Discover the Accessibility Features of Smartphones!

A Wireless Education Workshop
for Consumers who are
Blind or Visually Impaired

Who We Are

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Wireless Rehabilitation Engineering Research Center

Our mission is to research, evaluate and develop innovative wireless technologies and products that **meet the needs, enhance independence, and improve the quality of life and community participation** of people with disabilities.

Shepherd Center

Georgia Institute of Technology

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AT&T's Corporate Accessibility Technology Office

The **Corporate Accessibility Technology Office (CATO)** leads AT&T's efforts to address the needs of persons with disabilities in the design and development of products and services across the enterprise. CATO partners with each business unit to advance AT&T's efforts to comply with all accessibility laws for all products, services, applications and networks affecting the business. Building on AT&T's legacy, CATO promotes technology that is accessible by all and fosters innovations which improve the lives of our customers.

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Why are we here?

- Collaboration between Wireless RERC and AT&T Foundation

- # 1 Goal - Help you use your devices more effectively!

- We want to help you:
  1. Understand which popular smartphone platforms and Operating Systems (OS) might best fit your needs
  2. Leverage built-in accessibility features in those OS's
  3. Experience the latest accessible consumer-based wireless technologies
  4. Alleviate issues with your own devices, or learn something new

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General Hardware Overview

Four device categories:

1. Smartphone
2. Phablet
3. Tablet
4. Quick Messaging Device (QMD)

Apple's iOS 7 General Overview

- Controlled ecosystem of hardware, software and "cloud" services
  - iPhone, iPad, iPod
  - App Store, iTunes, iBooks, iPhoto, iCloud
- Transferable skills between devices
- Greatest number of apps

Google's Android 4.4 (Kit Kat) General OS Overview

- Largest market share

- Open source

- Many "flavors" of OS affects uniform accessibility performance across OS versions

- Tight integration with Google services
  - Gmail, Google+, Hangouts, Drive

- Often less expensive than iOS devices

- "Widgets" provide custom functionality and shortcuts to apps

- Manufacturers overlay their own "skin"

Accessibility Features

Screen Readers

Apple – iOS 7

Screen Readers

Apple - VoiceOver

- Integrated gesture-based Screen Reader
- Gives speech output to all functions available on device
- When enabled, user needs to learn certain gestures to operate correctly
  - Examples: two and three finger swiping and double and triple tapping
- Triple-tap Home button: Out-of-box setup

Access Apple VoiceOver
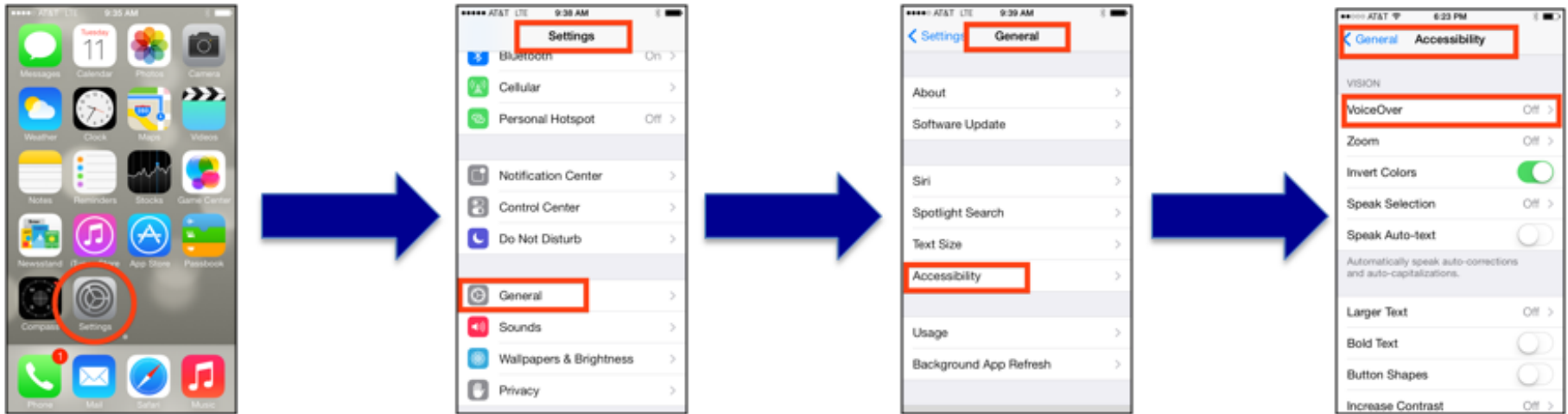
Apple - VoiceOver - Braille

- iOS 7 supports pairing to a Braille display or reader
  - Navigate iOS 7
  - Connects via Bluetooth
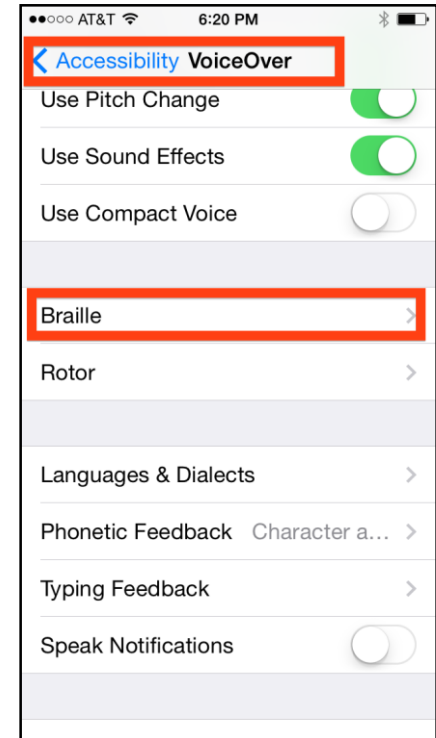
Apple – VoiceOver - Braille Settings
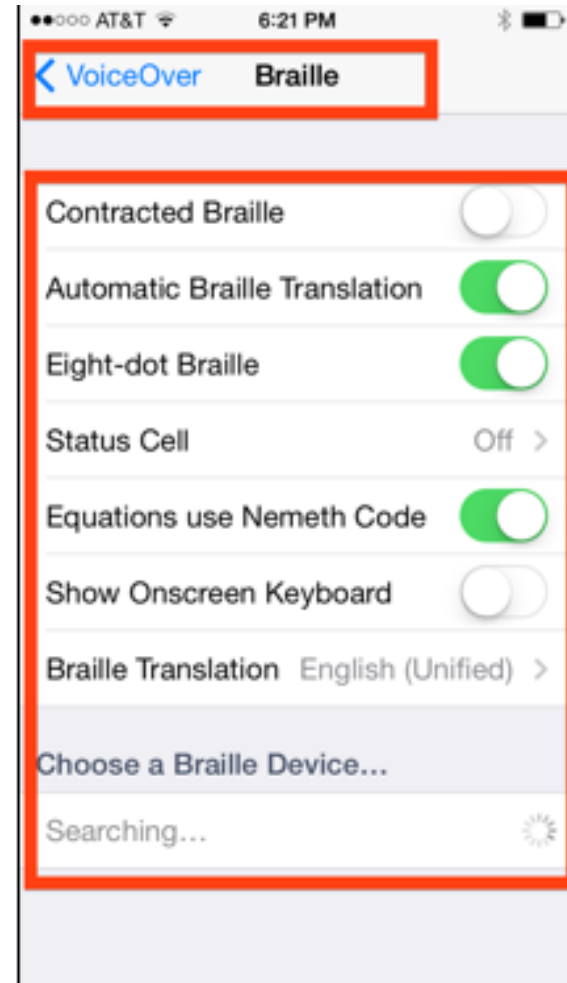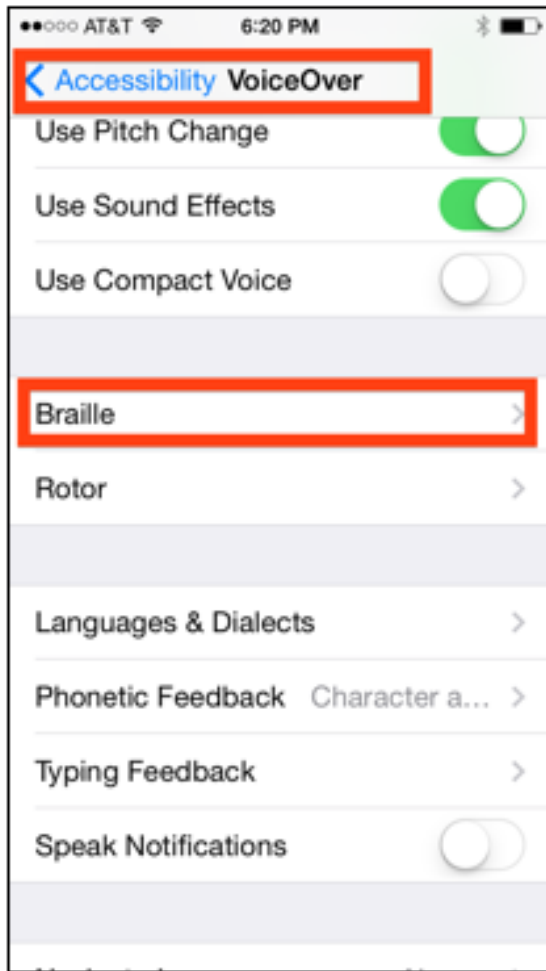
Apple - VoiceOver - Rotor

- Rotor control is an invisible dial that can change results of up and down flick gestures when VoiceOver is turned on.

- Rotate two fingers on screen to "turn" the dial to choose between options.
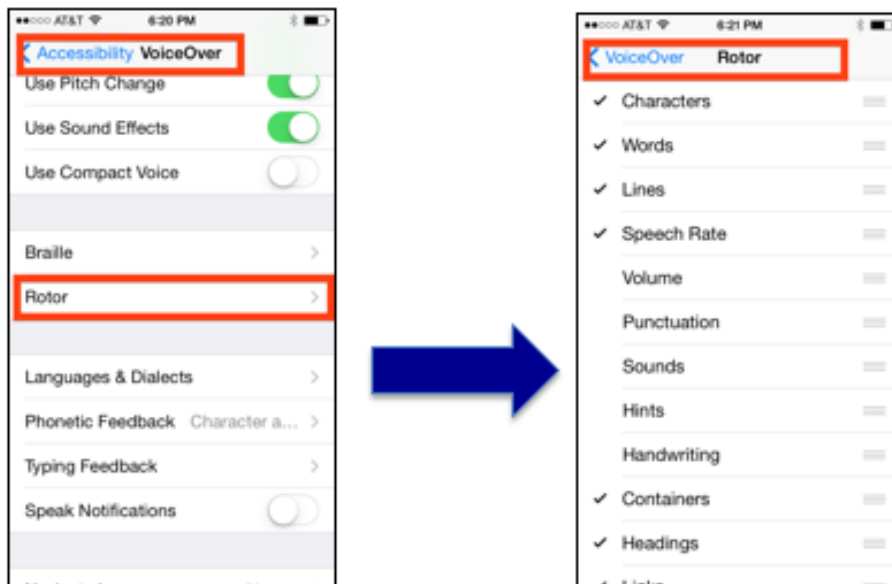
Google's Android 4.4 (KitKat)

Screen Readers and Sounds

Android - TalkBack

- Integrated gesture-based Screen Reader
- Gives speech output to most functions available on device
- When enabled, user needs to learn certain gestures to operate correctly
  - Examples: two and three finger swiping and double and triple tapping
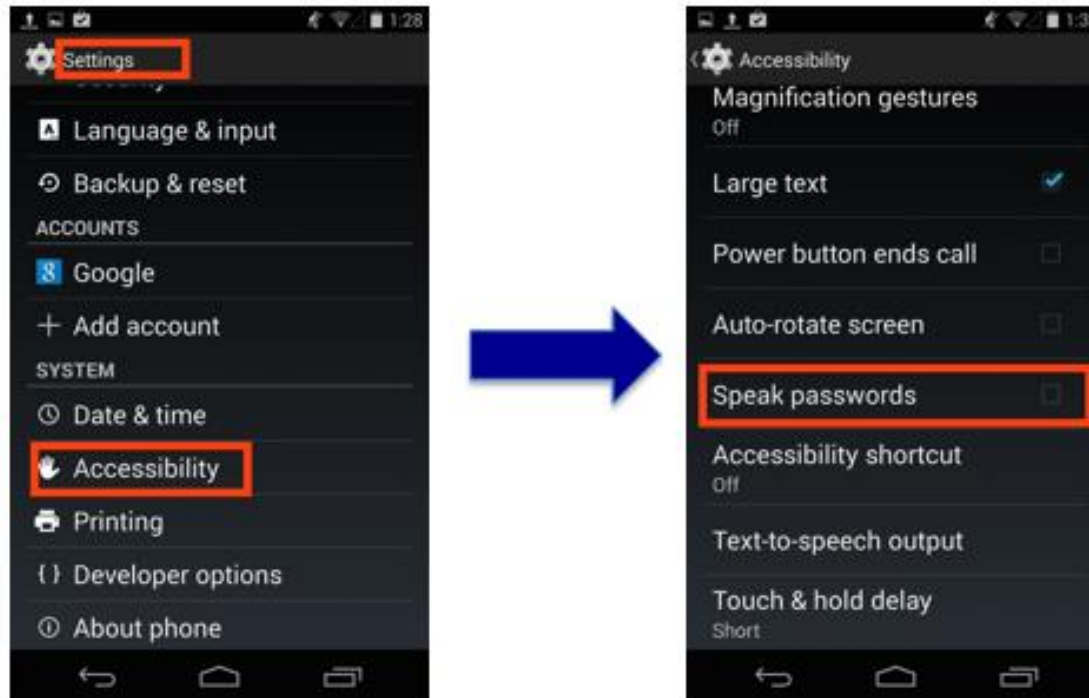
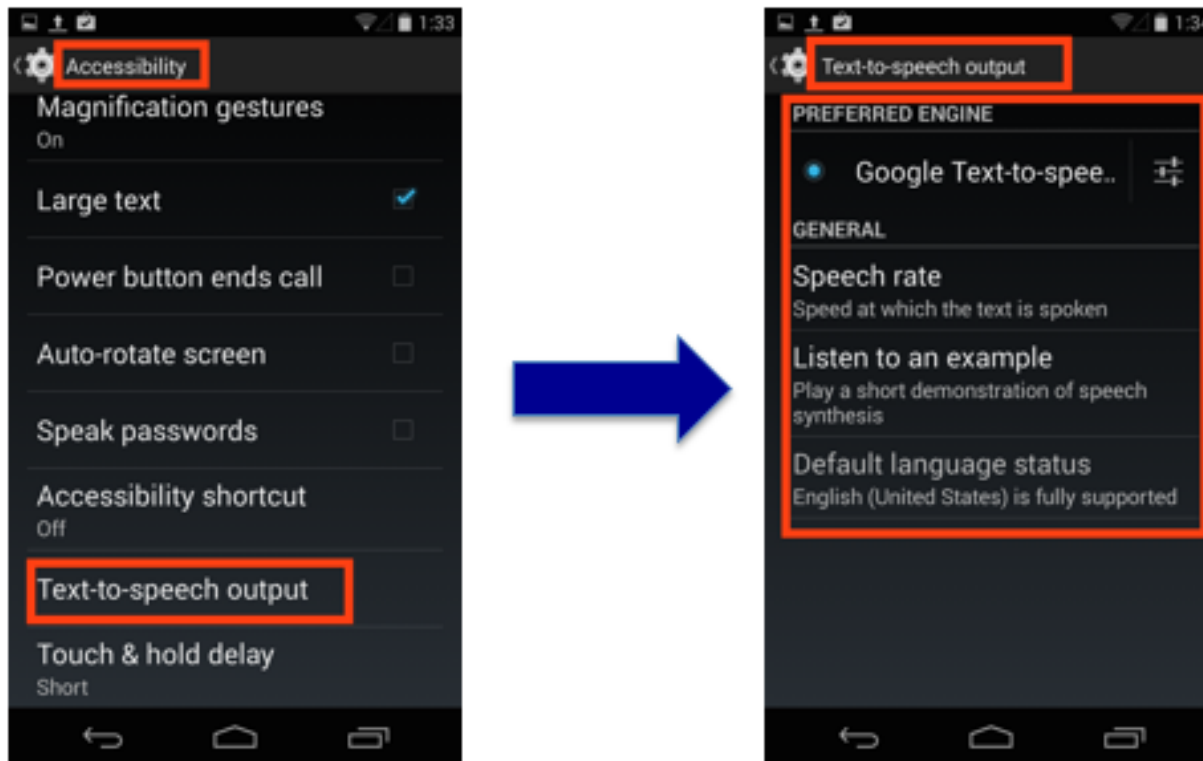# Access Android TalkBack
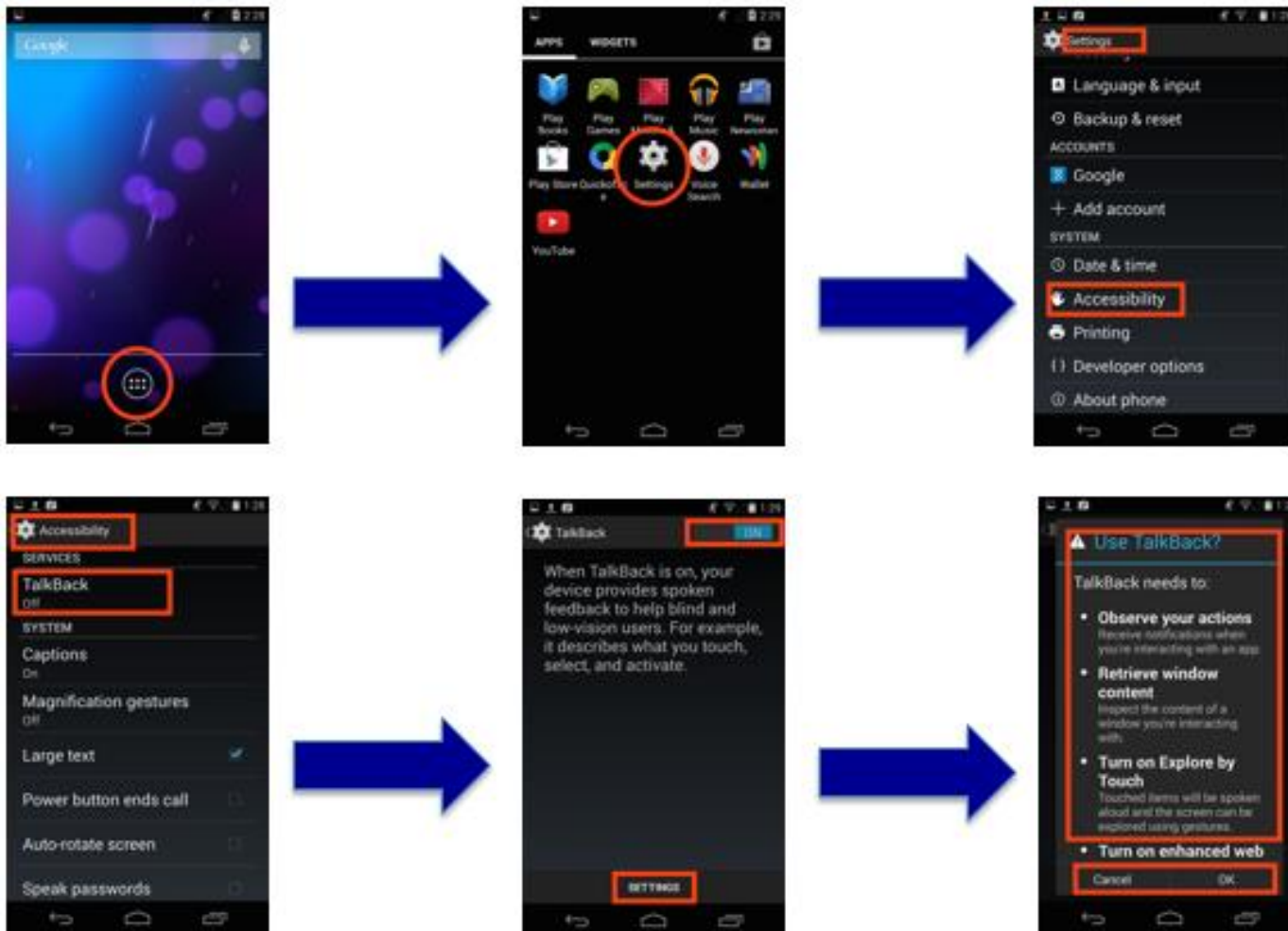
Android - TalkBack Settings
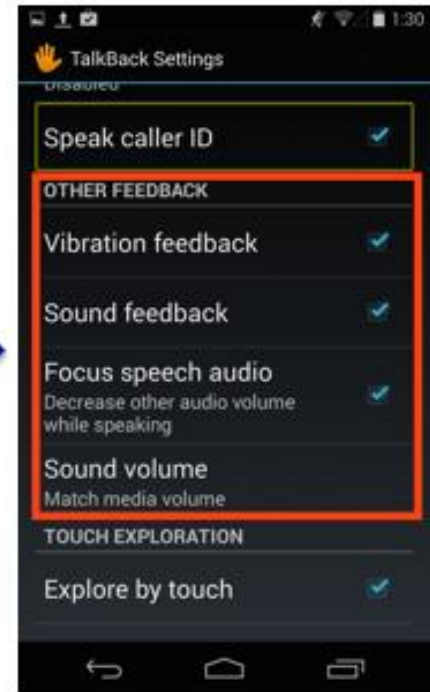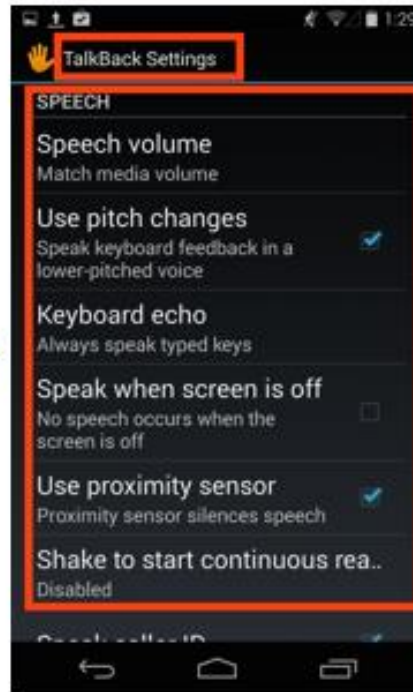
Android - Speak Passwords
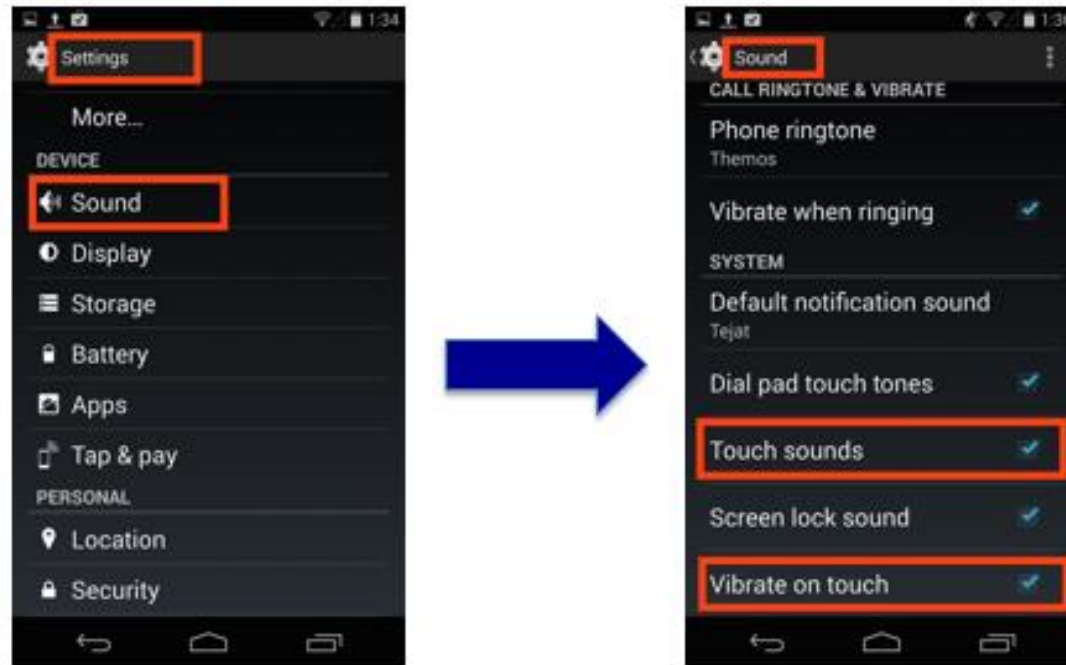
- Options for speaking passwords

Android - Text-to-Speech Output

- Add another language or speech synthesizer

Android - Vibrate on Touch

- Device vibrates each time a key is selected
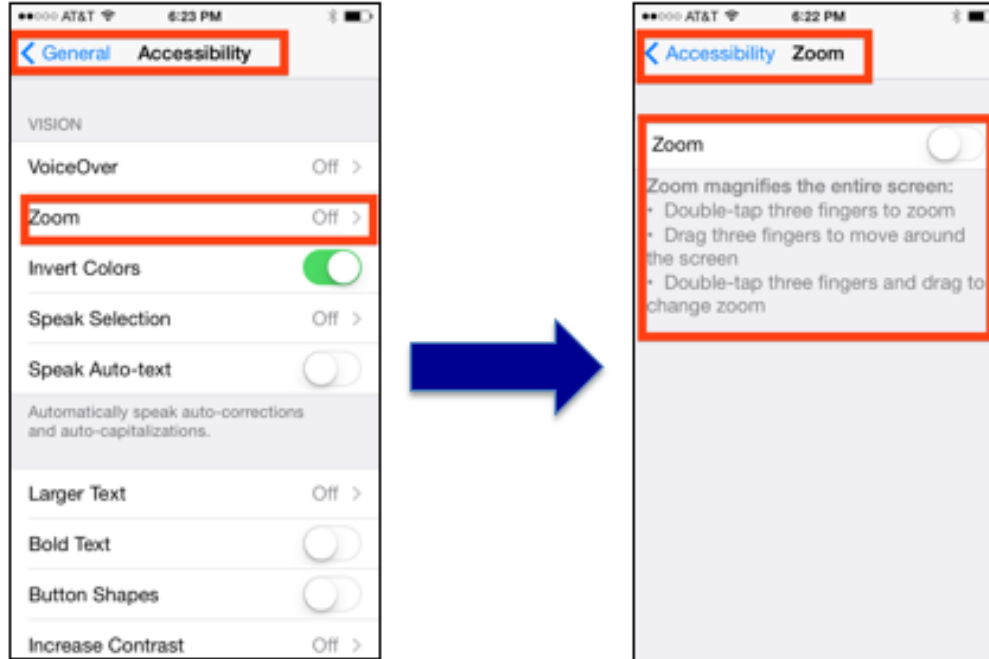- Auditory feedback each time a key is pressed

Accessibility Features

Magnification and Text Size

Apple – iOS 7

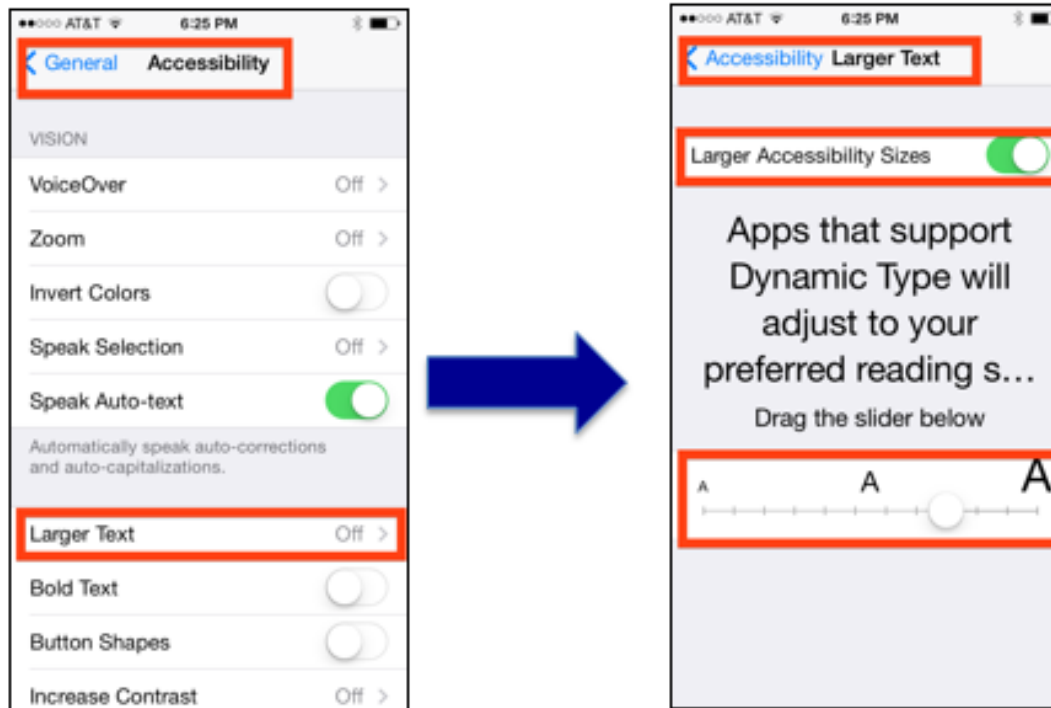# Magnification and Text Size

Apple - Zoom

- Built-in screen magnifier
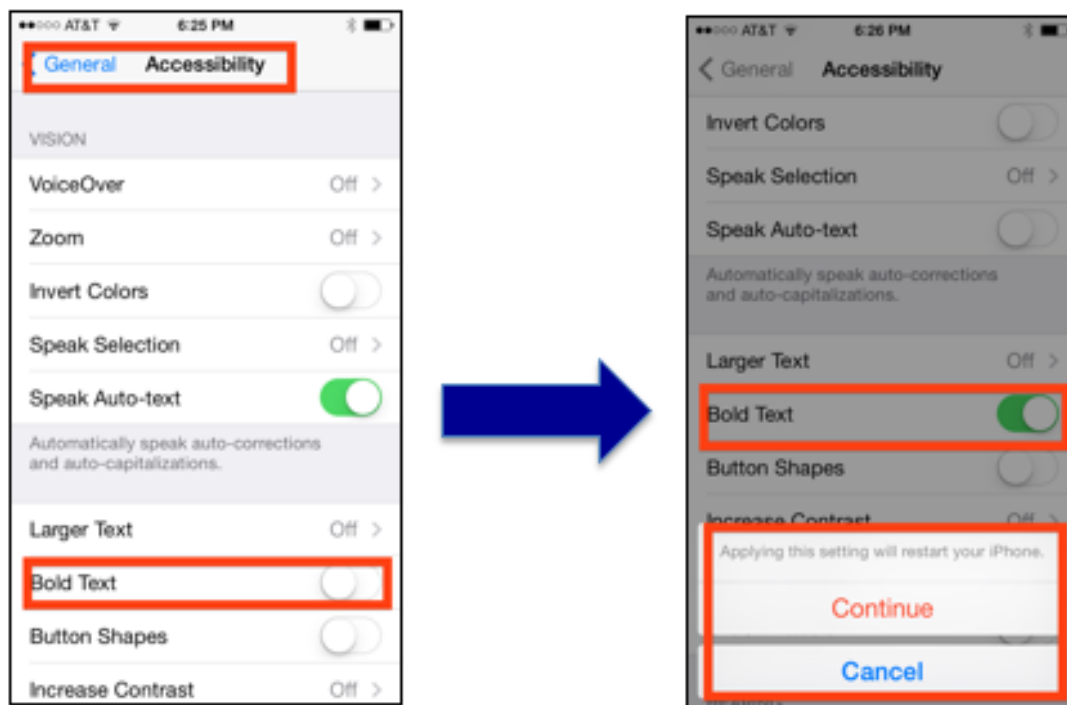 - Specific gestures to enable/disable

Apple - Larger Text

- Change the default size of text across entire device

Apple - Bold Text

- Increase boldness of text on entire device
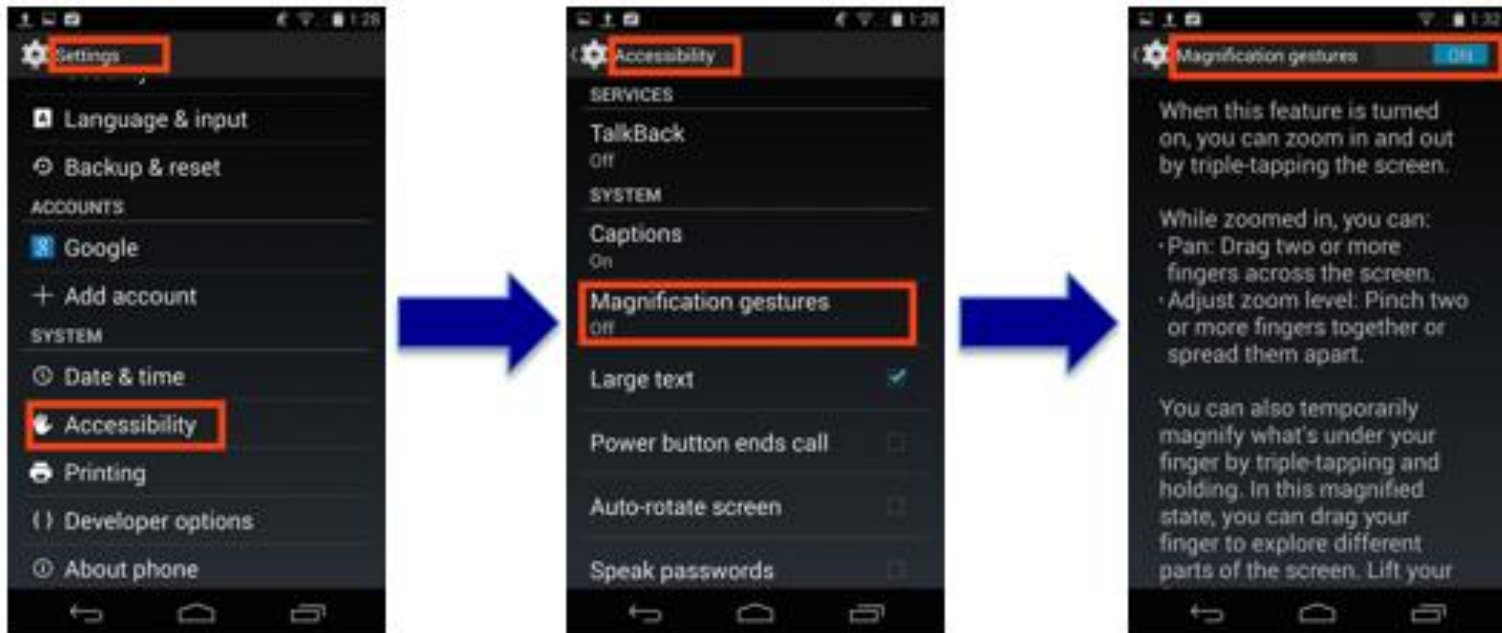 - Requires a restart of device to enable

Google's Android 4.4 (KitKat)
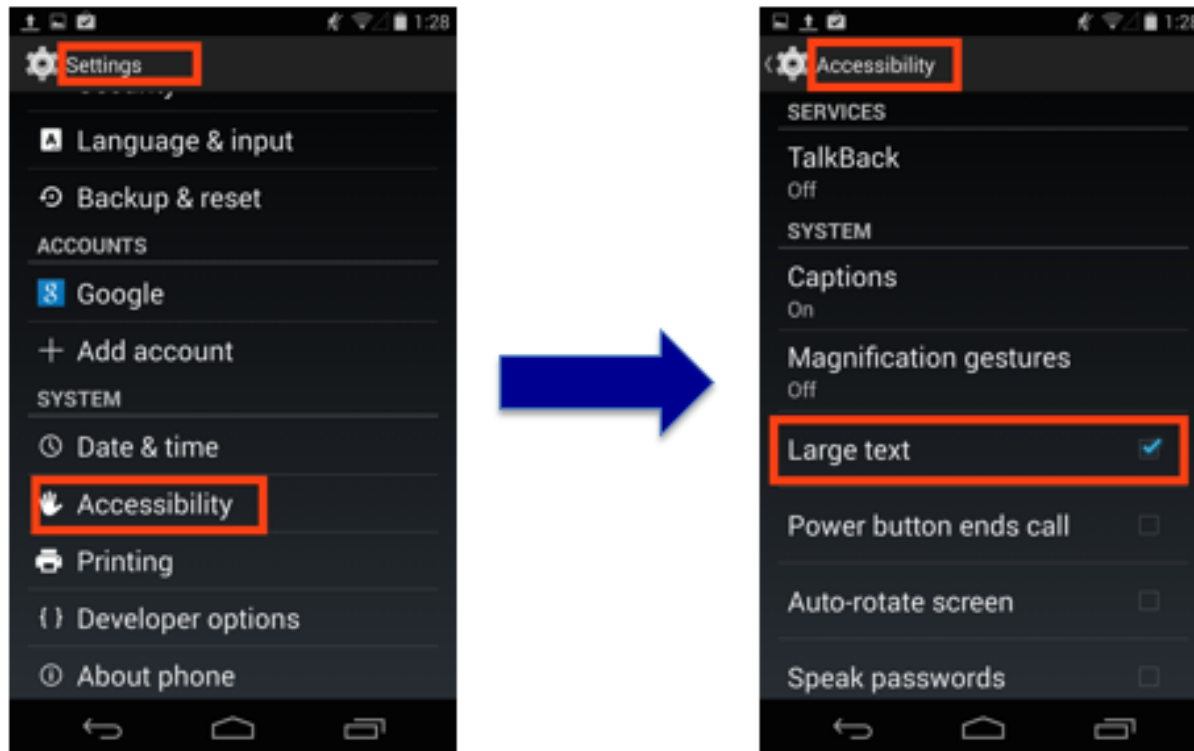
Magnification and Text Size

Android - Magnification Gestures

- Built-in screen magnifier
  - Specific gestures to enable/disable

Android - Large Text

- Changes font size to "Huge"

Accessibility Features

Color Contrast
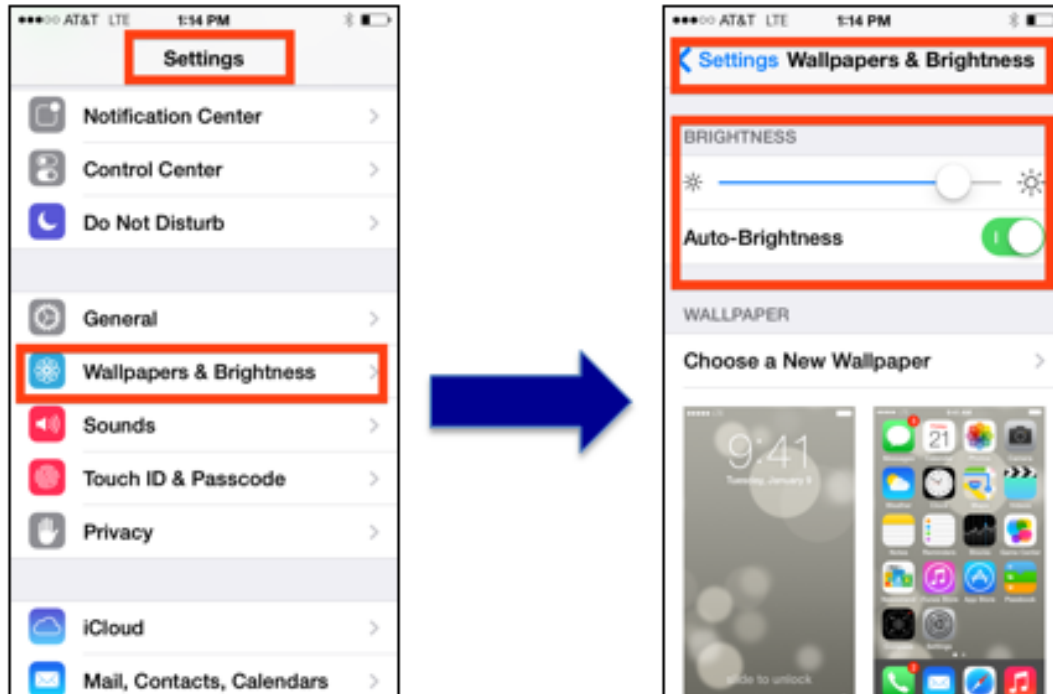
Apple – iOS 7

Color Contrast

Apple - Invert Colors

- ## May make screen easier to read
  - ### Background of screen becomes black

Apple - Brightness

- Increase or Decrease screen brightness
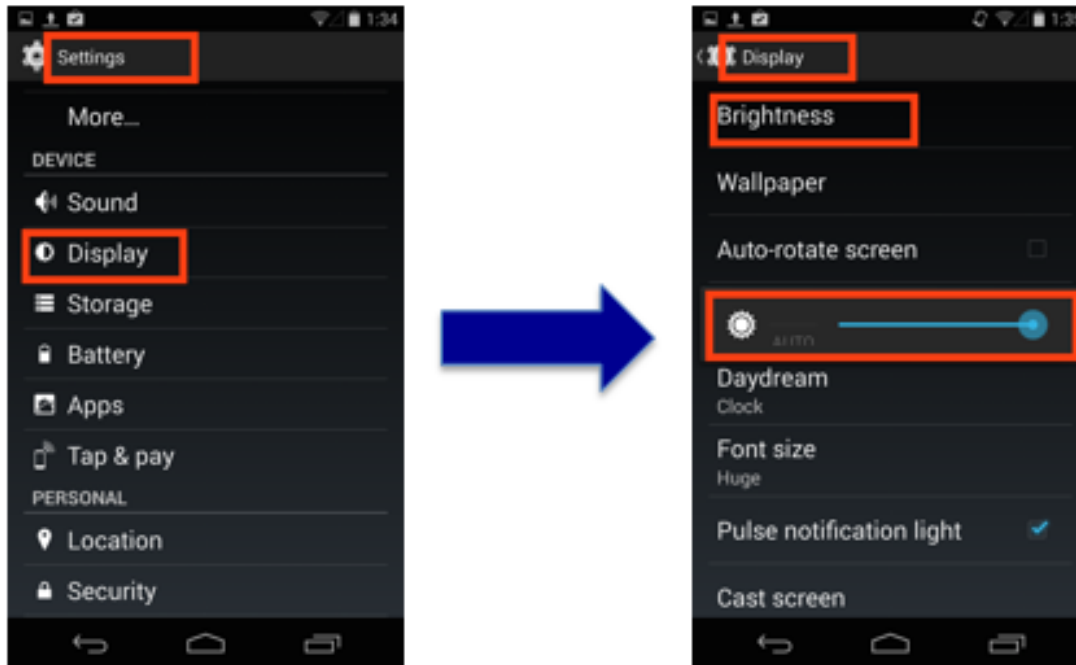 - Auto-Brightness setting

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Google's Android 4.4 (KitKat)

Color Contrast

Android - Brightness

- Increase or Decrease screen brightness
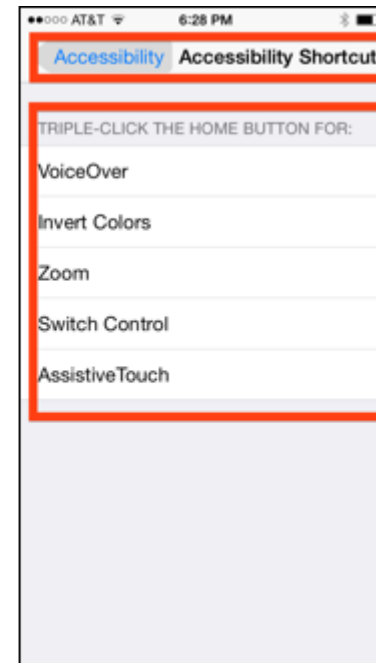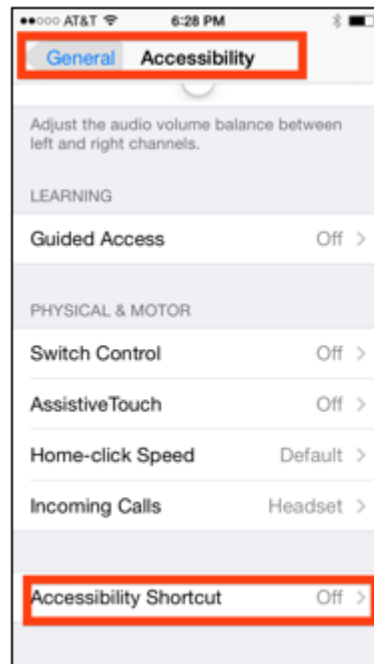 - Auto-Brightness setting

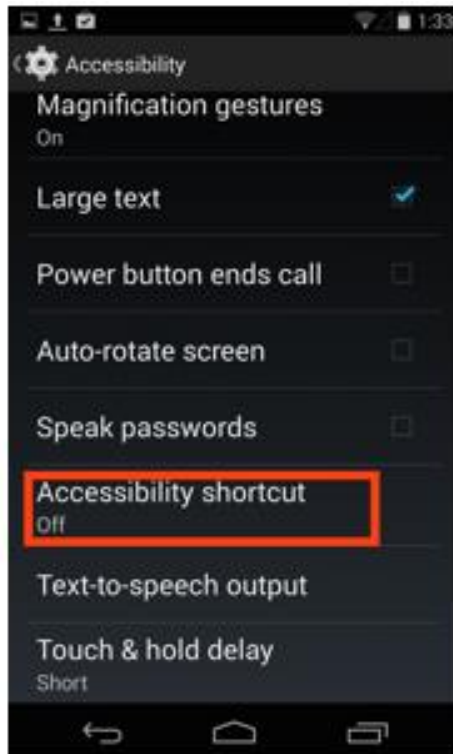# Accessibility Features

Accessibility Shortcut

Apple - Accessibility Shortcut

- Triple-click Home button to enable an accessibility feature:
  - VoiceOver, Invert Colors, Zoom, Switch Control, Assistive Touch

Android - Accessibility Shortcut

- Quickly enable accessibility features

Accessibility Features
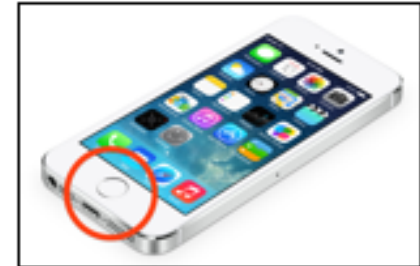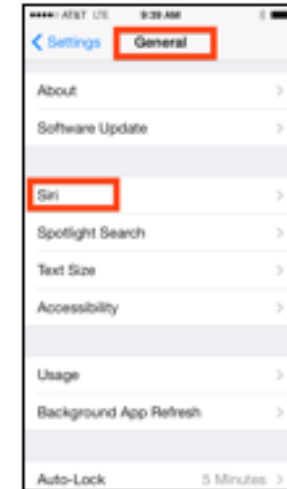
Virtual Assistant

Apple – iOS 7

Virtual Assistant

Apple - Siri

- Virtual Intelligent Assistant/Voice Control

- Siri allows you to:
  - Send email/messages
  - Place phone calls
  - Schedule meetings
  - Set reminders
  - Search and surf internet

Access Apple Siri
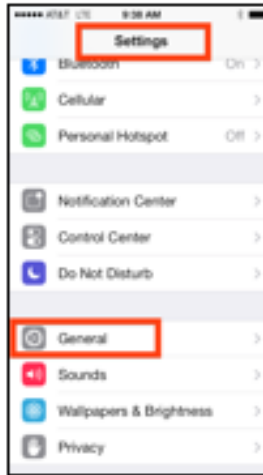
Google's Android 4.4 (KitKat)

Virtual Assistant

Android - Google Now

- Intelligent Virtual Assistant
- Google Now allows you to:
  - Send email/messages/SMS/Text
  - Place phone calls
  - Schedule meetings
  - Get directions
- Accessed by:
  - Google Search Bar
  - Swiping UP on home screen inside any app
- Voice recognition can be an issue for users with speech impairments

Access Google Now

Search Bar
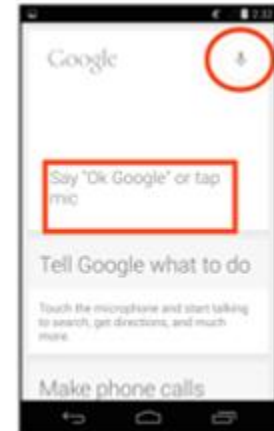
Swiping Up

Android - Ok Google

- Hands-free interface
- "Always On" Active Listening Voice Command for Google Now
  - Initiated through home screen or within Google Now
  - Say: "OK Google"
- Voice recognition can be an issue for users with speech impairments

Accessibility Resources

Online Resources for Accessible Apps

- Each OS's app store
  - [Apple's App Store (www.itunes.apple.com/us/genre/mobile-software-applications/id36?mt=8)](www.itunes.apple.com/us/genre/mobile-software-applications/id36?mt=8)
  - [Google Play (www.play.google.com/store)](www.play.google.com/store)
  - [Windows Phone Store (www.windowsphone.com/en-us/store/featured-apps)](www.windowsphone.com/en-us/store/featured-apps)
- FCC Accessibility Clearing House
  - [FCC Accessibility Clearing House (www.ach.fcc.gov)](www.ach.fcc.gov)
- Global Accessibility Reporting Initiative (GARI)
  - [GARI (www.gari.info)](www.gari.info)

Online Resources for Wireless Accessibility Information/Products

- AT&T National Center for Customer with Disabilities (NCCD)
  - Specialized customer service representatives can assist with questions about alternate billing format such as Braille or large print, the Directory Assistance Exemption Program, and questions about AT&T equipment, accessories, features, and services.
  - Voice calls: 1-866-241-6568; TTY calls: 1-866-241-6567
- AT&T Sales and Service Center for Disability and Aging- Wireline Services
  - Specialized customer service representatives can assist with questions about alternate billing format such as Braille or large print for wireline services, the Directory Assistance Exemption Program, and questions about AT&T equipment, accessories, features, and services.
  - Voice calls: 1-800-772-3140; TTY calls: 1-800-651-5111
- Wireless RERC's list of online accessibility resources
  - Online accessibility resources (wirelessrerc.gatech.edu/node/365)
  - Provides direct links to manufacturers & service providers accessibility sites
- Global Accessibility Reporting Initiative (GARI)
  - GARI (www.gari.info)
  - Ability to compare device accessibility features
  - Filter by dexterity, seeing, hearing and cognition

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National Disability Resources

- National Federation of the Blind (NFB)
  - [NFB (www.nfb.org)](www.nfb.org)
- American Foundation for the Blind (AFB)
  - [AFB (www.afb.org)](www.afb.org)
- iCanConnect (National Deaf-Blind Equipment Distribution Program)
  - [iCanConnect (www.icanconnect.org)](www.icanconnect.org)
- State Vocational Rehabilitation Services
  - [State Vocational Rehabilitation Services (www. wdcrobcolp01.ed.gov/Programs/EROD/org_list.cfm?category_cd=SVR#G](www.wdcrobcolp01.ed.gov/Programs/EROD/org_list.cfm?category_cd=SVR#G)

Take the "Exit" Survey

Please tell us what you think about this event!
We're listening to your feedback!

[Survey Monkey (www.surveymonkey.com/s/Accessibility-Workshop)](www.surveymonkey.com/s/Accessibility-Workshop)

Final Questions?

Contact Us!

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