Accessing Your World: A Closer Look at Environmental Control and Switch Access

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At the end of today’s webinar, we ask that you please take a moment to complete our survey:

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Tools for Life Mission

We’re here to help Georgians with disabilities gain access to and acquisition of assistive technology devices and assistive technology services so they can live, learn, work, and play independently in the communities of their choice.
Tools for Life
Georgia’s Federal AT Act Program

• TFL developed Georgia’s Plan for AT
  • We serve individuals of all ages & disabilities in Georgia
  • Over 50,000+ thru various activities throughout the year

• TFL Network
  • Assistive Technology Resource Centers
  • Lending Libraries
  • Training and Demonstrations
  • AT Reuse
  • AT Funding Education/Assistance and Resources

• Online Resources at [www.gatfl.gatech.edu](http://www.gatfl.gatech.edu)
Welcome to Tools for Life

Tools for Life, Georgia’s Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work and play independently and with greater freedom in communities of their choice.

Tools for Life and the TFL Network work collaboratively together to accomplish our mission through:

- **Customized AT Training** for Individuals or Groups

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Join us for Upcoming Webinars and Visit our Archives!

Tools for Life Online Professional Development

• Tools for Life offers online professional development to help you learn more about assistive technology strategies and solutions as well as the most recent information on AT devices and disability related issues and trends. Webinar content and materials are developed and presented by one of the Tools for Life team members along with other regional and national leaders in the assistive technology community.

• TFL presents live webinars on the last Wednesday of every month from 2:00 PM to 3:30 PM EST, unless otherwise noted.

To sign up for the TFL mailing list visit www.gatfl.gatech.edu
Today’s Session

• Accessing your environment and accomplishing tasks like turning on and off the lights, opening doors, and controlling the television or radio are basic things that go unnoticed every day. However, for many people with limited mobility access to their environment accomplishing these tasks give a whole new meaning to life.

• Many people disabilities go from being surrounded by their teachers, peers and helpers regularly, to being by themselves more often and needing to learn strategies for independence. Creating an environment that enables learning tools to independence can help ease the transition process into postsecondary education or community living.

For Handouts: http://www.gatfl.gatech.edu/tflwiki
More on Today’s Session

• In this session, presenters will ask the “critical questions” that you need to know when assessing your clients for successful environmental controls.

• This session will also include a demonstration of affordable environmental control solutions that can be used in all areas of life including implementation in the classroom and then throughout the transition process.

• Multiple environmental control options and options for interacting with the environment (voice, computer, tablet, phone and robotics) will be covered.

For Handouts: [http://www.gatfl.gatech.edu/tflwiki](http://www.gatfl.gatech.edu/tflwiki)
Agenda

- Defining Switch Access & Types
- Critical Questions to Ask
- Switch Tips, Strategies & Solutions
- Computer Access
- Daily Activities & Recreation
- Environmental Control Solutions Using Google & Android
- Smartphone Access
- Apps
- Q & A
What is a Switch?

- A switch is a simple device that has two states - on and off - just like a light switch.

- Switches come in a variety of different shapes and sizes and are operated in different ways.
  - Push motion
  - Grasp
  - Pull
  - Suck (sip & puff)
  - Blink
Who uses Switches?

• People who find it difficult to access the keyboard and the mouse can use a single switch or a combination of switches instead.

• Switches can help people with a variety of different cognitive and/or physical disabilities.
Types - Primary Access Switching

• This involves the use of a switch to operate a computer, communication aid, environmental control or a wheelchair.

• In Primary Access Switching, the user relies entirely on a switch or a number of switches to control this device.
Types – More on Primary Access Switching

- Use of switches ranges from single-switch 'hit-and-happen' games for early users and those with severe cognitive difficulties to

- Multiple-switch 'scanning' for those who want to use a computer for writing emails and documents, and surfing the Internet.
Types - Supplementary Access Switching

• A switch plays a supplemental role in the access solution.

• Example - when a switch is used to replace the left mouse button because although the user can move the mouse, or mouse alternative such as a headpointer, they find it very difficult to operate the click button.
Begin with the End in Mind!
Critical Questions #1

- What do you want to control?
  - Computer
  - Game
  - TV
  - Lights
  - Appliances
  - Chair
  - Door
  - Faucets
  - Smartphone
Critical Questions #2

• What access points/switches can be automated?
Critical Questions #3

• Where would you mount the ECU?
  • Wheelchair
  • Table
  • Desk
  • Countertop
Critical Questions #4

• How will you access/control the ECU?
  – Direct
  – External
  – Switch(es)
  – Scanning
  – Voice
Critical Questions #5

Are there any cognitive issues affecting number of choices, memory, etc.?
Critical Questions #6

• Will physical and cognitive abilities be changing over time?
  – Traumatic Brain Injury
  – Neurodegenerative Processes
Ideal Switch Sites

- Volitional control
- Small
- Controlled
- Sustained pressure
- Controlled release
- Most isolated volitional spot
Switch Sites

- Hands
- Head
- Mouth
- Feet
- Lower Extremities
- Upper Extremities
- Neural Signal
Places to Avoid

• “The Big Wind Up”
  – Smaller moves increases speed and accuracy

• Reflexes that can be hard to release

• Muscle strength
  – Hit multiple times a day

• Cheek

• Temple area
ASL brings innovative products to our clients! We are here to help each client reach their full potential – our team creates products and designs as a direct result of the needs of those we serve. Our goal has always been independence and equal rights for those we work with.
Button Switch

• The ASL 305 Button Switch is a momentary switch.
• Activation button the size of a dime
• Requires medium force for activation.
• Enables easy access to multiple wheelchair functions (tilt, recline, power legs, elevate, etc.)
Ultra Light Switch

• The ASL 314 Ultra Light Switch has a very light activation force and low profile.
• Ideal for people with limited movement or weakness.
• Attach with a reusable sticky base or 2 screw mounting holes for secure placement.
Joystick to Mouse Emulator

• Allows any joystick to point & click just like a mouse.
• Joystick can position the mouse cursor and enables the joystick buttons to operate as mouse buttons.
• Provides computer access and control via joystick to do with limited mobility.
Tongue Drive System

- Wireless device that enables people with high-level spinal cord injuries to operate a computer and maneuver an electrically powered wheelchair simply by moving their tongues
- Dental retainer embedded with sensors
- Detect movement of a tiny magnet attached to the tongue
- Testing with iPods and iPhones

- GA Tech
- Shepherd Center and Rehab Institute of Chicago
Tongue Drive System (TDS):
A Brain-Tongue-Computer Interface

Clinical Trial Completed
If you have tetraplegia, live in Atlanta, GA or Chicago, IL, and interested in participating in the upcoming clinical trials, please do contact Dr. Ghovanloo.
Computer Access
Heated Mouse

- Warms hands
- Good for someone with arthritis or MS
- High/ low/ off for heat
- Low voltage; safe for computer use
DXT Fingertip Vertical Wireless Mouse

- Ergonomic Relaxed Neutral Wrist and Hand Position
- Precision Grip for Accurate Navigation
  - Small muscles and joints of the fingers have higher processing abilities
- Instantly Switches Between Right and Left Hand
Switch Access
Access - Joystick
Contour Roller Mouse

• Ergonomic alternative to the traditional mouse that sits directly in front of your keyboard
• Does not require your back, neck, and shoulders to be involved in mouse work
• Grip-less
• Built-in wrist supports
• Placed in the middle of the recommended work zone, eliminating long and repetitive reaching movements
Eyegaze Edge

- Eyegaze System
- Control computer and tablet using your eye
- Environmental Controls
- Communication
TOBII Eye Mobile

- Hands free access to Windows 8 Tablets
- Navigate, communicate, play using your eyes
- Supports Switch and Touch Inputs
- Small and Lightweight
Microsoft Speech Recognition

• Dictate and edit
  – dictate words into word-processing programs or to fill out online forms in a web browser

• Control computer
  – run programs and interact with Windows

• Built-in
• Train computer to voice
• Need microphone
Dragon NaturallySpeaking

• Speech recognition software
• Control your computer with your voice
• Works fast, 99% accuracy
• Dictate documents
• Search the web
• Precise and quick training
Daily Activities & Recreation
Automatic Feeder

- Mealtime Partner
- Different mounts
- Battery operated
- Bowl tops controls amount of food
- Control Pause time between spoonful
- Adjustability of the spoon
Switch-Adapted Digital Camera

- one switch to turn camera on/off
- second switch for snapping the pic
- start/stop video
- $349; includes mounting arm
Logitech Harmony Remote

The Logitech Harmony Remote product line has recently added a hub and an app for your mobile device that allow you to control your entertainment devices.

Multiple tasks, such as turning on the TV, switching it to the appropriate source, turning on the cable box and the audio receiver can be programmed into a single button.
Gaming
Touchpad

Touchpad is an Android app that makes your mobile device a new way to control your Windows PC. Users can use their device as a replacement for the mouse.

The app includes multitouch gestures making it easy to emulate dragging and dropping on the touch screen.
Xpadder

Xpadder is a free program for Windows that allows you to configure the inputs on most videogame controller any way that you like. You can have media controls assigned to different buttons so you can easily pause or control volume.

The mouse as well as the keyboard are easily emulated on the controller as well.
MOGAnywhere

- Enables you to play video games on your Apple or Android phone.
- Great for gamers with limited mobility
- $29.99 to $99.99

http://www.mogaanywhere.com/
Accessing the Environment
VGo Telepresence Robot

- Enables a person to replicate themself in a distant location and have the freedom to move around as if they were physically there.
- Reduces travel costs
- School
- Hospital
- Work Remotely
People with Disabilities in the Workplace

VGo increases productivity and effectiveness while lowering costs by enabling a person to get to a location instantly and easily. VGo is not designed as a replacement for in-person interaction but rather as the next best alternative to "being" in the workplace. VGo also eliminates the deficiencies associated with other video solutions that are locked to a TV or computer monitor by providing 100% remote controlled mobility.

In addition to "being" at work from home, VGo can help people who can get to the workplace, but who cannot practically move about the facility or campus. A VGo can be used to enable a person to move around in one part of the facility while they are physically in another.

The benefits of using VGo in the workplace include:

- Getting to places previously inaccessible increases opportunities
- Freedom of movement increases personal interaction with others
- Quality of life improvements by expanding the work and social environments
- Costs can be reduced by lowering or eliminating select transportation expenses, and by communications and speeding decision making
Kubi

- Dock your tablet for remote pan and tilt controls
- See and interact with people during a conference call
- Use any Video Client: Skype, FaceTime, Google Hangout, etc.
- Cloud Control
Environmental Controls

http://getvera.com/controllers/veralite/

**VeraLite**
Smart Home Controller

**YOUR NEW ASSISTANT**

Home control doesn’t have to be complicated or expensive, so we came up with the VeraLite Smart Controller, which is simple and inexpensive. It may be small, but it’s capable of big things!

- Easily manages up to 70 devices
- Plug and play with your Internet connection
- Controls over 750 smart products of all kinds
- Custom text and email alerts for any situation

VeraLite gives you easy control over lights, cameras, thermostats, door locks, alarm systems and more. Plus you easily can add intelligence to almost anything electronic in your home, and VeraLite can control them too. All the smart home benefits you’ve been looking for are right here in this easy, inexpensive add-on to your home network.

**AN AMAZING AMOUNT OF SMART TECHNOLOGY THAT FITS IN THE PALM OF YOUR HAND.**

VeraLite gives you easy control over lights, cameras, thermostats, door locks, alarm systems and more.

**ONLY $179.95**

Tools for Life
Georgia’s Assistive Technology Act Program
User Interfaces

Vera gateways can be controlled with a number of different interfaces.

- **First Party Software**
  - PC
  - MAC
  - Smartphone App

- **Third Party Software**
  - Smartphone Apps
  - TASKER! (Android only)
Tasker is a phone automation application that allows you to really unleash your android device’s capabilities.

Tasker in a nutshell is a program that tells your device “When this happens, do this!”

- “When something is plugged into the headphone jack, open my music app”
- “When I open the navigation app, turn GPS on”
- “When my phone is connected to this cell tower, turn on wifi and connect to my home wifi”
More on Tasker

Plugins for Tasker allow you to access other features of your phone and interface with other internet connected devices.

- **Autovoice** – Allows you to set up custom voice commands and turn always listening on
- **Autocast** – Enables you to control a Chromecast device on your TV
- **Autovera** – Interfaces with your Vera gateway
Google Glass

- Wearable Technology
- Bluetooth Connection
- Navigate
- Make a Call
- Send a Message
- Take a Picture or Video
- Get the News
- Search
- Google Play Music
- Google Now
- Be Social
- Internal Compass
- $1500
The Future of this OS is Limitless

• Google has the futuristic ambition and the funds to take Android to unprecedented heights. In many areas — such as predicting what users will do next.

• Google Now knows that in the morning you’re getting ready for work and will tell you about the traffic.
Google Now

Introducing Google Now

The right information at just the right time

From knowing the weather before you start your day, to planning the best route to avoid traffic, or even checking your favorite team’s score while they’re playing, Google Now brings you the information you want, when you need it.

Assistance around the clock
Smartphones & Apps
Prestorian APPlicator

- Inclusive TLC
- Bluetooth
- Access switch accessible apps
- Up to 4 switches
- Paired to iPad/ iTouch/ iPhone
- 64 ft operating range
- Programmable functions
Tecla Shield

• Wireless device that controls smartphones and tablets using your external switches or the driver controls of your power wheelchair
• The only switch interface that works with both iOS® and Android™ mobile devices.
TFL AppFinder

Search by:
- App Name
- Categories
  - Book
  - Education
  - Environmental Adaptations
  - Hearing
  - Cognition, Learning, Developmental
  - Navigation
  - Personal Care and Safety
  - Productivity
  - Communication
  - Therapeutic Aids
  - Vision
**Dragon Dictation**

- Voice Recognition
- Free
- Dictate notes, emails, Twitter, and Facebook
- Supports many languages
- Cut, Copy, Paste
- Android
  - Dragon Go!
  - Dragon Hands Free Assistant
Touchmouse

• By Logitech turns your iPhone or iPod touch into a wireless trackpad and keyboard for your computer
• Works over Wi-Fi
• Need to download the Touch Mouse Server software
Swype is an alternative keyboard for the Android mobile operating system. For some, it is easier to type words by dragging their finger across the keyboard than it is to press each key individually.
Remote Mouse

• Turns your mobile phone or tablet into a wireless remote control for your computer
• Fully simulated mouse
• Magic trackpad
• Multi touch Gestures
• Landscape mode
Questions
Complete Our Webinar Evaluation

Please take a moment to complete our survey:

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