

The Underground Railroad in Ohio Interactive DVD-ROM

By

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Abstract

The Underground Railroad is the symbolic term given to the routes that enslaved Black Americans took to gain their freedom by traveling as far as Canada and Mexico. Ohio Underground Railroad Conductors provided a haven for escaping slaves crossing the Ohio River. Today, many do not realize that the Underground Railroad ran through Ohio, providing an important contribution to its operation. The Underground Railroad in Ohio DVD-ROM is an interactive multimedia application that is dedicated to educating people on the history of the Underground Railroad in Ohio. The DVD provides a hands-on approach to learning about the Underground Railroad in Ohio. Through animation, music, video, and photo the user will become part of the Underground Railroad experience in Ohio.

The Underground Railroad in Ohio Interactive DVD-ROM

1. Need Definition

The Underground Railroad is the symbolic term given to the routes that enslaved Black Americans took to gain their freedom by traveling as far as Canada and Mexico. Free Blacks, Whites, Native Americans, and former slaves acted as “conductors by aiding fugitive slaves to their freedom. Today, many do not realize that the Underground Railroad ran through Ohio, providing an important contribution to its operation. In schools, the history of the Underground Railroad is covered briefly in textbooks. There are Web sites on the subject of the Underground Railroad, but few are specific to Ohio’s contribution. As important as Ohio was in the liberation of people from slavery, there does not exist an interactive and simulation medium, that is dedicated to people’s education on the aspects of the Underground Railroad and Ohio.

2. Solution

The Underground Railroad in Ohio interactive multimedia CD-ROM is an education tool for ages 13 and up. The CD provides a hands-on approach to learning about the Underground Railroad in Ohio. Because of the wealth of information pertaining to the Underground Railroad in Ohio, the CD is designed to give users a starting point for their research on the subject. The CD’s content is divided into four sections:

- History
- Conductor’s
- Ohio Underground Railroad Stations
- National Underground Railroad Freedom Center.

The CD is a completely menu driven application. The CD provides a user-friendly environment that requires the user's participation. Through animation, music, video, and graphics the user will become part of the Underground Railroad experience.

2.1 User Profile

This CD has one user profile. The CD is targeted for people ages 13 and up, who have little or no knowledge of the history of the Underground Railroad in Ohio. Each user is expected to know how to insert a CD into a CD-ROM drive on a PC. The user should also be familiar of the mouse point and click functionality found in many Web applications.

The user's system should have the following minimum requirements:

Windows

- 486/66 or higher processor, including Intel Pentium processor
- Windows 95, 98, 2000, Me, XP, or Windows NT 4
- 16 MB RAM required
- 256-color monitor, 800 X 600 resolution

Macintosh

- Power Macintosh
- Mac OS 8.1, 8.5, 8.6, 9.x or OS X (classic mode only)
- 24 MB of RAM
- 256-color monitor, 800 X 600 resolution

User's system should also have the Macromedia Flash 6 plug-in.

2.2 Design Protocols

The CD includes multiple user interfaces. The interfaces are:

- Introduction Interface
- Main Menu Interface

- History Menu Interface
- Conductor's Menu Interface
- Freedom Stations Menu Interface
- Freedom Center Menu Interface
- Trivia Game Interface.

Each interface will have similar color schemes within the background and font.

Although, there are no set colors for the Underground Railroad I found that gold and black were the most common colors used in existing Underground Railroad media.

Black, grey, gold, and white will be seen throughout the entire application. Each page throughout the application was created with Adobe Photoshop 7. From anywhere in the application users will be able to access the main menu, glossary, help, mute, and exit options. An outline of the DVD can be found below (see Figure 1.).

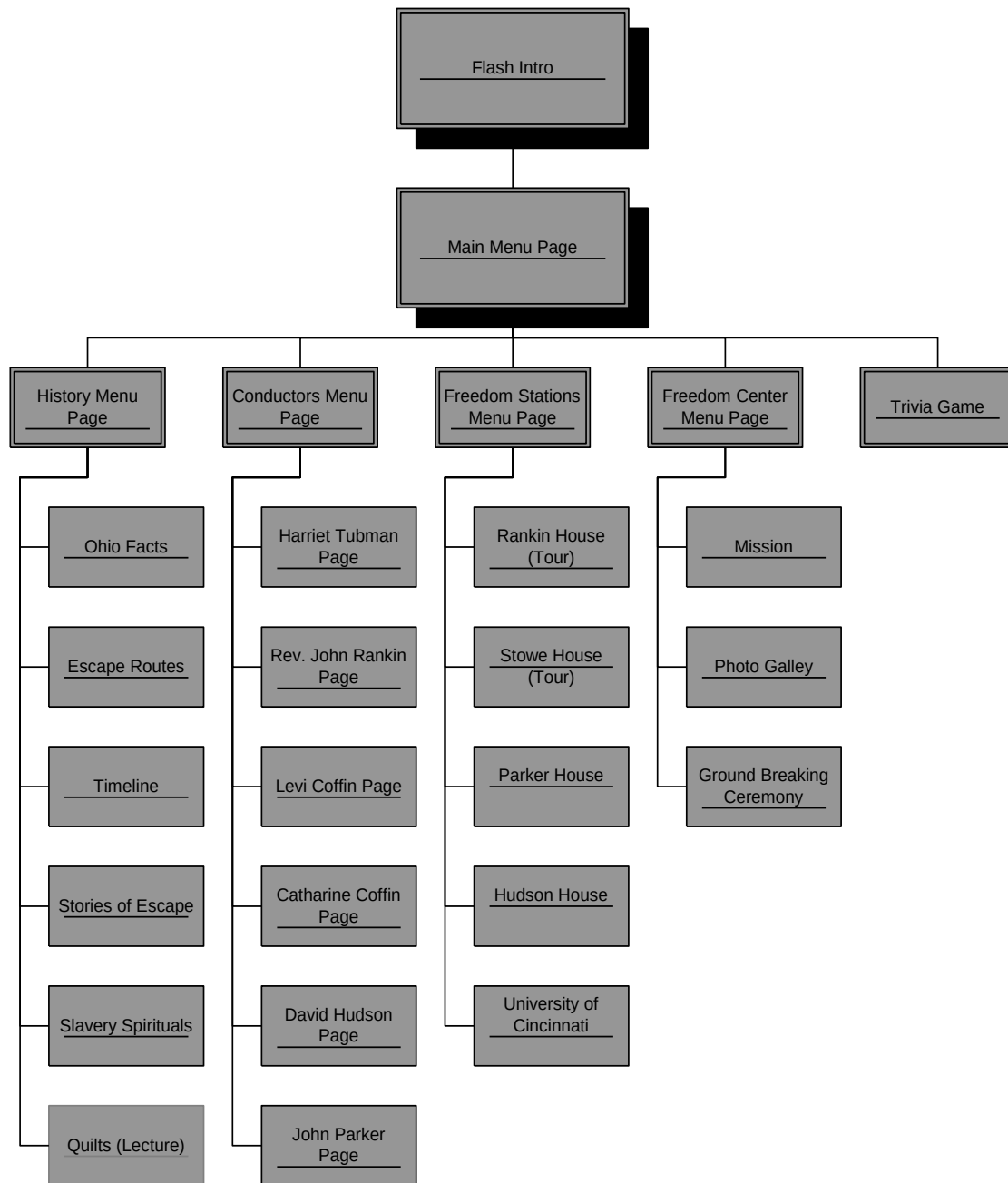


Figure 1. The Underground Railroad in Ohio Outline

2.1.1 Introduction Interface

When the user first inserts the CD the application will launch automatically. The first screen the user will see is a 30 second introduction. The introduction screen is a Macromedia Flash MX movie that consists of music and animated text. The main option allows the user to exit the introduction and navigates them to the main menu page.

Option	Icon	Icon Property	Description
Main	Text	Hot Object	Takes the user to the Main Menu Page
Glossary	Text	Hot Object	Opens up built-in Glossary Page.
Help	Text	Hot Object	Opens up built-in Help Page.
Exit	Text	Hot Object	Exits Application with Confirmation.
Mute Sound		Button	Mutes the sound playing in the application.

Figure 2. Introduction Description

2.1.2 Main Menu Interface

The main menu page includes animated buttons and hot objects that will navigate the user to submenus throughout the application. The buttons and hot objects are animated Flash movies. When the user moves the mouse pointer over the button or hot object the image will change in appearance. Figure 3. below gives a detailed description of the page's layout.

Object	Property
Background Color	Black
Font Size	24pt, 48pt, 72pt
Font Type	Book Antiqua
Font Color	Gold, White, Black
Menu Options	History, Conductor, Freedom Stations, Freedom Center, Trivia

Figure 3. Main Menu Description

The menu options allow the user to choose where in the application they would like to go. The main menu page is divided into the following five key menu options:

- History
- Conductors
- Freedom Stations
- Freedom Center
- Trivia.

Figure 4. shown below, illustrates the flow the main menu page.

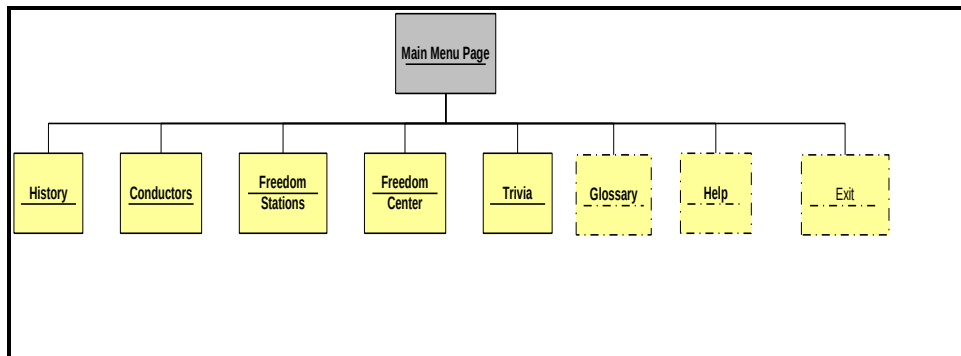


Figure 4. Main Menu Organizational Chart

Each menu option will navigate the user into the specific option's own menu page. For example, the history option will take the user to the history menu page. Figure 5. gives a breakdown of each menu option along with its corresponding functionality.

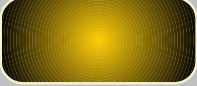
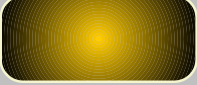
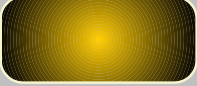
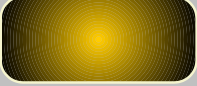
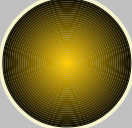
Main Menu Page Options	Icon	Icon Property	Description
History		Flash Button	Takes the user to the History of the Underground Railroad Menu Page.
Conductor's		Flash Button	Takes the user to the Conductor Menu Page.
Freedom Stations		Flash Button	Takes the user to the Freedom Station's Menu Page.
Freedom Center		Flash Button	Takes the user to the Freedom Center Menu Page.
Trivia		Flash Button	Opens up built-in Trivia game.

Figure 5. Breakdown of Main Menu Options

2.1.3 History Interface

The history of the Underground Railroad is a very broad subject. There is an abundance of information regarding this subject. For this reason, I divided the history section into six topics:

- Ohio Facts
- Slavery Timeline
- Routes
- Quilts
- Literature
- Spirituals.

These six topics represent menu options for the history menu page. Figure 6 below gives a detailed description of the page's layout.

Object	Property
Background Color	Black
Font Size	24pt, 14pt
Font Type	Book Antiqua
Font Color	Gold, White
Menu Options	Ohio Facts, Slavery Timeline, Routes, Quilts, Literature, Spirituals, Main, Glossary, Help, Exit

Figure 6. History Menu Page Description

An organizational chart of the history menu page is shown in Figure 7. This chart illustrates the flow of the history menu page.

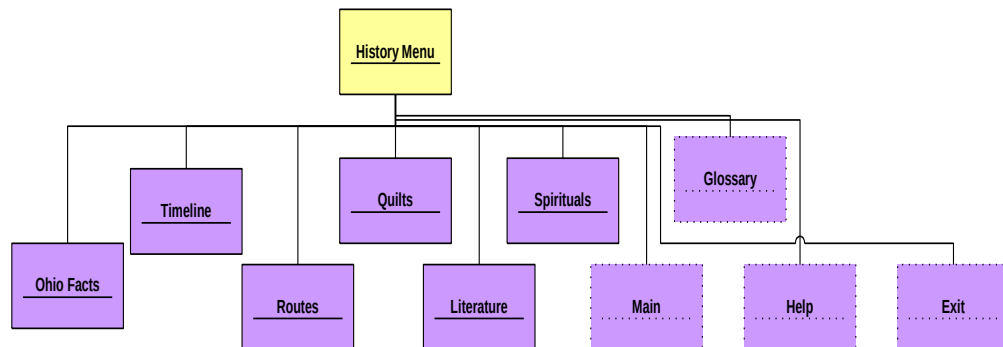


Figure 7. History Menu Page Organizational Chart

A general definition of the Underground Railroad is given on the history menu page. Each menu option will navigate the user into the specific topic's page. For example, the Ohio facts option will take the user to a sub page with information pertaining to the Underground Railroad in Ohio. The background and font for each new page will be similar to the history menu page layout. Figure 8. gives a breakdown of each menu option's description and functionality.

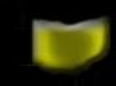
History Menu Page Options	Icon	Icon Property	Description
Ohio Facts		Hot Spot	Takes the user to the Ohio Facts Page.
Slavery Timeline		Hot Spot	Takes the user to the Timeline Page.
Routes		Hot Spot	Takes the user to the Routes Page.
Quilts		Hot Spot	Takes the user to the Quilt Page
Stories of Escape		Hot Spot	Takes the user to the Stories of Escape Page.
Spirituals		Hot Spot	Takes the user to the Songs Page

Figure 8. Breakdown of History Page Menu Options

2.1.4 Conductors Interface

As it is impossible to note every “conductor^A” of the Underground Railroad in this project, I have chosen to focus on the following six notable conductors, five of which operated in Ohio:

- Harriet Tubman
- Rev. John Rankin
- Levi Coffin
- Catharine Coffin
- David Hudson
- John P. Parker.

The six conductors represent menu options for the conductors' menu page. Figure 9. below gives a detailed description of the page's layout.

Object	Property
Background Color	Black
Font Size	24pt, 14pt
Font Type	Book Antiqua
Font Color	Gold, White
Menu Options	Rankin, Parker, L.Coffin, C.Coffin, Hudson, Tubman, Back, Main, Glossary, Help, Exit

Figure 9. Conductors Menu Page Description

An organizational chart of the conductors' menu page is shown in Figure 10. This chart represents the flow of the page.

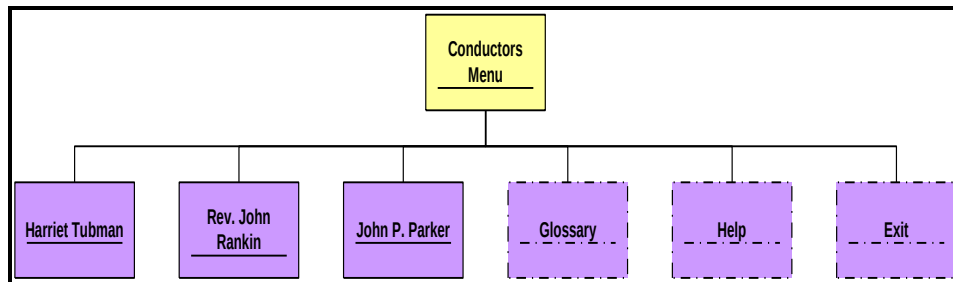


Figure 10. Conductors Menu Organizational Chart

A definition of conductors in the Underground Railroad is included in the conductors' menu page. From this page users will be able to choose from six conductors to learn about. Each menu option will navigate the user to a new page specific to that conductor. For example, the John Parker link will take the user to a sub page with information pertaining to John Parker and his contribution to the Underground Railroad. The background and font for each new page will be similar to the conductors' menu page

layout. Figure 11. gives a breakdown of each menu option's description and functionality.

Conductors menu page options	Icon	Icon Property	Description
Harriet Tubman		Hot Object	Navigates user to the Harriet Tubman page.
Rev. John Rankin		Hot Object	Navigates user to the John Rankin page.
Levi Coffin		Hot Object	Navigates user to the Levi Coffin page.
Catharine Coffin		Hot Object	Navigates user to the Catharine Coffin page.
David Hudson		Hot Object	Navigates user to the David Hudson page.
John P. Parker		Hot Object	Navigates user to the John Parker page.

Figure 11. Breakdown of Conductors' Page Menu Options

2.1.5 Freedom Stations Interface

This project focuses on four existing “stations^B” in Ohio along with one newly named freedom station. The following freedom stations are discussed in the CD:

- Rankin House
- Stowe House
- Parker House
- Benedict House
- University of Cincinnati

The five stations represent menu options for the freedom stations menu page. Figure 12. below gives a detailed description of the page’s layout.

Object	Property
Background Color	Dark Gray
Font Size	24pt, 14pt
Font Type	Book Antiqua
Font Color	Gold, White
Menu Options	Rankin House, Stowe House, Parker House, Benedict House, University of Cincinnati, Back

Figure 12. Freedom Stations Menu Description

An organizational chart of the freedom stations menu page is shown in Figure 13. This chart depicts the flow of the page.

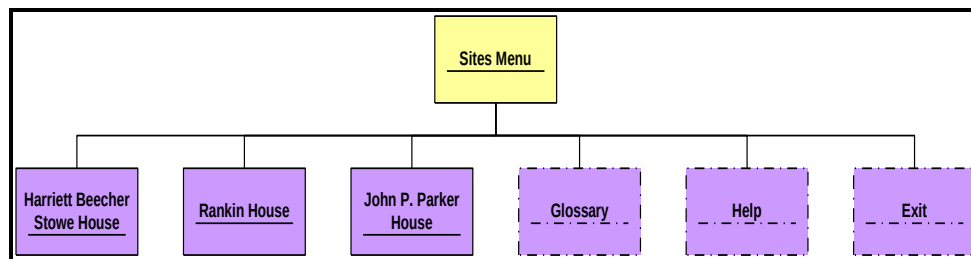


Figure 13. Freedom Stations Organizational Chart

A definition of freedom stations in the Underground Railroad is included on the freedom stations menu page. From this page users will be able to choose from five stations to learn about. Each menu option will navigate the user to a new page specific to that station. For example, the Parker House link will take the user to a sub page with information pertaining to the Parker House and the Underground Railroad. The background and font for each new page will be similar to the freedom stations menu page layout. Figure 14. gives a breakdown of each menu option's description and functionality.

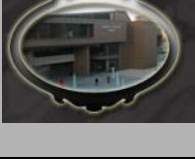
Freedom Stations menu page options	Icon	Icon Property	Description
Rankin House		Hot Object	Navigates user to the Rankin House page.
Stowe House		Hot Object	Navigates user to the Stowe House page.
Parker House		Hot Object	Navigates user to the Parker House page.
Benedict House		Hot Object	Navigates user to the Benedict House page.
University of Cincinnati		Hot Object	Navigates user to the University of Cincinnati page.

Figure 14. Breakdown of Freedom Stations Page Menu Options

2.1.6 Freedom Center Interface

The “Freedom Center ^C” menu page is divided into the following three menu options:

- Mission/Vision
- Photo Gallery
- Ground Breaking Ceremony.

Figure 15. below gives a detailed description of the page's layout.

Object	Property
Background Color	Gray, White
Font Size	24pt, 14pt
Font Type	Book Antiqua
Font Color	White, Black
Menu Options	Mission/Vision, Photo Gallery, Ground Breaking Ceremony

Figure 15. Freedom Center Menu Page Description

An organizational chart of the conductors' menu page is shown in Figure 16. This chart represents the flow of the page.

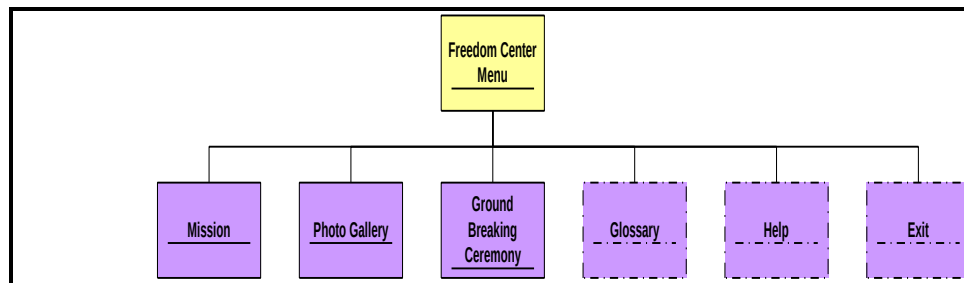


Figure 16. Freedom Center Organizational Chart

A general introduction to the National Underground Railroad Freedom Center is included on the Freedom Center's menu page. From this page users will be able to choose from the menu options mentioned previously. Each menu option will navigate the user to a new page specific to that option. For example, the ground breaking ceremony link will take the user to a new page with information pertaining to the Freedom Center's ground breaking ceremony. The background and font for each new page will be similar to the Freedom Center's menu page layout. Figure 17. gives a breakdown of each menu option's description and functionality.

Freedom Center menu page options	Icon	Icon Property	Description
Mission/Vision		Hot Object	Navigates user to the mission/vision page.
Photo Gallery		Hot Object	Navigates user to the photo gallery page.
Ground Breaking Ceremony		Hot Object	Navigates user to the ground breaking ceremony page.

Figure 17. Breakdown of Freedom Center Page Menu Options

3. Deliverables

The finished product is an interactive multimedia DVD-ROM w/information about the Underground Railroad in Ohio. The DVD was designed with the following multimedia tools:

- The CD's navigation was created with Macromedia Authorware. Authorware was used to create interactivity with the user throughout five key menu pages. Authorware was also used to import graphics, audio, video, and animation into the CD.
- Adobe Photoshop was used to edit, modify, and to create graphics. Each page throughout the CD is created in Photoshop.

- Macromedia Flash was used to create buttons and text animations throughout the application.
- Pinnacle Studio 8 was used to capture and edit video throughout the application.
- Adobe Premier was used to edit previously captured video.

4. Design and Development

The next sections describe the project's timeline and overall budget with hardware and software costs.

4.1 Timeline

Senior Design I Winter 2002

Weeks 1-5

- Research
- Began Writing Proposal

Weeks 6-10

- Research
- Final Draft of Proposal
- Presented Proposal (3/11/02)

Senior Design II Summer 2002

Weeks 1-5

- Research
- Attended Ground Breaking Ceremony for Freedom Center (6/17/02)
- Visited Harriet Beecher Stowe House
- Design Project Layout
- Set up Navigation in Authorware
- Design Main menu page

Weeks 6-10

- Visited Harriet Beecher Stowe House (photo, video)
- Write Design Freeze
- Video capturing and editing
- Create Swish Buttons

- Add Content into pages
- Present Prototype (8/19/02)

Co-op Fall 2002

- Research
- Visit Rankin House in Ripley, OH
- Visit John P. Parker House in Ripley, OH
- Visit Hubbard House in Ashtabula, OH
- Create Intro
- Add more content
- Complete Project Design (1/1/03)

Senior Design III Winter 2003

Weeks 1-5

- Test Project on multiple workstations
- Debug
- Test & Debug
- Final Paper

Weeks 6-10

- Publish to CD/DVD
- Test
- Final Paper Bound
- Present Final Project (3/03)

4.2 Budget

Item	Cost
Computer w/CD-RW Drive	\$1500.00
50 Blank CD-R's	\$26.95
Digital Camera	\$299.95
Camcorder	\$599.99
Macromedia Flash 5	\$399.99
Macromedia Authorware 6	\$2,699.00
Microsoft Office XP	\$479.99
Microsoft XP	\$300.00
DV.now AV by Dazzle w/ Adobe Premiere	\$469.95
Adobe Photoshop 7	\$609.00
Microsoft Visio	\$499.00
Swish	\$49.95
Pinnacle Studio 8	\$99.99
Total	\$8033.76

Figure 18. Project Budget

4.3 Testing

Testing of the DVD-ROM involved several steps. I developed the product on the Windows XP operating system. During the development process, I would burn a copy of the product daily, and then test it on multiple workstations running Windows 2000/XP. Not only was I testing for bugs, I was testing how the graphics displayed on different hardware and monitors. After this process was complete, I created an evaluation form for others to evaluate my project. I received a lot of positive feedback and helpful suggestions from the evaluation forms. Many people suggested that I show my project to the Freedom Center personnel. A copy of the evaluation form is included in the Appendix.

5. Proof of Design

The final finished product is a self-booting interactive multimedia DVD-ROM about the history of the Underground Railroad in Ohio. Macromedia Authorware was used to create the navigation throughout the application. Each graphical page throughout the application was created with Adobe Photoshop. Once the page was created I imported them into the Authorware application. Photoshop was also used to edit and modify photographs seen in the application.

During the prototype stage of development I used Swish to create animated buttons. I then converted the Swish files into Flash files. I chose this method because it was easy to learn during this time period. For the final product I discontinued using Swish and changed over to Macromedia Flash MX.

Macromedia Flash was used to create titles, buttons, introduction, conductor's section, and a scrollable timeline in the history section.

The trivia game was created with Authorware's built-in quiz functionality. Initially, the trivia game was going to be created with MS Access. After having difficulty with linking Access and Authorware, further research was conducted. My advisor and I found that the built-in quiz functionality of Authorware was a better solution.

The video footage seen throughout the application initially was captured with DV.now DV by Dazzle and edited with Adobe Premier. Both of the applications were available in Multimedia Services. This quarter the Student Technology Resource Center (STRC) located in Multimedia Services upgraded to new hardware and software. Because of this I migrated over to capturing and editing my video footage with Pinnacle Studio 8. Previously, captured video was taken into Premier for editing purposes.

6. Conclusions and Recommendations

I am overall satisfied with the outcome of this project. The entire project has been a great learning experience. Not only did I learn how to use new technologies, I learned a lot about the Underground Railroad. The development tools I used to create this project were not the easiest of programs to learn how to use. However, the programs I chose had many capabilities once I learned how to use them. Over time I became quite comfortable with using each program. Authorware, I had used previously in a Multimedia course but not at this level. If I were to recreate this project I would probably pick a more user friendly application for my navigation. Because I had many sections to this project sometimes I would get lost inside of my Authorware navigation piece. It is a very powerful application but it is easy to get lost inside all the navigation. Every other program used to develop this project was learned throughout the Senior Design sequence. The only trouble that I encountered was with the trivia game section. I found it difficult to connect MS Access to Authorware. After further research, my advisor and I decided that the built-in quiz in Authorware was a better solution.

During the proposal stages of my project I had no idea of the abundance of information pertaining to the Underground Railroad in Ohio. Over the past year I have noticed that the Underground Railroad is becoming a popular subject nationwide. This is probably due to the construction of the National Underground Railroad Freedom Center in Cincinnati, OH. If I could go back and re-propose my idea I would narrow the subject down into one specific area (location).

In the future I plan on continuing my research on the Underground Railroad. I plan to present my project to the National Underground Railroad Freedom Center. My

overall goal for this project is to establish a connection with the Freedom Center. I would like to one day see my project being put to use for its intended purpose, educating people on the importance of the Underground Railroad in Ohio.

Appendix A.

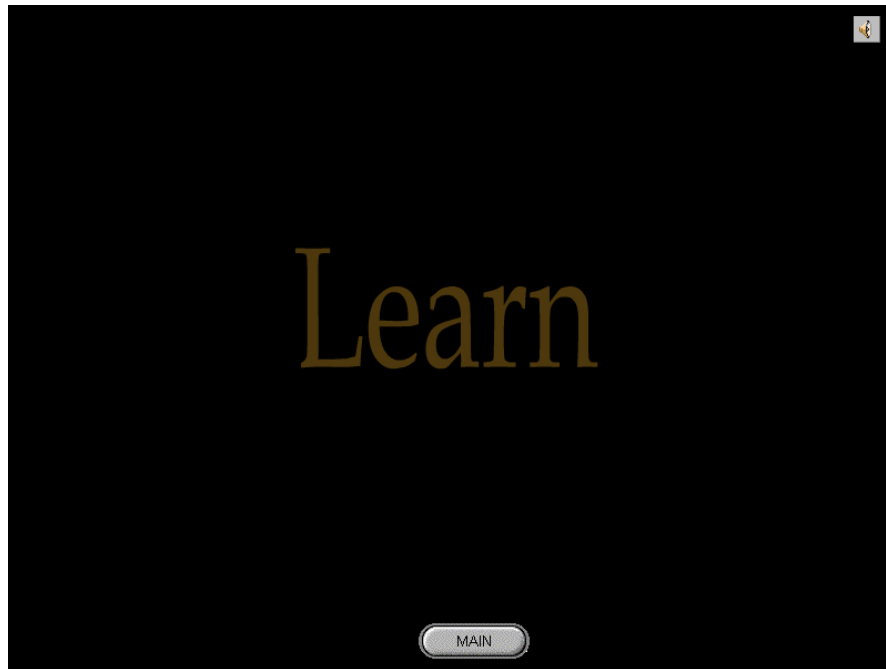


Figure 19. Introduction Interface



Figure 20. Main Menu Page Interface

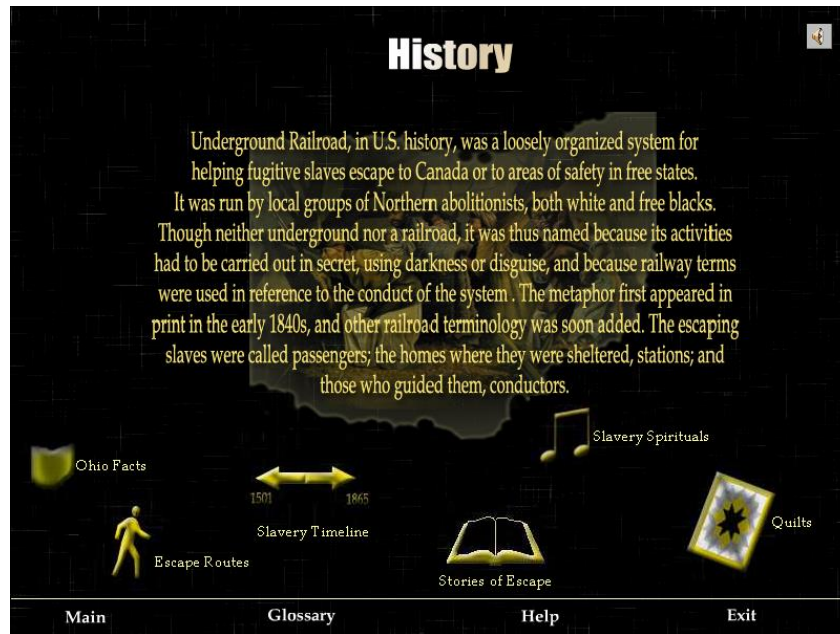


Figure 21. History Page Interface

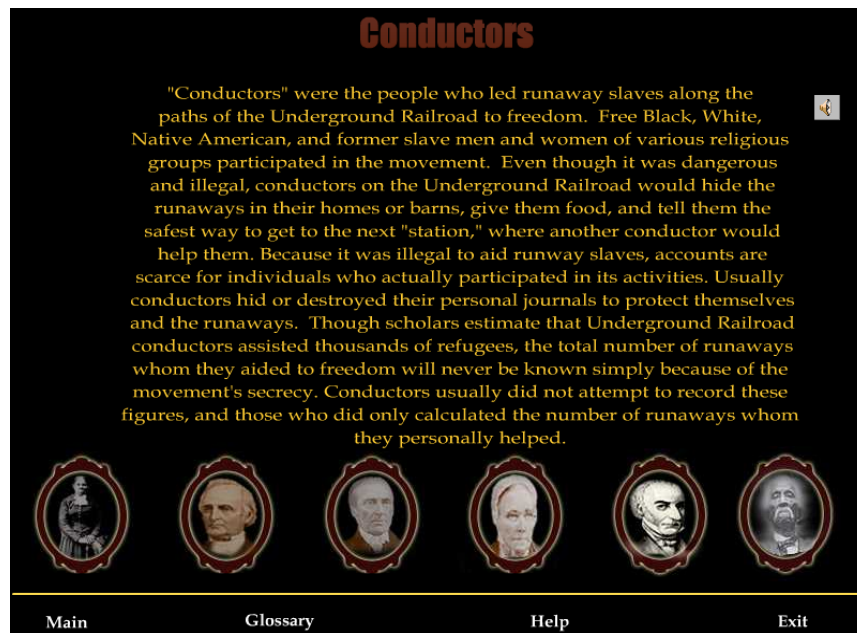


Figure 22. Conductor's Menu Page Interface

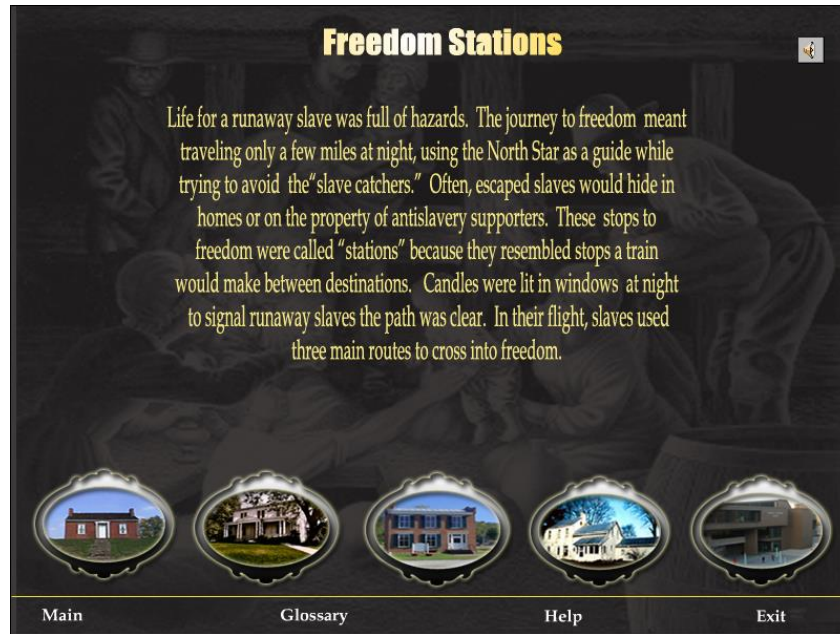


Figure 23. Freedom Stations Menu Page Interface

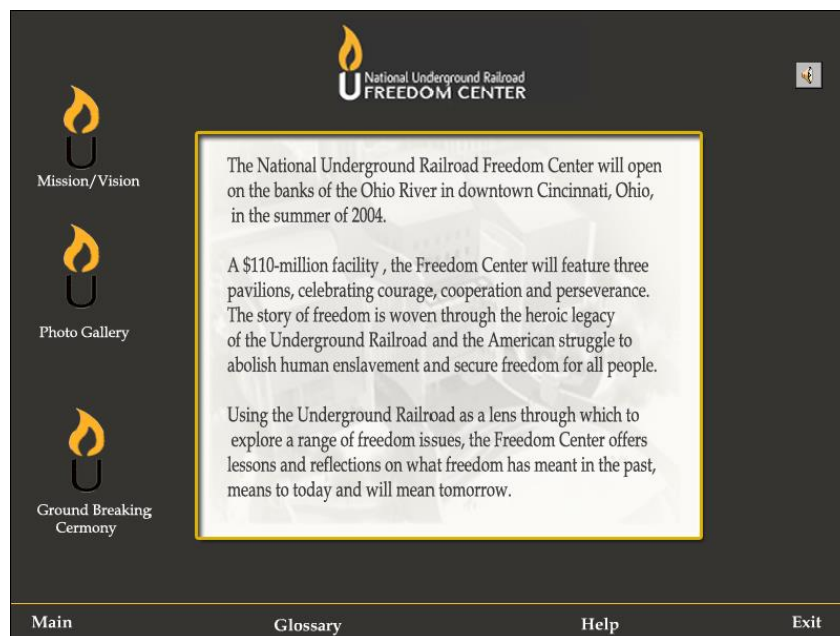


Figure 24. Freedom Center Menu Page Interface

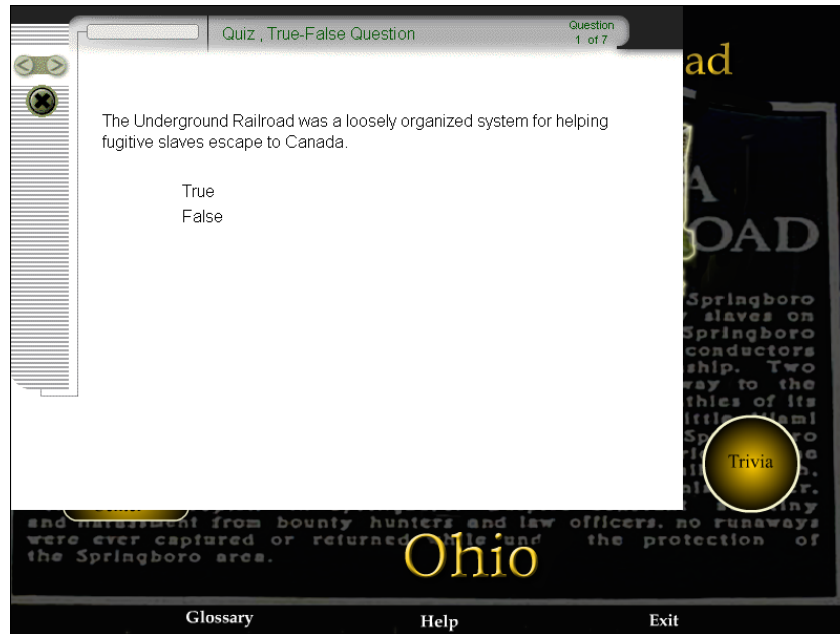


Figure 25. Trivia Game Interface

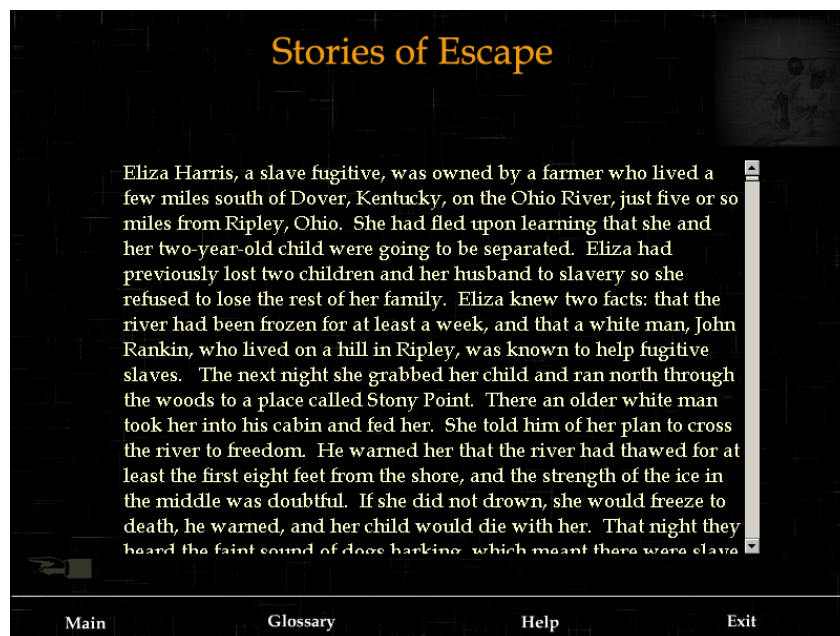


Figure 26. Stories of Escape Interface



Figure 27. Quilts Interface

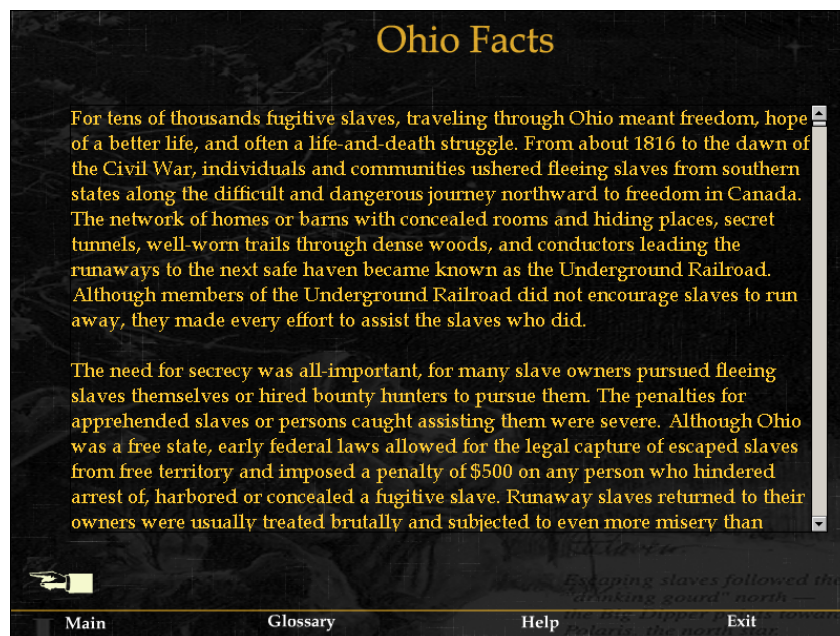


Figure 28. Ohio Facts Interface



Figure 29. Rankin House Virtual Tour Interface

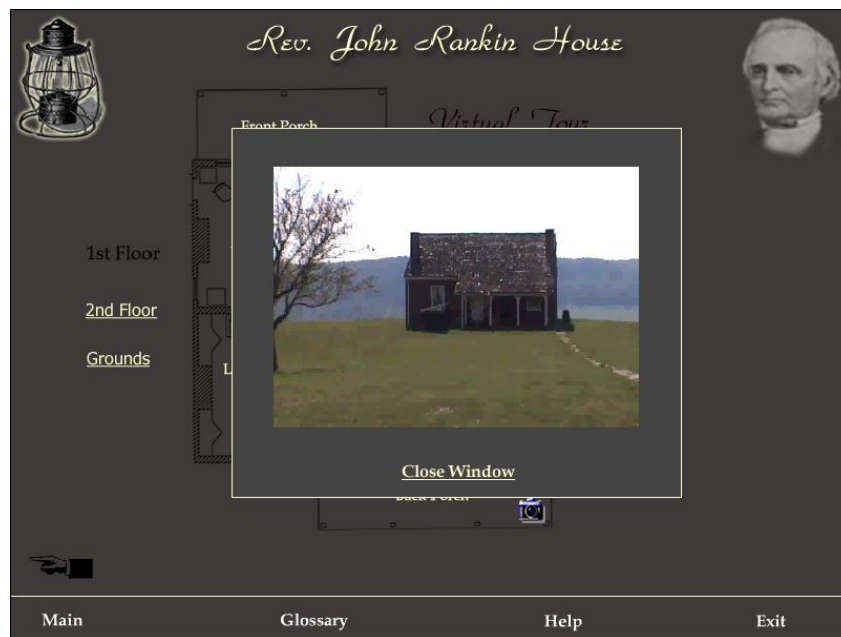


Figure 30. Rankin House Video Tour



Figure 31. Example Conductor's Page



Figure 32. Quilt Video Lecture

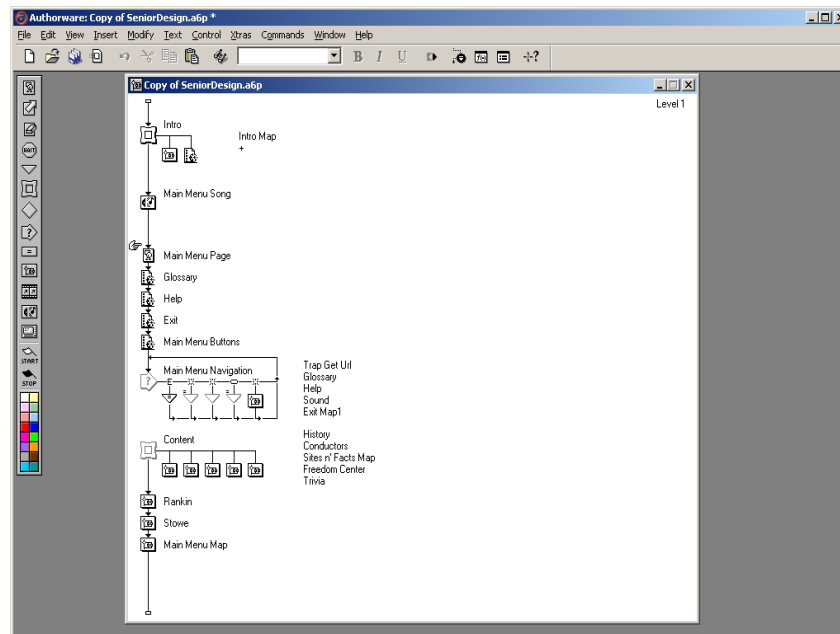


Figure 33. Authorware Map

The Underground Railroad in Ohio Questionnaire

Please take a moment to complete this evaluation form. Your comments are important to improve the product. Please complete the form at the end of the product overview. Your comments are appreciated.

- | | | | | |
|--|-----------|------|------|------|
| 1. Overall effectiveness of the program | Excellent | Good | Fair | Poor |
| 2. Program organization and execution | Excellent | Good | Fair | Poor |
| 3. Do you like the learning materials used in the program? | Excellent | Good | Fair | Poor |
| 4. How do you like the graphics, sounds, and text? | Excellent | Good | Fair | Poor |
| 5. How do you like the color scheme? | Excellent | Good | Fair | Poor |
| 6. General comments/suggestions: | | | | |

7. Features that would make the program better:

Beta Testing Form

Beta testing performed by:

Name:

Title:

Company:

Address:

E-mail address:

System Configuration:

Platform:

Clock speed:

Hard Disk Capacity:

RAM:

Operating System:

CD-ROM Speed:

Video RAM:

Overall Performance of the Product:

Bugs:

Notes

A. “Conductors” were the people who led runaway slaves along the paths of the Underground Railroad to freedom. There were hundreds of conductors who participated in the movement, many of which were located in Ohio.

B. Often, escaped slaves would hide in homes or on the property of antislavery supporters. These stops to freedom were called “stations” because they resembled stops a train would make between destinations. In all, nearly three thousand miles of routes criss-crossed the state of Ohio, most bound in a northeasterly direction, and at least 23 points of entry were established along the Ohio River.

C. “The National Underground Railroad Freedom Center” will open on the banks of the Ohio River in downtown Cincinnati, Ohio, in the summer of 2004. Because the Freedom Center will be in Ohio I have incorporated information about the organization into the CD. A \$110-million facility, the Freedom Center will feature three pavilions, celebrating courage, cooperation and perseverance. The story of freedom is woven through the heroic legacy of the Underground Railroad and the American struggle to abolish human enslavement and secure freedom for all people.

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