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Demystifying Assistive Technology

Outcomes

- Learn how some people with disabilities use technology
- Understand importance of digital accessibility
- Start using AT for testing

Agenda

- Overview
  - Digital accessibility
  - Assistive technology
- A few use cases
- Screen reader demonstration
- Accessible gaming

Pop Quiz

What was the first television show that had captions?

A. Happy Days
B. All My Children
C. Buffy the Vampire Slayer
D. The French Chef
E. Masterpiece Theater

Digital Accessibility Overview

Scope

- One billion people worldwide
- 72% invisible/undeclared
- 56.7 million people in the US
- Open membership

Why does this matter?

- Moral
- Business
- Legal

Moral

- The right thing to do
- Benefits everyone
- Who we are as an inclusive community

Business

- 91% of PwD use a smartphone or tablet
- 96% of websites have barriers
- 69% of PwD click away from inaccessible websites/apps
- Est. $8T disposable income

Legal

- ADA, Rehabilitation Act, Telecommunications Act, State and local laws, policies
- Lawsuits and complaints on the rise since 2017
- New laws and procedures are coming

Types of Disabilities

Disabilities Impacted by Technology

- Vision
- Motor
- Hearing
- Speech
- Cognitive

Spectrum

- Permanent
- Temporary
- More than one
- From birth
- Onset later in life
- Situational

Assistive Technology

Assistive technology (AT) is “any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities.”

"The 'last mile' of accessibility"[1]

1:TCS accessibility

Assistive Tech Can Be:

- High-tech
- Low-tech
- Equipment
- Hardware
- Software
- Specialized materials

Things That Started as AT

- Phonograph 1877
- Typewriter 1877
- Reading Machine 1976
  - Speech synthesizer
  - Optical Character Recognition (OCR)
  - Flatbed Scanner
- Captioning 1972
- Voice Recognition 2014
- Screen readers 1988
- Video calling/conferencing

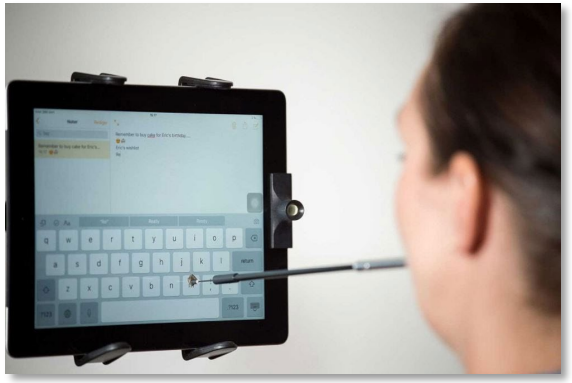
Assistive Technology on Mobile Devices

- Text Size
- Color/Color contrast
- Screen Magnification
- Screen Reader
- Text to speech
- Dictation
- Back-tap
- Auto-captions

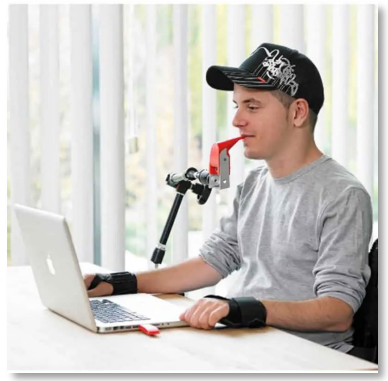
User Story: Motor Disabilities

- Given that I’m a person with a motor disability, when I navigate the interface of the application, then all interactive objects:
  - Receive keyboard focus
  - Have a clear focus ring
  - Are in a logical order
  - Are operable using only my keyboard or voice command
  - Don’t “trap” me in an operation

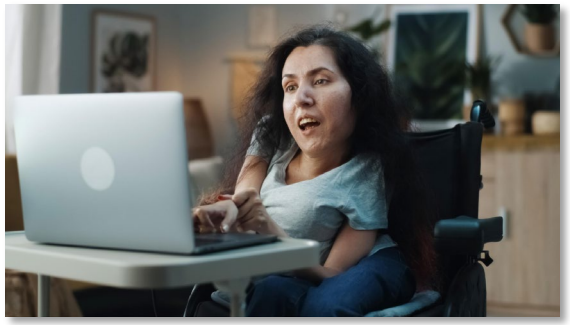
Assistive Technology for Motor Disabilities



Mouth stick



Sip and puff



Voice control

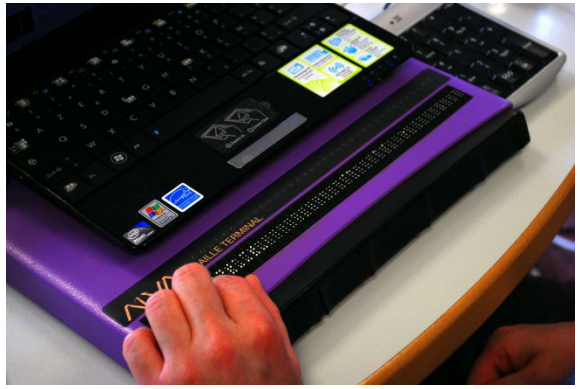
Single switchers

User Story: Visual Disability

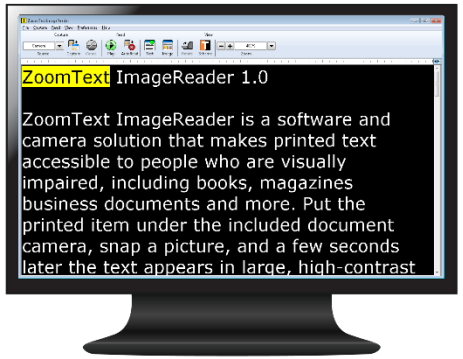
Given that I'm a person with a low vision, when I magnify the viewport of my mobile device:

- I can read text without scrolling in multiple directions
- Magnified text is not blurry
- There is sufficient color contrast between text and background
- Important elements are still available
- I am not prevented from rotating my device to landscape mode

Assistive Technology for Visual Disabilities

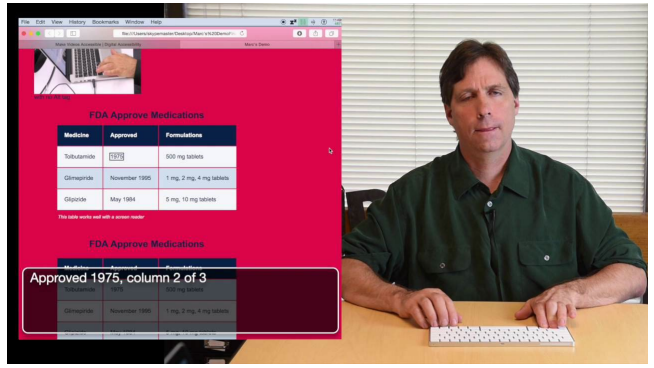


Refreshable Braille Display



Text magnifying software

Book Reader



Screen reading software

Screen Readers

- Generally free
- Available on most operating systems
  - iOS and MacOS- Voiceover
  - Android- Talkback
  - Windows- NVDA, Narrator, Jaws ($)

Screen Reader Demonstration

- Docs
- Forms
- Web Elements
- Web Pages

Prioritizing Issues

- Barriers/Blockers/Critical Issues
- High
- Medium
- Low
- No End-user Impact

What does “accessible” mean?

Accessibility Conformance

- Process, not a destination
- Choose WCAG conformance level
  - WCAG 2.0, 2.1. or 2.2
  - A/AA (Standard)
  - AAA
- Ever expanding access
- Nothing can be fully accessible for everyone at all times
- Progress matters more than perfection

Other Resources

- AbleGamers
- Can I Play That?
- Microsoft Adaptive Accessories
- WCAG Overview (Video)
- Assistive Technology Industry Association
- CSUN Assistive Technology Conference
- Makers Making Change

Questions?

Thank
You