

Making Mobile Apps Accessible

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Accessibility issues & traditional computers

- ▶ “Jane’s Mantra”
- ▶ Issues:
 - Monitor-based output, often with small print
 - Mouse- and keyboard-based input, requiring average+ dexterity; mouse requires hand-eye coordination
 - May CAUSE disability
 - Cognitive bar is raised

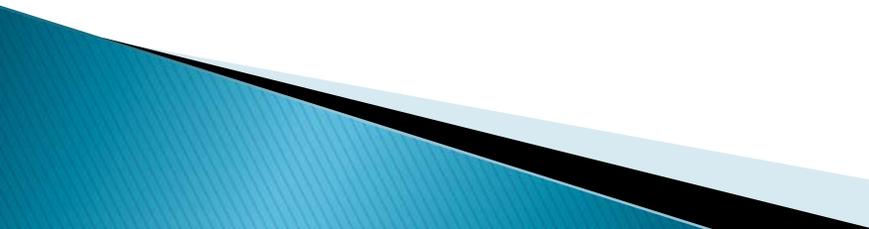
Mobile devices are not like traditional computers

- ▶ Smaller screens, ergo smaller print
- ▶ Touch-based—benefits some, not others
- ▶ Smaller keys
- ▶ Different OS, utilities, etc. with different capacities
- ▶ Less of an accessibility track record
 - Fewer products, strategies still being developed

Accessibility philosophies

- ▶ POUR principles
 - Perceivable
 - Operable
 - Understandable
 - Robust
 - ▶ Integral, not afterthought, throughout product life
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Accessibility in practice

- ▶ Compatibility with assistive technologies (AT)
 - Speech output (Perceivable, Understandable)
 - Magnification (Perceivable)
 - Control-and-command strategies (Operable)
 - Usually addressed at the coding level
 - ▶ Good interface
 - Large overlap with general usability
 - Usually addressed at the design level
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Impact of accessible design

- ▶ Immediate impact
 - Integration of people w/disabilities into general society as students, employees, activists, friends
- ▶ Broader impact
 - Lovesick Italian inventor
 - Insomniac spouses

Examples of AT

- ▶ Screen readers
 - Speak information on the screen, plus supportive information (e.g., # of links on a page)
 - Provide navigation strategies
- ▶ Alternative input strategies
 - Trackball
 - Switch scanning

How AT works

- ▶ Dependence on predictability
 - Usually provided by native settings
 - ▶ Ability to gain focus
 - ▶ Ability to identify objects
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Key strategies for AT compatibility

- ▶ Allow widgets to receive focus when alternatives to the touch screen are used
 - ▶ Label widgets so they can be identified by speech output utilities
 - ▶ Use native components, settings, interaction methods, etc. as much as possible
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Key strategies for usability

- ▶ Maximize color contrast
 - Lightness differences
 - Dark colors against light backgrounds
 - Avoid contrasting hues
 - More information:
<http://www.lighthouse.org/accessibility/design/accessible-print-design/effective-color-contrast>
 - ▶ Maximize target areas
 - ▶ Use standard interaction methods
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Key strategies for usability (2)

- ▶ Use meaningful, helpful error messages
 - ▶ Use multiple modalities (visual, audio, tactile)
 - ▶ Design for consistency and simplicity
 - ▶ Keep consistency between versions
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The Most Important Strategy:

- ▶ Interact with users–“Nothing about us without us”
 - Get design input
 - Ask them to test–if possible: pay them to test
 - Try using AT yourself
 - Think about all users who may be affected by POUR

Finding AT for Mobile Devices

▶ Software

- Often built-in (e.g., VoiceOver in iOS)—check control panels, search online, etc.
- Can be hard to find in app stores—search engines tend to be more helpful
- Check with your users to see what they've found

▶ Hardware

- Check Abledata: www.abledata.com
- Check with users

Resources–General

- ▶ Designing Accessible & Usable Application User Interfaces for Mobile Phones:
<http://www.slideshare.net/berryaccess/designing-accessible-usable-application-user-interfaces-for-mobile-phones>
- ▶ How to Make Your Mobile App Accessible:
<http://www.slideshare.net/technokitten/how-to-make-your-mobile-app-accessible-by-kath-moonan>

Resources–General (2)

- ▶ Top 10 Steps:
<http://www.guardian.co.uk/smart-accessibility/making-your-mobile-apps-more-accessible>
- ▶ Proceedings of the M–Enabling Summit:
http://g3ict.org/events/schedule/event_summary/p/eventId_231/id_summary

Resources–General (3)

- ▶ Henny Swan's blog: <http://www.iheni.com/>
- ▶ AT Mac: <http://atmac.org/>

Resources–Platform Specific

- ▶ Designing for Accessibility (Android):
<http://developer.android.com/guide/practices/design/accessibility.html>
- ▶ Accessibility Programming Guide for iOS:
<https://developer.apple.com/library/ios/#documentation/UserExperience/Conceptual/iPhoneAccessibility/Introduction/Introduction.html>

Resources–Platform Specific (2)

- ▶ Accessibility and Ergonomic Guidelines (Windows): <http://msdn.microsoft.com/en-us/library/bb158589.aspx>