Wearable Web site – Investigation and Results

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Foci

- Understand how people find information about technical research projects, especially wearable computing, online.
- Understand what type of information and what level of detail different users (experts/beginners/press) look for when searching for wearable computing info online.
- Understand the issues that present in maintaining a web site that continually has a large amount of similar, new content added or modified which fits the regular design structure.

Contextual Inquiry & Design

Our first two subjects for contextual inquires were both students. We observed them each using the Web to conduct research on technical subjects. They both adhered to a simple pattern to conduct their research. First, a search engine would be used to conduct a keyword search. Likely candidates were selected from the results page. Each candidate site was checked in turn. The subject would only spend a few moments at the site to determine if it would be helpful. If they thought it would be helpful, they would save the content offline to read in depth at a later time. These behaviors highlighted two distinct phases to researching online: collecting materials and understanding materials.

Our third subject was a web administrator for the Wearable web site. We found that there are few routine duties that need to be performed. The two most common were bringing the server back up after a power outage took it down and putting a file on the web server to make it accessible to other parties. This task usually broke down into the following phases. Another group member would contact the administrator, possibly through email, providing a file that was to be published. When the administrator was able to, he would then upload the file to the server. He would then contact the requesting party, providing the URL from the file could now be accessed.

Design recommendations:
- Provide ability to read content offline, such as a downloadable PDF.
- Provide keywords for each project.
- Provide brief synopsis for each project.
- Use UPS with web server or move web site to a more reliable host.
- Add a section for members that enables them to upload files to an accessible location.

Heuristic Evaluation

Most of the heuristic violations that were discovered were around the area of navigation. The most severe violations were in the area of coarse-level navigation, involving aspects of the site menu. Location and legibility of the site menu were found to be an issue. Other more structural or presentation related issues involved being able to discern textual and image links from non-links. The last major area of navigation involved the content. We found that there were insufficient cues in many cases to indicate to the user what they would get when they followed a link. Additionally, we found that in a couple cases, distinct pieces of information such as the members of the group and an overview of the groups work were chunked together without navigational or structural aid. There were a couple violations found in the area of help and documentation. The primary concern for this area is that many pieces of information on the web site are highly technical or jargon. Since one of the aims of the web site is to provide information to people new to or becoming interested in the field, contextual help that aids understanding new information would be very beneficial.

Design recommendations:
- Follow standard Web conventions for layout of major areas, most importantly site menu, logo, help links, and primary content.
- Follow standard Web conventions for indicating what actions are available, e.g. what text are links.
- Provide multiple cues whenever possible for where links will go.
- Provide context sensitive help and assistance for technical information and jargon.

Cognitive Walkthrough

We performed a cognitive walkthrough for one of the primary tasks of the web site, finding a specific piece of information about a particular project. The walkthrough was performed on our new design proposal. The path that was evaluated involved browsing to the specific project page. The assumptions about the user were that he had a technical background, but did not specifically have in-depth knowledge about computers or wearable computers. We felt having a minimal background in computers would ease the task but was not necessary. Additionally, the user was assumed to be familiar with the Web. Only one failure was found during the cognitive walkthrough. It was determined that the panels on the Wearable Devices page did not give enough affordances about how to proceed to the particular wearable device's page. We redesigned these panels to address this issue by making a link area that follows standard Web conventions. Though not rising to the level of failure, we did recognize the importance of the user having the right terminology in mind when browsing for the information. We feel this requirement can be lessened by adding search to the site, enabling the user to rapidly try multiple different ways of choosing terms to locate the information.

Design recommendations:
- Ensure available actions can be noticed with visual cues.
- Provide search capability for the site.

Think-Aloud

Several think-alouds were performed using the same task as the cognitive walkthrough. The results mostly reinforced the findings of the cognitive walkthrough. Several of the users were able. None of the users attempted to use search to complete the task. This may have been due to the way the task was presented and not because users do not like to use search. When users came to the Wearable Devices page, they were scanning, trying to find available actions. They were able to determine where to click on the panel, but only because the browser provided the cue of changing the mouse cursor. We felt that in the context of the Web, where users are less patient, this should be considered a failure. One of the users, who had essentially no background in computers, attempted to learn more about wearable computing in general before answering the specific question. Unfortunately, we did not implement any of this functionality of the site, so the user was not able to gain the background and did eventually just go on to the assigned task. What the user tried in order to gain background information was useful. First, the "Wearable Computing" link at the top of the site menu was tried. This was good to see since the destination of that link is to content providing an overview of the field. The other link that was tried was the big "Getting Started" image nested in the primary content area. This was also good to see since this was exactly the purpose of it: to link to content providing background information specifically for people new to the field. It was a little surprising that the user tried the "Wearable Computing" link before the "Getting Started" link. We feel this is due to how strong the convention of having primary navigation links appear on the left edge is. We considered but decided against making the "Getting Started" link more prominent. It was still found quickly. And we do not want to get in the way of regular users. We feel that it would be beneficial to provide access to the "Getting Started" content from the "Wearable Computing" overview section.

Design recommendations:
- Ensure available actions can be noticed with visual cues.
- Provide access to "Getting Started" section from the "Wearable Computing" section.

Keystroke Level Model

A KLM analysis was conducted on the "Easy Admin" interface. This is an all-new interface that allows professors and students to upload presentations and files to the Wearable Web Site for class purposes and distributing information to sponsors and interested clients. As found in the KLM, the easy admin interface allows users to upload a file to the website in under a minute (40 seconds). This is a large improvement over the task time spent between professor/student and website administrator – sending the file via email, the administrator downloading the file, uploading the file, and then sending back the URL to the professor/student. While this judgment could have been made without doing a KLM, the KLM grounds our design in data.

Design recommendations:
- Use WebISO for authentication – well known and fast.
- Step-by-step design for uploading files is efficient