fast facts

Project: Accessibility for the Print-impaired (Alipi)
Lead Organization: Servelots Private Limited)
Country: India
Budget: 40,000 AUD

situation

High-population countries such as India have a great number of visually impaired and otherwise challenged populations who may benefit from alternative methods of digital information. Those who are not comfortable with browsing text, either due to a lack of literacy or sight or for other reasons may prefer a visually-rich application that helps users navigate web sites while reading aloud the content. In order for this to be possible, however, it is necessary to develop both a tool for creating and managing content that can be manipulated to the benefit of these users, while offering locally relevant and timely content so that it may be of greatest interest to the target population.

solution

The problem addressed by this project is the issue of web accessibility for the print-impaired in the Web 2.0 era. The team defines "print-impaired" as the section of the population that cannot read standard web content due to illiteracy, partial literacy or language issues. It is especially important to address this segment of the populations as mobile phones become all the more ubiquitous and offer access to the mobile Internet. Print-impaired users will likely forego the benefits that come from the convenience and content provided by such mobiles unless these people are specifically taken into consideration in the design on online content and access.

The Alipi project's goal is to enable localization and contextualization of laws and legal information in order to make such documents available and accessible on the mobile phones of the many print-impaired people. To achieve this goal, the team has created authoring guidelines for the creation of accessible web pages, a model for the localization of information, and a method through which user preferences can be used to facilitate use by the print-impaired.

The team initially took its lead from the World Wide Web Consortium's (W3C) Web Accessibility Initiative "Accessible Rich Internet Applications." WAI-ARIA recommendations and similar guidelines did not extend to those who are print-impaired -- but not otherwise disabled physically. As an example, a non-disabled user can navigate within web page and may understand its structure instantly by relying on images placement or paragraph titles. However, it is frustrating for a print-impaired user to use assistive technologies such as content readers in order to read and move through the web page if she or he is able and accustomed to using their vision as their primary method of scanning for information. As such, using an auditory description of the entire page is not adapted to their needs.

Instead, print-impaired users would prefer to be able to visually identify sections of information which may be relevant to them, and then have only that particular selection be presented as audio. Even then, the language itself may still be an issue. For example, if the spoken/written language provided by existing assistive technologies was not familiar to the user, it would be useless to a print-impaired user.

To address these issues, Alipi guidelines recommend the identification of critical information within a web page along with the structure of that web page, and instruct web designers to explicitly define the

relationship between content and structure. By identifying critical information within the content itself, websites that provide important information to their target audiences can be more efficiently "localized" by a community that is interested in narrating some web-page fragments to a locality of interest.

The solution to this issue provided by Alipi is re-narration: a given document can be rendered to address a certain community either by translating the whole document in another language or by making its content more understandable (e.g. explaining what a certain law is about), or simply by rendering some of its components (e.g. providing an audio description for a text or adding context to a video). The process of localization is further assisted by "Filters", which are XML files that list URLs for re-narrators along with meta-data about each URL (the re-narrator's identification, active subject categories, relative ranking, etc.) so that each page would have its "favorite" re-narrators. Alipi provides re-narration tools and documentation at http://www.alipi.janastu.org. This document provides guidance on how to make a valid re-narration and explains how re-narrations can help navigation and comprehension.

broader impact

Since the original project, the Alipi team has invested additional efforts into investigating the impact of Alipi on domestic workers. This study involves developing capacity-building training material in addition to the use of re-narration.

The team intends to continue developing this project while delegating work to their partner organization, Janastu, a non-profit organization that provides free open-source software to NGOs. Alipi is in the process of becoming a W3C member so the Alipi re-narration web will be more widely offered as a recommended tool for authoring web pages that offer the highest degree of accessibility for the print-impaired. The team expects that future browser implementations will incorporate core support once it has become a W3C recommendation.
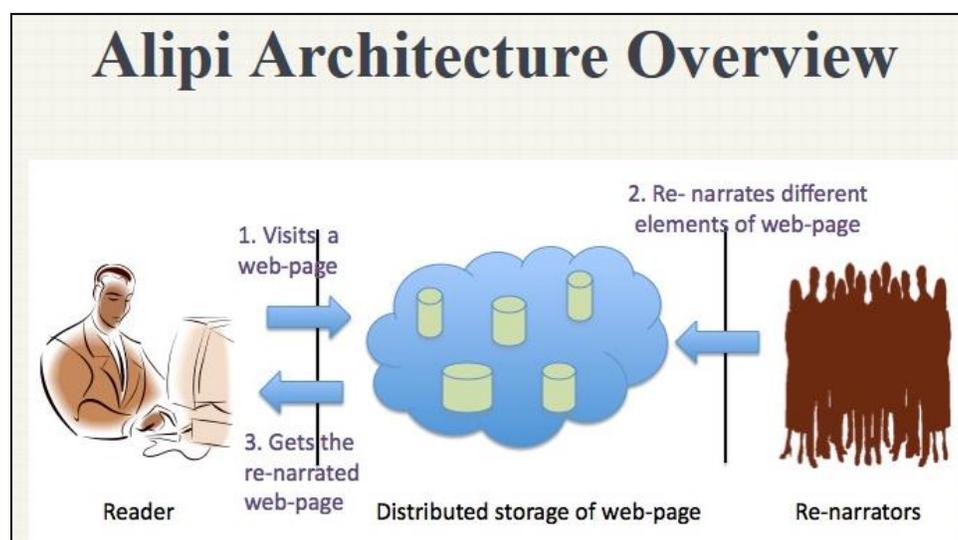
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