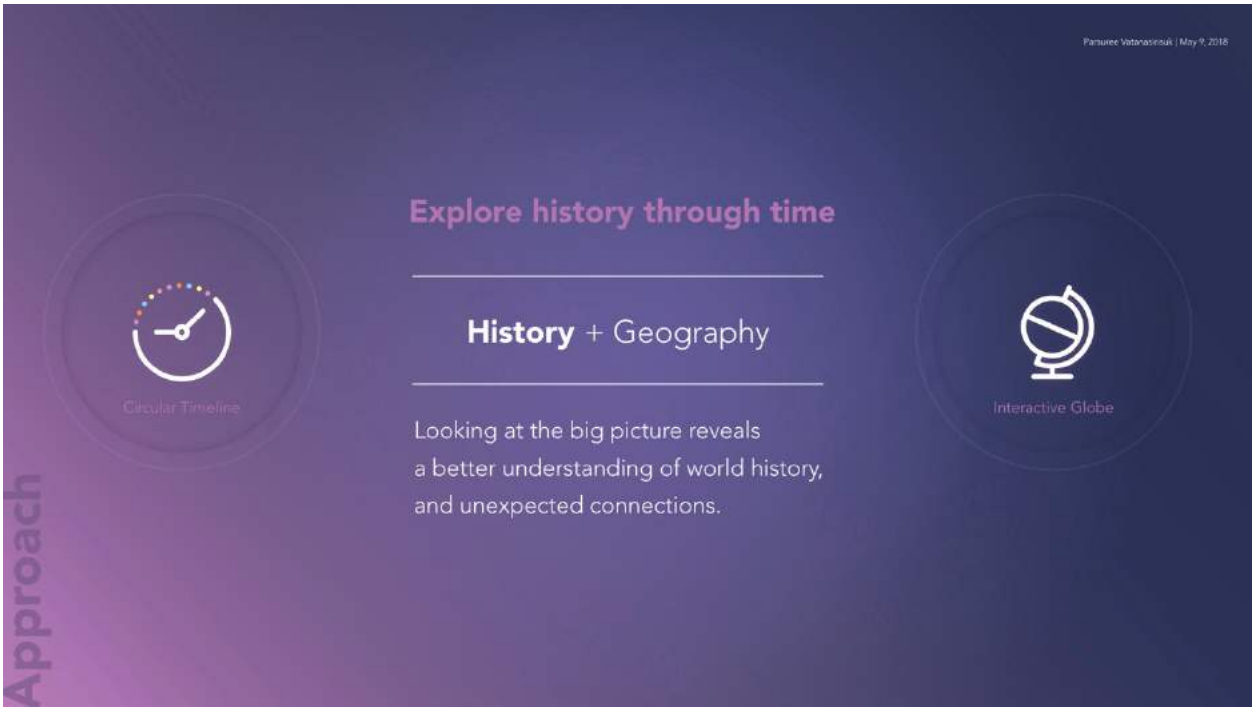
Appendix A: References & Bibliography

1. “Historical Events in 1902.” OnThisDay.com. Accessed April 24, 2021. https://www.onthisday.com/events/date/1902.
2. “Historical events in 1937.” OnThisDay.com. Accessed March 1, 2021. https://www.onthisday.com/events/date/1937.
3. “Historical events in 1940.” OnThisDay.com. Accessed March 1, 2021. https://www.onthisday.com/events/date/1940
4. Andrew, Scottie. “The Last Woolly Mammoth Died 4,000 Years Ago on an Island in the Arctic -- and That's Significant.” CNN. Cable News Network, October 8, 2019. https://www.cnn.com/2019/10/08/us/woolly-mammoths-death-scn-trnd.
5. “Category:Main Topic Classifications.” Wikipedia. Wikimedia Foundation, April 4, 2021. https://en.wikipedia.org/wiki/Category:Main_topic_classifications.

Appendix B: Thesis Defense Presentation

Images from Thesis Defense presentation. [Keynote presentation can be found here]




Parsuree Vatanasirisuk | May 9, 2018
Explore history through time
History + Geography
Looking at the big picture reveals
a better understanding of world history,
and unexpected connections.
Circular Timeline
Interactive Globe
Approach

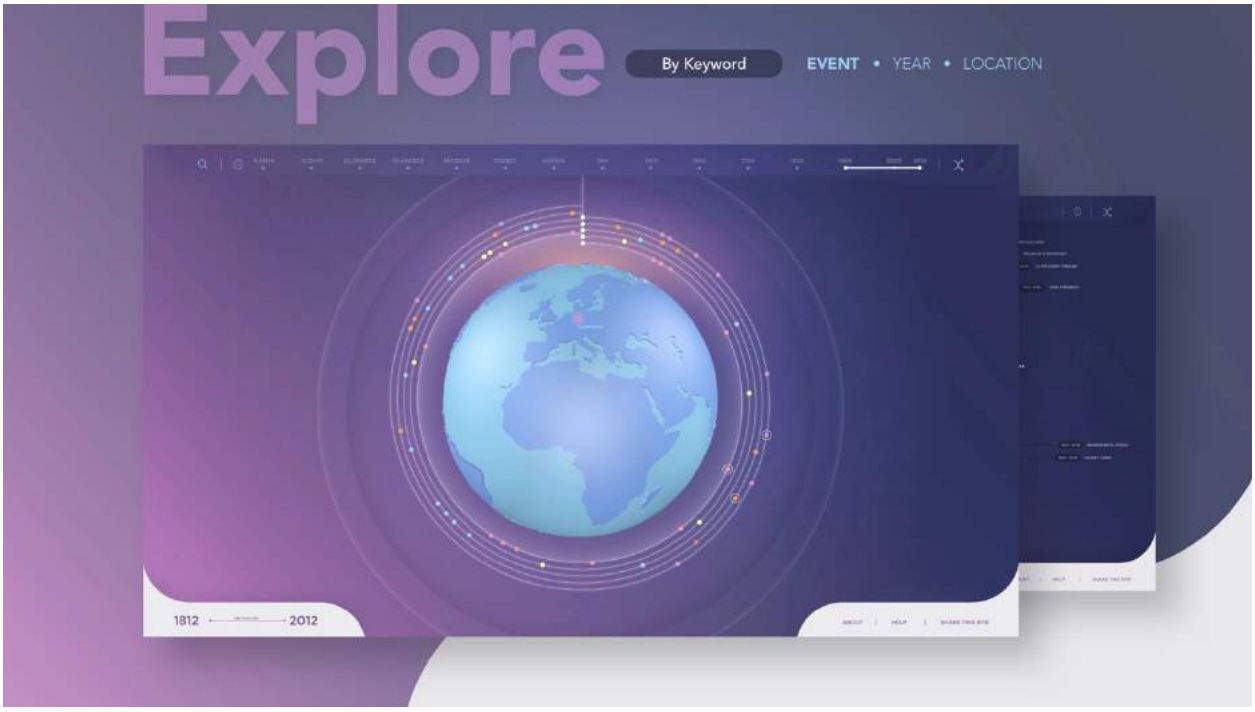

1903
First Flight
1908
Ford Model T Launched
1912
RMS Titanic Sank
1914
World War I Starts
1918
World War I Ends
1928
Discovery of Penicillin
1937
Snow White Premiered
Germany
1939
World War II Starts
1945
Hitler Commits Suicide
1945
United Nations Established
HISTORY
OF THE WORLD
An Interactive Timeline of Historical Events


welcome to
HISTORY
OF THE WORLD
An Interactive Timeline of Historical Events
EXPLORE
ABOUT | HELP | SHARE THIS SITE


1900
2018
1939
World War II Starts
1945 - 2017 WORLD WAR II MOVIES
1940s - 1960s DECOLONIZATION
1947 - 1991 COLD WAR
1955 - 1975 VIETNAM WAR
THE SPACE RACE
ABOUT | HELP | SHARE THIS SITE
1900
2018
PEOPLE
CULTURE
TECHNOLOGY
ECONOMY
WARS & DISASTERS
Structure


Explore
By Time Period
Broad Knowledge
1900
2018


Explore
Broad Knowledge
1900
2018
Skim — Select — Reveal location — See related events


Explore
By Keyword
EVENT • YEAR • LOCATION
1812
2012

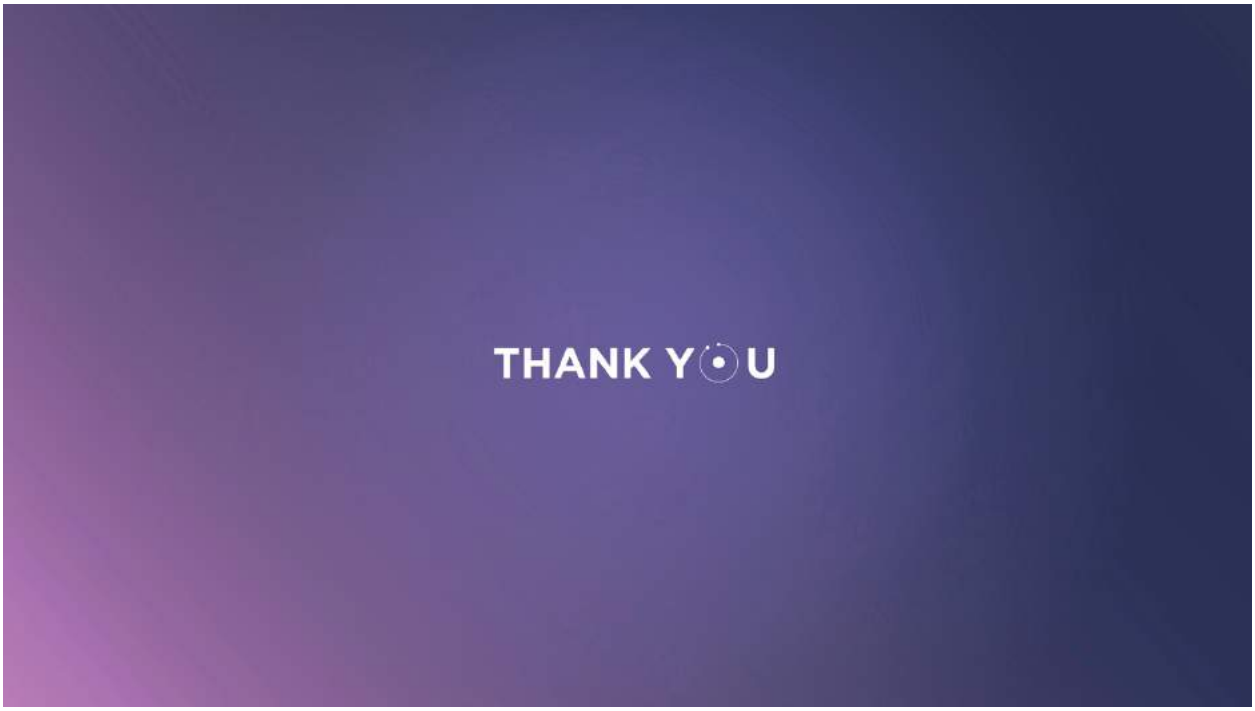

Explore
By Keyword
EVENT • YEAR • LOCATION
1937
1937


Explore
By Keyword
EVENT • YEAR • LOCATION
Thailand
1782
Bangkok is the Capitol of Thailand
7th cent
2018


Learn more
Parsuree Vatanasenuk | May 9, 2018
WORLD WAR II
Czechoslovakia
1939
Hitler invades Czechoslovakia
Despite the assurances given by Hitler in the Treaty of Munich (Sept 1938), he marched into Czechoslovakia and occupied the country.
1939
1945


Learn more
Parsuree Vatanasinsuk | May 9, 2018
McDonald's
San Bernardino
1940
1940
2017


Parsuree Vatanasinsuk | May 9, 2018
EXPLORE
connection of events.
LEARN MORE
get an extensive understanding.
Learning history can be fun


THANK YOU

Appendix C: Screen Capture of Thesis Website

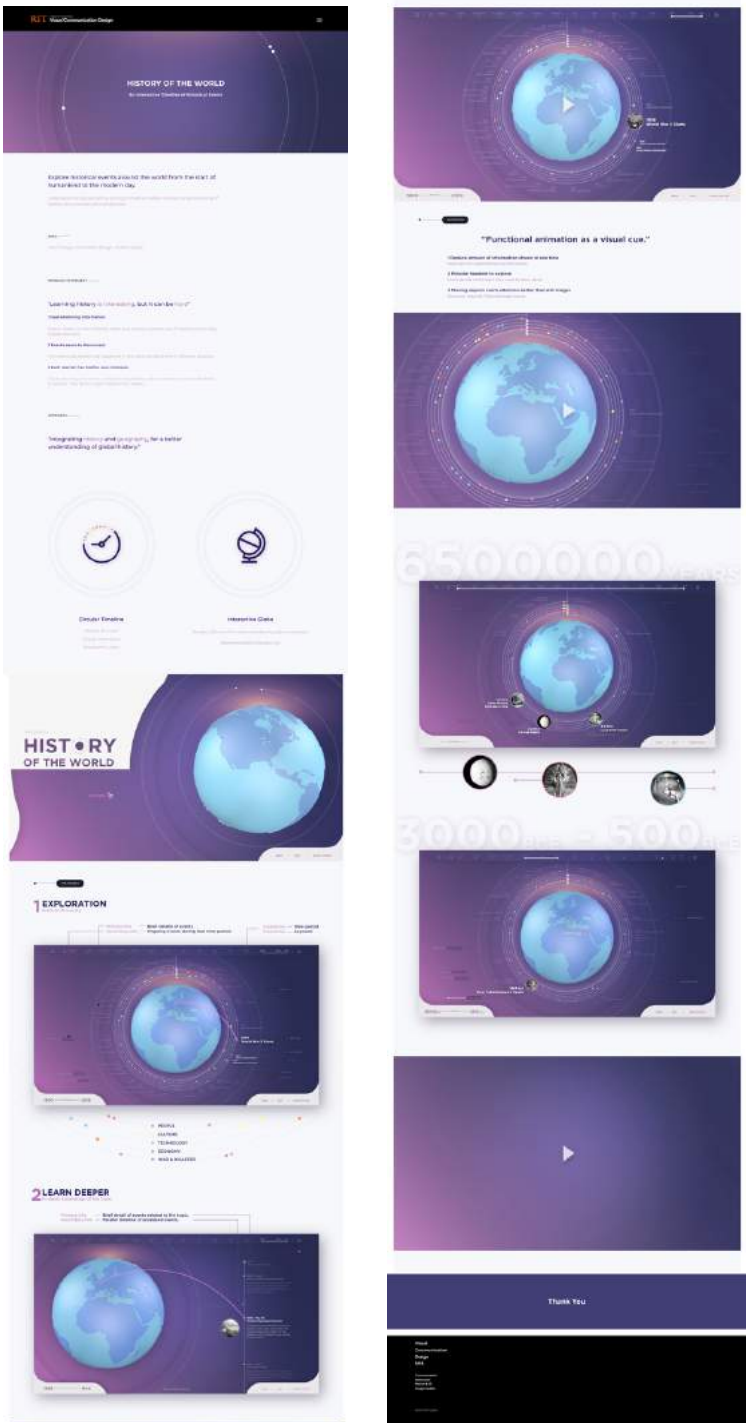


Figure 23: https://designed.cad.rit.edu/vcdthesis/project/historyoftheworld