Assistive Technology: A Guide for Vendors

SUMMARY

Vendors can distinguish their products in the higher education marketplace by ensuring that electronic and information technology is designed and developed for optimum operability and use with assistive and adaptive technologies, including those discussed below.

OVERVIEW

Assistive technology (AT) is technology that helps people with disabilities to accomplish tasks by improving or enhancing their functional capabilities. Regarding digital content, AT can make 's right hand it possible for people to interact effectively with digital documents, websites and applications, operating systems, software, and other electronic and information technology.

HOW PEOPLE WITH DISABILITIES INTERACT WITH TECHNOLOGY

People with different needs use different kinds of AT. Examples of assistive technology for computer users include screen readers, magnification software, speech recognition software, touch screens, Braille displays, and other alternative input and display options. For daily use, a blind person might read using an application that converts written text to audible speech or Braille, a deaf person might use captions or TTY to participate in online meetings, and a person with limited motor control might use voice commands or eye tracking in place of a keyboard or mouse.

AT and Accessible Systems

Assistive technology plays an important role in digital accessibility and inclusion. However, AT only works with systems that are designed and built with accessibility in mind. Those who develop, procure, or provide digital content or tools should review them for accessibility, and address any issues before publishing or sharing that technology.

CATEGORIES OF ASSISTIVE TECHNOLOGY

- Screen Readers
- Captions and Transcripts
- Audio Description
- Keyboard Input
- Refreshable Braille Displays
- Text-to-Speech
- Speech-to-Text/Dictation

Screen readers

A screen reader is a piece of software installed on a desktop, laptop, or mobile device to render visual digital content as synthetic speech and other sounds. Screen readers let the user effectively interact with the working environment, such as icons and folders, links and buttons, menu items, popup windows, and even computer settings and customization.

In addition to text, modern screen readers also present the user with useful information about document headings and structure, ALT text, form fields and labels, and other states and properties that vary by digital format. Because screen readers convert text and labeled elements, they can also provide output to Braille devices.

NVDA

NVDA (Non-Visual Desktop Access) is a free, open-source screen reader. In 2019, NVDA was cited as the most commonly used screen reader in an international survey by WebAIM. In addition to a full installation, NVDA may be run from a USB drive. NVDA is available for Windows only.

JAWS

JAWS (Job Access With Speech) is a commercial screen reader from Freedom Scientific, a Vispero company. JAWS has long been considered the premier screen reader for Windows, and has a significant user base among screen reader users.

JAWS is available in the standard ITS image as part of the Fusion package, and can be used in any ITS-managed computer space.

VoiceOver

VoiceOver is a screen reader included as a feature in MacOS and iOS devices. VoiceOver accessibility is largely reliant on other accessibility features built into the OS. Because of this tight integration, VoiceOver is by far the leading screen reader for iPhone users.

Windows Narrator

Windows Narrator is a screen-reading application built into the Windows operating system. Narrator reads text and other document elements, and supports interactions by announcing interactive elements and their name and purpose. Like other screen readers, Narrator largely relies on keyboard operation to read and traverse documents.

Refreshable Braille Displays

A refreshable Braille display is a piece of hardware that lets people read and interact with digital content. As the user moves through a document, a series of pins moves up and down, creating Braille characters that reflect the content. Braille displays commonly render 40 or 80 characters at a time, with other character lengths available for different needs.

Like screen readers, refreshable Braille displays render real text content, and cannot read flattened documents or images of text.

Text-to-Speech/Print Supports

Text-to-Speech tools provide support for users who experience challenges with text content like web pages, white papers, or articles. This type of content can appear in document formats like Word, PDF, HTML, Google Docs, Rich Text, or similar formats.

Like Screen Readers, Text-to-Speech tools use simulated speech to “read” content aloud to users. Unlike screen readers, they tend to focus on document content, and not on menu commands, files and folders, operating systems, or related aspects of the user interface.

Some Text-to-Speech tools also support and enhance visual interaction with text. Features may include font and color adjustment, spacing and margins, magnification, tracking of lines, words, or syllables, or other custom views.

Read Write Gold

ReadWrite Gold (RWG) is a multi-purpose print/literacy support tool available to everyone at the University of Iowa. RWG offers visual and auditory rendering of digital text content. In addition to speech-to-text capabilities, RWG offers visual tracking of spoken content, optical character recognition, integrated dictionary, highlighting, and other features designed to support reading and comprehension.

Read Out Loud (Adobe Acrobat)

Read Out Loud is a feature on Adobe Acrobat Reader and Acrobat Pro. Read Out Loud uses simulated speech to read text-based PDF documents. Read Out Loud can be useful for simpler documents or documents like PDF forms.

Immersive Reader (Microsoft Office)

Immersive Reader is a feature is several Microsoft Office products that lets readers customize the visual presentation of documents, including font size, color scheme, column width, line focus, text spacing, and syllable breakdown. Immersive Reader also includes a text-to-speech function called Read Aloud which has settings for voice and rate, as well as visual tracking.

Voice Recognition/Speech-to-Text

Voice recognition, including spoken commands and dictation, is rapidly moving from assistive tech into the mainstream.

Microsoft Office Dictate

Several Microsoft Office products, including Word, PowerPoint, Outlook, and OneNote, let you dictate content directly into your document. Dictation is not available in all Office products or versions but where it is available it can save significant time and effort spent on writing tasks.

Dragon Naturally Speaking

Dragon Naturally Speaking lets users dictate content and issue commands in most applications. As with other voice command tools, Dragon works with interactive controls based on their label.

Transcripts, Captions, and Audio Description

Transcripts, captions and audio descriptions are related assistive technologies, intended to make media more readily accessible for people with sensory variations. Each of these is an alternate format for media information.

Transcripts

A transcript is a text representation of an audio track. Transcripts typically are provided in a structured text format and may be perused independently of the audio recording. Transcripts may be generated automatically, by human transcriptionists, or by a combination of the two. Automated transcripts are generally not as accurate as human-edited transcripts, and should not be used for recordings or archives.

Captions

Captions are faithful text representations of a video's audio track, synchronized with the video and presented along with the video in real time. This text may include dialogue, speaker names, and other sounds that can help d/Deaf or hard of hearing people to better understand the audio content of digital media. Caption text is synchronized with on-screen activity. Captions may be open ("burned" into the video) or closed (the user can toggle captions on and off).

Audio Description

Audio Description (AD) is a supplementary audio track provided with digital video content. AD provides verbal descriptions to assist viewers who cannot see the action onscreen. AD tracks typically run parallel to any audio in the digital video, and descriptive commentary is spoken during pauses in the primary audio. Some people use only AD tracks to experience digital movies or video.

CONCLUSION

To benefit users of AT, tools and technologies must be designed with accessibility in mind. By building accessibility into the product lifecycle, vendors can ensure an equitable experience for all who use their technology products.