



Wearable Technologies: What are they and how can they assist someone with a Disability

Presented by:

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www.gatfl.gatech.edu

Tools for Life Mission

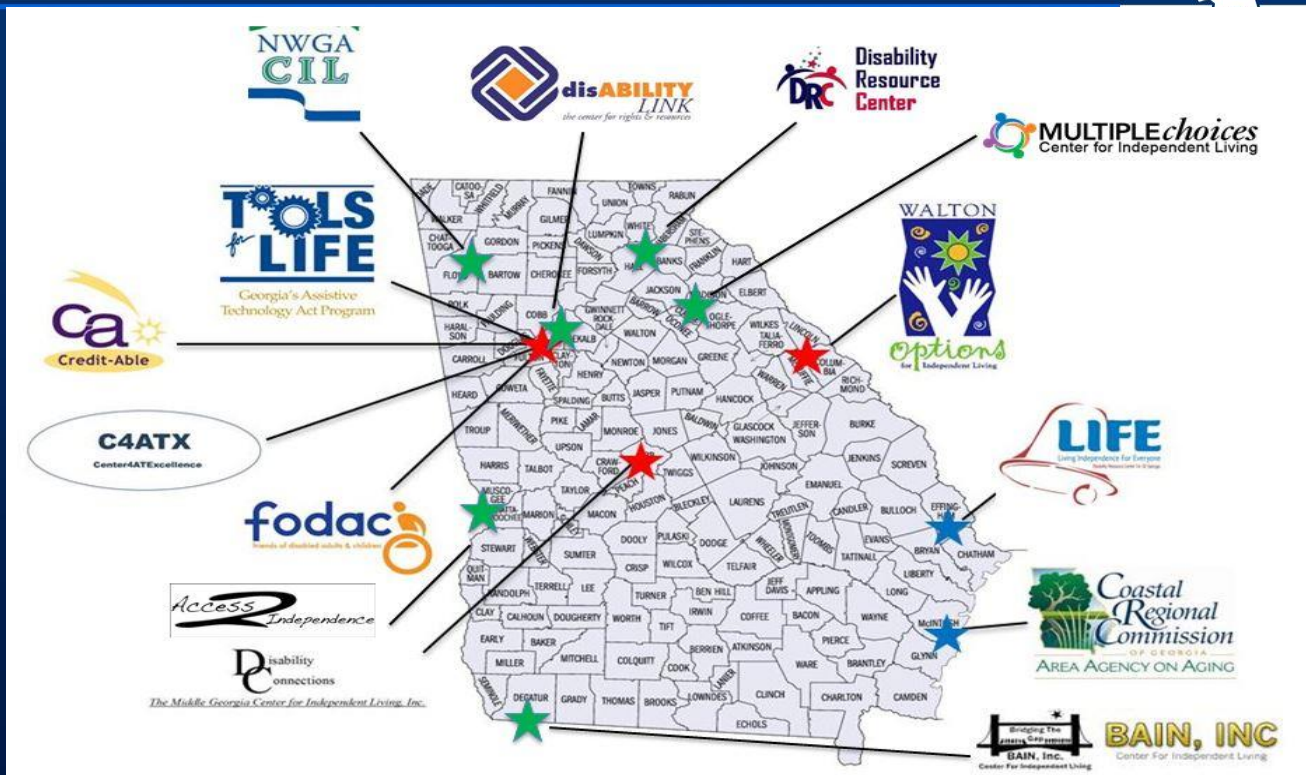


Tools for Life, Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work and play independently and with greater freedom in communities of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



The TFL Network

TOOLS for LIFE



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Georgia Tech **TOOLS *for* LIFE**
Georgia's Assistive Technology Act Program

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Stay up-to-date on the latest assistive technology strategies and solutions with customized individual and group trainings.

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:

- AT Demonstration
- AT Evaluations and Assessments
- AT Funding Options & Education

GATE 2016
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Webinar Archives

TOOLS FOR LIFE APPFINDER
...for Living, Learning, Working, and Playing.

AT ONLINE EXCHANGE
gTRADE

AT FUNDING GUIDE
DOLLARS & SENSE
NAVIGATING THE AT FUNDING STREAM

What is Assistive Technology?



Assistive Technology (AT) is any item or piece of equipment that is used to increase, maintain or improve the functional capabilities of individuals with disabilities in all aspects of life, including at school, at work, at home and in the community.

- Assistive Technology ranges from no/low/light tech to high tech devices or equipment.



Why Assistive Technology?



- For a person without a disability, assistive technology makes life easier.
- For a person with a disability, assistive technology makes life possible.

Tip: USE AT! I have yet to meet a successful student with disabilities who doesn't use any AT.



Wearable Facts



- Invention of the first wearable device can be traced to the creation of the portable watch in the 16th century
- In 1979 Sony invented the Walkman
- In 2000, the first Bluetooth headset was sold
- 2004, the first GoPro was launched
- Google Glass released in 2013
- ABI Research estimates the global market for wearables in health and fitness could reach **170 million devices** by 2017
- Global wearables market is expected to reach a value of **19 billion U.S. dollars in 2018**

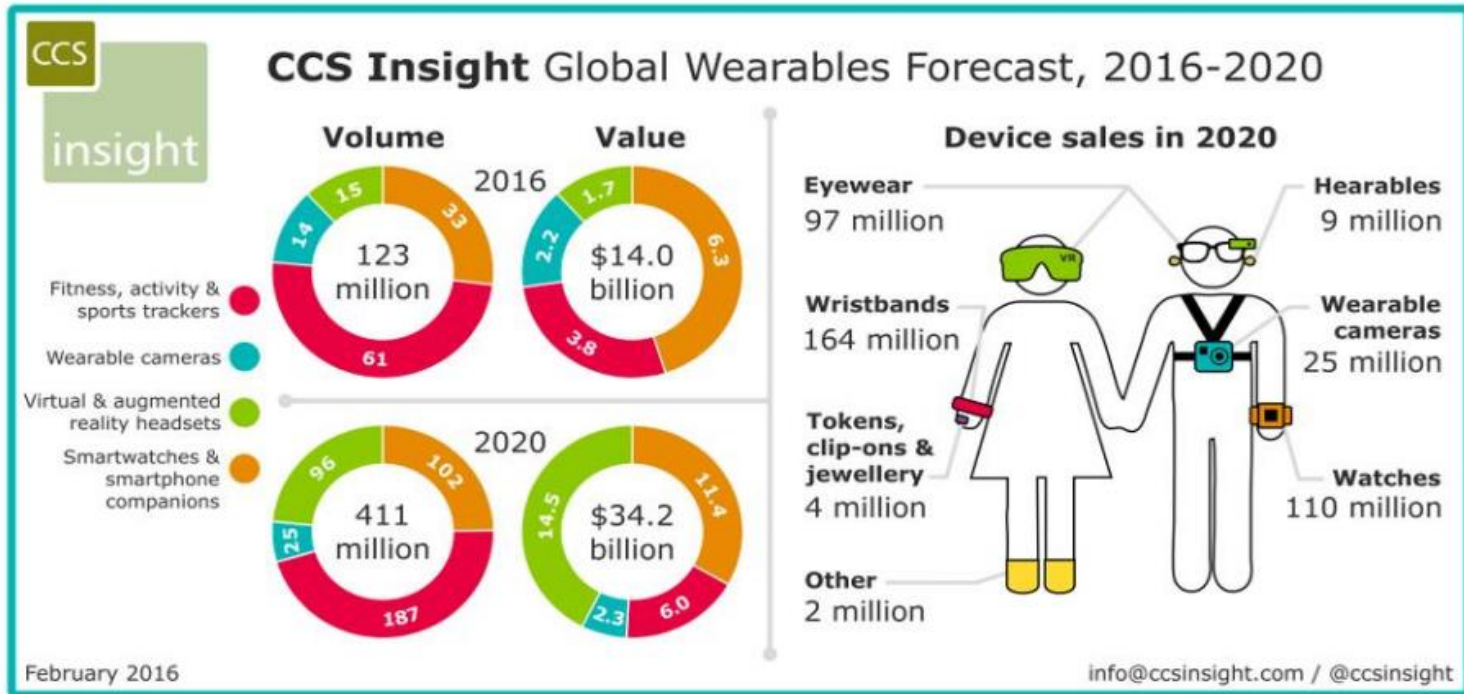


Wearables!



- Nokia has been developing magnetic or vibrating tattoos that can alert the user when there is an incoming call or a warning alert for a dead battery from a mobile phone
- Remote Brain Machine Interface (RBMI) can be defined as a means to control a machine that is in a different geographical location than the user
- Increase of using wearable in the aging population
- Increase of using wearable technologies for people with disabilities

CCS Wearables Forecast



Wearables Timeline



WEARABLE TECH TIMELINE



1993
APPLE
NEWTON PDA



1999
FIRST
BLACKBERRY



2000
FIRST BLUETOOTH
HEADSET



1975
PULSAR
CALCULATOR
WATCH



1979
SONY WALKMAN



1984
CASIO
DATABANK CD-40



1987
DIGITAL
HEARING AID



2001
APPLE IPOD



2003
VIATRON
C-SERIES



2004
MOTOROLA RAZR



2004
GOPRO CAMERA



2006
NIKE+ IPOD KIT



2007
APPLE IPHONE



2008
FITBIT



2011
JAWBONE UP



2012
NIKE FUEL BAND



2012
PEBBLE WATCH



2013
NISSAN NISMO
SMARTWATCH



2013
MISFIT SHINE



2013
GOOGLE GLASS



2013
SAMSUNG
GALAXY GEAR



2014
APPLE WATCH

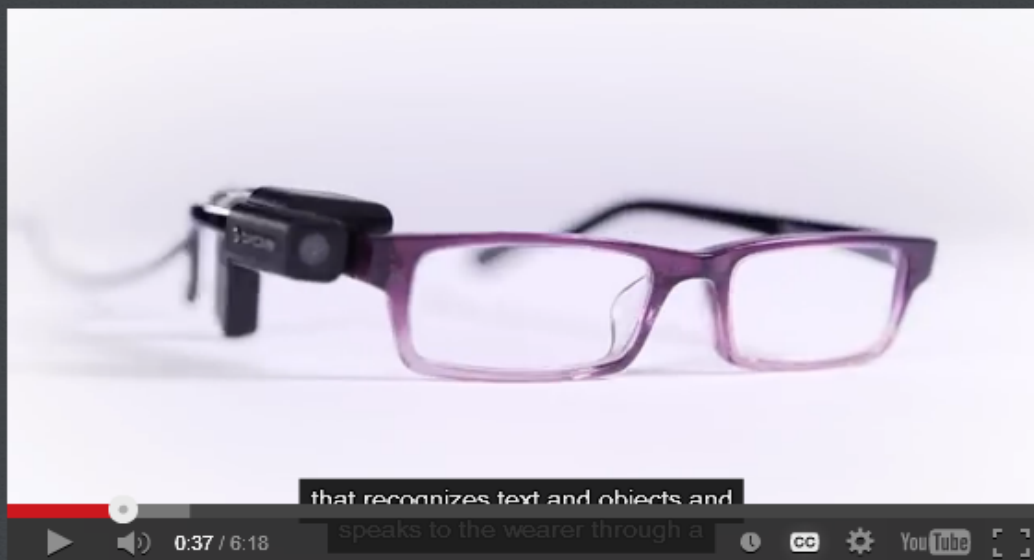
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See for Yourself

What is OrCam?

OrCam is an intuitive portable device with a smart camera designed to assist people who are visually impaired.

OrCam gives independence.



that recognizes text and objects and
speaks to the wearer through a



0:37 / 6:18



NuEyes



- <https://nueyes.com/>
- \$6,195
- Variable Magnification from 1x-12x
- Various contrast and color changes
- Voice Activated
- Wireless
- Lightweight Design
- 2 Year Warranty
- Text-to-Speech (OCR)
- Stream TV and Movies to the Glasses
- Full Android Computer
- Internet Browser
- Email
- Barcode and QR Scanner
- Social Media Applications



Oculus Rift

- Virtual Reality Headset
- Video Games
- Movies
- Real Life Simulations/Visit Real Places
- Create Art
- Starts at \$399



Apple Watch



- Send & Receive Texts/Calls
 - “Inner Circle”
- Apps
- Can be used for fitness
 - Heart Rate Monitor
 - GPS
 - Accelerometer
- “Hey Siri”
- Haptic feed back
- Calendar
- From \$329+



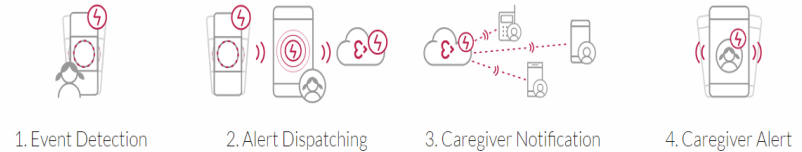
Embrace Watch



- Monitors Nervous System
- Monitors Physical Activity
- Monitors Sleep
- Around \$249
- Works on iOS and Android
- <https://www.empatica.com>



How it works: Embrace Alert System



1. Event Detection

The Embrace watch is linked to the wearer's mobile device with a Bluetooth® connection. This connection allows our systems to analyze the information and detect unusual events like convulsive seizures in real-time.

2. Alert Dispatching

The Alert app will be automatically activated when an event is detected by the Embrace watch. The App will send an alert notification to your caregivers using the mobile device's cellular data or Wi-Fi connection.

3. Caregiver Notification

The Empatica systems will notify your caregivers one after the other to communicate the alert and ask if they can help. They only need a mobile phone with cellular signal to receive these notifications, no smartphone required.

4. Caregiver Alert

Your caregivers will be notified through an automated call and sms. You can add multiple caregivers into the App so that there is always someone who can help you.

Watchminder



- Rechargeable battery
- 65 pre-programmed messages to choose from
- 30 daily recurring alarms
- Create your own personalized messages
- Helpful training and reminder modes
- Vibrating alert
- Countdown timer



Fitbit Versa



- Health & Fitness Smartwatch
- Water resistant
- Multi-day battery life
- Syncs to phones for music streaming, text or call notifications
- Guided Breathing Sessions, Sleep Tracking, Exercise Modes, Payments
- From \$199



Garmin Forerunner 645 Music



- GPS Running Watch
- Monitors heart rate
- Can stream music or upload music to the watch
- Connects to iOS & Android devices
- Garmin Pay option
- Starts at \$399



OTvest



- Denim weighted vest
- Adults and Children
- Can improve balance
- Trunk stability
- Motor Coordination
- Stress Reduction
- Attention
- Autism
- <http://otvest.com/>



Levi's Commuter x Jacquard by Google



- Connects to phone via Bluetooth
- Control music, screen phonecalls, get directions by swiping jacket.
- Can set gestures to control phone
- \$350
- <https://www.youtube.com/watch?v=yJ-lcdMfziw>



Tommy Hilfiger Adaptive



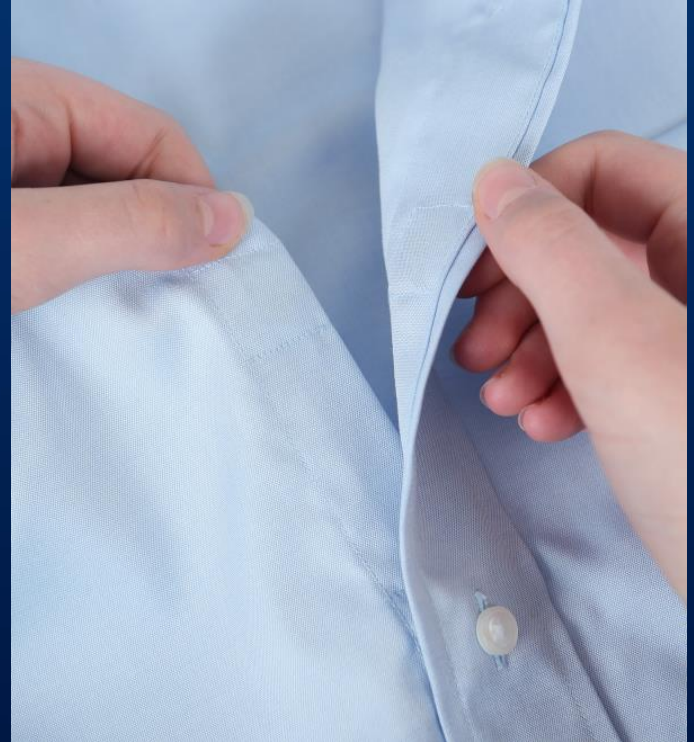
- Adaptive designer clothing for men, women, & children
- Magnetic Buttons
- Adjustable Hems
- Velcro & bungee-cord closures
- Side seam openings



MagnaReady



- Magnetically infused dress shirt for people with limited mobility or dexterity.
- Available for both men and women.
- \$65



Reveal

- Measures and tracks anxiety to help you better understand behavior and prevent meltdowns.



GlassOuse



- Helps people control electronics without using their hands.
- Based on your head movements, it moves the cursor onscreen. You bite on a blue extension to click, and it can go a week without charging.”
- <https://vimeo.com/158593763>



e-Handle

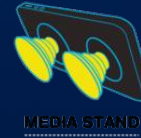
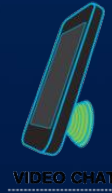
- * Handle/grip for e-readers, tablets and iPad Minis
- Safe way to hold devices with better grip, control and functionality
- Rotates 360 Degrees;
Easy to use; Adjustable;
Detachable



PopSocket



- A grip, a stand, a wrap, and more for phones and tablets.
- They make holding tablets and e-readers more comfortable and secure.
- With the PopSockets Mount companion product, they attach to nearly any vertical surface, including dashboards, mirrors, bed posts, refrigerators, and walls, for convenient hands-free viewing.



Modular hose -tabX Tablet Holder and Plate



- This solution is great for situations when there is no surface to attach to hold up your tablet.
- Whether lying on the sofa or sitting in a chair/wheelchair, the adjustable straps help hold it in place for hands free operation.]
- Attach this tablet holder to your leg



BuzzClip



- small and discreet wearable for people that are blind or partially sighted
- uses ultrasound to detect obstacles that may lie directly in one's path
- offers essential head level obstacle detection
- \$149
- [BuzzClip](#)



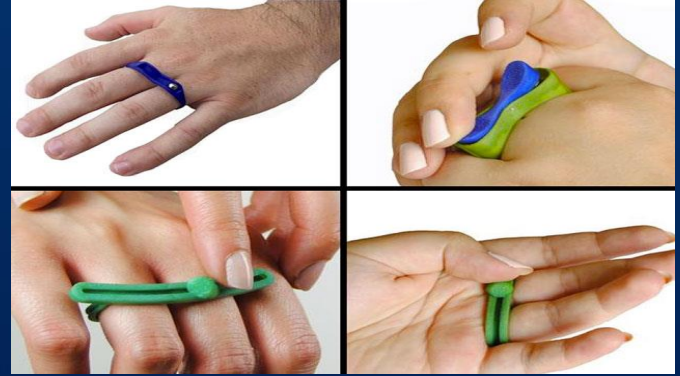
Serene

- Converts any TV Audio output into an infrared light beam for wireless transmission to a receiver
- Dramatically broadens the acoustic sweet spot of your living room.
- Be able to clearly hear all dialogues and stereo sounds in your movie or TV program.



Fidget Ring

- Similar to fidget toys; except you can wear them!
- Helps for people who are anxious or have trouble focusing on the something.



Octopus by Joy



- Smartwatch for Kids
- Icon Friendly
- Watch, Scheduler, and Assistant
- Visual Reminders
- [Octopus by Joy](#)



My Question to You:
What have you learned
today?



Resources



<https://www.statista.com/topics/1556/wearable-technology/>

<http://www.forbes.com/sites/paullamkin/2016/02/17/wearable-tech-market-to-be-worth-34-billion-by-2020/#18d3ae9f3fe3>

<http://dl.acm.org/citation.cfm?id=1358913>

<https://static1.squarespace.com/static/516c369de4b00b44ca2bcdce/t/527fee38e4b0217581602d6e/1384115768724/wearable-computing-the-next-big-thing-in-tech.pdf>

<http://www.scientific.net/AST.85.11.pdf>

<http://thirdwavefashion.com/2016/06/wearable-tech-for-the-disabled/>

<http://www.choosemuse.com/>

<http://www.uprightpose.com/>

<http://www.scottpaultech.com/>

<http://www.modularhose.com/Assistive-Technology/mh-Tablet-and-Device-Solutions/130701>

<http://www.dudeiwantthat.com/style/jewelry/fidget-rings.asp>

<http://www.sereneinnovations.com/tvdirect-private-tv-listening-headset>

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Georgia's Assistive Technology Act Program



Disclaimer



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