



The University of Texas at Austin  
Texas Center for Disability Studies

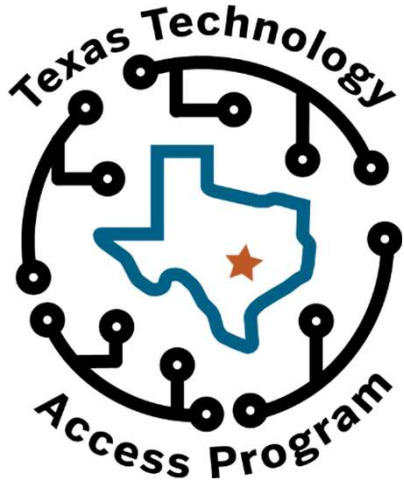
## TSBVI Accessible Video Gaming

<https://ttap.disabilitystudies.utexas.edu>

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Accessible Video Gaming



# Contact and Disclosures

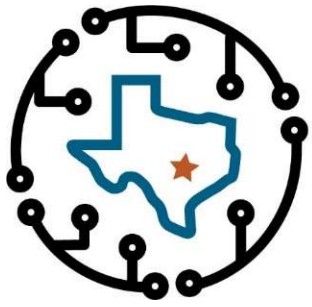
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- ▶ Employed by the University of Texas
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## ▶ Non-financial

- ▶ Member of the SIG 12 Professional Development Committee
- ▶ Strand Advisor for the AAC Strand- ATIA



# Texas Technology Access Program

## *Mission:*

*To increase access for people with disabilities to Assistive Technology (AT) that provides them more control over their immediate environments and an enhanced ability to function independently.*



# What is Assistive Technology

AT is technology that enables PWD across the full life spectrum access to education, employment, recreation/leisure, and engage in community engagement



# Our Services

- ▶ Free Demonstrations of Assistive Technology
- ▶ Free Short Term (35 days) Device Loans-  
Including Accessible Gaming equipment
- ▶ Re-Used/Recycled Assistive Technology
- ▶ Financial Support Resources
- ▶ Training, Support, and Technical Assistance
- ▶ Resources for Assistive Technology





# What about Accessible Video Gaming!

EVERYONE should be able to shoot zombies! Come explore the basics of accessible video gaming for computer-based, Xbox, and PlayStation. Both the hardware and software may have accessibility options to enable individuals who are blind/low vision to play video games.

# Physical Access Considerations

- ▶ Positioning the gamer
- ▶ Positioning alternative access and gadgets
- ▶ Mounting alternative access and gadgets



# Matching the user to the need and the game

- ▶ Communicate with the end user A LOT before you start
  - ▶ Expectations
  - ▶ Willingness to invest time and energy
- ▶ Trial and error- failure is an option
- ▶ Support and maintenance after the developer is gone
- ▶ Different games have different demands



# Which one is best- well, that depends (1)

## ▶ Computer

- ▶ Most accessible overall since computers have the most built-in accessibility
- ▶ Many programs can be run on the computer to assist with accessibility
- ▶ Most adaptive controllers can be used directly on a computer
- ▶ May be most expensive option, as a gaming computer is preferred

# Which one is best- well, that depends (2)

## ▶ Xbox

- ▶ Most accessible console with most built-in accessibility of all consoles
- ▶ Most adaptive controllers can be made compatible with Xbox
- ▶ Xbox Adaptive Controller available
- ▶ Might not have specific games some users play
- ▶ Upcoming: Accessible Video Gaming: XBOX Basics
  - ▶ *Thursday May 9, 2024, 11:30 am - 12:30 pm*
  - ▶ Learn the basics of MS XBOX accessibility features for both hardware and games.

# Which one is best- well, that depends (3)

## ▶ Nintendo Switch

- ▶ Easiest/simplest games to play for users with adaptive controllers
- ▶ Not necessarily as much built-in accessibility as Xbox- varies by game

## ▶ PlayStation

- ▶ Less built-in accessibility than Xbox
- ▶ Adaptive controllers have difficulties with compatibility
- ▶ Some games available that Xbox doesn't have
- ▶ New [adaptive controller](#) just released



# Gaming Software Accessibility-1

- ▶ Build accessible games/software
- ▶ No standards- voluntary; Level Access
- ▶ Consistent conventions with excellent User Interface across games or at least within a single developer
- ▶ Controllers- mappable IN-GAME controller buttons
- ▶ Audio and subtitle options with customization

# Gaming Software Accessibility-2

- ▶ Character dialog box customization
- ▶ Screen readers in menus
- ▶ Audio description in game
- ▶ Customizable heads up displays (size, font, contrast/desaturation, color blind settings)
- ▶ Mods and macros (presets and customizable)
- ▶ Reduce visual “shaking”

# Gaming Software Accessibility-3

- ▶ Difficulty customization; safe modes
- ▶ Different games = different demands
- ▶ Character build matters
- ▶ Built in macros (auto target, lock on, follow)
- ▶ Partner play; Co-pilot
- ▶ Characters can be built with disabilities
- ▶ Japanese games tend to be *less* accessible, American and Canadian games tend to be *more accessible*

# Gaming Software Accessibility-4

- ▶ **Constant updates (hardware and software!)**
- ▶ **If a loan program, how you will pay for gaming software?**
  - ▶ Subscription (XBOX) and download services (STEAM), how will that work in a loan closet, logins/emails/accounts, credit card, 3/6 month “passes”?
  - ▶ Game CDs/cartridges- storage, checkout options, consumer returns?
- ▶ **Reviews by gamers who are disabled**
- ▶ **Access in supporting apps like video streaming, chat, Discord, and social media apps**
- ▶ **Accessible XR (extended reality), AR (augmented reality), VR (virtual reality), MR (mixed reality)- the next frontier (UDL!)**

# Approaches to Access for Gaming: Computer-based Games

Alternative computer access in conjunction  
with accessible gaming software



# Existing Alternative Computer Access- 1

- ▶ Alternative mice, joysticks, trackballs
- ▶ Alternative keyboards (small, large, membrane, mechanical, chorded, onscreen, etc.)
- ▶ Switch Interface- single, two, and multi



# Switch Interface Example

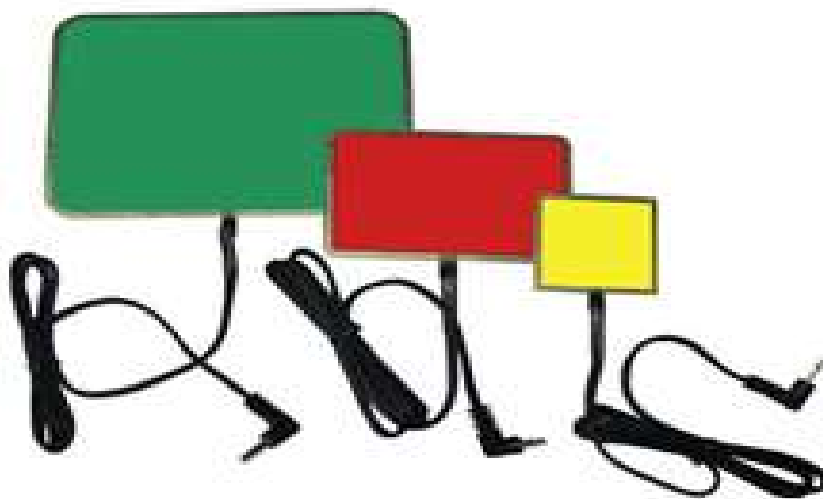




## Alternative computer access



# Various Switch Examples



# Existing Alternative Computer Access-2

- ▶ Eye gaze, Optical head pointing and facial recognition
- ▶ Voice Recognition - built into system software and 3<sup>rd</sup> party purchase
- ▶ Software based mouse
- ▶ Keyboard command navigation



# Alternative Access: Resources to Explore on your own

- ▶ [Ablenet](#)
- ▶ [Infogrip](#)
- ▶ [Origin Systems](#)
- ▶ [Adaptive Switch Labs](#)
- ▶ [Applied Human Factors](#)
- ▶ [Center for Applied Special Technology](#)
- ▶ [RJ Cooper](#)



# Computer Accessibility Resources - already in the system software

- ▶ Web Accessibility Initiative W3C
- ▶ Webaim
- ▶ Section 508
- ▶ Accessible Educational Materials
- ▶ Microsoft Accessibility
- ▶ Google Accessibility
- ▶ Apple Accessibility

# Approaches to Access for Gaming: Console Games

Built ins, commercial adaptive tools,  
and customization



# Access to Console Gaming (1)

- ▶ Accessibility settings in the hardware
- ▶ Accessibility settings in the software
- ▶ Alternative access to hardware
  - ▶ Off the shelf
  - ▶ Use Xbox controller with the Cronus Zen to interface with anything
  - ▶ Customizable
- ▶ Mod existing hardware, or build accessible
  - ▶ Commercial custom controllers ([Evil](#))
  - ▶ Cut open controllers and rewire
  - ▶ 3D print “attachments”

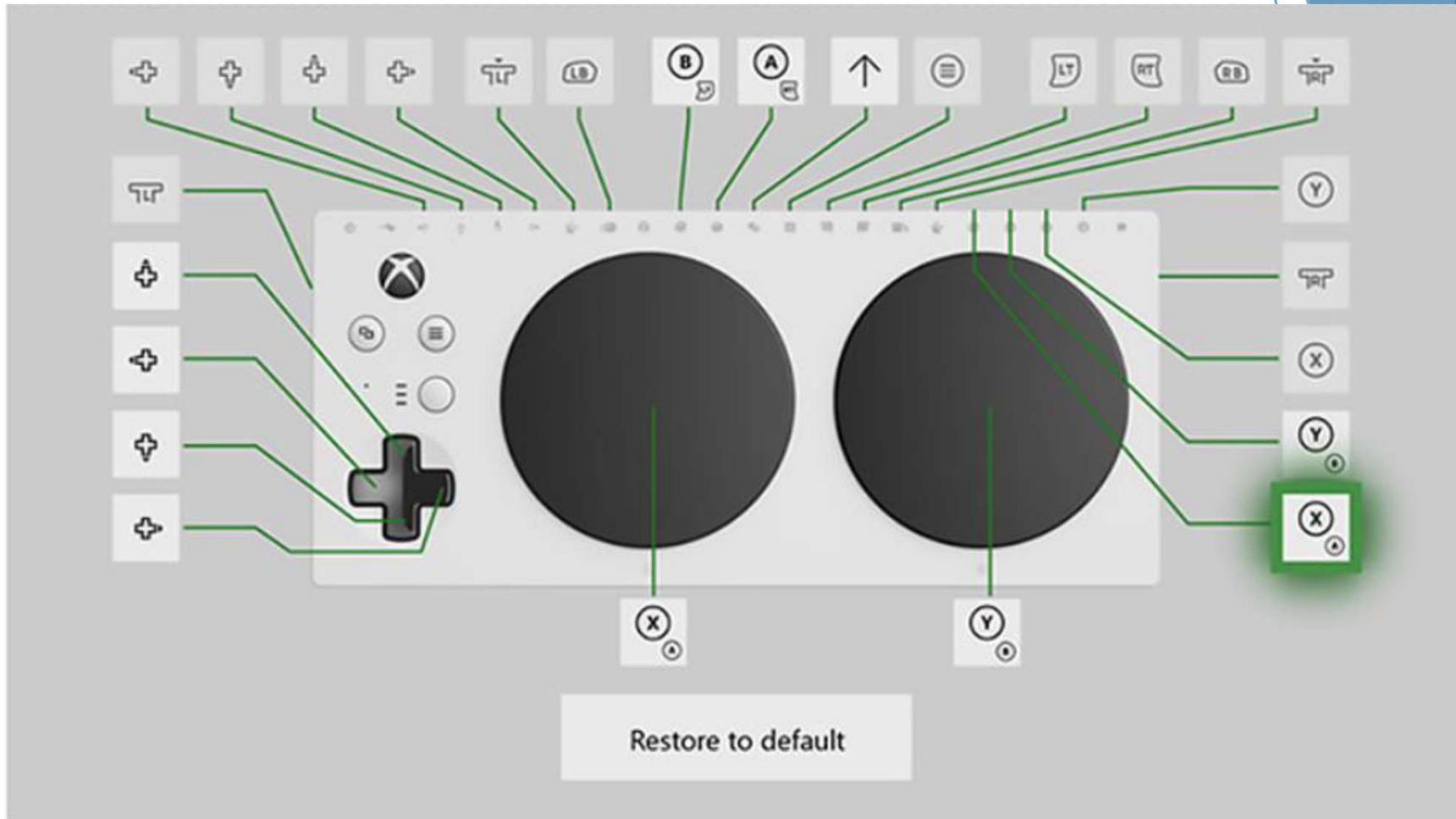
# Off the Shelf Gaming Access: Button extender and Cat Tongue tape for controllers



# Off the Shelf Gaming Built in Alternative Access: Xbox Adaptive Controller



# XAC Programming App to remap buttons

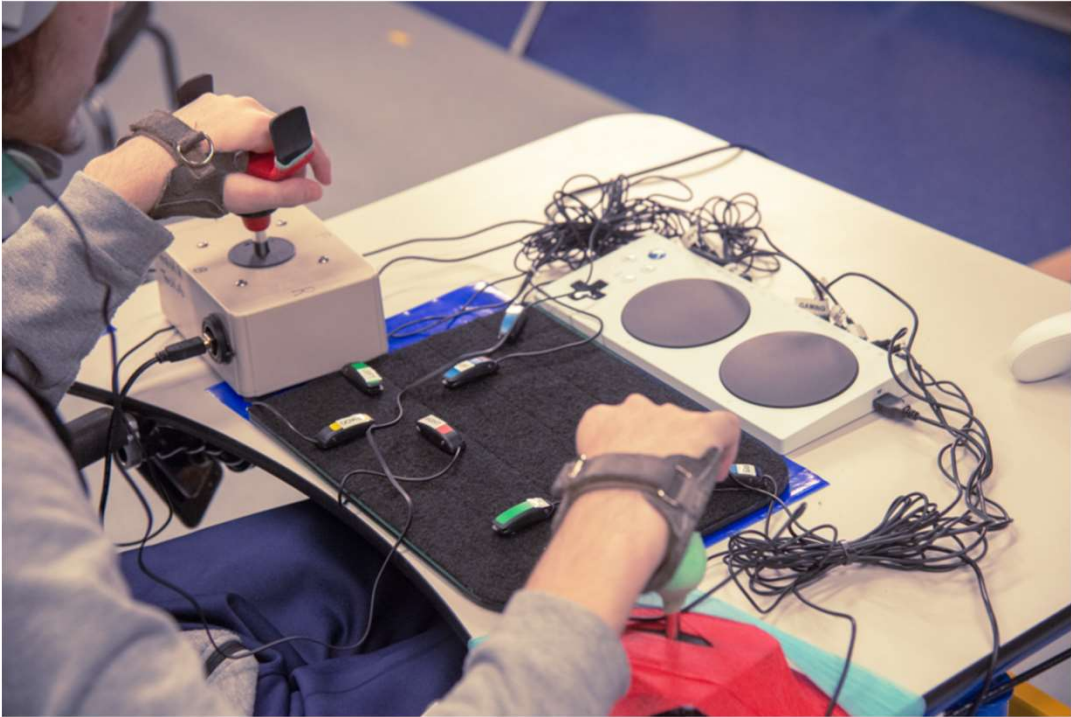


# Off the Shelf- PlayStation Accessible Controller

- ▶ Access Controller
- ▶ Modular in design
- ▶ Mappable
- ▶ Customizable
- ▶ 4 switch interfaces
- ▶ Dual controller mode
- ▶ Ball joint mounting



# XAC Examples





## More XAC Examples



# Evil Controllers

- ▶ Customizable
- ▶ Left and Right handed versions
- ▶ Light weight versions
- ▶ Expensive
- ▶ Multiple platforms



CUSTOMIZE





# Quadstick FPS



- ▶ A combination of sip-and-puff, head control joystick, and chin control switch all in one
- ▶ Programmable and customizable
- ▶ Can combine with additional hardware (joysticks, switches, trackpads), eye gaze access, voice activation
- ▶ Complex to program and support
- ▶ \$550
- ▶ Eye gaze- [Tobii Tracker](#)

# Off the Shelf Gaming Built in Alternative Access: Hori Flex and the new PS Access Controller



# Cronus Zen- adaptor to connect controllers to consoles and computers

- ▶ Allows mods, scripts, and macros across games, controllers, and devices
- ▶ Many preconfigured game packs
- ▶ Large community that shares mods
- ▶ Bluetooth and/or hard wire
- ▶ Technically “cheating”



# More on modding controllers

- ▶ How to build accessible/mod existing hardware
  - ▶ [Ablegamers](#)
  - ▶ [AT Maker spaces](#)
  - ▶ [Access Granted](#)
  - ▶ [One Switch](#) (scroll to bottom- DIY kits)
  - ▶ [Logitech Adaptive Gaming](#)
  - ▶ [The Controller Project](#)
- ▶ More/better alternative access options are needed in conjunction with accessible gaming software design

# Examples of modified controllers



# More Custom Build Examples



Blog of above [custom build](#) for an XBOX Adaptive Controller



# Modified off the Shelf Gaming Access- Freedom Wing allows wheelchair joystick to drive an Xbox controller



# Access to Console Gaming (2)

- ▶ **Game Mods- built in or editable**
  - ▶ “Automated” gaming options that reduce physical demand like “auto-target”
  - ▶ Character builds with less button activation and/or macros
  - ▶ Mod designed to assist in switching a weapon/attack set based on enemy encountered
  - ▶ Many on the internet
  - ▶ Technical skill need to “write” own mods
- ▶ **Social solutions like peer supported gaming (i.e. co-pilot in Xbox)**



# Copilot Example



# What about the Games?

- ▶ Family Gaming Database
- ▶ Ratings from the Entertainment Software Rating Board
- ▶ Xbox GamePass search has “accessibility” as a criteria option
- ▶ Some have easy, medium, difficult modes
- ▶ Some have built in Accessibility
- ▶ Not *everything* is FPS
  - ▶ Sandbox, puzzle, story/explore, civilization/building

# More Info-1

- ▶ YouTube - many how to do Accessibility videos, game reviews, character builds
  - ▶ GMTK- game reviews
  - ▶ Game Access
  - ▶ Special Effect
  - ▶ Access-Ability
- ▶ Reddit disabled gamers thread
- ▶ Accessible Games
- ▶ Audio Gamers
- ▶ The Controller Project (controller mods)



# More Info-2

- ▶ [DagerSystem](#)
- ▶ [Disabled Game blog](#)
- ▶ [Geeky Gimp Blog](#)
- ▶ [Illegally Sighted](#) - blind video gaming channel
- ▶ [OneSwitch](#)
- ▶ [Warfighter Engaged](#)
- ▶ [All Access Life](#) and [YouTube Channel](#)
- ▶ [REALLY good gamers who are disabled](#)

# TTAP has gaming resources



# Viva La Vida A.T. Conference:

 **Texas Technology Access Program**

**VIVA LA VIDA!  
WITH A.T.**



<https://qrco.de/vlv25>

**September 25-26, 2025  
Austin, TX**



 **PROPOSAL**

Submit a session proposal  
by  
March 15, 2025.

This year's theme is  
Leading the Way with  
Assistive Technology!

<https://cvent.utexas.edu/VivaLaVida25>

