Introduction

- Human Computer Interaction (HCI)
  - Goal: human user and his/her behavior as the motivating factor in software design
  - "A powerful program with a poorly designed user interface has little value." (Webopedia)
- Usability
  - How easily can a user succeed in their tasks?
  - Web design deals with the UI for a website

Motivation: Better Usability Testing

- Many websites have usability problems
- Designers conduct usability testing to solve these problems

Designers want a way to test that:
- Is fast and easy to deploy on any website
- Is compatible with range of OS and browsers
- Includes better tools for analyzing the data
WebQuilt Approach

- Fast and easy to deploy on any website
- Compatible with range of OS and browsers
- Better tools for analyzing the data

Outline

1. Introduction
2. Motivation
3. Usability Testing and WebQuilt
4. My Research: WebQuilt for Mobile Devices
   a. Overview
   b. Web Design for Mobile Devices
   c. Extending WebQuilt: PDAs
   d. Extending WebQuilt: Phones
   e. WebQuilt User Testing
Overview of My Research

- Extend WebQuilt to work with PDAs and Internet phones
  1. Understand web design and usability issues for mobile devices
  2. Research the technologies involved with Internet access for PDAs and Internet phones
  3. Implement extensions to WebQuilt infrastructure
  4. Conduct usability testing with WebQuilt

Web Design for Mobile Devices

- Mobile devices introduce difficult usability problems
  - Small screen size
  - Traditional input mechanisms not available
  - Slow Internet transfer rates
  - Limited memory space
- WAP phone studies indicate poor usability
  - 70% said they would not use within one year (Nielsen Norman)
- Investigated many varying industry solutions and found:
  - Mobile devices sites should be designed for the PDAs or phones
  - Web content should represent needs of mobile users
  - We should deal with freely accessible sites

Extending WebQuilt: PDAs

- Rendering PDA browser for visualization
  - Compared desktop and PDA browser sizes
- Created framework for running tests
  - Designed the interface and functionality to deploy tests
  - Enhanced proxy code to better support tests
- Add survey at end of each task
  - WebQuilt logging and visualization is quantitative
  - Survey provides qualitative feedback

Extending WebQuilt: Phones

Same changes as PDA plus more:
1. New Proxy that deals with WML
   - Original only proxies HTML pages
   - Phone sites are made with WML (XML subset)
2. Integrate phone browser for visualization
   - Desktop browser does not look like phone browser and cannot render WML
   - Need source code for WML browser written in Java
User Testing with WebQuilt

Designers: the real WebQuilt users
- WebQuilt user testing vs. user (or usability) testing with WebQuilt

Goals:
- Find bugs with WebQuilt itself
- See how well WebQuilt performs:
  - Will it help mobile site designers?
  - Does it find usability problems?

Steps for User Testing

- Setup several tasks, recruit 20–100 people
- Email users URL to the WebQuilt start page
- Ask them to complete the predefined tasks
- Collect remote (or local) data
- Aggregate, view, and interact with data
- Find problems, fix, repeat

Preliminary Results of Testing

Let’s look at a MapQuest example...
- Task: find if there were any traffic delays on I-490 East in Rochester, NY
- 30 people tried the task and filled out a survey
-Used survey, logfile, visualizations
Conclusion

- I was able to extend WebQuilt’s remote usability testing capabilities to PDAs and began work for Internet phones.
- The preliminary results of our testing showed that WebQuilt has potential for helping us find usability problems.
- My contribution will hopefully lead to more usable mobile sites that open mobile connectivity to a wider range of people.
Future Work

• Work with designers: the real users of WebQuilt
  - What functionality they need/do not want
  - Improvements
  - Real-life performance: is it useful?

• Finish phone proxy and visualization and conduct user testing

Reflections

• What is the impact of my work on others?
• Does it benefit people/society?
• Do I enjoy what I am doing?

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  University of California at Berkeley

  Download WebQuilt at: http://guir.berkeley.edu/webquilt

Thank You!

WebQuilt and Mobile Devices:
A Web Usability Testing Analysis Tool for the Mobile Internet

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Seattle University
August 2, 2001

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Graduate Mentor: Sarah Waterson

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Usability Testing Before WebQuilt

- Traditional usability tests
  - Extremely useful qualitative information
  - Lots of time, small websites, few people, local
- Server-side logging
  - Easy to collect, remote testing, lots of tools
  - Restricted access, little on tasks and problems
- Client-side logging
  - Can track everything, remote testing
  - Installation, platform-dependent, analysis tools

Implementing a WML Proxy

- What does the proxy do?
  - Sits between user’s browser and web server
  - Intercepts requests to log user’s actions on a site
- How does the proxy work?
- How to change proxy to work for WML?
1. Process Client Request

2. Retrieve Requested Document

3. Process and return the page
The Proxy at Runtime

Start with:
<A HREF="computers.html">

End up with:

Implementing a WML Proxy

- What does the proxy do?
- How does the proxy work?
- How to change proxy to work for WML?
  - Main classes: WebProxy and ProxyEdit
  - Made ProxyEdit an interface
  - HTMLProxyEdit and WMLProxyEdit extend
  - Moved HTML proxy code into HTMLProxyEdit
  - Wrote WML proxy code in WMLProxyEdit
    + Required writing WML Tokenizer