WebAnywhere – Assisting Readers

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Abstract

In July 2008, we released a web-based screen reader called WebAnywhere to enable blind people to access the web from any computer that happened to be available. Its main distinction from prior projects is that it runs directly in the web browser with no special permissions, meaning that it can run on any computer – from locked-down public terminals in the library to a friend's laptop. Since its release we have been surprised to find that a large number of people using it are using not because they have a visual impairment but because it assists their reading. I want to come to this workshop to learn how WebAnywhere can better support this unexpected use case, and offer this open platform to others to assist their research.

Background

Students often use computers other than their own to access web content, especially computers at school or libraries. Anyone who either requires or prefers a different interface is restricted to using only computers on which that software is already installed. In the case of the screen readers used by blind individuals, the software is expensive and not likely to be installed on most computers. The problem of getting access to new solutions and helpful assistive technology also applies to those who have difficulty reading.

Figure 1: WebAnywhere is a web browser that runs as a web application inside the existing web browser. It requires no special software to be installed or permissions to run, so it can provide custom interfaces wherever users happen to be. (http://webanywhere.cs.washington.edu/beta)

Getting access technology and improvements to the people that need them most can be difficult. Access technology is specialized software, and not installed on most computers. Locked-down public terminals prevent new software from being installed, and, for many users, the time required to install new software causes it to be more cost than it is worth. Many users do not have access to the most recent access technology from which they could benefit most.

To address this problem for blind people, we introduced WebAnywhere (Figure 1) in July of 2008. WebAnywhere is a web-based screen reader that enables blind web users to access the web from almost any computer that can produce sound, without installing new software [1]. (Try it at http://webanywhere.cs.washington.edu/beta). This means that WebAnywhere works even on the locked-down computer at schools and libraries. To facilitate this, speech is delivered from a remote server so that no new software needs to be installed. Pre-fetching based on a dynamic model of user behavior helps to ensure that the sounds users request to be played are often retrieved from the browser cache and perceived latency is low.

Access technology has a high abandonment rate, partially due to its complexity. In educational settings, these problems are compounded because potential users (students) lack control over the computers they are accessing. To get new software installed in the classroom or in the school library requires convincing the appropriate staff to both purchase the software and install it on all the computers that a student might want to use. Sometimes access technology is installed only on certain computers (and social stigma might cause students to avoid those machines), and sometimes the appropriate software is not installed at all. WebAnywhere bring access technology to any computer with a web connection.

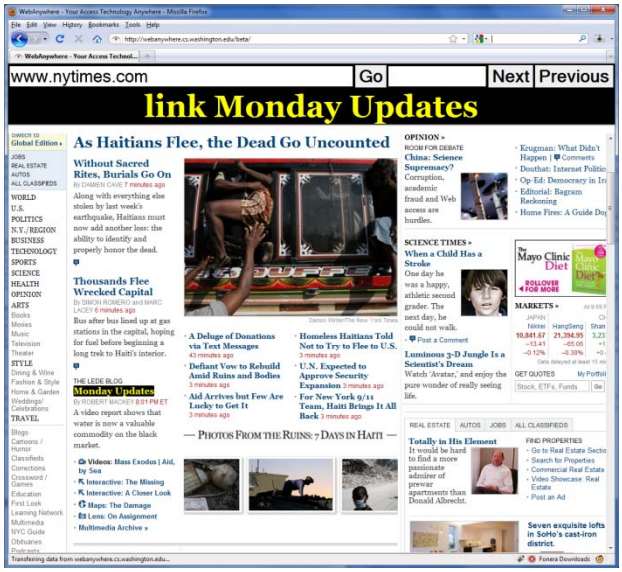

Figure 2. The latest version of WebAnywhere highlights what it is reading, provides a high-contrast magnified view of this content, and adds additional support for using the mouse.

As a web application, WebAnywhere is immediately available on any computer available. There is no new software to install, so users don't need to convince anyone to install new software and all computers with web access are immediately accessible to blind web users.

A Different Audience than Expected

When we designed, implemented, and released WebAnywhere, we expected its primary users to be blind and low-vision people. Since releasing the software, however, we have received a surprising number of emails from teachers using it in their special education classrooms with students who have learning disabilities to help them read.

We know that WebAnywhere was not designed for this use case and is likely not the best solution. Nevertheless, the fact that any teacher can pull it up on their computers, without cost or convincing an IT person to install it for them, means that it is already being used with people who have difficulty reading.

Why I want to attend this workshop

I want to attend this workshop to both learn how to better support this unexpected user population who are already using WebAnywhere and expose our open source framework to people in this space who may be able to leverage it in their own work.

Since discovering that people were using WebAnywhere to help people read, we have introduced a number of features that may help support this use. For instance, WebAnywhere now highlights what it is reading and provides additional support for using it with the mouse (something a blind person would have little need for).

WebAnywhere is an open platform (see its open source site at http://www.googlecode.com) designed to be extensible so that others can build on top of it. It currently supports more than 30 different languages, helping developers and researchers quickly reach a global user base. We are improving support for its internal tracking to better facilitate user studies. We hope that it can be a valuable tool to researchers in this area, and hope to learn from the researchers attending to workshop how we can better support them with WebAnywhere.

Conclusion:

WebAnywhere is already being used by people who have difficulty reading. I hope to learn from the participants of this workshop in order to make it better at fulfilling this need, and I hope to expose this platform to other researchers so that they may use it as a tool for research and getting new technology out to people who need it.