Assistive Technology Solutions for Successful Aging

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www.gatfl.gatech.edu
Welcome to the Assistive Technology revolution! The world around us is evolving at an astounding rate. Assistive Technology developments have been foundational in this evolution and a catalyst producing positive life-changing results for individuals with disabilities. This talk will present what’s new in AT and in the AT community as we explore where we were, where we are, and perhaps, where we are going.

For Handouts: [http://www.gatfl.gatech.edu/tflwiki](http://www.gatfl.gatech.edu/tflwiki)
AMAC creates practical solutions that work, with a focus on utility, ease of use, and high quality.

- **Accessibility Consulting** focuses on organizational accessibility needs with evaluation, technical assistance, customer support, and website accessibility solutions.
- **Braille Services** produces customized projects from both print materials and electronic text including partial books and chapters or graphics only using cutting-edge technology.
- **Captioning Services** makes classrooms, meetings, labs and other audio environments fully accessible for deaf or hard-of-hearing.
- **Professional E-Text Producers** provide high-quality e-text in many formats such as PDF, DOC, DAISY, and HTML.
- **Certified Assistive Technology team** provides on-site and remote assessments, demonstrations, training and technical assistance for education, work, and daily living environments.

For more information, please visit our website at [www.amacusg.org](http://www.amacusg.org)
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.
TechSage (RERC)

- Funded by: National Institute on Disability and Rehabilitation Research (NIDRR), Dept. of Ed
- Timeline: Oct 1, 2013 – Sept 30, 2018
- Amount: $4.6 million ($925k/year) + ~ $1 million GT cost share
- Interdisciplinary: CoA (ID, GIS, AMAC), CoS (Psych), CoE (BME), CoC (HCI/HCC), IPAT (IMTC, Awarehome), GTRI, Emory Ctr. for Health in Aging, CS/Engineering USC
TechSage Mission

To conduct programs of advanced rehabilitation engineering (RE) and technical R&D to increase knowledge about, availability of, and access to effective, universally-designed technologies that enable people to sustain independence, maintain health, safely engage in basic activities of daily living at home and community, and participate in society as they age with disability.
Core Principles and Strategies

- Focus on People with Disability who are Experiencing Age-Related Limitations
- A Basis in User Needs
- UD as the Fundamental Goal of all Efforts
- Multi and Interdisciplinary Approach to Improving Rehabilitation Outcomes
Scope

• Research (Rogers)
  – R1. User Needs (Rogers, Fain, Jones)
  – R2. Effects of Hearing Loss (Bruce, Echt)
  – R3. Exercise Telerobotics (Mitzner, Beer)

• Development (Price)
  – D1. App Development
    • D1.1. Cognitive Training Game (Gandy-Kennedy)
    • D1.2. Route Planning App (Sanford, Guhathakurta)
    • D1.3. Mobile App to Measure Gait (Jones, Johnson)
  – D2. SmartBathroom Technologies (Sanford, Jones)
  – D3. Intelligent Robotics (Kemp)

• Training (Sanford)
  – T1. Online Education (Phillips)
  – T2. Post Secondary Education (Sanford)
  – T3. UD Competition (Rébola)

• Dissemination (Mitzner)
App Factory (D1)

The overall purpose of this project is to advance universal design in the wireless community. The objectives of this project are development, deployment, and adoption of software applications ("apps") to enhance the utility and usability of wireless products and services for wireless customers with and without disabilities.

App Factory output will include apps designed specifically to address barriers to wireless access and use by people with cognitive, physical, sensory, and/or speech disabilities. Wherever practical, these apps will incorporate features useful to all customers, with or without disabilities.

A complementary objective of this project is development of a practical model for consumer participation in the process of app development. This process engages the community of people with disabilities throughout the process of envisioning, designing, testing, refining, and disseminating applications.
Points of Excellence

- Our research advances both science and practice
- We aim to improve quality of life for adults of all ages
- Students graduating from our lab are very successful

Resources

- Senior-to-Senior Brochure

Sponsors
Aging in Place: Questions to Consider

- Safety
- ADLs
- Self care

- Physical barriers
- Emergency exits
- Entrance
- Hallways
- Living room
- Kitchen
- Bedroom
- Bathrooms
- Utility room
Safety questions for the exterior and entrances include:

- Is there adequate lighting to see walkways and entrances?
- Are steps in good repair and do they have non-slip surfaces?
- Are there handrails for the steps and are handrails securely fastened?
- Do the handrails run continuously from the top to the bottom of the entire flight of stairs?

~ Tammy Irion
Strategies & Solutions for...Entrances/Doorways

• Widen exterior walkways for safety.
• Widen entrances and doorways to provide easier access for both wheelchair users and non-users; minimum doorway width for wheelchair passage is 32 inches.
• Install handles, pulls, latches, and locks on doors that are easier to grasp with one hand and that do not require tight grasping, pinching, or twisting.
• Place lever, push types, or U-shaped handles over existing round doorknobs to allow easier opening of doors.
• Lower thresholds to allow safer and easier entrance for wheelchair users and non-users.
• **Half-Step** - consider using if the first step is too large, works for indoor and outdoor stairs

• **Anywhere lighting** - Such as stick-n-click or Push on Lights to brighten up dark staircases

• **Skid resistant indoor/outdoor rugs/mats**

• **Keyless locks**

• **Handrails/grab bars**
**Staircases**

- Stair lifts - look for one with a seat configuration that is height-adjustable, compact and folds up (so others in your house can use the stairs). The ideal stair lift should also have a full backrest for maximum seated comfort.

- Half-Step - consider using if the first step is too large, works for indoor and outdoor stairs

- Anywhere lighting - Such as stick-n-click or Push on Lights to brighten up dark staircases
Hallways

- Anywhere lighting - Such as stick-n-click or Push on Lights to brighten up dark staircases

- Skid-resistant rugs

- Smoke alarm for deaf/hard of hearing

- Organize cords - cost efficient use toilet paper rolls
AT Solutions: Living Room

- Non-Slip rugs
- Proper height furniture
- Remote for TV
- TV Ears
- Magnifier
- Stands for books/tablets/food
- Cords organized (declutter)

- Lighting
- Environmental controls for Lights/blinds/etc
- Easy to reach phones
- Easy assist lift for chairs
Lights

Lamp voice control

Caseta Wireless Remote Plug-In White Lamp Dimmer Kit
Telephones
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.
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 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

WHAT'S IN THE BOX
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)
Kitchens

- Automatic soap dispensers
- Automatic trash cans
- Automatic appliances (can openers)
- Jar grippers/Jar openers
- Adaptive utensils/ cups/ plates
- Adaptive cutting boards
- Fire alarm for deaf/ hard of hearing
- Motion sensor faucets

- Smart appliances (fridge)
- Pill reminder with alarm
- Pullout drawers for cabinets
- Push on lights
- Reachers
- Talking scales
- Color coded measuring cups/ spoons
- Longer sleeved pot holders
- Step stool
Motorized Options

- Cabinets
- Sinks
- Stoves

http://www.iltsource.com/Approach_for_the_Kitchen_and_Bath_s/78.htm
Accessible Storage

Store food/beverages on lower shelves

Lazy Susan and rollout cabinets can improve access
Refrigerator

Keep food/beverages on lower shelves
Lazy Susan allows for improved access to items in stored near the back of the fridge
Automatic Faucet Control

- Inexpensive $15
- Easy to install
- Turn water on/off by making contact with the wand
Kitchen Safety

- Senses when stove is in use
- Chimes and light flashes every 10 minutes when stove is on

Stove Reminder
Kitchen Safety

• Program to automatically turn off the stove or oven if not activity detected

Cookstop Automatic Stove/Oven Control
Contrast in the Kitchen

Source: www.afb.org
Pots & Pans

Improve access to equipment to improve safety and independence
Kitchen Tools

Tools and small appliances that increase safety and independence
Bedroom

• Flooring surface and space
• Telephone access
• Access to closet
• No throw rugs
• Medical supplies
• Transfers in and out of bed
• Access to lighting
• Chair with arms can increase safety when dressing
AT Solutions: Bedrooms

- Lighting
- Talking alarms
- Bed shaker
- Dressing stick
- Long handle shoe horn
- Easy to reach bedside lights
- Easy to reach phone

- Cord organizer
- Night lights
- Chair (for getting dressed if needed)
Mobility aids
Pocket Dresser
Closets

- Pull-Down Closet Rods
- Automated Wardrobe Lifts
- Slide-Out Shelving
- Lap-Height Shelving
- Waist-Height Shoe Racks
- Tilt-Out Hampers
Bathrooms

- Non-slip floor/ tiles
- Automatic soap/toothpaste dispenser
- Universal quad cuff (tooth bush/ hair brush)
- Anti-fog mirror
- Grab bars
- Talking scales
- Lightening
- Shower chair

- Moveable shower head
- Chair (sit to do hair/ makeup)
- Heated floors
- Heated towel rack
- Floss Aide
- Automatic dryer
- Raised toilets
- Night lights
- Grippers for faucets
Bathroom

No threshold walk-in or roll-in shower with non-slip flooring and a bath seat in tub or built in bench in shower to allow for seated bathing

Adjustable height handheld showerhead

grab bars

Easy-to-reach anti-scald faucets with lever style handles on sink and in bathtub or shower

Raised comfort height toilet with seat 17 to 19 inches off the floor
Bathroom Safety

Installation and proper placement of grab bars increase safety and function
Bathroom Safety
Bathroom Sink
Safety

Anti-Scalding Faucet

- anti-scalding devices turn off the water if the temperature gets too hot.
- easy-to-install
Using Sugru to increase contrast and grip
Bathroom Safety

www.afb.org
Utility Room

http://www.shopgetorganized.com; laundry caddy $50
Safety

- Smoke alarms
- Fire extinguishers
- Egress
- Call alerts
vtech CareLine

- No monthly fees
- Large buttons & photo speed dial
- Voice or touch activation for pendent calls
- Program reminders
- Pendent will speak time
Man Down Apps

- Sends immediate alerts in case of an emergency or injury.
- Emergency contacts are notified via text, phone or e-mail.
- Once app is activated, phone movement is monitored.
- If phone is motionless for 30 seconds a pre-Alarm warning starts.
- If the phone is not moved within another 30 seconds Full Alarm mode is activated; phone will send out a text, email and phone call to emergency contacts. Message will GPS location of the person in distress.

- $1.99
- IOS and Android
Safety
Automatic Medication Dispenser

www.alzstore.com
Reminder Rosie

• Use voice commands to tell time and turn off alarms
• Easy set up by spoken word
• Record reminders in any language
• 10 personal reminder alarms
Alerting Systems
What is SimpleC?

Easy to use care and wellness program, delivered via technology, that uses life history details combined with photos, music and voice recordings to create personalized audio-visual based therapies for individuals.

These therapies become a living care plan and toolset for care staff and family that is always there to help individuals maintain independence and function.
One Solution
for residents, families, staff and communities

• Wellness Model
• Supports Person Centered Care
  Validating the Person and their Unique Life Story
• Activity Programming
• Engages Families
• Supports the Culture of the Community

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Our innovative approach weaves care needs with personalized content to develop interventions that modify behavior to achieve:

- individual goals
- enterprise goals

Resulting in:

↑ Engagement & participation
↓ Symptom frequency
↑ Goal attainment
↓ Psychotropic drug use
↑ Staff effectiveness & efficiency
Companions are personalized for each resident with:

- therapies addressing individual symptoms, care needs & goals
- media reflecting personal interests and life details
- family photos, if provided
- preferred music, and Trusted Voice recordings in appropriate language

Companions also contain therapies addressing each community’s care and wellness interests:

- morning care
- meals
- hydration
- bathing
- activities
- sleep
Three Main Therapy Uses

Prompt and Inform
- Activities
- Care events
- Housekeeping
- Hydration
- Meals
- Upcoming Visitors

Redirect or Calm
- Overstimulation
- Restlessness
- Sleep
- Wandering
- Sundowning

Engage or Stimulate
- Under-stimulation
- Socialization
- Enhance Communication
Resources

• AARP Home Fit Guide

• American Foundation for the Blind; [www.aft.org](http://www.aft.org)
Our Question to You:
What have You Learned today?
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