

SOCIAL ACCESSIBILITY: FIX ANY WEB PAGE YOU ACCESS

Hironobu Takagi, IBM Research, IBM.
1623-14 Shimo-tsuruma, Yamato, Kanagawa, 242-8502, Japan.
+81-46-215-4557
takagih@jp.ibm.com

Introduction

When you, a screen reader user, are confronted with a hard-to-access Web page, how do you cope with it? Do you try to find a workaround, ask your sighted colleagues for help, or simply leave the page and never access it again? Now, you have another choice: fix the page immediately. Believe it or not, our service can help you fix any page on the Internet without modifying the original Web page. Social Accessibility is an experimental public service to provide an improved Web experience to all screen reader users by gathering the power of volunteers. You can try the system right now without cost by accessing the following URL.

<http://sa.watson.ibm.com/>

The only preparation you need is to add two bookmarklets to your browser or install a small resident program. With the resident program, you can report a problem by pressing "Control plus period" when you are on a Web page. You can add some comments and submit the problem report to our server. The report will automatically be sent to volunteers worldwide, people who have installed our repair tool. The repair tool is capable of adding alternative texts to images, adding labels to input forms, inserting heading tags wherever needed, or marking AJAX text as "updated live." After volunteers have repaired the page, you can access the newly repaired page simply by using the "Apply metadata" bookmarklet. The update happens in moments. Our goal is to shorten the entire process to take only a minute or two.

Here are the specific steps of the process our system uses. There are two groups of participants in the service, the screen reader users and the volunteers called "supporters." Our server on the IBM alphaWorks site manages the whole collaboration process.

1. Anyone can subscribe to the service with a regular account or simply use a "guest account" available on the main page of the service, and then install the tools.

2. While surfing the net, a screen reader user can report a problem to the server by just using the short cut key command for the resident tool. When using the bookmarklet method, the user just uses the "Send request" bookmarklet on the Favorites menu in the familiar Internet Explorer browser.
3. The server will immediately send the report to supporters who have installed our Firefox extension. A flashing indicator icon will blink in the right corner of the browser's status bar.
4. Available supporters can investigate the problem by clicking on the blinking icon. Our repair tool is automatically activated on both sides of the browser window.
5. If needed, a supporter can discuss the solution with other supporters via a chat system running on the server.
6. The supporters can create a set of metadata to solve the problem and submit it to the server. Metadata is special information that describes how to fix a page. For example, the metadata for a new alternative text involves the URL of the target Web page, the location of the target image, and the alternative text itself.
7. When the original user visits that page again, the page will automatically be repaired by the resident tool. When using the bookmarklets, the user fixes the page by selecting the proper bookmarklet from the Favorites menu in the browser.
8. Besides the user who reported the problem, any screen reader user who has installed our tools can then access the accessible version of the page.
9. If a user wants to comment on the metadata or suggest improvements, evaluations and comments can be sent to the server.
10. Supporters and users can check their points and rankings in the portal on the server.

Technology for Screen Reader Users

The service now supports any browser with any modern screen reader. When we initially announced the service, it was only supporting JAWS version 8 or newer. By modifying the client-side architecture, it now supports Internet Explorer, Firefox, and Safari, with any modern screen readers including JAWS version 4 or newer, and WindowEyes version 4 or newer. We believe other screen readers should also be compatible with the new architecture.

One of the most frequent questions is about the capabilities for dynamic Web content. Yes, our system is capable of handling dynamically changing pages (such as BBSes and blogs), AJAX pages, and even pages with Flash. We are developing various technologies to cope with various kinds of dynamic content and continuing to expand our coverage. Recently the system was extended to support some AJAX accessibility functions such as marking a live-region, as defined in the latest W3C WAI-ARIA specification. When a volunteer adds "Live-region" to

information that can be updated at any time, then Jaws 10 or WindowEyes 7 will be able to announce any changes happening on that page.

For Flash content, we have an open source tool called aiBrowser. This tool has a function to load the repair data from our Social Accessibility service and apply it to Flash content. One example is with YouTube movies. By using the aiBrowser, you have accessible controls to play, stop, pause, and even adjust the volume of movies. These functions are still regarded as experimental, but we are continuing to improve their capabilities. We welcome your cooperation in our development process if you are an early adopter.

Our service is also capable of handling secure pages. If you are familiar with transcoding technologies, you may be aware that secure pages cannot be transformed directly because of limitations in the functions of intermediary proxies with secure pages. Our service is different, since it does not need any intermediary server. Instead, all of the transformations happen inside the browser, in each user's client PC. That is why our service is capable of handling any dynamically changing page and secure page. Also, users do not need to change any browser settings.

Technology for Volunteers

For volunteers, the interface for improving accessibility is especially easy for problems related to images and headings. We have integrated some visualization functions to allow volunteers to visually recognize the problems found by screen reader users. When you open our repair tool on the right-side of a Firefox window, it automatically visualizes the good and bad parts of any page that is open in the browser. Any image with a problem is marked with an exclamation point icon. When you click on it, a repair dialog is automatically opened and guides you through some options, such as adding null alternative text, text to describe the image appropriately, or to leave it alone for the time being. You can also use a Quick Fix Wizard to fix image-related problems throughout a page instead clicking on each problematic image.

Another type of visualization is for headings with background colors. This is the same visualization function used in aDesigner. In the repair tool, a page with heading tags has lighter colors and a page without heading tags is darker. This darkened background color visualization shows how hard it is to reach each element in the page with the serial access required by screen readers. If headings are used appropriately, then the important parts of the page will become lighter, since their reaching times should be short. If the important parts of the page are dark, then the page can be repaired by adding heading tags. You can right-click on an element and make it into a heading, and then a menu with the heading levels will appear. You can select the appropriate heading level, and the effectiveness of the heading tag is immediately shown by the color of the section.

Conclusion

Social Accessibility started in July 2008, and the community has been growing as we improve usability of the system. We still have various challenges, including better ease of use for screen reader users, easier authoring of metadata, and also new collaboration methods. However, we strongly believe this system opens up a new era for creating an accessible environment for screen reader users. In other words, this system is a next-generation accessibility solution through open collaboration and social networking. We will keep working to achieve our goals. We, the development team, would like to work with screen reader users worldwide, including you.

References

Social Accessibility site

<http://sa.watson.ibm.com/>

Introduction movie on YouTube, "IBM Technology Assists Visually Impaired Internet Users"

<http://www.youtube.com/watch?v=iRB72rXXyXo>