

# **ACCESSIBLE COMMUNITY WEBSITE DESIGN FOR INCLUSIVE WEB DEVELOPMENT**

PROJECT PLAN  
SHAMMA ALMAZROUEI  
CS4821 - MSCI FINAL YEAR PROJECT

---

SUPERVISED BY: DR ARGYRIOS DELIGKAS  
DEPARTMENT OF COMPUTER SCIENCE  
ROYAL HOLLOWAY, UNIVERSITY OF LONDON

---

## 1. Abstract

This is the development of a fully accessible community website for differently-abled according to global standards such as the Web Content Accessibility Guidelines 2.1. The goal of this construction is to assist in enhancing the use of anyone with impairments to share views and offering equal opportunities in website interaction. The site will enable differently-abled users to share experiences, learnings, and challenges in dealing with web content, thus encouraging inclusiveness and cooperation among the users.

## 2. Project Objectives

- To design a fully enabled community website for differently abled that supports screen readers as well as assistive technologies..
- To facilitate smooth, keyboard-based navigation of the site for those users who cannot use a pointing device..
- To implement customisable visual themes, for instance, high-contrast mode to enhance readability.
- To include elements allowing text size to be resized, subtitles for media content, and adequate error messages in forms.
- To provide all multimedia content on the website, such as videos and audio, with captions and transcripts to make them more accessible.
- To identify the possible role of assistive feedback, both aural and visual, in usability enhancement.
- To make sure that it has been compared with the WCAG 2.1 AA standard for web accessibility.

## 3. Literature Review

Over the years, many access techniques have been realised in HCI and web development. Research conducted by the W3C Web Accessibility Initiative outlines the importance of holistic accessibility since, unlike visual impairments, it views consideration of motor, auditory, and cognitive disabilities also. In this connection, some recent studies actually reflect that the incorporation of accessibility from the very early stages of design may significantly minimise costly remediation later on and increase usability to a much more significant number of users.

## 4. Technical Features

### 4.1 Screen Reader Compatible

Make the site screen reader compatible for visually impaired users. Use semantic HTML for interactive elements and WAI-ARIA (Web Accessibility Initiative – Accessible Rich Internet Applications) roles. Compatibility shall be tested using screen readers.

### 4.2 Keyboard Navigation

Users should be able to access the entire site without needing a mouse. Concentrate on making it 'Tab', 'Shift + Tab' through to making all elements accessible and also allow the visibility of the focus states, ensure much of the testing is done manually.

### 4.3 Customisable Themes (High-Contrast Mode)

To give users the option to toggle between regular and high contrast themes for improved readability. We could skin it easily too, via CSS variables to enable themes like high-contrast (eg black text on white or white text on black). Testing will involve contrast checkers, such as WebAIM's Colour Contrast Checker.

---

#### 4.4 Text Resizing

The text should be zoomable in order to reduce eye strain on a text. For this purpose, you have to develop an intuitive UI component that would allow text zooming with keeping responsiveness in mind. Testing will be done on different devices and browsers.

#### 4.5 Subtitles and Transcripts for Multimedia

All audio-visual content shall be supplied with proper subtitles and text transcripts. Use HTML5 and <track> elements for video subtitles. Also provide text transcripts for audio content. Accuracy and Synchronisation of Subtitles.

#### 4.6 Form Accessibility

Make forms accessible, so all the input fields should be properly labeled and error messages must be understandable. Use 'label' elements for inputs, error messages should be announced by the screen readers and forms must be keyboard-navigable..

#### 4.7 Assistive Feedback

Provide any type of feedback as an audio and visual kind when the user does something-for example submitting a form and receiving an error. Provide any manner of audio or visual kind of feedback, for example colour changes, to give an indication that an action was successful or failed.

### 5. Technical Challenges

Ensuring all accessibility features are cross-browser and cross-device compatible. Maintaining performance while ensuring accessibility-a few accessibility features could introduce latency, for example, animations and gesture-based input. Ensuring the website is fully responsive for optimal operation on any screen size while not undermining accessibility.

### 6. Project Timeline

#### Term 1:

##### **Phase 1: Research and Planning (Weeks 1-4)**

- Initiate the research about WCAG guidelines to make your website accessible as per the best practices
- Develop wireframes and initial designs keeping in consideration accessibility criteria.

- **Deliverable:** Completed research on WCAG guidelines.

- **Deliverable:** Initial wireframes and designs with accessibility considerations.

##### **Phase 2: Implementation of Core Features (Weeks 5-11)**

- Implement some core features such as screen reader compatibility, keyboard navigation, and high-contrast themes.

- Test the components in isolation which begins with the above features.

- **Deliverable:** Screen reader compatibility, keyboard navigation, and high-contrast theme implemented code.

- **Deliverable:** Testing Report of these features on different devices and browsers.

---

## **Term 2:**

### **Phase 3: User Testing and Feedback (Weeks 12-18)**

- Give the product to users to test, Target Users will be people with diverse accessibility needs, including impaired vision and any form of mobility impairment.
- Collect feedback and make adjustments.
- **Deliverable:** Usability testing report with target users from the differently-abled community.
- **Deliverable:** Report of collection of feedback and adjustments based on testing.

### **Phase 4: Final Adjustments and Report Writing (Weeks 19-22)**

- Final adjustments on all of the accessibility features based on user feedback.
- Document a final project report with as much detail about the technical implementation details as well as results from usability tests.
- **Deliverable:** Final code & website after all the adjustments based on user feedback.
- **Deliverable:** Completed project report with technical implementation details and user test results.

## **7. Risks and Mitigations**

**Lack of Real-World Feedback:** It could be challenging to arrange usability testing with different kinds of users. Online accessibility testing portals catering to disabled users can be used for the same.

**Performance Issues:** This sometimes slows down the performance due to the introduction of accessibility features. Reduce the same by incorporating optimisation during the coding and do load testing.

**Compliance Issues:** Ensuring complete compliance with the WCAG standards is highly complex. All these can be reduced through automated tools such as WAVE and also through manual testing using screen readers.

## **8. Conclusion**

This community-oriented platform for differently-abled users site will be accessible to everyone who accesses it, having in mind different users with various disabilities providing a space to share experiences and connect over different issues. Through the implementation of several accessibility features, such a project will make an important contribution toward inclusion in web development, hence making it easier for other developers to follow similar practices in their own projects.

## **9. Glossary**

**Accessibility:** Designing products, devices, services, and environments to become accessible to people with disabilities.

**Assistive Technologies:** Devices or software that make it easier for individuals with disabilities to perform their activities.

**Screen Reader:** Software that reads out the text that is on a computer screen.

**WCAG:** Web Content Accessibility Guidelines ; guidelines created to make web content accessible.

---

**Semantic HTML:** HTML whereby elements are used as they were intended; to make pages more accessible and SEO-friendly.

**WAI-ARIA:** A set of attributes that can be used to enhance accessibility in HTML for dynamic content.

## 10. References

[1] W3C Web Accessibility Initiative (WAI). Web Content Accessibility Guidelines (WCAG) 2.1. Retrieved from: <https://www.w3.org/TR/WCAG21/>.

[2] WebAIM. 2020. *Colour Contrast Checker*. Web Accessibility In Mind. Available at: <https://webaim.org/resources/contrastchecker/>.

[3] World Wide Web Consortium (W3C). 2017. *Accessible Rich Internet Applications (WAI-ARIA) 1.1*. Available at: <https://www.w3.org/TR/wai-aria-1.1/>.

[4] Interaction Design Foundation. 2021. *Accessibility Usability for All*. Available at: <https://www.interaction-design.org/literature/article/accessibility-usability-for-all>.