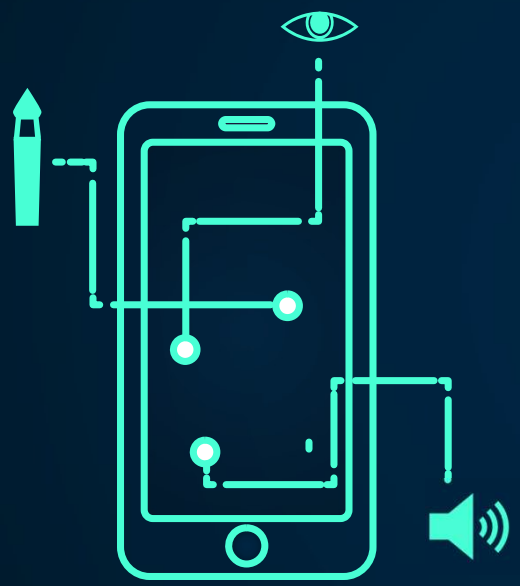
AccesAI

AI-Powered Accessibility Enhancement

Team Name- Cache Me If You Can
Team Code- AG02



ABOUT THE PROJECT

- Accessibility challenges hinder users with disabilities from navigating websites efficiently.
- Issues include:
  - Missing alt texts for images.
  - Unclear labels for form elements.
  - Poor color contrast.
  - Lack of keyboard navigation support.
  - Missing ARIA(Accessible Rich Internet Applications)attributes.
- These barriers create an unequal digital experience for individuals with visual and motor impairments.

Key Features

Accessibility Issue Detection

- Missing alt texts.
- Labeling gaps in forms.
- Color contrast analysis.
- Keyboard navigation checks.
- ARIA attribute analysis.

Automatic Remediation

- Generate improved HTML/CSS for accessibility.
- Provide descriptive alt texts.
- Enhance form labels and contrast ratios.
- Add ARIA attributes for screen readers.
- Improve keyboard navigation structure.

Visual Validation

- Compare original and improved website screenshots.
- Ensure accessibility changes align with design aesthetics.

Technical Approach

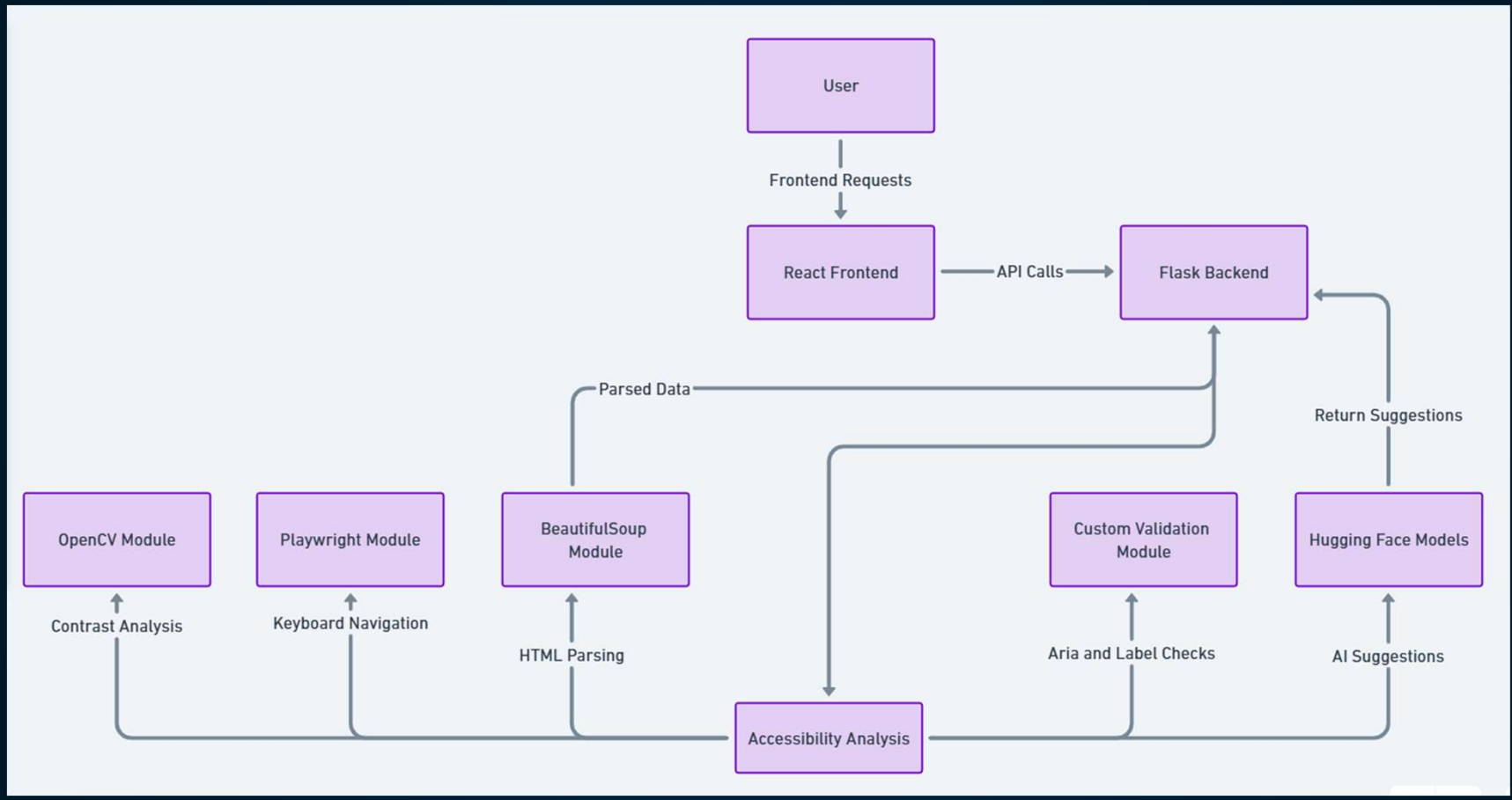
Frontend- React
Backend- Flask
Languages- Python, Javascript
Modules/Tools- Hugging Face, BeautifulSoup, Playwright, OpenCV

1.Web Scraping and Parsing:
- Tools: BeautifulSoup, Playwright
- Extracted and evaluated HTML/CSS structures.

2.Feature Implementation:
- Hugging face Model: Analysed images and detected missing alt texts.
- Text Analysis: Assessed labels and content clarity.
- Contrast Ratio Calculations: Ensured WCAG compliance.
- Keyboard Navigation Analysis: Verified tab order and focus-ability, and improved the same
- ARIA Checker: Detected missing or misused ARIA attributes.

3.Validation:
- Utilized OpenCV for screenshot comparisons.

System Architecture



Future Prospects

Add navigation analysis for dynamic content and interactive elements.

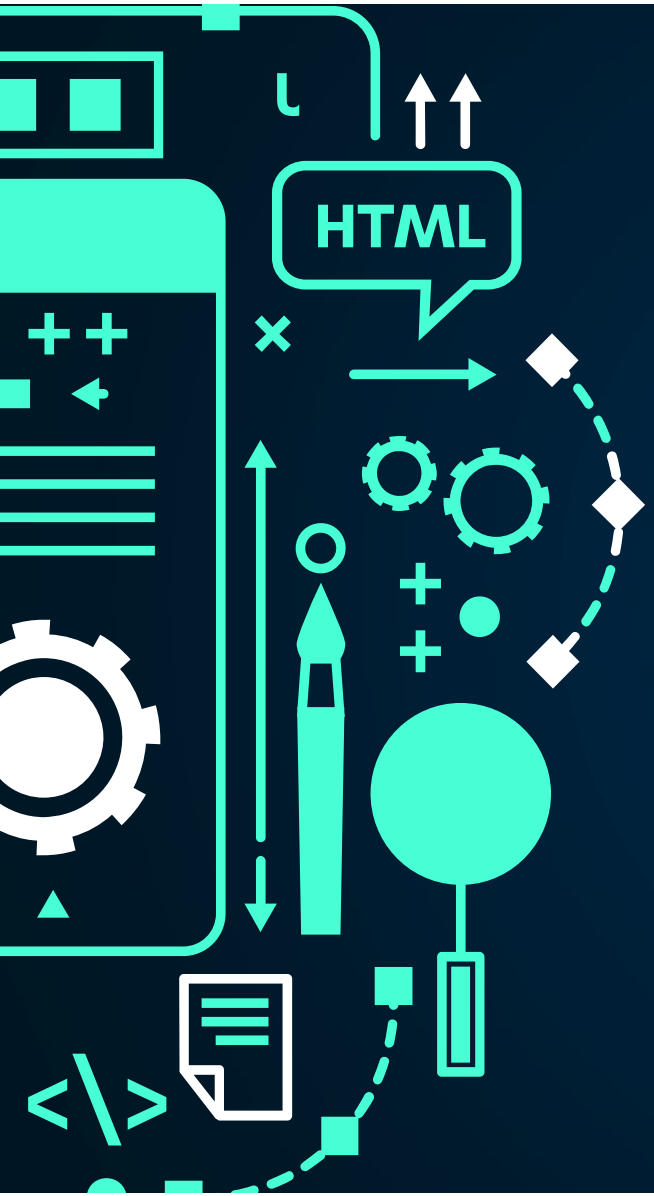
Expand AI models for detecting complex accessibility issues.

Integrate with popular CMS platforms for seamless adoption.

Conclusion

AccesAI bridges the gap in web accessibility through AI-powered automation.

Making the web a more inclusive space for everyone.



THANKS!

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