

Accessibility: Building Products Everyone Can Use

Brad Green & Erin Rosenthal May 10, 2011

Twitter hash tags: #io2011, #TechTalk Feedback: goo.gl/n9BBr



How many of you...

- Accessibility awareness?
- Responsible for accessibility in your products?
- Know your gaps and how to make products accessible?



What we'll talk about today

- Users of accessible products
- Overview of accessibility for the web and Android
- Introduce tools that will help you build and test your apps
- Cool demos!



Why should I care?











Accessible technologies help everyone

- Keyboard access
- Text to speech
- Speech recognition
- Haptics
- Captioning
- Customizable UIs
- Testability



Accessible Interfaces

- Understand your users and use cases
- Support multiple modes of interaction
 - Keyboard
 - Voice
 - Touch
 - Special purpose
- Provide good feedback
 - Speech
 - Audio
 - Vibration
 - Special purpose





Keys to making your applications work

- Make sure all tasks can be completed through keyboard
- Manage the focus well within your application
- Add platform appropriate accessibility tags
- Add accessible support to custom controls
- Test it!!



Creating empowering products

- Working out of the box
- Easy to set up
- No assistance needed
- Easy to learn
- Enabling independence





Accessible Web Applications





The Web started off simple





Over time the web has evolved



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ARIA: New accessibility standards



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   aria-activedescendant="btn1" id="tb1">
   <img src="bold.png" role="button" alt="bold" id="btn1">
   <img src="italic.png" role="button" alt="italic" id="btn2">
   <img src="uline.png" role="button" alt="underline" id="btn3">
</div>
```



How is Google helping?

- Chrome integration with screen readers
- ChromeVox, a screen reader built into ChromeOS also available as an extension for developers
- ChromeShades, a tool for visualizing accessible navigation for your website

code.google.com/p/google_axs-chrome/



What ChromeVox does

- Provides spoken feedback as you navigate
- Uses latest accessibility standards including ARIA
- Reacts to dynamic updates
- Speaks relevant information
- Plays 'earcon' audio indicators
- Unprecedented control through VoxScripts



VoxScript

syncToNode(targetNode)
speak(text, queueMode, options)
playEarcon(earcon)



Demo: ChromeVox on Chrome OS

Charles Chen Software Engineer @ Google



ChromeVox on ChromeOS

- Recreate the desktop experience
- Unprecedented level of control
- Seamless user experience



ChromeShades

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Accessibility in Android





Accessible mobile apps are everywhere

- Inherent accessibility
- Designed for being distracted
- Open, customizable platform



Many eyes and ears



Location aware. Context aware. Extremely powerful

Internet Camera GPS Near field communication



Take advantage of the technology





Intersection Explorer

Walky Talky





Android Accessibility Support

- Accessible framework
- Accessible services
 - TalkBack
 - KickBack
 - SoundBack
- Open, highly customizable platform



What makes an Android App Accessible?



- Use standard controls
- Label controls with contentDescription
- Make all controls reachable with D-pad and Trackball
- Include focused states
- Raise accessibility events



Demo: Cool Reader & KhAndroid

Steve Jacobs *President, IDEAL Group, Inc CEO, Apps4Android, Inc*



IDEAL Group

CoolReader

- Uses gestures to interact without needing to see the screen
- Provides verbal feedback
- KhAndroid
 - Provides great access to great content for everyone
 - Based on Google Accessibility Developer Challenge



"Deaf people can do anything but hear."

Dr. I. King Jordan The first Deaf president of Gallaudet University



Enabling communities

- Quickly adopted by the deaf community
- Text chat & SMS
- Video phones
- Watching videos with captions



Demo: Mobile ASL

Jaehong Chon Ph.D. Student at University of Washington



Mobile ASL Android App



http://mobileasl.cs.washington.edu

- Wi-Fi
- - image
 - Audio stream removed
 - listening)

Video chat for sign language Works on Cellular network and

Optimized for low bandwidth Maintain quality of face and hands in

Lower FPS for static content (when





Original



30K



Skin Pixel



30K ROI



Skin Block



Making your applications accessible

- Understand your users and use cases
- Enable independence
 - Multiple ways to interact
 - Good feedback
- End to end experience



Making your applications accessible

- Use standard toolkits
- Make sure there are keyboard workflows for all tasks
- Be aware of tab order and focus
- Test it in a screen reader, like ChromeVox



Learning more @ I/O

Accessibility Sessions

Today

10:15am – 11:15am (available on YouTube) Leveraging Android Accessibility APIs to Create an Accessible Experience

Tomorrow

12:30pm – 1:30pm The YouTube Caption API, Speech Recognition, and WebVTT captions for HTML5

3pm – 4pm **Creating Accessible Interactive Web Apps using** HTML5

Developer Sandbox – 2nd Floor

All day

Office Hours – 2nd Floor Tuesday 3pm – 6:30pm Wednesday 3pm – 5pm



Contact us

Brad Green (bradgreen@google.com) Erin Rosenthal (erosenthal@google.com)

Session Hash Tags: #io2011, #TechTalk

Feedback: goo.gl/n9BBr

Other Links google.com/accessibility code.google.com/p/google_axs_chrome/

developer.android.com/guide/practices/design/accessibility.html





