

AccesAI

AI-Powered

Accessibility

Enhancement

AI, Computer Vision, Web/App Development, Web Scraping

Team AG64

PROBLEM STATEMENT OVERVIEW

The Importance of Accessibility: Accessibility is essential to ensure equal access and opportunities for people with disabilities in the digital space.

Common Issues: Many websites fail to meet accessibility standards, causing challenges for users with disabilities.

- Images lacking descriptive alt text.
- Poor color contrast between text and background, reducing readability.
- Inadequate or missing labels for form fields and interactive elements.
- Navigation difficulties for keyboard-only users.

Impact: These issues hinder the ability of users with disabilities to effectively navigate and engage with digital content, limiting inclusivity and user experience.

AccesAI is designed to bridge the accessibility gap by automating the detection and resolution of web accessibility issues.

Identify and highlight accessibility issues in website elements, including labels, images, and color contrast.

Automatically generate solutions, such as adding alt texts, improving contrast ratios, and enhancing form labels.

Provide seamless integration with existing websites, effortless compliance with accessibility standards.

Deliver a superior user experience for individuals with disabilities.

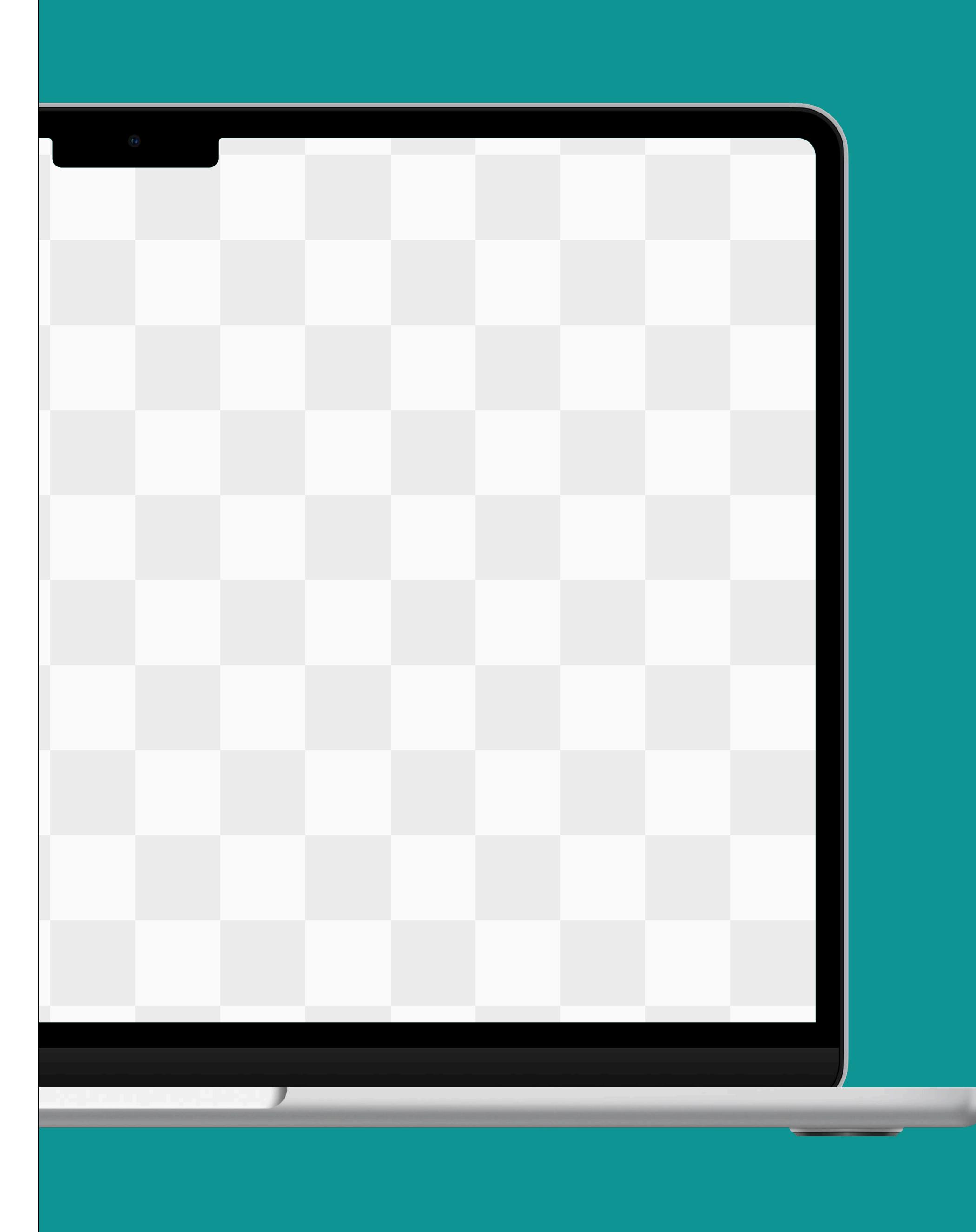
PROPOSED SOLUTION

AccessAI Web Extension

Provides real-time analysis of web pages directly within the browser.

Flags accessibility issues like missing alt text, poor color contrast, and inadequate labels as users navigate websites.

Offers instant suggestions and fixes that can be applied seamlessly.



MODULES AND CORE FUNCTIONALITIES

Web Extension

This module is the user-facing component of the system. It is developed using web technologies. The user interface is designed with AccessAI, featuring a prominent 'Start Analyzing' button. When clicked, the pally library initiates the site scraping process.

pally library

The library is utilized for scraping the website. Subsequently, it meticulously analyzes the scraped HTML and CSS of the website. The process involves verifying compliance with all the standards outlined in the Web Content Accessibility Guidelines (WCAG) 2.1. In case of any violations, it triggers a request to the Gemini API to generate accessible HTML and CSS content.

Gemini API

The initial step involves creating sophisticated HTML and CSS based on the precise pally library instructions that adhere to WCAG Guidelines. Subsequently, the Gemini model evaluates the input, suggesting enhancements such as increased contrast, addition of missing alt text, inclusion of absent labels, and adjustments to font sizes to boost accessibility. Ultimately, the revised code is returned to the web extension for integration.

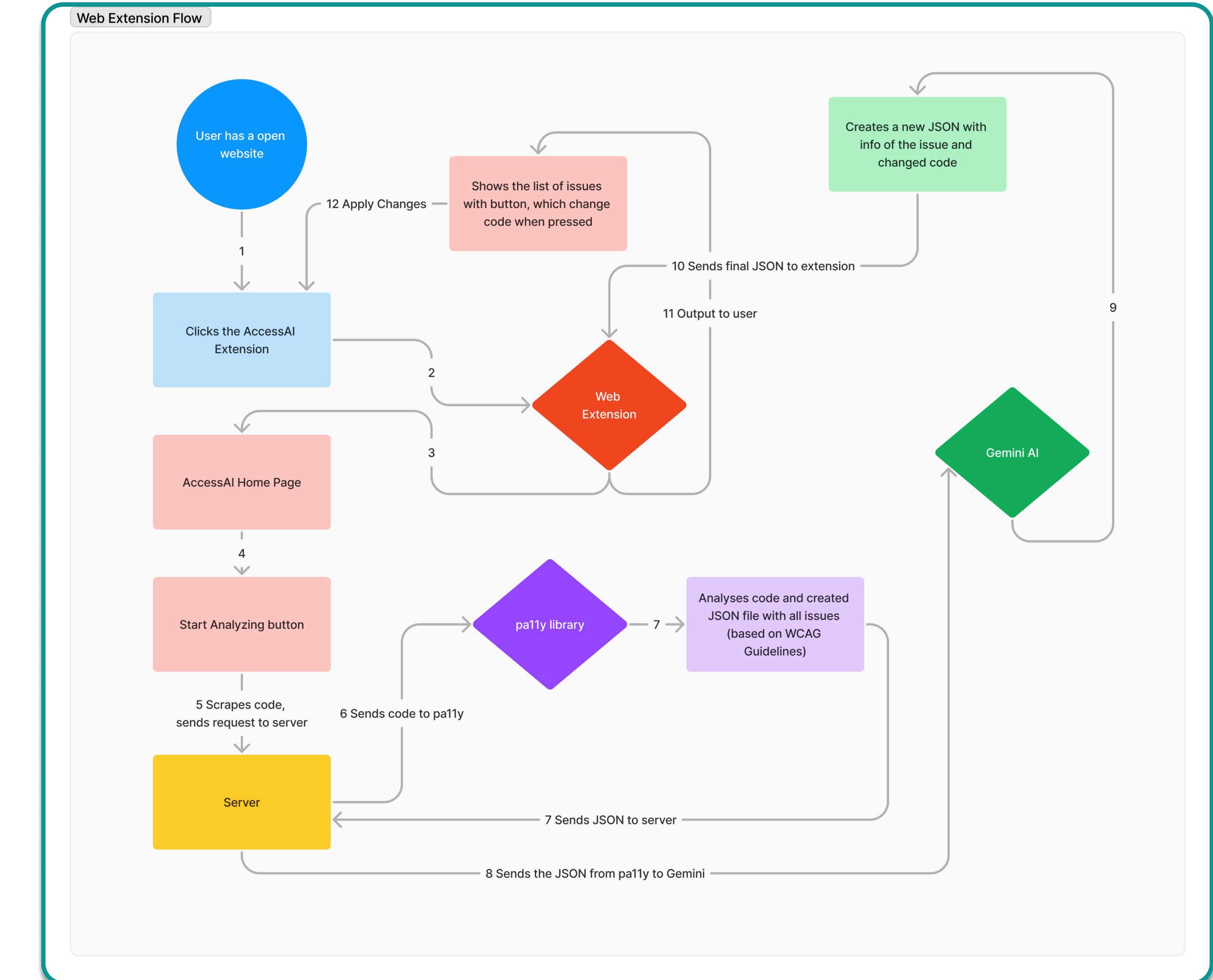
SOLUTION ARCHITECTURE

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Workflow overview in our software

Takes HTML & CSS from the website to server, which transfers it to pa11y library. pa11y analyses the code and finds issues with accessibility, and sends a JSON of issues to server and from there to Gemini AI. Gemini understands the code and creates final JSON of issues and improved code, which are used by the extension to implement the required changes.



WCAG 2.1

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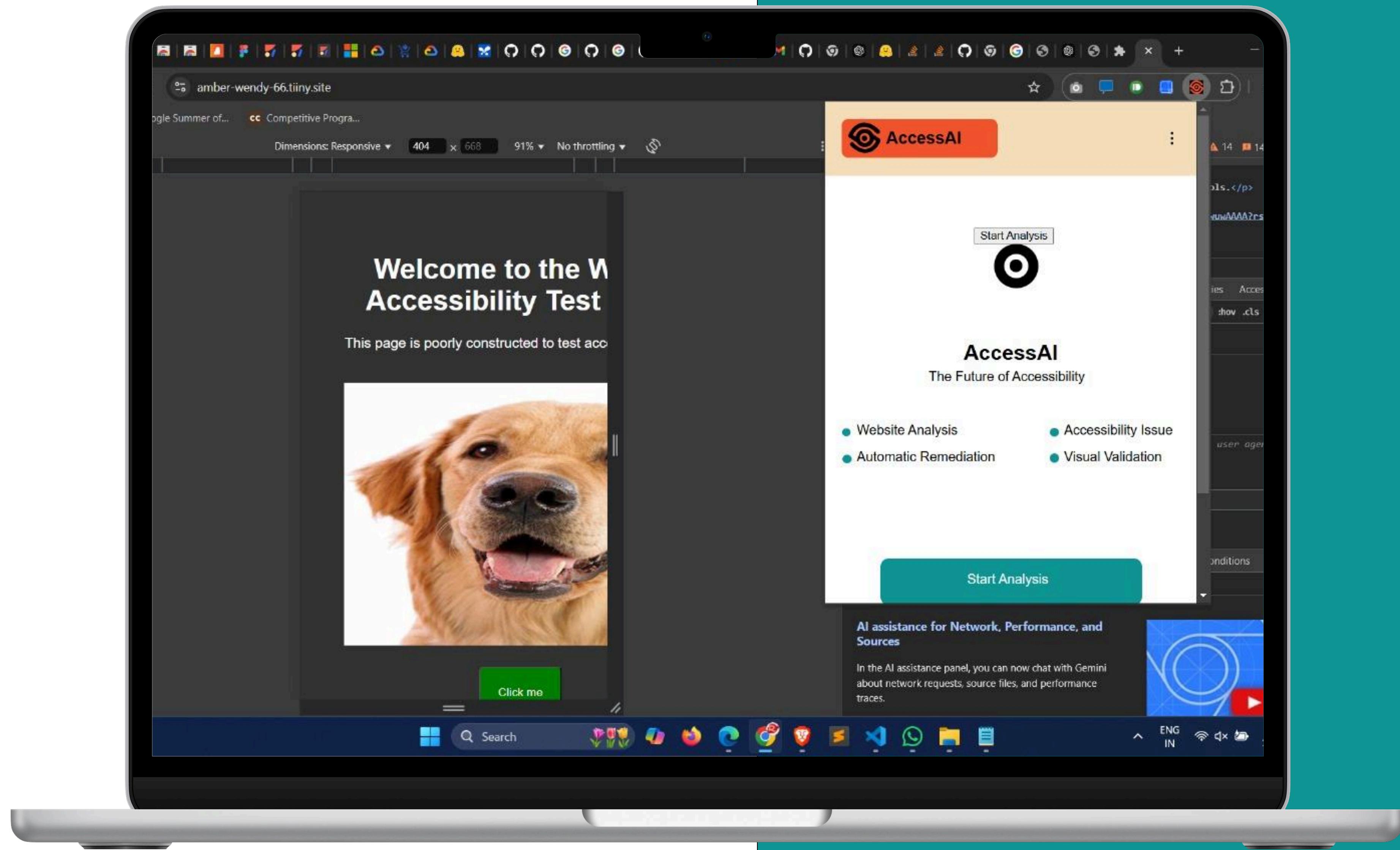
Example:

- The visual presentation of text and images of text has a contrast ratio of at least 4.5:1
- Large-scale text and images of large-scale text have a contrast ratio of at least 4.5:1

SNAPSHOTS OF THE SOFTWARE

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CONCLUSION

Why Accessibility Matters:

The digital world should be inclusive, enabling everyone to navigate and benefit from it, regardless of abilities.

How AccesAI Makes a Difference:

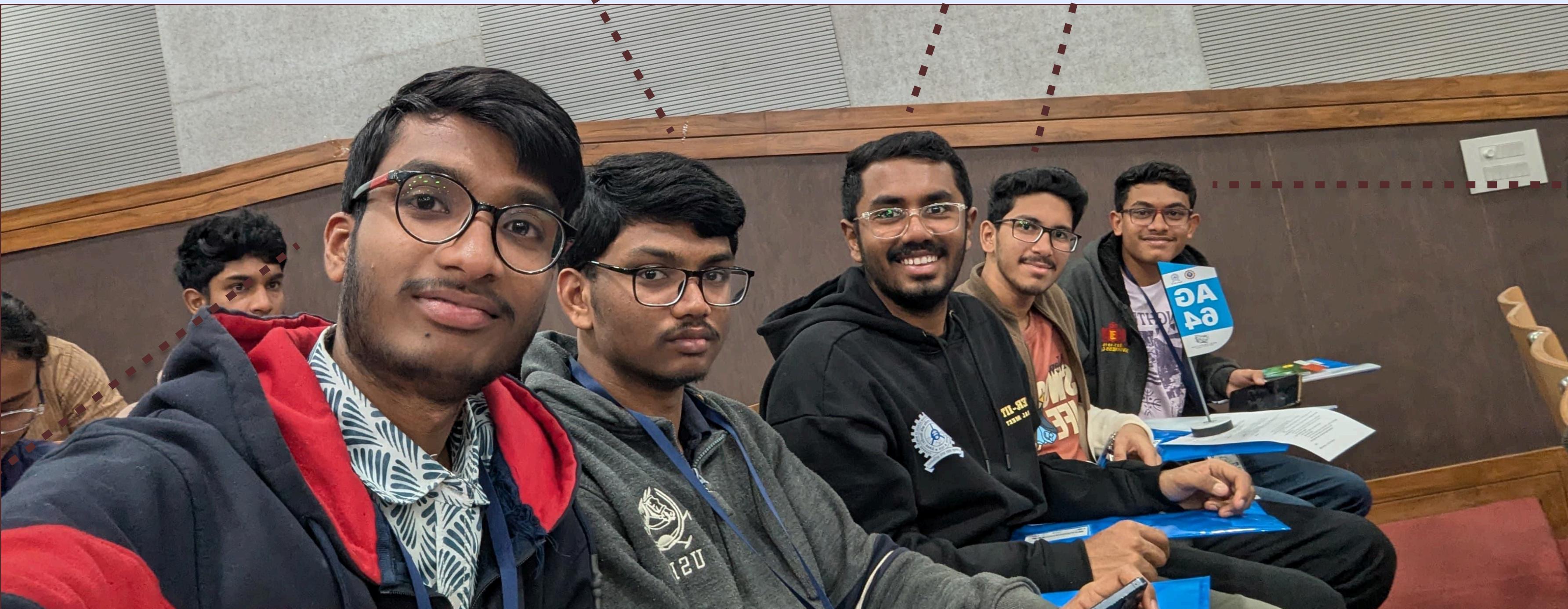
By leveraging AI and cutting-edge technology, AccesAI simplifies the process of identifying and resolving accessibility issues, ensuring that websites are not only compliant with standards but also provide an optimal user experience for individuals with disabilities.

Transforming the Web, One Fix at a Time

MEET THE TEAM

Team202

AGGLOMERATION 1.0



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Backend Developer

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UI/UX Designer

Thank You.