



Web Accessibility for Users with Motor Disabilities

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Introduction

- The internet is one of the most useful applications we have today.
- Problem:

Those with a motor and/or cognitive impairment may find the internet difficult to use



Solution

- Establish requirements for low bandwidth web accessibility
- Create a proxy that modifies HTML to fit these requirements



The Proxy Server



- Personalized accessibility
 - Each user creates a one-time login that contains their profile information (for automatically filling out forms) and a categorized bookmark file
 - This information can be accessed from anywhere



Accessibility Requirements

Requirement 1:

Currently selected link is visible

- The page's HTML is modified to highlight each link in red as it is being selected using a switch



Accessibility Requirements

Requirement 2:

The user can read and navigate text even when it does not contain any links

- Page Up and Page Down buttons are added after a certain amount of text
- Can also skip unwanted text this way



Accessibility Requirements

Requirement 3:

The user can traverse the history list forward or backward

- Back and forward buttons are added to the top of each page so that they can be selected via single switch input



Accessibility Requirements

Requirement 4:

The user can access bookmarks and edit them

- Buttons on each page allow the user to add the current page to their bookmarks or to view their bookmark list
- Bookmarks can be organized into categories
- Bookmarks are stored on the server for each login name registered with the proxy



Accessibility Requirements

Requirement 5:

The user can quickly access text and links of interest

- A “Skip to Content” button is added at the top of each page that will move the current screen focus and selected link past any menu bars to the first paragraph of content



Accessibility Requirements

Requirement 6:

The user is given information about link targets

- Each link (that is not in the menu bar) is described in a short parenthetical statement preceding the link
- The description consists of the first few words of content taken from the HTML of the linked page
- Every link's HTML file is downloaded for this feature



Accessibility Requirements

Requirement 7:

The user is given alternatives for form elements

- Common form boxes, such as name and address, will be filled out with the information stored in the users' profile settings
- Each user will have a list of frequently used phrases stored with their login name (smart choice)
- A soft keyboard may also be implemented for form completion



Pilot Study

- Three users with various motor impairments were given an oral, 30 minute questionnaire consisting of questions regarding computer use
- Details recorded:
 - What subjects most commonly used a computer for
 - Any augmentative soft/hardware used
 - Problems with current soft/hardware configurations
 - Demonstrations of most commonly performed computer tasks (email, searches, etc.)



Results

- Consistent throughout the three pilot studies:
 - Problems using a mouse (double clicking, hitting target links, scrolling)
 - Difficulty typing (unanimously the biggest complaint)



Results (cont'd)

Other notable problems:

- Two of the subjects utilized the favorites list, but did not know how to modify it
- Two of the subjects frequently received help from others to aid web browsing
- One subject stated that using a computer became “painful” after a short time



Future Work



- Continue the study, demonstrating the proxy and testing for further modifications, if necessary
- Design a system that can be used by anyone with one or more signals
- Beyond internet?