



# Mainstream Gaming With Disabilities: Accessible Solutions

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Tools for Life | AMAC Accessibility
College of Design | Georgia Tech

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#### Introduction





#### Ben Jacobs, Accommodations Specialist

Ben Jacobs is a retired Staff Sgt. serving 10 years in the United States Air Force. During his time in the USAF he provided information technology support and network security at Langley Air Force Base in Virginia, Osan Air Force Base Republic of South Korea, and Peterson Air Force Base in Colorado. Ben brings to the Tools for Life team his passion and drive for technology and enhancing independence for people of all ages and abilities. His experience with Android devices and software development will enhance the TFL AT Solutions Lab at Georgia Tech. Ben currently lives in Alpharetta with his wife.

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## **Tools for Life (TFL)**



TFL, Georgia's AT Act Program, helps Georgians of all ages and disabilities gain access to and acquire assistive technology devices and services so they can live, learn, work, and play independently in the communities of their choice.





## **DragonCon**





- Annual convention in Atlanta, GA since 1987
- Geek culture celebration
- 80,000 attendees
- In 2014 held first Disability and Gaming Panel
- Expanded to two sessions this past year



#### **Universal FanCon**





- Announced yesterday
- First year
- Baltimore, MD
- Celebrates the diversity of fandom and fans
- Consulting about accessibility and gaming panels and events



# Today's Agenda





- Why is gaming important?
- My Accessible Gaming Philosophy
- Built in Console Accessibility
- Console Accessibility Solutions
- PC Accessibility Solutions
- Tabletop Accessibility Solutions
- Questions



# Why is gaming important?





- Increased Cognitive Function
- Pain Management
- Stress Reduction
- Hand-eye coordination
- Memory
- Attention
- Mood
- Decision Making
- Social Connectedness



## **Shirley Curry**





- Shirley is an 82-year-old grandmother who loves to play a role playing video game called Elder Scrolls: Skyrim.
- She operates a YouTube channel where she uploads her gameplay and commentary to share with the world
- Her videos have over 5 million views and she has 250k subscribers.



# My Accessible Gaming Philosophy: Productivity is not enough.



- Living and working independently is not a whole fulfilling life
- Recreation and social interaction are a necessity
- For many this comes in the form of playing games
  - Console
  - PC
  - Mobile
  - Tabletop
  - Other



# My Accessible Gaming Philosophy: No Game Matching



# CHOOSE YOUR OWN ADVENTURE®



# Built in Accessibility: Xbox One





- Narrator
- Magnifier
- High Contrast
- Closed Captions and Game Chat Transcription
- Button Mapping
- Co Pilot



# Built in Accessibility: Playstation 4





- Text to Speech
  - Speed and Volume Adjustments
- Zoom
  - PS Button and Square zoom in
  - Move enlarged area using d-pad or thumbsticks
  - Cancel by pressing circle
- Invert Colors
- Large/Bold Text (System Menu)
- Closed Captions
- Button Mapping
- Voice Commands



## Built in Accessibility: Nintendo Switch





- While Nintendo opened up the world of gaming to many people through the addition of simple motion controlled games, accessibility options have largely been missing from the systems.
- Touchscreen
- Joycons



#### **Xbox One Elite Wireless Controller**







- First party controller with accessibility features.
- Modular construction includes multiple thumbsticks, directional pads, and paddle buttons.
- Remap any input to any button.
- Highly customizable.
- \$150



#### **CronusMax Plus**





- Cross Over Gaming
  - Xbox 360, One, One S
  - PS3, PS4, PS4 Pro, PSTV
  - Android
  - Windows PCs
  - Wii and Wii U, Controllers only
- Mouse and Keyboard Control
- Controller Modifications
- Macros and Scripts



# Accessible Controller Modifications





- A few different companies have been specializing in providing controllers modified to be accessible for people with disabilities.
- Some of these companies include
  - www.broadenedhorizons.com
  - www.evilcontrollers.com
  - www.thecontrollerproject.com
  - www.scufgaming.com
- We are also currently identifying controller modification solutions that can be 3d printed



#### 3dRudder





- Foot controller
- Joystick emulation
- Keyboard Emulation
- Control movement
- Browse the web
- Access Microsoft Windows programs



#### QuadStick





- Mouth operated game controller for Quadriplegics.
- Joystick, four sip and puff sensors and a lip position sensor.
- Compatible with PS3, Android, and PC.
- USB adapter allows control of Xbox 360, Xbox One and PS4.



#### **TrackIR**





- TrackIR is an optical motion tracking game controller for Microsoft Windows
- Tracks head motion with up to 6 degrees of freedom.
  - Forward/Backward
  - Left/Right
  - Up/Down
  - Roll
  - Pitch
  - Yaw



#### Tecla E





- Wireless device that controls smartphones and tablets using your external switches or the driver controls of your power wheelchair
- Can interface wirelessly with head array
- The only switch interface that works with both iOS® and Android mobile devices.



## **Android OTG Adapter**



- Android devices support mouse and keyboard as well as most other USB devices through a USB OTG (On the Go) Cable
- Other supported devices include
  - Printers
  - Controllers
  - Hard drives and thumbsticks
  - Microphones and Cameras
  - Midi Controllers





# **Playing Card Solutions**







- Scrabble Rack
- Playing Card Holder
- Dungeon Master Screen



# **DropMix**





- Music mixing game
- Created by Harmonix
- NFC Cards
- NFC & Bluetooth Board
- Companion App (Android or IOS)



### **Upcoming Technologies: XOGO**





- The first fully customizable adapter that connects people with disabilities to consumer technology.
- Compatible with USB and HID devices, switches, game controllers, and Bluetooth.
- Control for your console as well as cable boxes, media devices, and smart home technology.



# **Upcoming Technologies: Boogie Dice**





- First self rolling, sound activated, programmable dice.
- Activated using sound.
  - Clap, snap, thump
- Set roll duration, LED colors and more.
- Smartphone app can also be used to activate the dice.



# Questions





#### **Disclaimer**



Disclaimer: Produced by Tools for Life (TFL), which is a result of the Assistive Technology Act of 1998, as amended in 2004. TFL is a program of the Georgia Institute of Technology, College of Design, AMAC Accessibility Solutions and Research Center and was made possible by Grant Number H224C030009 from the Administration for Community Living. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of HHS.

