Accessibility Seminar
Persons with Disabilities
Richard Ladner
University of Washington

Tentative Schedule

- 10/07/09. Richard E. Ladner, CSE. Accessibility technology and research.
- 10/28/09. Alan Borring, CSE. One-Bus-Away.
- 11/04/09. Shaun Kane, iSchool. Survey on mobile devices used by persons with disabilities.
- 12/02/09. Anindya "Bapin" Bhattacharyya, Helen Keller National Center for deaf-blind Youths and Adults. Mobile technology for deaf-blind people.
- 12/09/09. Shiri Azenkot, CSE. iPhone Accessibility Applications.

What We’ll Do Today

- Examples of Mobile Accessible Technology
- MobileAccessibility Project
- Other Research

K-NFB Reader Mobile

- Optical Character Recognition
- Focalization
- GPS
- Cell Phone

Bar Code Reader

- i.d. Mate II
- SCAN GOSPEECH (MODEL SC100)

Braille Notetakers

- BrailleNote
- Braille Sense
Braillenote with GPS

DeafBlind Communicator

MorseSMS for Deaf-Blind
- The program "reads" out incoming SMS in morse code for blind/deaf-blind people by vibrating
- Sending of SMS by typing in the letters in morse code (Dit/Dah)

Vibrators
- Alarm Clock
- Fire Alarm
- Multipurpose Vibrator

What We’ll Do Today
- Examples of Mobile Accessible Technology
- MobileAccessibility Project
- Other Research
MobileAccessibility
Bridge to the world for blind, low-vision and deaf-blind people

Platform
• Video camera
• Microphone
• GPS
• Compass
• Accelerometer
• Human input
  – Keyboard
  – Touch screen
  – speech

Infrastructure
• Text to Speech API
• Eyes Free Shell

V-Braille
Making Braille accessible using the touch screen and vibrator

What We’ll Do Today
• Examples of Mobile Accessible Technology
• MobileAccessibility Project
• Other Research

CHI “Disability” Search
<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982 – 85</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1986 – 90</td>
<td>10 (4%)</td>
<td></td>
</tr>
<tr>
<td>1990 – 95</td>
<td>15 (5%)</td>
<td></td>
</tr>
<tr>
<td>1996 – 00</td>
<td>20 (6%)</td>
<td></td>
</tr>
<tr>
<td>2001 – 05</td>
<td>90 (23%)</td>
<td></td>
</tr>
<tr>
<td>2006 – 08</td>
<td>71 (17%)</td>
<td>(3 years)</td>
</tr>
</tbody>
</table>
Earliest CHI Papers - 1987

- "A case example of human factors in product definition: needs finding for a voice output workstation for the blind"
  – Richard M. Kane, Matthew Yuschik
- "A user interface for deaf-blind people"
  – Richard Ladner, Randy Day, Dennis Gentry, Karin Meyer, Scott Rose
- "Towards universality of access: interfacing physically disabled students to the Icon educational microcomputer"
  – Gerbrand Verburg, Debbie Field, Francois St. Pierre, Stephen Naumann

Other Conferences

- ASSETS – ACM
- ICCHP – Europe
- CSUN – Cal State Northridge
- ATIA – Industry Conference
- W4A – Collocated with WWW

VoiceDraw 2007-8 National Scholar Award for Workplace Innovation & Design, 2nd place

Susumu Harada, Jeff Blimes, James Landay

WebAnywhere

- Andrew W. Mellon Foundation Award for Technology Collaboration (2008)
- Microsoft Imagine Cup Accessible Technology Award (2008)
- W4A Accessibility Challenge Delegate’s Award (2008)

Supple

CHI 2008 Best Paper Award

Krzysztof Z Gajos, Jacob O. Wobbrock and Daniel S. Weld.

ANATOMICALLY CORRECT TESTBED ROBOTIC HAND

Yoky Matsuoka
MacArthur Foundation Award 2007
MobileASL
A mobile video phone for sign language users

Eve Riskin
Sheila Hemami*
Jake Wobbrock
Anna Cavender
Neva Cherniavsky
Rahul Vanham
Jaehong Chon
RL
Many undergrads

ClassInFocus
Making education more accessible to deaf students

Anna Cavender
Kathryn Sullivan
Bill Clymer*

ASL-STEM Forum
Enabling sign language to grow in science

Anna Cavender
Jeff Bigham
Daniel Otero
Caroline Solomon*
RL

Open Problem
• Visual CAPTCHA (for sighted people)
  “what is the sum of 2 and 4?”
• Audio CAPTCHA (for blind people)
• Text CAPTCHA? (for deaf-blind people)

Concepts in HCI
• User Centered Design
  – Involve the user at every step
• Universal Design
  – Design for all users, if possible
• Design for User Empowerment
  – Design to enable people to solve their own accessibility problems, if possible

Discussion