

## ACCESSIBLE TECHNOLOGY WEBINAR SERIES



Southeast  Center



### Mobile Accessibility: Applying WCAG Standards to Mobile Apps

Session Begins 1:00 pm CT/ 2pm ET

Periodic Audio Testing Occurring

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## Useful Keyboard Shortcuts

- Full list - *Keyboard Shortcuts* from the *Help* menu on the Menu Bar.
- Chat: Move cursor to the Message text box
 

Windows:	Ctrl+M
Mac:	Command-M
- Speaker level Up:
 

Windows:	Ctrl+Alt+Up Arrow
Mac:	Command-Option-Up Arrow
- Speaker level Down:
 

Windows:	Ctrl+Alt+Down Arrow
Mac:	Command-Option-Down Arrow

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## More keyboard shortcuts

- Open Closed-Captioning window  
Windows: Ctrl+F8  
Mac: Command-F8
- Close Closed-Captioning window  
Windows: Alt+F4 or Ctrl+W  
Mac: Command-W

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## Listening to the Webinar

- The audio for today's webinar is being broadcast through your computer. Please make sure your speakers are turned on or your headphones are plugged in.
- You can control the audio broadcast via the Audio & Video panel. You can adjust the sound by "sliding" the sound bar left or right.
- If you are having sound quality problems check your audio controls by going through the Audio Wizard which is accessed by selecting the microphone icon on the Audio & Video panel.



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## Listening to the Webinar, *continued*

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**712-775-8968**

**Pass Code:**

**148937**

This is **not** a Toll Free number

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## Listening to the Webinar, *continued*

MOBILE Devices supported include iPhone, iPad, Android Devices, Kindle Fire HD)\*\*

Individuals can download the free Blackboard Collaborate App from the Apple Store, Google Play or Amazon



\*\*Closed Captioning is not visible via the Mobile App and there is limited access to the white board for individual's using voice over technology

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## Captioning

- Real-time captioning is provided during this webinar.
- The caption screen can be accessed by choosing the  icon in the Audio & Video panel.



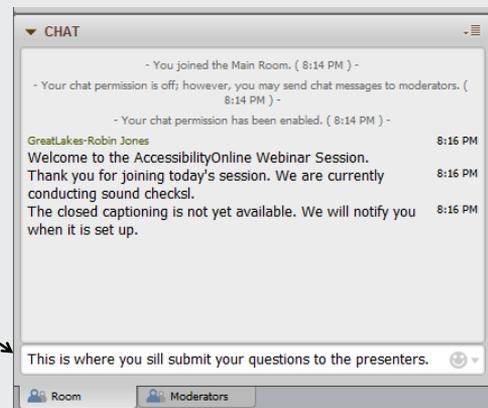
- Once selected you will have the option to resize the captioning window, change the font size and save the transcript.

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## Submitting Questions

- **You may type and submit questions in the Chat Area Text Box or press Control-M and enter text in the Chat Area**
- **If you are connected via a mobile device you may submit questions in the chat area within the App**

**Please note:** This webinar is being recorded and can be accessed on the website at <http://www.ada-accessibletech.org> within 24 hours after the conclusion of the session.



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## Customize Your View

- Resize the Whiteboard where the Presentation slides are shown to make it smaller or larger by choosing from the drop down menu located above and to the left of the whiteboard. The default is “fit page”
- Resize/Reposition the Chat, Participant and Audio & Video panels by “detaching” and using your mouse to reposition or “stretch/shrink”. Each panel may be detached using the icon in the upper right corner of each panel.

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## Setting Preferences

- Depending on your system settings you may receive visual and audible notifications when individuals enter/leave the webinar room or when other actions are taken by participants. This can be distracting.
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  - Select “Edit” from the tool bar at the top of your screen
  - From the drop down menu select “Preferences”
  - Scroll down to “General”
    - select “Audible Notifications” then Uncheck anything you don’t want to receive and “apply”
    - Select “Visual Notifications” then Uncheck anything you don’t want to receive and “apply”
  - For Screen Reader User – Set preferences through the setting options within the Activity Window (Ctrl+slash opens the activity window)

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## Technical Assistance

If you experience any technical difficulties during the webinar:

1. Submit a message regarding your issue via the chat area and the Moderator will address your concern via a private chat you and/or refer it to one of the Great Lakes ADA Center IT Staff to contact you off line; or
2. Call 877-232-1990 (V/TTY)

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## Mobile Accessibility: Applying WCAG Standar

Pamela Thomas  
IT Accessibility Analyst

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November 2019

## What we will cover

- What do we mean by accessibility when it comes to mobile applications
- WCAG 2.1 A/AA Guidelines as they apply to mobile
- Testing techniques for iOS and Android

## What do we mean by mobile?

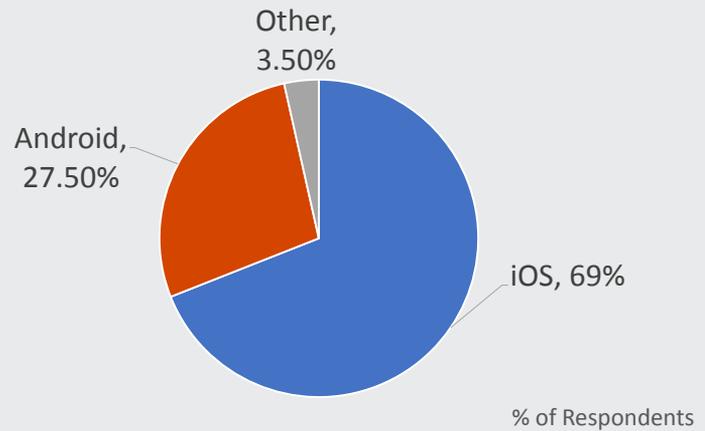
*Small screen, touch devices, wearables*

- Responsive web sites
- Native iOS/Android apps

## Mobile Users with Disabilities

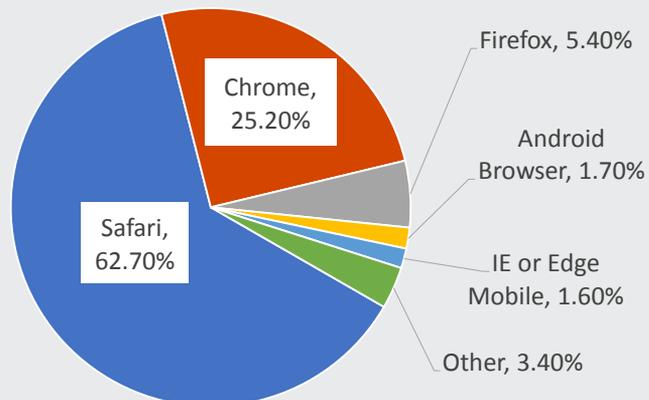
### Mobile Screen Reader Usage

From [WebAIM Screen Reader Survey #8, September 2019](#)



## Mobile Browser Usage

% of Respondents



## Mobile devices are indispensable!

*Combination of assistive features, augmented reality, artificial intelligence*

- Screen readers (VoiceOver for iOS, TalkBack for Android)
- Zoom, magnification, color adjustments
- Voice recognition (Voice Control for iOS, Voice Access for Android)
- Transcription
- Augmented reality (Lookout for Android)

## Guidelines and Best Practices for Developers

*iOS and Android Development*

- [Apple Human Interface Guidelines](#)
- [Accessibility on iOS](#)
- [Android Design Guidelines](#)
- [Android Accessibility Overview](#)

## Web Content Accessibility (WCAG) Guidelines

*Success criteria and techniques for meeting*

- Perceivable
- Operable
- Understandable
- Robust

Mobile accessibility is covered in existing W3C/WAI WCAG guidelines, there are not separate guidelines for mobile.

[Web Content Accessibility Guidelines 2.1](#)

## WCAG 2.1 Guidelines as applied to mobile

*WCAG 2.1 introduced guidance for accessibility of mobile apps*

New success criteria:

- 1.3.4 Orientation (AA)
- 2.5.4 Motion Actuation (A)
- 2.5.5 Target Size (AAA)

## Perceivable

*The ability to perceive content with the senses*

As applied to mobile:

- Small screen size
- Screen orientation
- Zoom/Magnification
- Contrast

## Operable

*The ability to interact with content*

As applied to mobile:

- Touch target size and spacing
- Gestures
- Button placement
- Object names

## Understandable

### *Comprehension of content*

#### As applied to mobile:

- Consistent layout
- Positioning of content
- Grouping operable elements
- Provide clear indication that elements are actionable
- Provide instructions for custom touchscreen/gestures

## Robust

### *Conformance to standards*

#### As applied to mobile:

- Set virtual keyboard to data entry type
- Provide alternative methods for data entry
- Support characteristic properties of the platform

## Local WCAG 2.1 A/AA Checklist for Mobile

*For use in testing local and vendor*

- Includes all checkpoints relevant to mobile applications
- Some checkpoints can be tested on desktop (in the case of responsive sites)
- Some checkpoints require testing on mobile device

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WCAG 2.1 A /AA Accessibility Checklist for Mobile Applications

Date of Evaluation:

Completed by:

Vendor/Product:

URL if available, or describe evaluation scope:

Evaluation Tools Used (Check all that apply):

VoiceOver for iOS

TalkBack for Android

Other:

Note: There isn't a separate WCAG standard for accessibility of mobile applications. The existing WCAG guidelines apply to mobile devices. For descriptions of WCAG Checkpoints and how they apply to mobile apps, individuals affected, and examples of compliance and non-compliance, see [Web Content Accessibility Guidelines \(WCAG\) 2.1](#)

Checkpoint Description	WCAG Chkpt	Please indicate: • Met • Partially Met • Not Met • N/A	Examples of non-compliance
All text on images, buttons, embedded multimedia and frames is appropriate and meaningful	<a href="#">1.1.1</a>	<input type="checkbox"/>	<input type="checkbox"/>
Videos have synchronized captions 	<a href="#">1.2</a>	<input type="checkbox"/>	<input type="checkbox"/>
Headings are used and nested appropriately	<a href="#">1.3.1</a>	<input type="checkbox"/>	<input type="checkbox"/>
[Tab] order is logical and intuitive.	<a href="#">1.3.2</a>	<input type="checkbox"/>	<input type="checkbox"/>
Orientation is not restricted to only portrait or landscape	<a href="#">1.3.4</a>	<input type="checkbox"/>	<input type="checkbox"/>

11/08/2018

## Testing Techniques

### Observation, Accessibility Tools, Screen Readers

# Observation

## Testing Technique: Observation

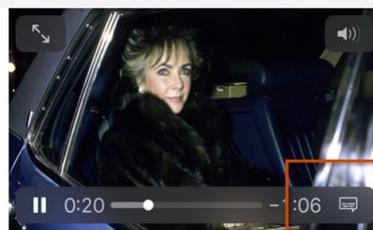
*Test for each of the following*

- 1.2 Videos have synchronized captions
- 1.3.4 Orientation is not restricted to only portrait or landscape
- 1.4.1 Color is not used as the sole method of conveying info
- 2.4.4 Link purpose can be determined from the link alone; like elements are grouped
- 2.5.1 If path-based gestures are used (pinch/swipe/drag) another means of interaction is provided
- 2.5.4 Functionality that is triggered by device manipulation (shake/tilt) can be disabled and alternative functionality is provided
- 2.5.5 Clickable targets are at least 9mm x 9mm in size and allow adequate inactive space surrounding area
- 3.3.1 Sufficient information is provided for filling out forms, identifying required fields and correcting errors
- 3.3 Virtual keyboard matches input type

## Video Captions

### Observational check

- Look for the availability of closed captions in the player
- Check for the presence of audio descriptions or option for audio described version



### Rachel Weisz to Play Elizabeth Taylor in Biopic From 'King's Speech' Producers

8:00 AM PT 10/28/2019 by Alex Ritman

NEXT →

## Orientation

### Observational check

Check to make sure the app responds to changing orientation

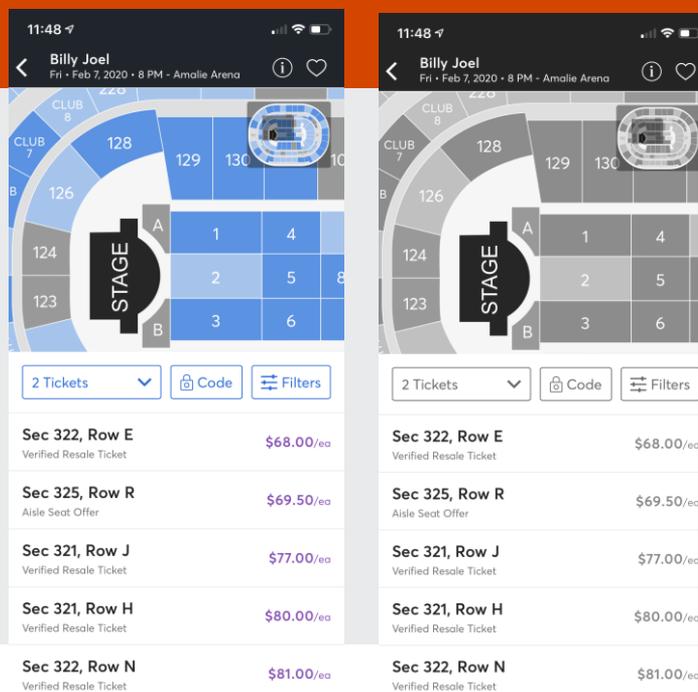


## Use of color

### Observational check

Check for any instances where color is the only means of communicating information. Switch to grayscale if desired to test.

- iOS: Settings > Accessibility > Display & Text Size > Color Filters > Grayscale
- Android: must be in developer mode; Hardware Accelerated rendering > Simulate Color Space > Monochromacity

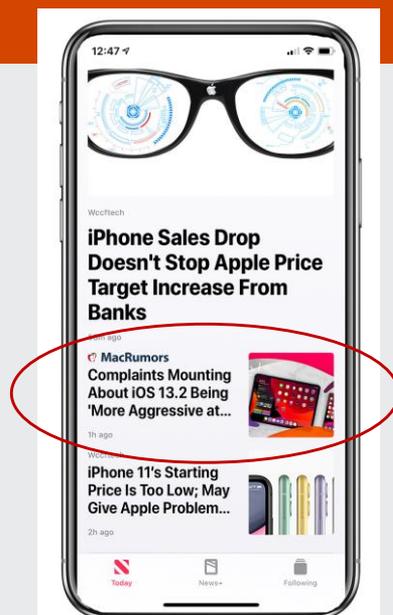


## Link purpose and grouping

### Observational check

Check for the presence of unclear links like “click here” or “more”

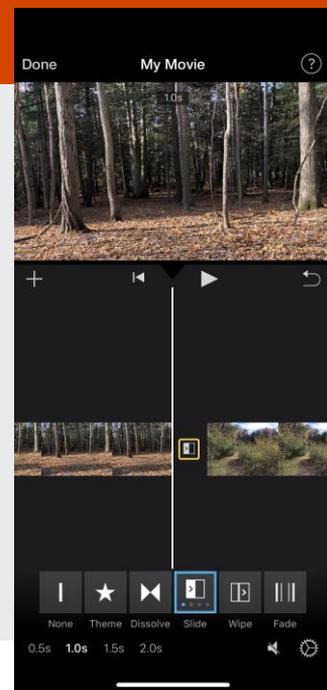
Check to be sure identical adjacent clickable items are grouped



## Device manipulation/custom gestures

### Observational check

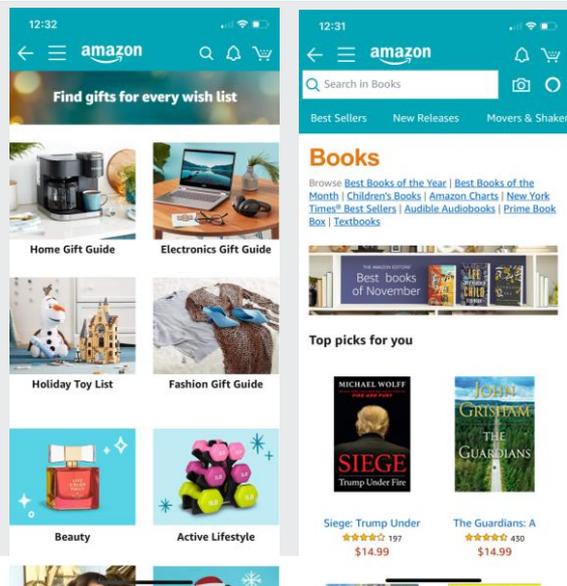
- Check to be sure that any functionality that can be triggered by device manipulation (shake/tilt) can be disabled and alternative functionality provided.
- If path-based gestures are used (swipe/drag) an alternative means of interaction is provided



## Clickable target size and spacing

### Observational check

- Clickable targets should be a minimum of 9mm x 9mm
- Adequate white space should be provided



## Error prevention and handling

### Observational check

Check that form fields are clearly labelled and the required fields are indicated

Check that error handling is present

12:42 ✓ Secure checkout

PayPal

Cardholder name \*

Debit/Credit card number \*

Expiration date \*

Month Year

Security code \*

Billing ZIP code \*

Please enter the email address where you would like to receive your confirmation.

Email address \*

12:41 ✓ Secure checkout

To continue, please correct the 10 errors below. Jump to the first invalid field.

Act fast! Pricing and availability may change

Sign in to book faster ↕

Cachet Boutique New York

1 Room: Deluxe King

Check-in: Mon, Dec 23  
Check-out: Fri, Dec 27  
4-night stay

Private sale: save 12%

Free cancellation before Fri, Dec 20

Your price summary

Room 1: 1 Adult	avg./night
4 Nights	\$187.88
Taxes per night	\$31.21
<b>Total due today:</b>	<b>\$876.37</b>

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## Virtual Keyboard Matches Input Type

### Observational check

Check that the virtual keyboard matches the required input type (alphabet/numeric)

10:38 ✓ Facebook

Cancel Your info

Info Review

First name \* required

Last name

Phone \*

Done

1 2 3  
ABC DEF

4 5 6  
GHI JKL MNO

7 8 9  
PQRS TUV WXYZ

0

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# On-Device Accessibility Tools

## Android Accessibility Scanner

*Available in the Google Play Store*

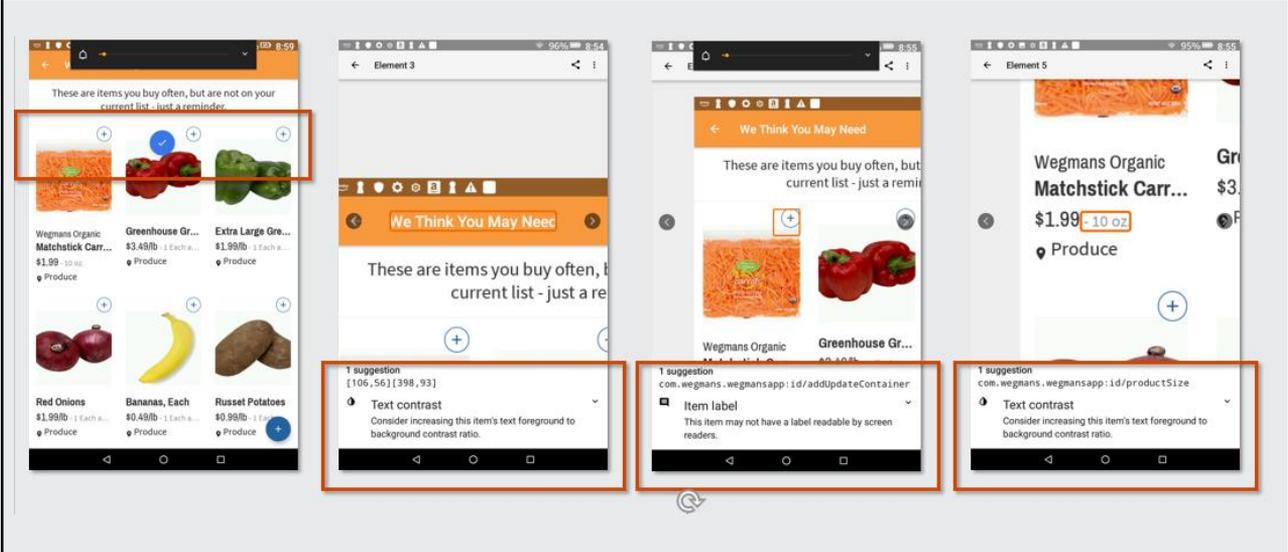
Checks apps and mobile websites for:

- Content labels
- Touch target size
- Clickable items
- Text and image contrast



[AppTV: Accessibility App Scanner First Look \(YouTube\)](#)

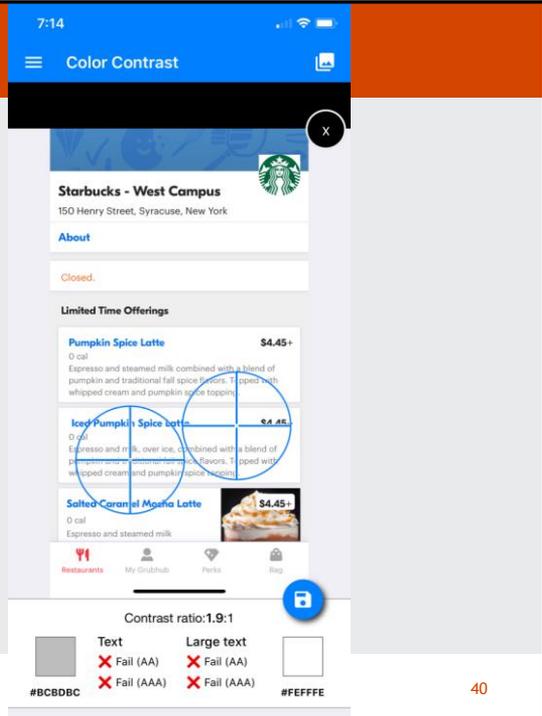
# Android Accessibility Scanner Results



# Color Contrast Checker for iOS

Available in the App Store

- Position pointers over foreground and background colors
- Based on WCAG 2.0
- Can be used on text and objects



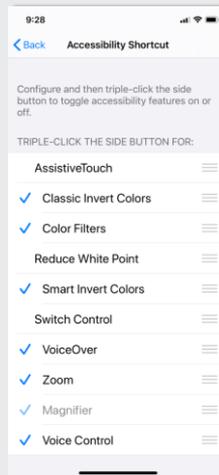
## iOS Accessibility Feature Shortcuts

### *Settings > Accessibility*

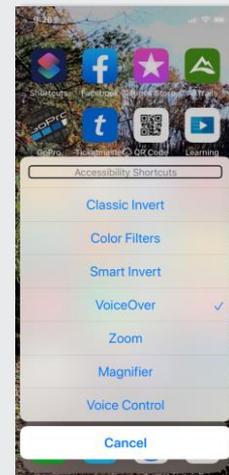
- Enable Siri so that you can easily turn VO on/off
- Add accessibility tool shortcuts for easier access



Turn on in Settings



Add Shortcuts

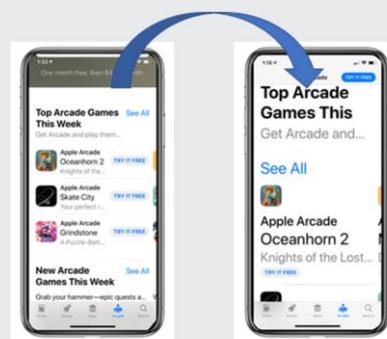


Triple-tab Home

## Text size (Zoom/Enlarge)

### *Can be changed in Settings*

- Both iOS and Android
- Increase text size and check to be sure app responds
- Relies on developer use of dynamic type or size
- iOS: Settings > Accessibility > Display & Text Size > Larger Text
- Android: Settings > Display > Font Size



## Voice Control for iOS

*Can be used to interact with apps*

- Voice commands and dictation
- Relies on object names
- Can also reveal tab order problems

[Demo: Using Voice Control with the Amtrak App](#)

[Introducing Voice Control on Mac and iOS \(YouTube\)](#)

[How to navigate with Voice Control on your iPhone \(YouTube\)](#)

## Voice Control for iOS relies on object names



“Show names”



“Show numbers”

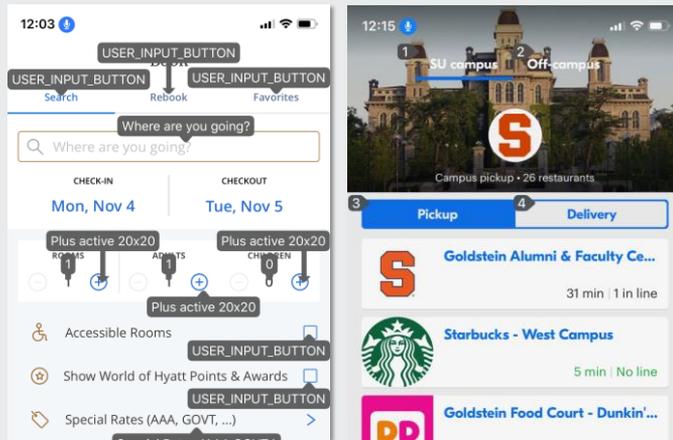


“Show grid”

## Voice Control fail

*Code that was previously hidden is now needed by the user*

- If visible label doesn't match the object name, this is a usability & accessibility issue.
- If objects don't have a name and are not in the tab/focus order they won't be numbered either.



## Screen Readers

VoiceOver for iOS, TalkBack for Android

## VoiceOver Gestures

*Traditional tap/swipe gestures won't work while VO is enabled*

- [Learn VoiceOver gestures on iPhone \(Apple\)](#)
- [Mobile Accessibility Testing Guide for Android and iOS \(Paciello\)](#)

[Demo: Syracuse Mobile App with VoiceOver for iOS](#)

## Android Gestures

*Traditional tap/swipe gestures won't work while TalkBack is enabled*

- [Getting started on Android with TalkBack \(Google\)](#)
- [Mobile Accessibility Testing Guide for Android and iOS \(Paciello\)](#)

Thank you.

Pamela Thomas  
[pthomas@syr.edu](mailto:pthomas@syr.edu)

## Mobile Accessibility: Applying WCAG Standards to Mobile Apps

You May Type and Submit questions in the Chat Area Text Box  
or press Control-M and enter text in the Chat Area

### Questions & Archive

The session today was recorded and will be archived  
at [www.ada-accessibletech.org](http://www.ada-accessibletech.org)

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Topic TBD  
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