**6.870 Final Project Proposal**

**Webnnel: A channel-based Web navigation system**

Chen-Hsiang Yu and Oshani Seneviratne

**1. Introduction**

* 1. Motivation & Ideas

The Web has become an important medium for delivering information, and there are more and more people reply on it. For example, users like to check e-mails, read news, watch videos, listen to music and shopping on the Web. With the success of the Web browsing on the PC environment, people start to crone similar experience to different domains, such as mobile browsing, mobile blogging, and so on. In this project, we envision an application for home environment. We plan to design a TV channel like Web navigation system. In this system, the user can use speech to select the web site and control browsing behavior.

1.2 Technology

In this project, we will investigate the possible technologies to make Web channel available possible. It might include web content manipulation, speech recognition, and user interface (UI) design for TV channel like presentation of the Web sites.

1.3 Expected Result

We expect to have a Web-based system that could be used at home environment. To the human computer interaction part, users can use speech to control Web navigation and use speech to switch the Web channels -- Webnnels.

**2. Related Work**

**UI and Content Access**

Information display like TV channel format can be seen on some applications. Youtube uses list format to display the video clips[]. XXX uses it to display possible videos for users[]. However, as the best we know, we do not see any system proposes an idea to display web sites as TV channels for the user.

To the Web content access, programmers can write JavaScript program embedded into web pages to provide web page content access dynamically. Chickenfoot and Greasemonkey are two web scripting system to let users write the script to customize the Web pages for their preference [][].

**Speech invoked content access**

Speech invoked web content access is a suitable for people with disabilities (especially people with dysfunctional hand motor-abilities), workers who need to access information in a hands-off manner to improve their productivity or simply the general user who wishes to have a much more natural interaction in accessing web pages with spoken commands. Microsoft Windows Vista Speech Recognition system [3] provides a platform for users to control Windows applications. This supports dictation of documents and emails in mainstream applications, use voice commands to start and switch between applications, control the operating system, and even fill out forms on the Web. However it does not allow much flexibility in browsing the web.

**3. Plan of Implementation**

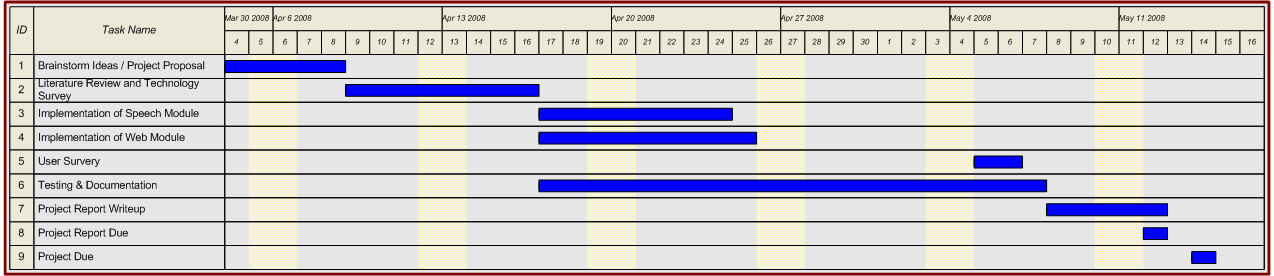
The Webnnel system architecture contains four components: (1) web content manipulation; (2) channel presentation; (3) speech command extraction; (4) command to channel interface. The whole system architecture is illustrated as Figure 1.

Besides normal PCs, we will need following hardware to support our final project implementation.

1. Microphone array for speech command extraction

**4. Timeline**

The following Gantt chart shows the tentative timeline we have allocated for this project.



**5. Collaboration**  
The project team members of this project are Chen-Hsiang Yu and Oshani Seneviratne. We hope to partition the work on this project amongst ourselves and will be collaborating via the online version control system hosted at http://code.google.com/p/webnnel

Chen-Hsiang Yu: Web content manipulation, UI design, Extension Development, Report Write-up.

Oshani Seneviratne: Speech recognition and extraction, Extension Development, Report Write-up.

**6. References**

[1] Petrie, H., Hamilton, F. and King, N. Tension, what tension? Website accessibility and visual design. *Proceedings of the 2004 international cross-disciplinaryworkshop on Web accessibility (W4A)*, pp. 13-18, 2004.

[2] Richards, J. and Hanson, V. Web accessibility: a broader view. *Proceedings of the 13th international conferenceon World Wide Web*, pp. 72-79, 2004.

[3] http://www.microsoft.com/enable/products/windowsvista/speech.aspx