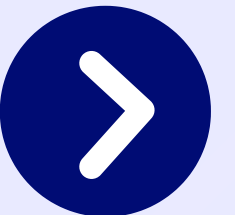


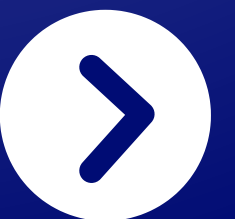
EyeBrowse

See The Web Your Way



Problem

In an increasingly technological world, companies are determined to continue breaking ground and continue developing. However, many of them exclude users that cannot currently make the most of their product. Some of these users include people with color blindness, bad vision, dyslexia, and older users. Before we continue developing, we should make our platforms, specifically browsing, more inclusive to all users.



Primary Research

Interview Questions

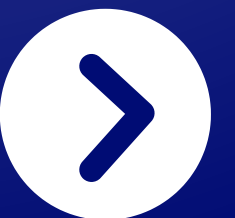
- What relationship do you have with colorblindness or bad vision, if any?
- What do you feel like the screen experience lacks for those who are colorblind?
- What do you feel like the screen experience lacks for those who have bad vision?
- How often and to what extent do you feel your relationship with colorblindness or bad vision affects your screen experience?
- What do you feel like is a potential solution to this problem?/What would you like to see in a solution?



Primary Research

Articles

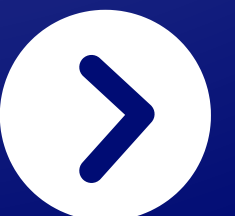
- <https://reciteme.com/us/news/blind-accessibility/>
- <https://accessiblyapp.com/blog/visually-impaired-accessibility/>
- <https://business.scope.org.uk/10-ways-to-make-your-content-accessible/>



Primary Research

Subject Matter Experts

- Nabeel Gillani, Northeastern CAMD professor and mentor for this project
- Azim Keshwani, person with colorblindness
- Serena Ranmal, Occupational Therapy professional who has worked with low vision patients
- Salima Thanawala, Ophthalmologist
- Kais Karowadia, Medical School Resident with specialization in eyes



Secondary Research

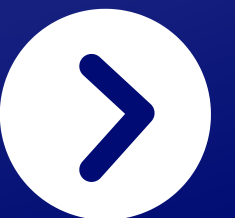
Presentation from Manasi Vaidya (she/her)

User Experience Researcher

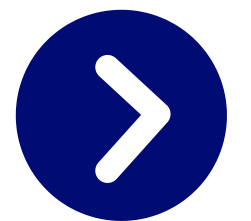
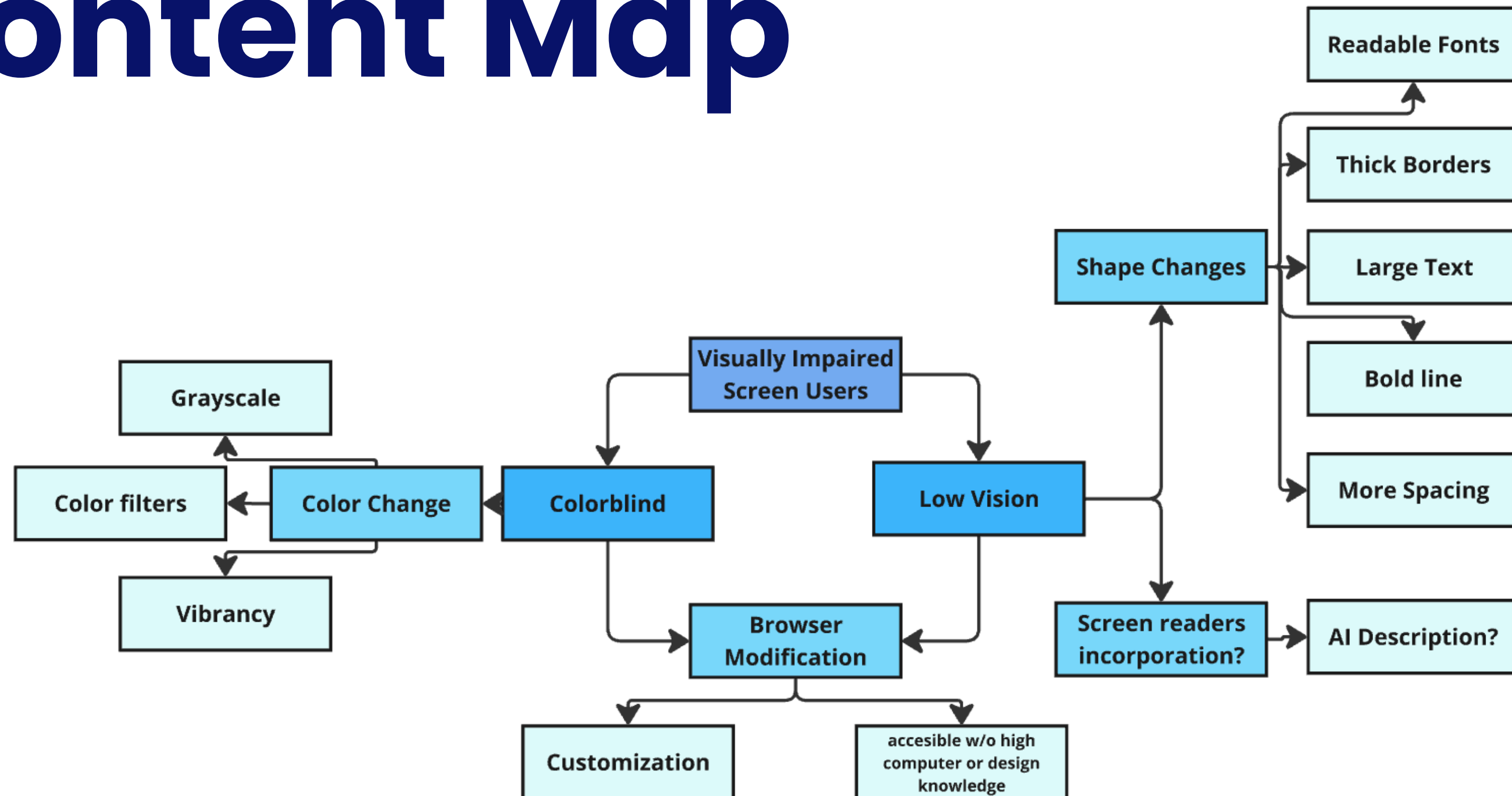
@ The MathWorks Inc

Major Takeaways:

- Tech designers often forget about those who are not fully abled (like older users and screen moisture)
- Simulated various vision impairments (blurry vision, cataracts, yellow vision/colorblindness)



Content Map



Audience

Primary Audience:

Individuals with visual impairments
(Colorblind individuals, low-vision
users, users with contrast
sensitivity, etc...)

Secondary Audience:

Web designers, family
members, accessibility
advocates, and educators.



How Might We...

Design a browsing tool that adapts to diverse visual impairments, offering personalized accessibility?

Improve the screen experience to ensure that eyesight is not crucial to its efficiency and experience?

Build an intuitive, inclusive tool that empowers users to navigate the web independently?

Inspire and educate developers to be more inclusive in their design from the start?



Abstract

Eyebrowse is a Chrome extension designed to make the web accessible to individuals with a wide range of visual impairments. Whether addressing colorblindness, low vision, or contrast sensitivity, Eyebrowse empowers users to personalize their browsing experience through features like color filters & adjustments, text magnification & readable fonts, high contrast & background changes, navigation enhancements (focus mode, clutter reduction) and voice & screen reader integration. Built with user-centric design principles, the extension ensures intuitive navigation and real-time customization, allowing individuals to access and interact with digital content effortlessly.



Initial Popup Design

Intentionally simple design

EyeBrowse English

Press this button to have the screen read aloud to you

Press this button to use your voice to set up EyeBrowse

Type of Colorblindness

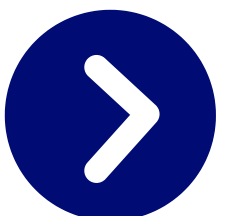
How would you describe your vision?

Clear Blind

You Have:

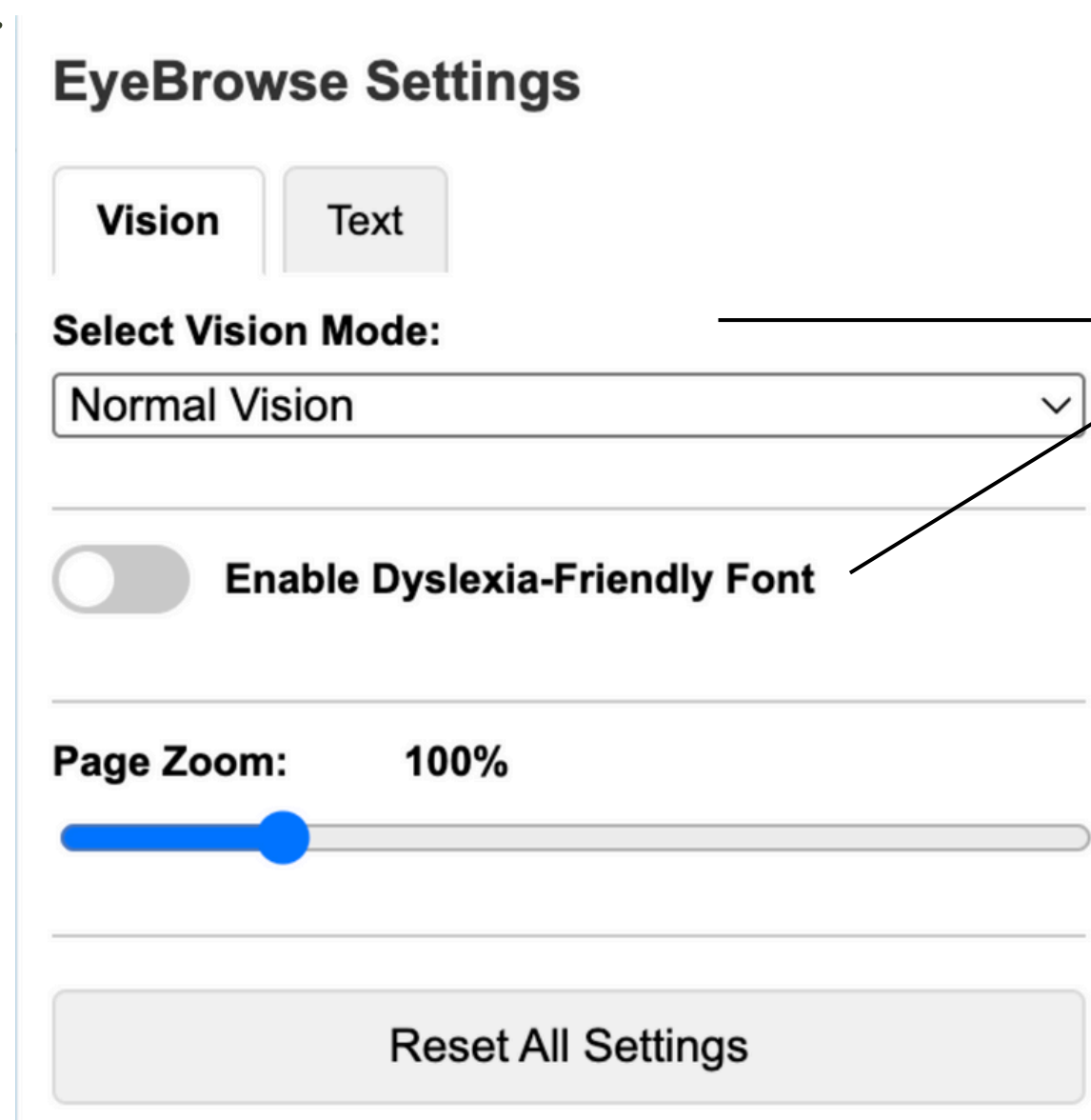
- Dyslexia
- Astigmatism
- Photophobia

Non-technical language



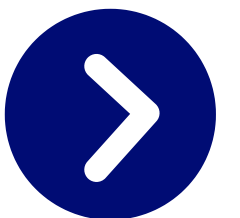
Popup Prototype

Simple design, but
lacking UI refinement



The screenshot shows a settings popup titled "EyeBrowse Settings". It features two tabs: "Vision" (active) and "Text". Under "Vision", there is a "Select Vision Mode:" label above a dropdown menu currently set to "Normal Vision". Below this is a toggle switch for "Enable Dyslexia-Friendly Font", which is currently turned off. Further down is a "Page Zoom:" label with "100%" displayed next to a horizontal slider bar. At the bottom of the popup is a "Reset All Settings" button.

Non-technical
language



EyeBrowse

EyeBrowse

Demo Video



Key Points

The goal here was to use language that does not make users feel excluded, and as little technical language as possible

Design is intentionally kept minimal and simple, to be consistent with goal of including all

Setup is designed to only be needed once. Can be customized later, but does not have to be

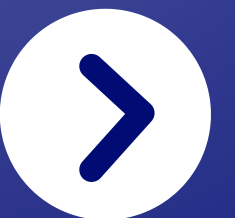


For Developers...

One priority of ours was to use this product to inspire developers to make their products from the beginning. The next few slides will show what we include in our extension's listing on the Chrome Web Store, specifically for developers

If you are a developer, you should consider users that:

- are colorblind
- have poor vision
- have dyslexia
- are older in age
- are less experienced with technology (may not be able to intuitively navigate a screen)



For Developers...

How to design for screen accessibility:

Web accessibility ensures that everyone, including people with disabilities, can perceive, understand, navigate, and interact with your website or application. As developers, small choices we make can have a huge impact. Here are some essential practices to help you build more inclusive experiences:

Follow WCAG Guidelines:

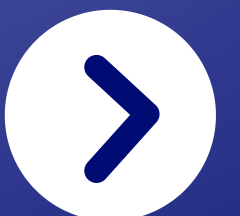
- The [Web Content Accessibility Guidelines \(WCAG\)](#) are the global standard for web accessibility. They outline principles to make content perceivable, operable, understandable, and robust (POUR). Aim for at least WCAG 2.1 AA compliance — it covers core areas like text readability, keyboard navigation, and screen reader support.

Use Semantic HTML:

- Tags like `<button>`, `<nav>`, `<header>`, and `<article>` give structure and meaning to content, making it easier for assistive technologies to interpret.

Ensure Proper Color Contrast:

- Make sure text is readable against its background, especially for users with color blindness or low vision. Tools like WebAIM's Contrast Checker can help.



For Developers...

Don't Rely on Color Alone:

- Use labels, icons, or patterns in addition to color to convey information – for example, showing a checkmark and not just a green color to indicate success.

Support Keyboard Navigation:

- All interactive elements should be reachable and usable via keyboard alone. Test your site by navigating with Tab, Enter, and Arrow keys.

Provide Text Alternatives:

- Include descriptive alt attributes for images, transcripts for audio, and captions for video content.

Readable Fonts & Adjustable Text:

- Use clear, legible fonts and allow users to resize text without breaking your layout.

Test with Assistive Tools:

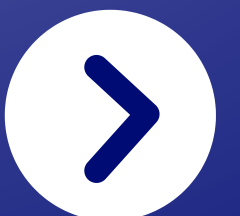
- Try screen readers (like NVDA, VoiceOver, or JAWS) and other accessibility tools to experience your site from different perspectives.



Next Steps

In the future, we would love for EyeBrowse to transition into a “Guide to Designing Accessible Screens”. While we are very proud of our work, we would love to live in a world where it is not needed. Thus, we would love to conduct and present more research on how developers can make their screen-based products more inclusive.

If we were to improve on our current design, we would love to enable voice control, for users to be able to describe what they would like to do and have their browsers execute it. We would also want to do more thorough user testing on our entire product, but specifically the screen-reader and keyboard shortcuts functionalities. Lastly, we would want to include an option for alt text instead of images to be displayed, for users that are not as friendly towards images.



Thank you!

-The EyeBrowse Team

