



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

GATE 2016

Martha Rust 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.



The TFL Network



Visit us online!



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

Welcome AT Services Try AT Get AT AT Guides Research



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



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, technology makes life easier.
- For a person with a disability, technology makes life possible.
- **TIP: USE AT! We have yet to meet a successful individual who does not 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**



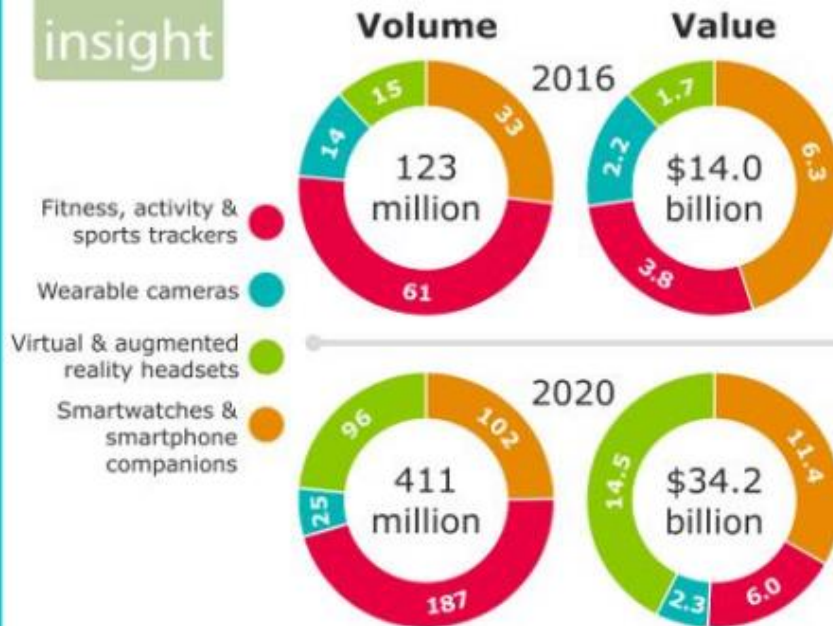
Wearables!



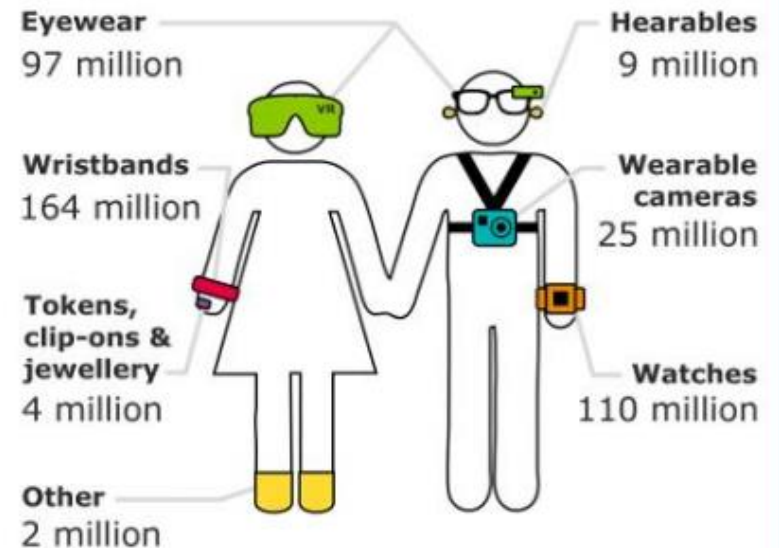
- Nokia has been developing magnetic or vibrating tattoos that can alert the user when there is an incoming call or a warning alert for a dead battery from a mobile phone
- Remote Brain Machine Interface (RBMI) can be defined as a means to control a machine that is in a different geographical location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



CCS Insight Global Wearables Forecast, 2016-2020



Device sales in 2020



Wearable Jewelry

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



Apple Watch

- Receive Calls and texts
 - “Inner Circle”
- Apps
- Can be used for fitness
 - Heart Rate Monitor
 - GPS
 - Accelerometer
- “Hey Siri”
- Haptic feed back
- Calendar
- \$499



Neutun



- Makes it easy to track, manage and live with epilepsy
- App for Smart Watches
- Useful for:
 - Medication Management
 - Care Circle
 - Health Insights
 - Log Seizures

FitBit

- Fitness tracker
- Variety of styles and colors
- Track Activity
- Track Food
- Track Sleep
- Track Heart rate
- Works with other Apps
- New Smartwatch



 fitbit.
Discover a whole
new world of fitness.



Microsoft Band

- Works across all platforms
- Receives calls and texts
- Uses Cortana
- Keep tracks of steps
- Keeps track of Sleep
- Keeps track of UV
- Keeps track of heart rate
- Choose apps
 - Facebook
- \$199



Reveal

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



Meet
the
boss

The Bradley

- A fashion timepiece, designed in collaboration with the vision impaired, that you can touch and see to check time.
- Instead of traditional watch hands, time is indicated by two ball bearings (connected by magnets to a watch movement beneath the watch face)—one indicating minutes (top) and one indicating hours (side). Even if the ball bearings are displaced when touched, the magnets will move the bearings back to the correct time with a gentle shake of the wrist.”



Fidget Ring

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



EpicID Emergency ID Band



- Easy for first responders to access
- Salt water safe USB with a durable stainless steel clasp and USB cover
- No subscription or internet connection is required
- Plug this USB into your computer and input or update your personal information medical history and insurance information
- Both PC and Mac compatible



Wearable Calming

B-Calm

- “acoustic shield”, allowing the individual to have control of the sound environment
- helps reduce off task behaviors and irritability
- disturbing noises are blocked and replaced with familiar and soothing sounds



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.



Wearable Clothing

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!



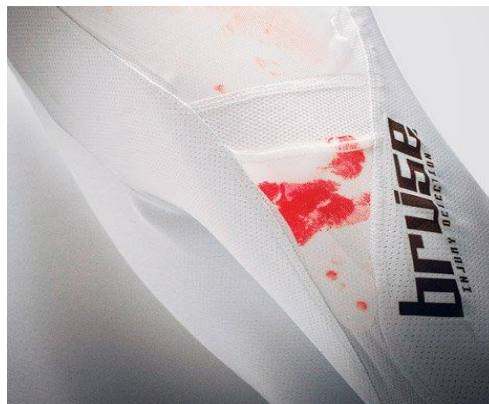
T. Jacket

- Wearable technology vest
 - Provides customizable deep touch pressure
 - Uses adjustable air pressure compression controlled via smartphone app
 - <http://www.mytjacket.com/>



The Bruise Suit

- Smart injury detection suit for disabled 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

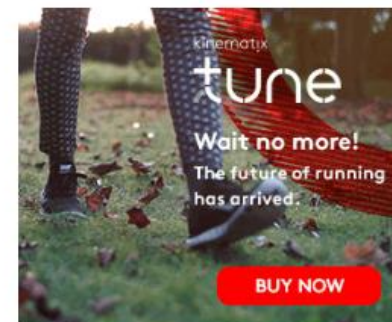


SHARING

 Facebook

 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.



[Download Here](#)

Sponsored by Axon Sports.



GET THE SPORTECHIE NEWSLETTER!

How Did You Find Us?

SportTechie List(s):

☐ Daily News

Lechal

- Haptic Footwear
- Uses GPS to let you know where you are
- Connects with app
- www.lechal.com



An aerial view of a city street with various buildings and rooftops. In the foreground, a couple is walking away from the camera, holding hands. The man is wearing a dark jacket and dark pants, and the woman is wearing a dark jacket and dark pants. They are walking on a light-colored surface. The background shows a dense urban environment with various buildings and rooftops.

BUY NOW

REDEFINING NAVIGATION

FEEL YOUR WAY

Lechal's haptic feedback, via simple vibrations, is with you every step of the way, giving you detailed **route guidance at every turn**. It even works offline! Which means you can wander off with **no internet or data connectivity** or get off a plane in a new country and Lechal will work, always in all ways.

 FEATURES



Wearable Seeing and Hearing

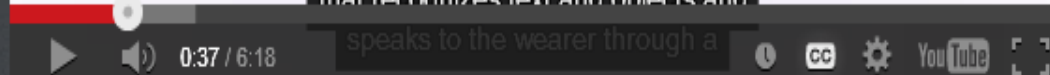
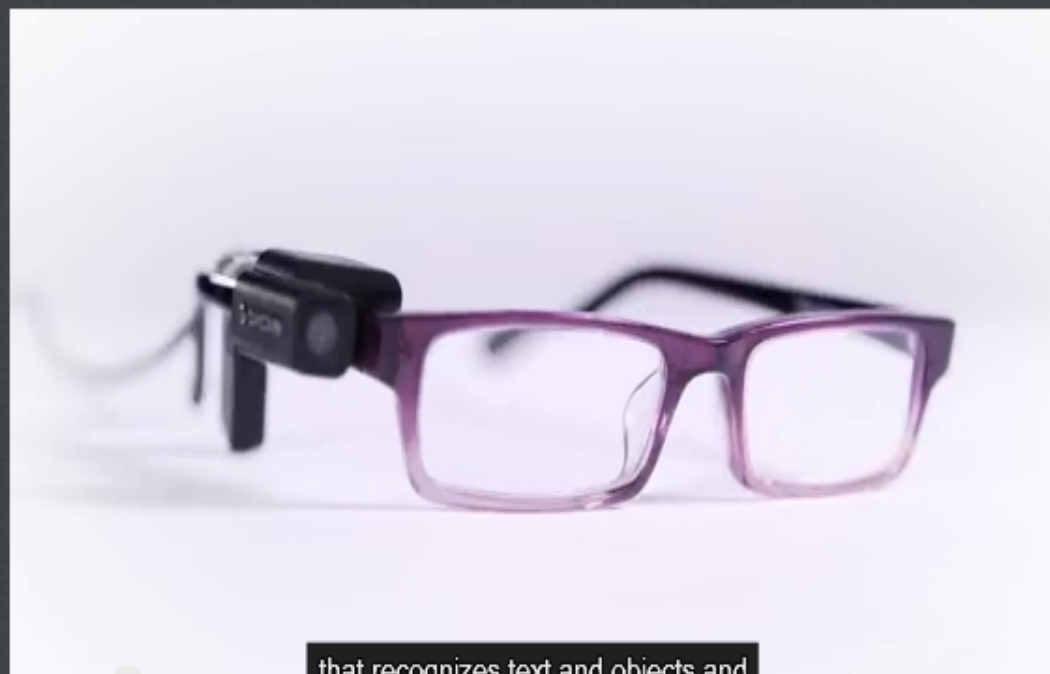
[Home](#)[Order](#)[Q&A](#)[In the News](#)[About](#)[Contact](#)

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.



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>



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.



Ergonomics

Lumo Lift

- Lumo for back and head/shoulders
- Sends gentle vibration alert when posture needs to be corrected



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.



Wearable Mounts

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



CellHandle

- Wearable tech for all phones and cases
- Great for larger phones
- Safe way to hold and use phones
- Solves dexterity issues Rotates; adjustable; detachable



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 GPS

GPS Tracking Devices

- Find My iPhone
- Find My Friends

10 Tracking Devices that Keep Loved Ones with Dementia Safe



Wandering adds more confusion to the lives of those already dealing with a disorienting disease, and leads many people with Alzheimer's or dementia into unsafe situations. Location and elderly GPS tracking devices for dementia are an increasing option for families and caregivers trying to reduce wandering.

Here are 10 location devices that are being used to keep loved ones with the disease safe:

1. iTraq

A new cellular tracking device that came out this year, iTraq is the "world's first global location device that can be found anywhere." It uses cellular towers to determine location, allowing it to be used anywhere there is service around the world. The device itself is as small as a credit card, and its location is reported to you through a mobile application which allows you to view a map of locations and timestamps. iTraq also features a "Guard Mode" where users can specify a radius on a map, then receive alerts if/when the iTraq goes beyond your pre-set radius. This means that you could receive notification if a loved one wandered from home, and also be able to track where they are with accuracy.

2. Project Lifesaver

Fulfilling their mission to "provide a timely response to save lives and reduce potential injury for adults and children who wander due to Alzheimer's, autism and other related condition or disorders," Project Lifesaver's GPS tracking program has helped rescue 2,983 people. [We spoke with Gene Saunders](#), Chief Executive Officer and Founder of Project Lifesaver, who shares more about the technology – a small PAL (Protect and Locate) tracker worn around the wrist – that has saved so many from wandering. "Citizens enrolled in Project Lifesaver wear a small personal transmitter around the wrist or ankle that emits an individualized tracking signal. If an enrolled client goes missing, the caregiver notifies their local Project Lifesaver agency, and a trained emergency team responds to the wanderer's area. Most who wander are found within a few miles from home, and search times have been reduced from hours and days to minutes. Recovery times for PLI clients average 30 minutes: 95% less time than standard operations." Saunders adds: "Recently, Project Lifesaver has added a new technology... that can also provide a radio frequency safe zone around them that notifies the caregiver in the event an at-risk individual breaches this established safe zone."

3. Mindme

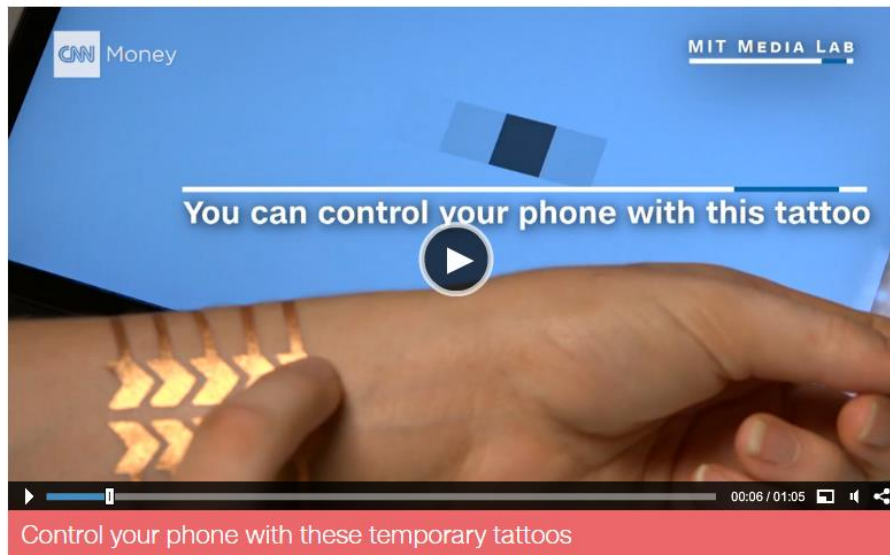
Mindme offers assistance to families dealing with dementia and wandering in the form of both an alarm and

Smart Tattoos

This tattoo that controls a smartphone may be a glimpse of the future

by Matt McFarland @mattmcfarland


August 15, 2016: 6:19 PM ET



Our transition to becoming cyborgs has officially begun.

MIT researchers have created tattoos that function as interfaces for smartphones and other digital devices. These tattoos can receive and send information, serving as wearable devices that

Social Surge - What's Trending

 Nordstrom's \$85 leather-wrapped rock sold out online

 Delta testing a return to free meals

 JPMorgan fined \$360 million for manipulating key interest rate



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>





**My Question to You:
What have You Learned today?**



GATE Evaluation Link



<http://tinyurl.com/GATEConference>

Your certificate of attendance will be emailed to you upon completion of this evaluation!



TOOLS *for* LIFE

Georgia's Assistive Technology Act Program

thank
you



The Tools for Life Team



Carolyn Phillips

Director, Tools for Life

Carolyn.Phillips@gatfl.gatech.edu



Sarah Endicott

Research Scientist

sarah.endicott@design.gatech.edu



Danny Housley

AT Funding & Resource Specialist

Danny.Housley@gatfl.gatech.edu



Justin Ingham

Support Specialist

jingham3@gatech.edu



Ben Jacobs

Accommodations Specialist

Ben.Jacobs@gatfl.gatech.edu



Krista Mullen

Speech Language Pathologist

krista.mullen@gatfl.gatech.edu



Samantha Peters

Support Specialist

seters37@gatfl.gatech.edu



Liz Persaud

Training and Outreach Coordinator

Liz.Persaud@gatfl.gatech.edu



Martha Rust

AT Specialist

Martha.Rust@gatfl.gatech.edu



Rachel Wilson

AT Specialist

Rachel.Wilson@gatfl.gatech.edu

