

Georgia's Assistive
Technology Act Program

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

Presented by:

Rachel Wilson, Maria Kelley and Asha Kumar with contributions by TFL team

www.gatfl.gatech.edu

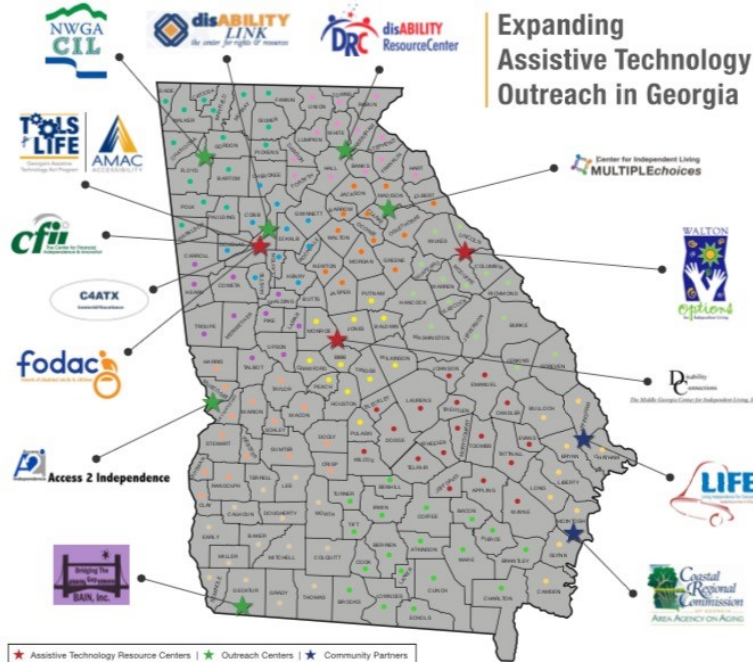
Tools for Life Mission

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.



Tools for Life Network

Assistive Technology Resource Centers, Outreach Centers, Community Partners and Affiliates



GEORGIA'S AGING & DISABILITY RESOURCE CENTERS

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> Atlanta Regional Commission Aging Division
Cherokee, Clayton, Cobb, Conley, Douglas, Fayette, Fulton, Gwinnett, Henry, Pickens Coastal Georgia Area Agency on Aging
Bryan, Bulloch, Camden, Chatham, Chatham, Liberty, Long, McIntosh CSRA Area Agency on Aging
Baker, Calhoun, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes Heart of Georgia Area Agency on Aging
Appling, Berrien, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham | <ul style="list-style-type: none"> Legacy Link Georgia Mountain Area Agency on Aging
Baker, Stephens, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes, Wilkes Middle Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham Northeast Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham Northwest Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham | <ul style="list-style-type: none"> River Valley Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham Southern Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham Southwest Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham West Georgia Area Agency on Aging
Baker, Bulloch, Camden, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham, Chatham |
|---|--|---|

Visit Us Online!



The screenshot shows the Georgia Tech Tools for Life website. The header features the Georgia Tech logo and the "TOOLS for LIFE" logo, with the tagline "Georgia's Assistive Technology Act Program". Below the header is a navigation bar with links: HOME, ASSISTIVE TECHNOLOGY, TFL NETWORK, CALENDAR OF EVENTS, and a search bar. A left sidebar contains links: TRAINING, FUNDING, PUBLICATIONS, TFL WIKI, MEET THE TFL TEAM, MEET THE ADVISORY COUNCIL, DIRECTIONS/MAP, JOIN OUR MAILING LIST, and SCHEDULE A TOUR. The main content area has a "Welcome" tab and a large image showing people using assistive technology. Below the image is a text box: "Stay up-to-date on the latest assistive technology strategies and solutions with customized individual and group trainings." To the right of the main content are several boxes: "GATE 2016" with a date "DEC 9" and location "Georgia Tech Student Center"; "WEBINARS" with links for "Current Webinar Schedule" and "Webinar Archives"; "TOOLS FOR LIFE APPFINDER" with a graphic of a smartphone and icons, and the text "...for Living, Learning, Working, and Playing."; "AT ONLINE EXCHANGE" with the "gTRADE" logo; and "AT FUNDING GUIDE DOLLARS & SENSE" with the tagline "NAVIGATING THE AT FUNDING STREAM".

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

HOME ASSISTIVE TECHNOLOGY TFL NETWORK CALENDAR OF EVENTS Search our Site Go

Welcome AT Services Try AT Get AT AT Guides Research

TRAINING
FUNDING
PUBLICATIONS
TFL WIKI
MEET THE TFL TEAM
MEET THE ADVISORY COUNCIL
DIRECTIONS/MAP
JOIN OUR MAILING LIST
SCHEDULE A TOUR

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
DEC 9 Georgia Tech Student Center

WEBINARS
• [Current Webinar Schedule](#)
• [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.

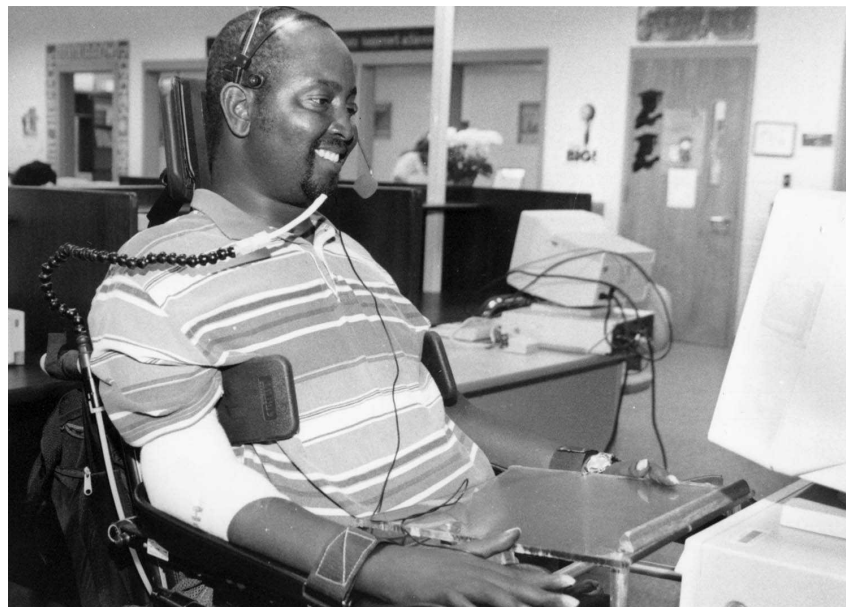
- Assistive Technology ranges from no/low/light tech to high tech devices or equipment.



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! We have yet to meet a successful person who doesn't use any AT.

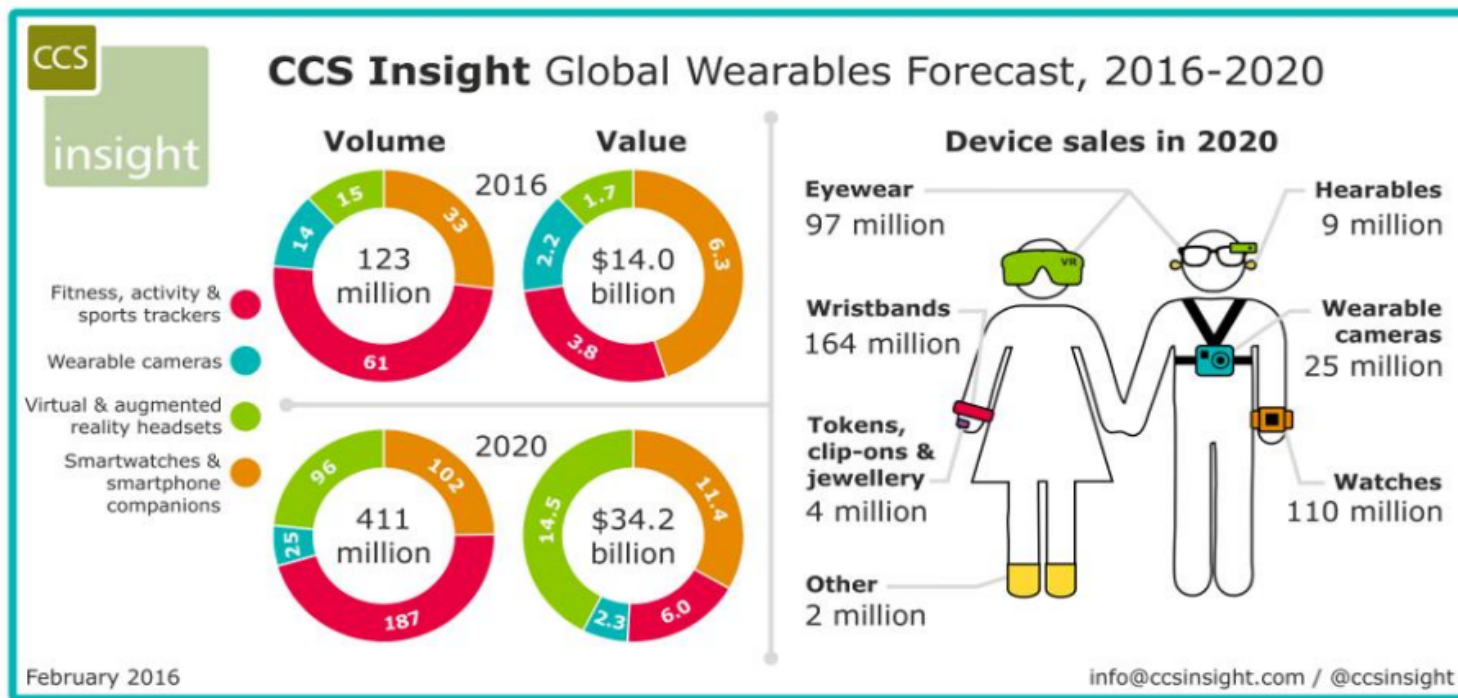


Wearable Facts

- 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**



CCS Wearables Forecast



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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.



- <https://nueyes.com/>
- Pro Coming End of Summer 2017- \$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



Dot Watch

- Smartwatch for people with vision related disabilities
- Watch, timer, and stop watch
- Check notifications, missed calls, etc.
- <https://dotincorp.com/#hero-start>



Apple Watch 3

- Cellular
 - Leave phone behind
 - Stream Music
- “Hey Siri”
- Can be used for fitness
 - Heart Rate Monitor
 - GPS
 - Accelerometer
- Haptic feed back
- Breathe App
- From \$329+

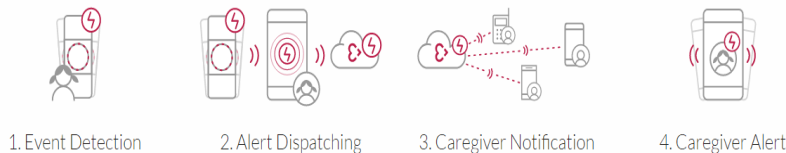


Embrace Watch

- 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.

Octopus by Joy

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



Snug Vest

- inflates to provide adjustable and evenly-distributed pressure to the torso for a comforting hug-like squeeze without pressure placed on the stomach or chest.
- promotes independence as the user can self-inflate their vest in a discrete way to get the exact amount of safe pressure they need. Snug Vest enables the user to complete daily tasks with ease anywhere they go!



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



The Welt

- Kickstarter
- Smart Belt
- Starts at \$69
- Keeps track of:
 - Steps
 - How long you sit
 - Waist



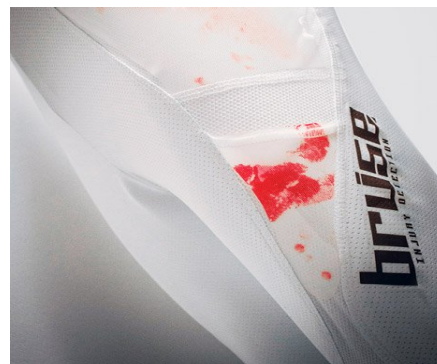
Nike FLYEASE Shoes

- Created for both Children and Adults
- Type of zipper that goes around the heel that makes it easier to put shoes on and off
- Lots of styles and colors
- \$58 +



The Bruise Suit

- Smart injury detection suit for athletes with loss of sensation.
- It applies a recyclable pressure-sensitive film to indicate the severity of injuries. High risk areas are covered with disposable, made-to-fit film sheet inserts.
- If an area is excessively stressed during an accident, the film will irreversibly change color. After training or competing, injured areas can be easily spotted and effectively treated.”



Disabled Athletes Using Smart Injury Detection Suit to Find Injuries

■ Fitness, Sports Science ⌚ December 3, 2014 👤 Jesus Salas



SHARING

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🐦 Twitter

The creative minds at the Royal College of Arts have designed **The Bruise**, a new smart injury detection suit that helps treat injuries quickly and efficiently for disabled athletes. What is amazing about the Bruise is that it is designed to change colors on impact using a recyclable pressure sensitive film to indicate the severity of an injury.



Sponsored by Axon Sports.



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Rheo Knee

- Auto adaptive real-time stance and swing control.
- Dependable and easy swing initiation on all surfaces.
- Automatic stumble recovery.
- Weatherproof design allows exposure to fresh water splashes
- Accompanying Össur Logic app for iOS devices provides
- Smart Extension makes raising from a squatted position easier with less resistance.
- Facilitates stepping over obstacles and stepping backwards.



- 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>



Muse: The Brain Sensing Headband

- Put on the Muse headband, put on your earbuds, start the app, and close your eyes. Immerse yourself within the sounds of a beach or rainforest.
- While you meditate, it measures whether your mind is calm or active, and translates that data into weather sounds.
- When you're calm, you'll hear peaceful weather sounds. When your mind wanders, the weather will intensify, guiding you back to a calm state.



- 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.

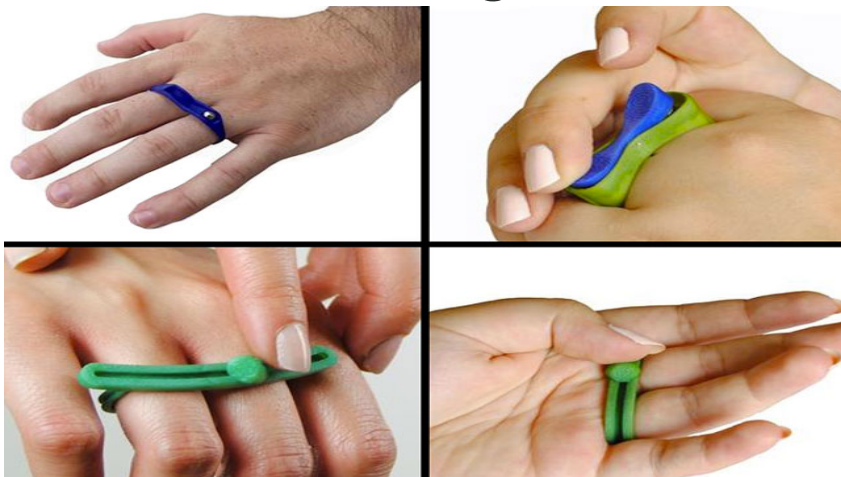


- small and discreet wearable for people that are blind or partially sighted
- uses ultrasound to detect obstacles that may lie directly in one's path
- offers essential head level obstacle detection
- [BuzzClip](#)



Fidget Ring

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



UPRIGHT- Posture Trainer

- Short term training, with long term results; by training with Upright only 15 - 60 minutes a day, you will have improved core strength & muscle memory to maintain a lifelong habit of good posture.



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



Wearable tech for all phones
and cases

Great for larger phones

Safe way to hold and use
phones

Solves dexterity issues Rotates;
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.

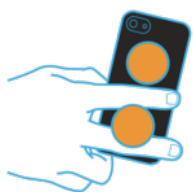
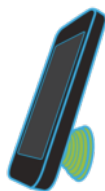


PHOTO GRIP



VIDEO CHAT



TABLET GRIP



MEDIA STAND



TEXTING GRIP



CORD WRAP



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



- Wearable EMG assistive technology device
- It gives those with ALS/MND, spinal cord injury, or any other condition causing paralysis and loss of speech a connection to the world
- Adjustable sensitivity according to individual user and fatigue levels
- <http://www.controlbionics.com/neuronode/>



Virtual Reality

- Market is Growing!
- Education
- Gaming
- Opportunity to experience an experience without being there



Hip Air



- Wearable Technology

Lightweight

Unobtrusive

Falls take 400ms from start to impact

Hip Air detects and deploys airbags within 200ms

Reduces risk of/extent of injuries

Evone Smart Shoes

- Sensors embedded in footwear
 - Automatically alerts loved ones when a fall is detected
- Various styles
 - Prints
 - Slippers



Lili Smart Medication Compliance



- Remotely programmable pillbox
- Watch reminds user of scheduled activities including when it's time to take meds
- Motion sensors track if individual has taken medication and other daily habits around the home
- App notifies caregiver or loved one if there is an absence of activity at the expected time

LVL: Hydration Monitor

- Fitness Tracker that will track hydration
- Aims to improves overall health
- Created by medical student at University of TX who had a stroke due to dehydration
- BSX Athletics
- Shipping 2017



VivaLnk Fever Scout

- eSkin technology
- Monitor body temperature
- Worn near the armpit
- Works with app to track data
- 59.99
- <https://feverscout.com/>



- Wireless Patch
 - Worn over heart
- Monitors Stress and Physical Health
 - Gives Alerts
- Body Temperature
- Respiration Rate
- Sleep Status
- Heart Rate
- Stress Levels
- Activity/Training
- <http://vivalnk.com/vitalscout/>



- Stylish smart glasses
 - Prescription
- Will track your activity,
- Subtly send you notifications
- Use bone conduction audio tech to provide music without earbuds
- Touch interface right on the frames
- <https://www.enjoyvue.com/>



IQ Buds

IQ Buds by Nuheara.com
Speech Amplification
Noise Control
\$300



SoundShirt

Connected to a computer system picks up the audio from microphones placed at various points around the orchestra's stage; filled with actuators, (little motors that vibrate in relation to the intensity of the music being played, in real time)

The deeper, heavier bass notes [activate the actuators] down in lower parts of torso, and the lighter sections, like violin and lighter notes, further up on the body, around the neck area and clavicle.

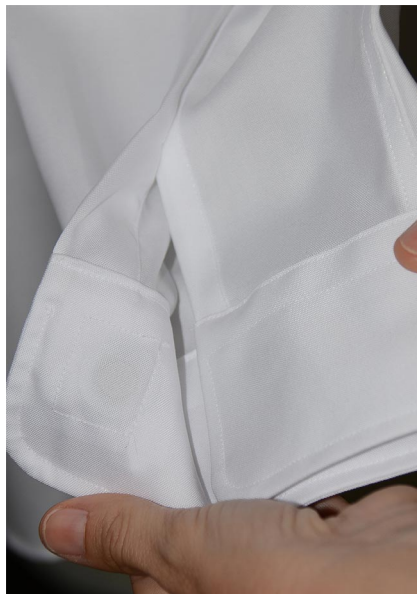


Magna Ready

Magnetically Infused shirts

Wrinkle resistant shirts

www.magnaready.com



Siren Socks

- Smart sensors embedded in fabric track temperature
- Connected app notifies individual of potential injury or ulceration
- Early warning can mean the difference between injury and amputation





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.dudeiwanththat.com/style/jewelry/fidget-rings.asp>

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

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TOOLS *for* LIFE

Georgia's Assistive Technology Act Program



Disclaimer



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