Discover the Accessibility Features of Smartphones!

A Wireless Education Workshop for Consumers with Disabilities

wireless **RERC** Rehabilitation Engineering Research Center

at&t

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.

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

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

Virtual Assistant

Apple iOS

Virtual Assistant

Apple – Siri Overview

- Virtual Intelligent Assistant/Voice Control

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

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Apple – Using Siri with AssistiveTouch

Steps to access AssistiveTouch:

1. Settings
2. General
3. Accessibility
4. Turn on AssistiveTouch

Steps to access Siri with AssistiveTouch:

1. Select AssistiveTouch menu button
2. Select Siri

Google's Android 4.4 (KitKat)

Virtual Assistant

Google Now & Ok Google

- Intelligent Virtual Assistant
- Accessed by:
  - Google Search Bar
  - Swiping Up on home screen inside any app
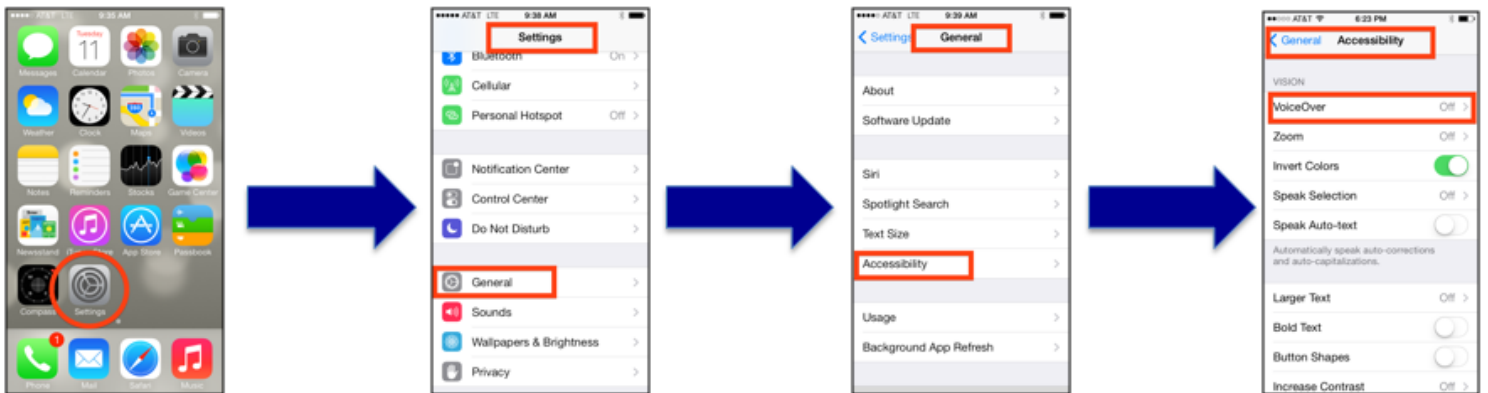
Accessibility Features

Screen Readers

iOS - Apple

Screen Reader

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

Google's Android 4.4 (KitKat)

Screen Reader

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
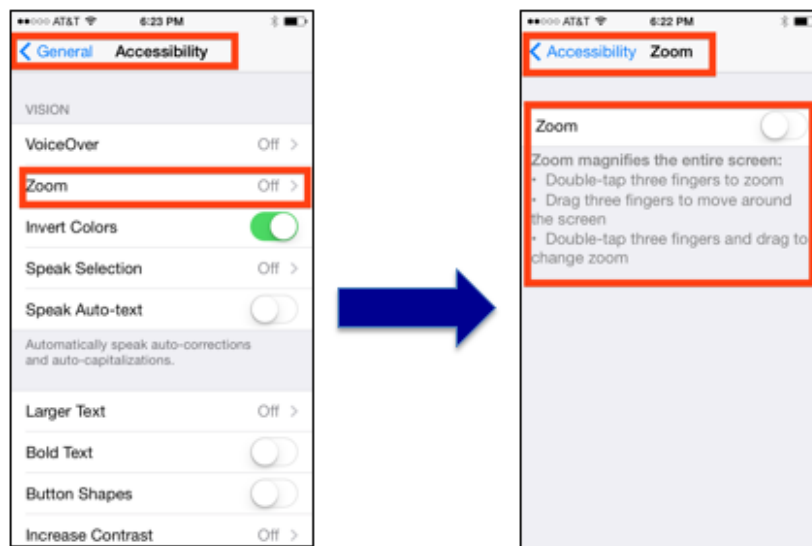
Accessibility Features

Magnification, Text Size, Color
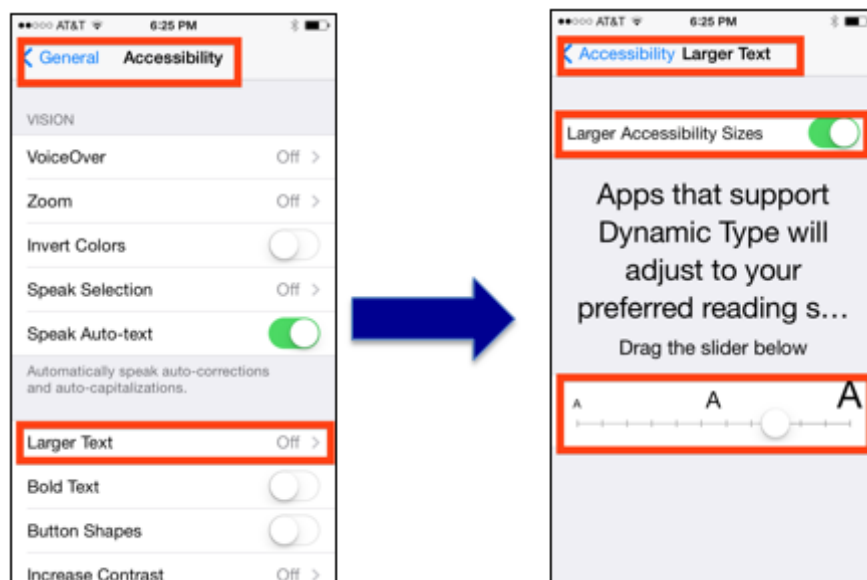
Apple iOS

Magnification, Text Size, Color

Apple - Zoom

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

Apple - Larger Text

- Change the default size of text across entire device

Apple - Invert Colors

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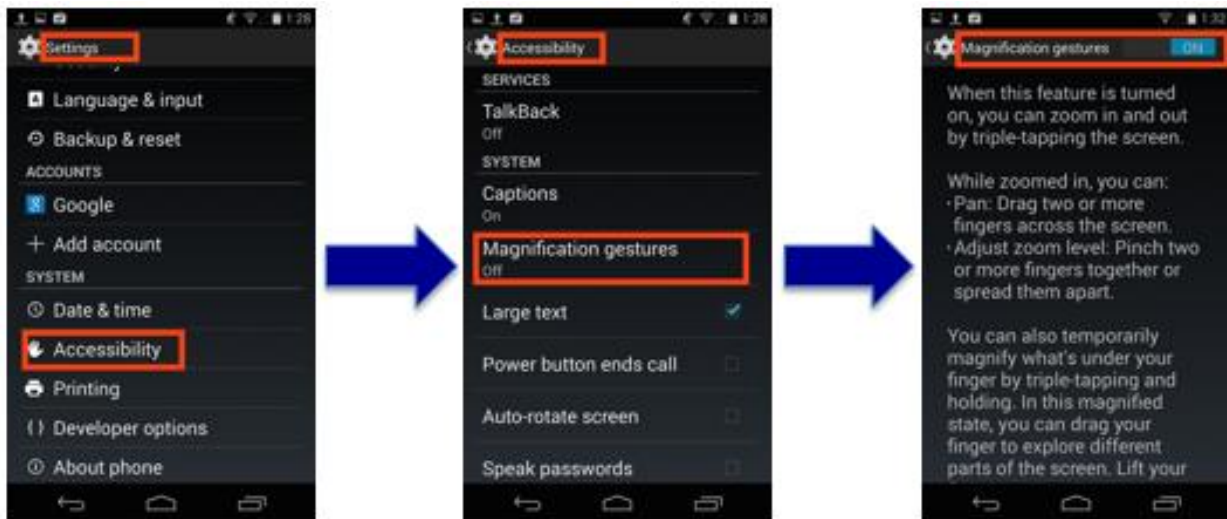 - Background of screen becomes black

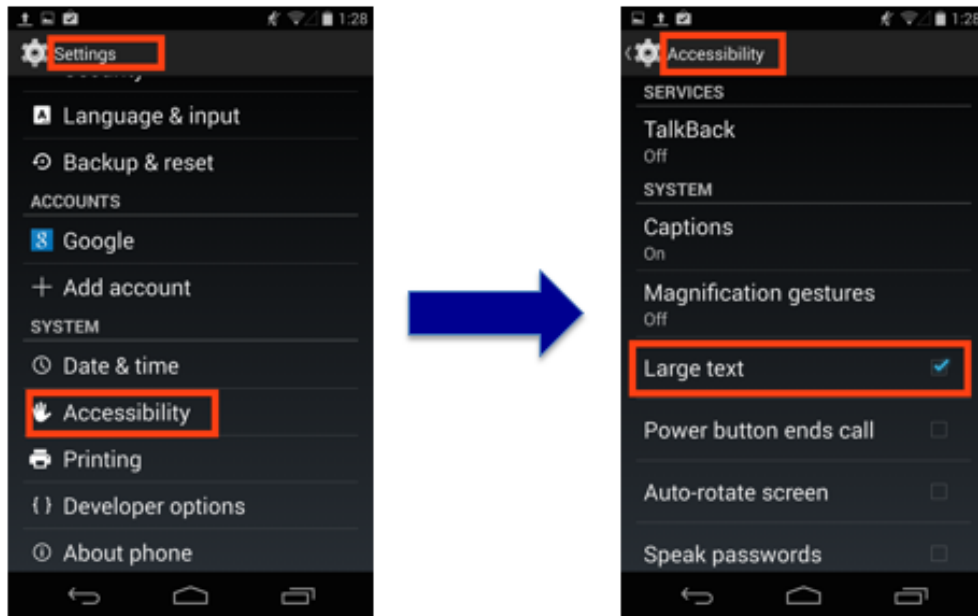# Google's Android 4.4 (KitKat)

Magnification, Text Size, Color

Android - Magnification Gestures

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

Android - Large Text

- Changes font size to "Huge"

Accessibility Features

Vibrating and Visual Alerts

iOS - Apple

Vibrating and Visual Alerts

Apple - Vibrating on Ring

Steps to enable Vibrate on Ring:

1. Settings

2. Sounds

3. Turn on Vibrate on Ring

Apple - LED Flashing for Alerts

Steps to enable and disable LED Flashing:

1. Settings

2. General

3. Accessibility

4. LED Flash for Alerts

Android 4.4 (KitKat) – Google

Vibrating and Visual Alerts

Android - Vibrate when Ringing

Steps to enable Vibrate on Ring:

1. Settings

2. Sound

3. Vibrate when ringing
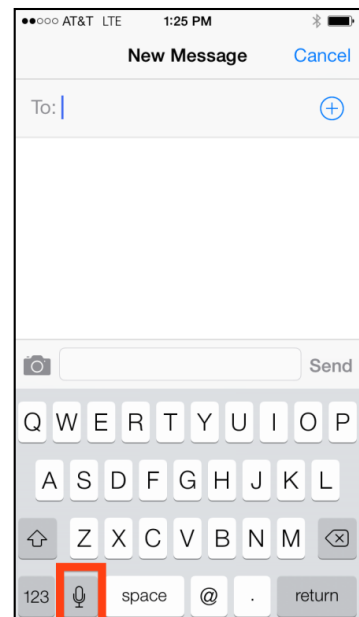
Android - LED Flash

Steps to enable LED Flash:

1. Settings

2. Display

3. Pulse notification light

Accessibility Features

Dictation

Apple - Dictation

- Microphone icon on keyboard
- Allows you to speak:
  - Emails
  - SMS/Text messages
  - URLs for web browsing
- Only available in some applications

Android Dictation

- Microphone icon on virtual keyboard
- Allows you to speak emails, SMS/Text messages, and URLs for web browsing
- Only available in some applications

Accessibility Features

Near Field Communications

Google's Android 4.4 (KitKat)

Near Field Communications

Android - Near Field Communications (NFC)

- Tap two NFC-enabled devices to share:
  - Photos, Websites, Files, and Contacts
- Environmental or other access control
  - Tapping to pay at convenience stores
  - Use technology for opening doors without keys
  - Thermostat temperature adjustments

Access Android Near Field Communications (NFC)

Steps to enable Vibrate on Ring:

1. Settings

2. More…

3. NFC

Accessibility Features

Additional

Apple iOS

Assistive Touch

Apple - AssistiveTouch

- Adapts touchscreen to your unique needs
  - Customization of multi-touch gestures to just one tap of finger, stylus, or mouthstick
  - Accessible method for operating side keys, power, and home buttons

Access Apple AssistiveTouch

Steps to enable AssistiveTouch:

1. Settings
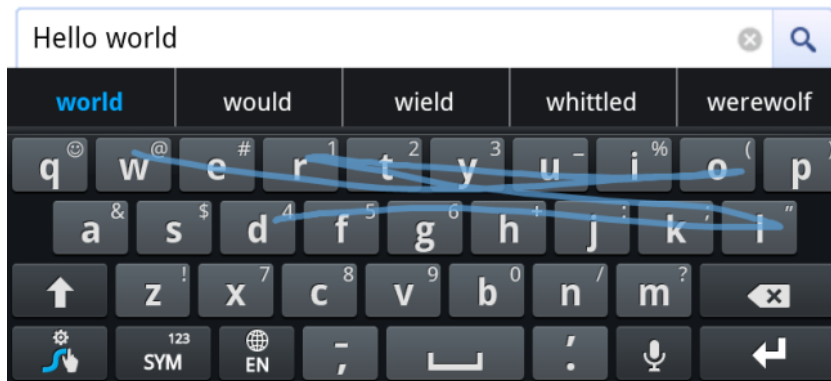2. General
3. Accessibility
4. AssistiveTouch

Google's Android 4.4 (KitKat)

SWYPE

Android - SWYPE

- Virtual keyboard for touchscreen smartphones and tablets
  - Slide a finger or stylus from the first letter of a word to its last letter, lifting only between words, to enter text
- SWYPE supports "Talkback" and "Explore by Touch"
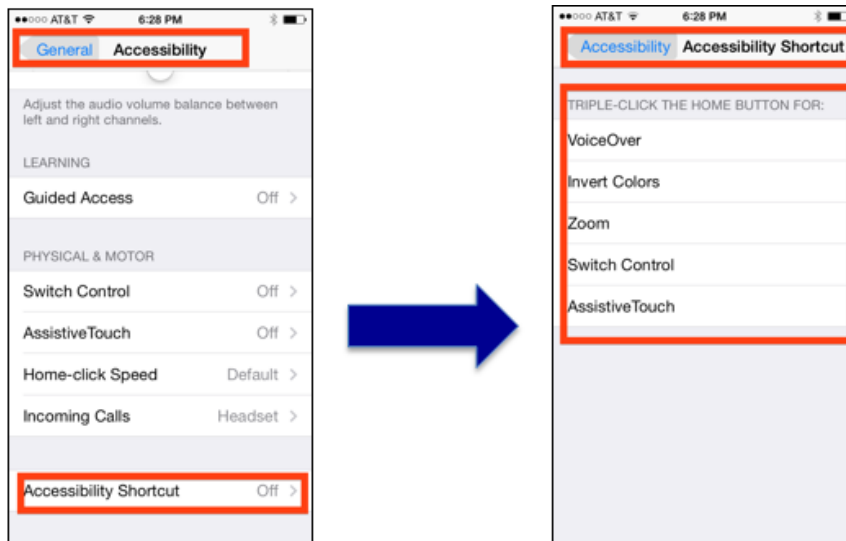- Sync Voice and Text Dictionary

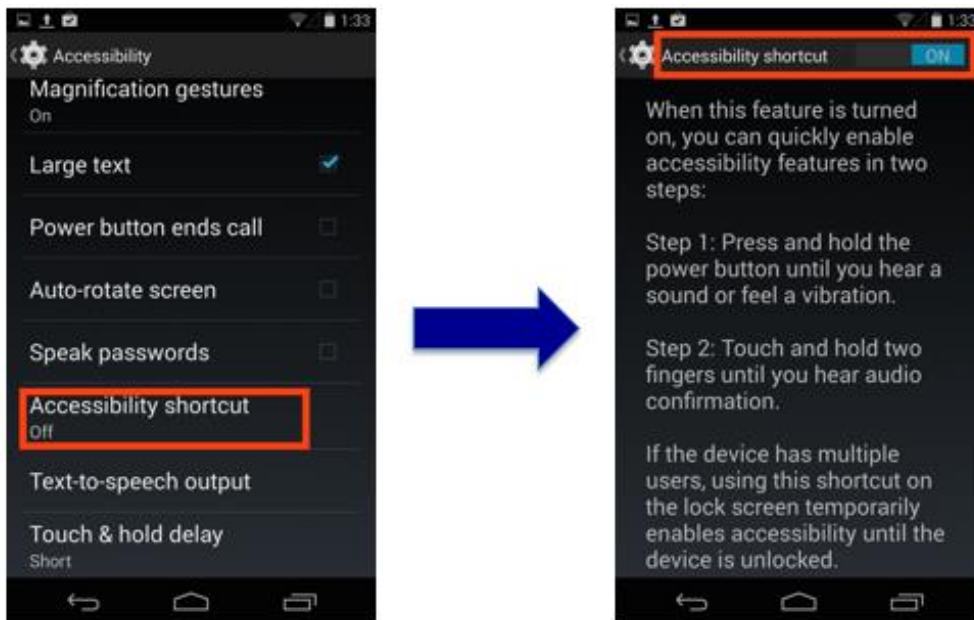# Accessibility Features

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 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)

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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

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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