

# Accessibility guidelines for kiosk UI and physical design

## Overview

On this page we have reviewed standards set by the Accessibility for Ontarians with Disabilities Act (AODA), Americans with Disabilities Act (ADA) and UK Disability Discrimination Act (DDA) to build a set of guidelines that encompasses legislative standards for public kiosk design.

## Definition of Accessible Design

Accessible design is the design of entities that satisfy specific legal mandates, guidelines, or code requirements with the intent of providing accessibility to the entities for individuals with disabilities.

- Accessible design, therefore
  - 1.satisfies specific laws
  - 2.provides equal access for persons with disabilities
- Definition of Universal Design:  
Universal design can be defined as the design of entities that can be used and experienced by people of all abilities, to the greatest extent possible, without adaptations.
- Difference Between Universal Design and Accessible Design:  
Universal design and accessible design are often used interchangeably, and this can be confusing. While universal design and accessible design share a common core of design principles and strategies, they differ in that accessible design is legally mandated whereas universal design is not. The legal mandates and design guidelines associated with accessible design require that designs be compliant subject to legal penalties. Universal design, on the other hand, is motivated more by global competition and the creation of more universally accessible and usable products and services demanded by international markets.

## Guidelines for Physical Kiosk Design

- ADA Law and Self-Service Kiosks [10-01-18\\_FE\\_Kiosk\\_Accessibility\\_Derek\\_Fretheim.pdf](#) (This document is written by Derek Fretheim, who is the President of Acire Inc and has been in the self-service kiosk industry for nearly 15 years and completed hundreds of kiosk projects.)
- ADA and ABA Accessibility Guidelines for Buildings and Facilities [10-01-18\\_FE\\_Kiosk\\_Accessibility\\_ADA-Guidelines.pdf](#) (The ADA is in full force with a number of rules applying to kiosks.And ADA law states there must be clear accessibility to kiosks)
- ADA Standards for Accessible Design [10-01- 18\\_FE\\_Kiosk\\_Accessibility\\_ADA.pdf](#)
- ADA Home Page: <http://www.ada.gov/>

### Accessible Design of Physical Kiosk Should:

- satisfies ADA Laws (suggestion given by Derek Fretheim.)
- provides equal access for
  - people with hearing impairment
  - people with vision impairment
  - people who are in a wheelchair
  - people who have artificial limbs
  - people regardless of their height or stature
  - people with photosensitive epilepsy

### Possible Accessibility Features of Physical Kiosk

- Wheelchair access from the front.
- Wheelchair access from an angled left approach.
- Wheelchair access from an angled right approach.
- A shelf area to put personal belongings such as bags, at approximately waist height.
- A place to rest a walking stick or cane.
- A support that the user can lean on during the interaction process.
- Outputs reachable and graspable by wheelchair users and those of small stature.
- Inputs reachable and usable by wheelchair users and those of small stature (i.e. users can see clearly and manipulate); or Adjustability (if required) in the heights of inputs.
- Angle of screens acceptable for all users (i.e. low and high stature, seated etc.); or Adjustability (if required) in the angles of screens.
- Built-in Shielding from glare on screens.
- The use of high contrast signage and labeling
- A Handset which will be important for implementing access features for people who have hearing or visual disabilities .

#### **Possible Performance Goals of Physical Kiosk**

- clear vision of the kiosk – For those with low vision, or who don't have their eyeglasses with them
- ability to see the kiosk – For those who are blind, or whose eyes are otherwise occupied
- ability to see colors – For those with color blindness
- ability to hear the kiosk well – For those who are hard of hearing or are in a noisy environment
- ability to hear the kiosk at all – For those who are deaf or are in a very noisy environment
- fine Operation-- For those who have a physical disability
- quick (or even moderately quick) responses – For those with physical disabilities or those with problems reading or understanding
- good reading skills in the language(s) used by the kiosk – For those with mild cognitive or learning impairments, or those who have trouble reading the language
- any reading skills in the language(s) used by the kiosk – For those with cognitive or learning impairments, or those who cannot read the language

#### **Possible Methods Providing Access to Users of Physical Kiosk**

- For vision access  
Enhance or provide alternate means of perception; and make it possible to operate controls without relying on vision. Information can be presented in auditory form. Auditory and visual feedback can also be used to assist users in finding and activating controls on devices.
- For hearing access  
When information is presented in auditory form, it is presented in visual form also and audio enhancements are available to make it easier for people who are hard-of-hearing to use the device. Audio enhancements include volume control within a sufficient range, and hearing aid compatibility.
- For physical access  
There are accessible route to, approach to, and space for wheelchair (and scooter) access. People who have a general difficulty reaching and touching interfaces can use an alternative form of manipulation.
- For cognitive access  
If the user does not have the capability to understand the purpose of a device, it is unlikely that access techniques can be provided. However, for some people with mild or moderate cognitive impairments, some assistance might help: simplification in sequencing of instructions and operations, using simple language and controls, or using adjustable spoken output for people who would otherwise not be able to read or who cannot read fast enough.

**Accessibility Rules Related to Physical Kiosk from ADA Laws 10-01-25\_FE\_Kiosk\_Accessibility\_Rules.pdf**

## **Guidelines for UI Kiosk Design**

Experts in usability and accessibility have compiled lists of principles - often expressed as questions - to be applied in performing heuristic analysis. The following are recommended by the Fluid project:

- [Heuristic Analysis - A System Checklist](#) is a useful table of principles, created by Deniese Pierotti of Xerox Corporation.
- [Usability Evaluation Questions](#) is a list developed by members of the Fluid project to address both usability and accessibility.
- [10 Nielsen and Molich Usability heuristics](#) is a well known set of principles, presented in a form refined by Jakob Nielsen.

## Resources

### Fluid User Research

[Notes from chat with blind user about museum experience \(January 13, 2010\)](#)

### Books

Universal and Accessible Design for Products, Services, and Processes [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Book.pdf](#)

### Documents

- The Center for Universal Design of NC State University: The Principles of Universal Design [http://www.design.ncsu.edu/cud/about\\_ud/udprinciplestext.htm](http://www.design.ncsu.edu/cud/about_ud/udprinciplestext.htm)
- The Center for Universal Design of NC State University: Designing for People of All Ages and Abilities [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Document.pdf](#)
- Advisory Committee on Accessibility: Universal Design Handbook [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Handbook.pdf](#)
- Trace Kiosk a11y handbook

### Papers

- Universal Design for Mobile Phones:A Case Study [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Paper1.pdf](#)
- An architecture for a self-adapting information system for tourists [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Paper2.pdf](#)
- An Ontology-Based Method for Universal Design of User Interfaces [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Paper3.pdf](#)
- Rethinking interactivity:design for participation in museums and galleries [10-01-13\\_FE\\_Kiosk\\_Accessibility\\_Paper4.pdf](#)

### Concerns

- Ontario government (MCSS) website - <http://www.mcsc.gov.on.ca/en/mcss/about/videos/transcripts/rom.aspx>
- IBM Research re: airport kiosks [http://www-01.ibm.com/software/ucd/gallery/kiosks\\_research\\_theteam.html](http://www-01.ibm.com/software/ucd/gallery/kiosks_research_theteam.html) and [http://www-01.ibm.com/software/ucd/gallery/kiosks\\_research.html](http://www-01.ibm.com/software/ucd/gallery/kiosks_research.html)
- There seem to be quite a few documents kicking around the trace website, e.g. "Use of audio-haptic interface techniques to allow
- nonvisual access to touchscreen appliances" [http://trace.wisc.edu/docs/touchscreen/chi\\_conf.htm](http://trace.wisc.edu/docs/touchscreen/chi_conf.htm)
- Automated postal kiosks <http://blindcanadians.ca/publications/?id=880>