Proposal

Digital Media Capstone Project

In Partial Fulfillment of the Requirements for the

Master of Liberal Arts - Digital Media

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Erica Cinelli

DRAFT #3

Project Proposed Start and Completion Dates

November 2017 - April 2018

Anticipated Date of Graduation

May 2018

1. Project Title

Choice By Voice. Multiple-ending, voice-controlled interactive books

2. Abstract

Choice By Voice is a library (website) of multiple-ending interactive books that allows users to interact using voice commands. Based on the concept of the printed books *Choose Your Own Adventure*, this collection of online books let readers choose (or better, say) what direction the story should take. The reader assumes the role of the protagonist and makes choices that determine the main character's actions and the plot's outcome. These books will play out much like other online books, however at given moments throughout the narrative the reader will be able to select one of two scenarios, leading the story to 8 possible endings.

3. Project Description

3.1 Background

Books are fundamental to children's development. They are great assets that help develop language and listening skills, while stimulating imagination and expanding children's understanding of the world.

In a time where TV, computers, tablets and phones are all connected to the Internet, children are increasingly drawn to the immersive world of fast-moving youtube videos. The idea of developing *Choice By Voice* came from an effort to connect children back to the magical and wonderful world of books and still enable them to benefit from the wonders of technology.

How many times have kids watched a movie or read a book and wondered "What if this happened instead?" These online, multiple-ending books will offer just that - the opportunity for kids to actually be assertive instead of passive and decide for themselves. *Choice by Voice* books will be unique and fascinating.

3.2 Project Goals

There are two important goals with the development of this project:

1. To create an online library of interactive, multiple ending books to foster learning while encouraging children to make decisions;
2. And to make it accessible to all learners regardless of any visual, auditory, cognitive or motor impairment.

3.2.1 Social Aspect

So, how will *Choice By Voice* encourage children to learn and develop important skills such as decision making?

Users will be motivated to immerse themselves into the story and to think how their actions and decisions can interfere with the outcomes. By being fully involved with the story and controlling the character's actions, children will also learn about relationships and emotions, by relating the story to their own experiences. Consequently, the children will be able to recognize different situations and try different paths, preparing them to better understand their choices and deal with real life events.

3.2.2 Accessibility and inclusion

It is estimated that there are globally 253 million visually impaired people of all ages (World Health Organization) and 62,528 of those are students in the United States (National Federation of the Blind).

Currently, these users rely on the two most common types of assistive technology to access the web: *screen reader* and *refreshable braille display (a.k.a braille terminal). Screen readers* simply translate screen contents into synthetic speech

guiding the blind where they are on the page and speaking out texts or commands. *Refreshable braille displays* on the other hand are devices that can be attached by cable or connected wirelessly to the computer, translating the text on the screen to a braille display/keyboard.

Both of these tools require training and are very expensive. A refreshable braille display ranges from $5,500 to $11,000 and screen readers range from nearly $600 to $1100, as stated by the American Foundation for the Blind.

Choice By Voice eliminates the need to use *screen readers* or *refreshable braille displays*, although both can be used if desired. Once in the website *choicebyvoice.com* the user should be able to navigate completely by voice, choosing books, categories, pausing a story and closing the page. This will help visually impaired students to focus on the story, grammar and listening skills instead of focusing on the tools and technicalities of operating the program.

Recognizing the importance of making learning available to everyone, *Choice By Voice* will be of great value to the blind community, as it will empower them to independently navigate the books and website.

Reading a book will become an engaging and exciting journey for all.

3.3 Prior and existing work

Audio Books (https://www.audible.com and https://www.audiobooks.com)

There are a variety of audio books sites available in the web. For the purpose of this project, two were studied: audible.com and audiobooks.com. First, both require the download of a mobile app, not allowing the user to listen to books online. Second, none of the audio books researched offered a multiple ending feature.

Choose Your Own Adventure (https://www.cyoa.com/)

This is a series of printed books, tailored for children of different ages. These books are written from a second person point of view, so the reader assumes the protagonist role and decides the direction of the story. Although this collection of books contains illustrations and offers multiple endings to the reader, it lacks interactivity, audio narration and voice-controls to help with inclusion of visually impaired users.

In addition, Choose Your Own Adventure has a website with a list of all books, however they can only be purchased as printed paperback book, not allowing the user to read and interact online.
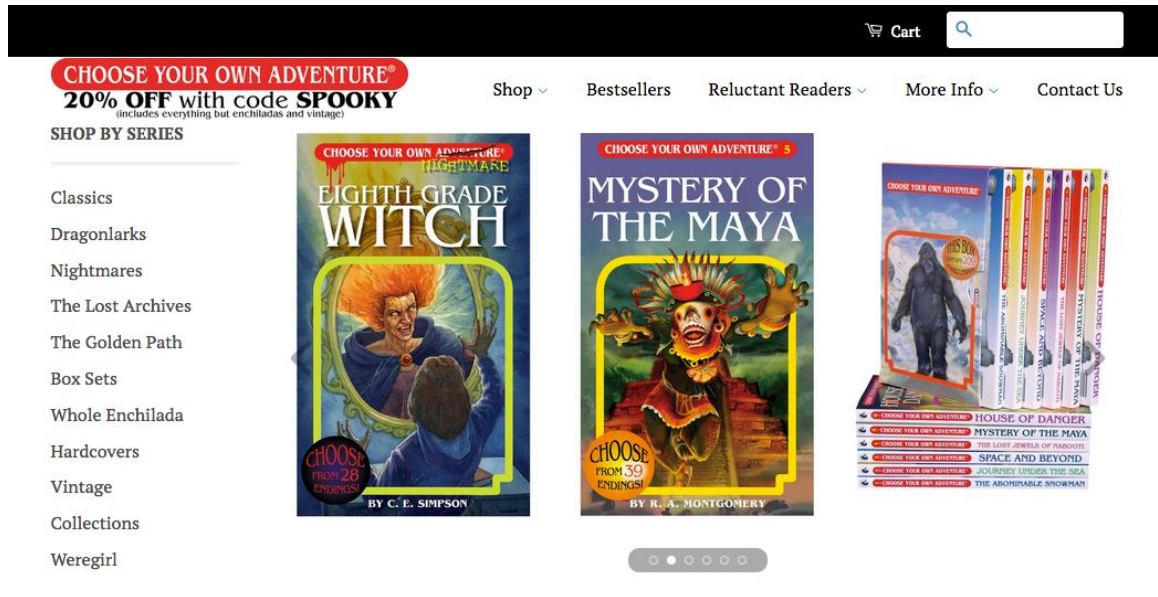
ChooseYourStory.com (http://chooseyourstory.com/)

This is a community-driven website (online library) that allows members to create what they call "storygames". These stories are multiple-ending books in digital format. Although these books are digital and somewhat interactive, they have no illustrations or audio narration, thus excluding visually impaired or literacy limited users.
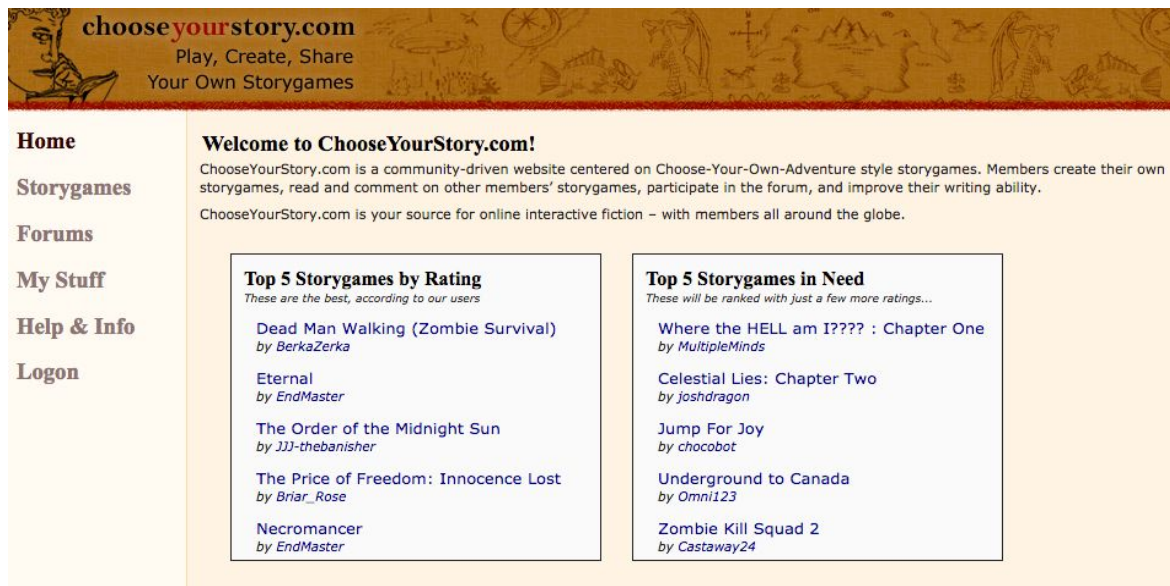
choose your story.com
Play, Create, Share
Your Own Storygames

Home

Storygames
  Random
  Search

Forums

My Stuff

Help & Info

Logon

4 Little Mice
a Everything Else by AppDude27 and TerrAquVen

Four little mice went to search for some cheese, one got trapped, and then there were three.

Three little mice were playing with glue, one got a little too sticky, and then there were two.

Two little mice were on the run. Kitty wouldn't play nice, so then there was one.

One little mouse left all alone. He choked himself, and then there were none.

4 Little Mice is a **Choose Your Own Adventure Poem** that I wrote over the course of several weeks. The story tells a tale of love, companionship, sacrifice, and more.

Storygame Features:

-Based on Agatha Christie's "And Then There Were None", but with a furry little twist!

-The butterfly effect has never been more important! Each and every choice you make could have drastic consequences!

-With over 10+ endings, you'll definitely be coming back for more.

Updates:
-Fixed a bug that brought certain mice back to life.
-Fixed a bug that prevented player from progressing. *(Special thanks to Will11 and Plaacchei.)*

Player Rating   6.27/8
"*#50 overall, #7 for 2015*"
based on 350 ratings since 04/24/2017
played 563 times (finished 56)

Story Difficulty   4/8
"*march in the swamp*"

Play Length   6/8
"*It'll be a while, better grab a Snickers®*"

Maturity Level   5/8
"*aren't you a little too old to be trick or treating*"
Some material may be inappropriate for persons under age 13. If this were a movie, it would probably be PG-13.

Tags
Animal Perspective
Drama

3.4 What is unique about Choice By Voice

Although some multiple-ending books (ChooseYourStory.com and Choose Your Own Adventure) already exist, voice command or inclusive access with easy of use are not current functionalities. *Choice By Voice* will encourage the inclusion of visually impaired users, as each story will be fully narrated by audio and will have the ability to be navigated by voice commands. It will also encourage speech-impaired users and literacy limited individuals by offering the option to navigate the book through mouse-clicks and by displaying subtitles/caption along with audio and illustrations at all times.

After all, this project is focused on offering a diverse array of elements to assist the understanding of the story by all individuals.

3.5 Technology

Choice By Voice will be a dynamic website, written in HTML5 (structure), CSS3 (look and feel), PHP, Javascript and jQuery (interactivity). It will be developed to be mainly used on a desktop environment, but will also be designed to be fully responsive on mobile devices, such as tablets and phones, enabling the application to be used at a larger variety of situations and locations.

In order to make the website responsive to different screen sizes, operating systems and browsers a few options for frameworks will be evaluated, such as Foundation, W3.CSS, and Bootstrap.

3.6 Voice Recognition

The voice recognition feature will be essential for people with disabilities, and it will also be fun and useful for all other users.

Bing Speech API will be used for this project to enable the voice controls, as it enables voice to be converted to text and text to be converted to voice. It is also supported in both Chrome and Firefox browsers, giving the project more possibilities for its usage in libraries, schools, or homes. With these in mind, Bing Speech API will be used for voice-commands (voice-recognition) as well as text captions and audio narration of the stories.

During the research phase, a few APIs were considered, tested and evaluated. The APIs considered were:

- Bing Speech API
  https://azure.microsoft.com/en-us/services/cognitive-services/speech/

- Web Speech API
  https://developer.mozilla.org/en-US/docs/Web/API/Web_Speech_API

- Cloud Speech API
  https://cloud.google.com/speech/

- Annyang
  https://www.talater.com/annyang/

- Dictation
  https://dictation.io/

- Pocketsphinx.js
  https://syl22-00.github.io/pocketsphinx.js/

4. Project Evaluation

Choice By Voice will be an entertaining and educational tool. It is intended to educate but also provide enjoyment to users.

5. Tentative Schedule

FALL-WINTER 2017:

    A. COMPLETED
        a. Define name
        b. Purchase domain name
        c. Create logo
    B. NOT STARTED
        a. Begin initial drafts and layout prototyping.
        b. Acquire partnership with one local authors to write at least one multiple-ending book. If no author partnership, use a placeholder story.

SPRING 2018:

    A. Design website template
    B. Illustrate one story/book
    C. Code and implement interactivity
    D. Launch of prototype
    E. User testing
    F. Revision and debugging
    G. Launch completed project

6. References

Screen Reading Technology and Refreshable Braille Displays. (2015). Retrieved from http://www.afb.org/info/living-with-vision-loss/using-technology/assistive-technology-videos/screen-reading-technology/1235

Vision impairment and blindness. (2017, October). Retrieved from http://www.who.int/blindness/publications/globaldata/en/

Statistical facts about Blindness in the United States. (2017, September). Retrieved from https://nfb.org/blindness-statistics

Accessibility News: The Section 508 Update. (2017, November 11). Retrieved from https://www.section508.gov/node/493