Access and Explore! Using Environmental Control in the Classroom

Carolyn Phillips, Tools for Life Director
Ben Jacobs, Accommodation Specialist, Tools for Life
Michael Leverett, Director, Disability Connections

www.gatfl.gatech.edu
• The move from classroom to “real life” can be a major transition. Students 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 in the classroom that enables learning independence can help ease the transition process. In this session, presenters will demonstrate affordable environmental control solutions that can be implemented in the classroom and then used throughout the transition process. Multiple environmental control options and options for interacting with the environment (voice, computer, tablet, phone) will be covered.
Agenda

Learning Objectives:

• As a result of this activity, the participant will be able to list 3 environmental control protocols and their effectiveness.
• As a result of this activity, the participant will be able to assess and implement solutions for students to interact with their environment.
• As a result of this activity, the participant will be able to identify 3 affordable solutions to implement in the classroom.
AMAC

AMAC Accessibility is a social change organization on a mission to create affordable services for governmental, private and non-profits organization working with individuals with disabilities. Services include e-text, braille, captioning, assistive technology, office management software and consulting.
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)
E-Text Formats

- **PDF** - It retains the same layout as the print textbook and includes bookmarks for navigation, synchronized highlighting of text and audio.
- **MS Word Doc** - This format is best for students who use screen reading software such as JAWS and also need alternative text descriptions added to images.
- **Audiobook format** - audio only, plus headings for navigation.
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.
Guiding Principle

• DisAbility is a natural part of the human experience and in no way diminishes the right of individuals to:
  (A) live independently;
  (B) enjoy self-determination and make choices;
  (C) benefit from an education;
  (D) pursue meaningful careers; and
  (E) enjoy full inclusion and integration in the economic, political, social, cultural, and educational mainstream of society in the United States.

Public Law 108-364
Tools for Life
Georgia’s Federal AT Act Program

• TFL developed Georgia’s Plan for AT
• We serve individuals of all ages & all 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
  • www.gatfl.org - 12,000 unique visitors a month
TFL Network
Come Visit Us!
Tools for Life AT Demo Lab

• Tablets
• Vision Items
• DME
• Communication
• Games
• Software
• Switches
• Keyboards
Ergonomic Chairs
Begin with the End in Mind!
1) What do you want to control—Computer, game, TV, lights, appliances, chair, door, faucets, smartphone?

- What can be automated?
2) Where would you mount the ECU—wheelchair, table, desk?
3) How will you access/control the ECU—direct, external switch(es), scanning, voice?
4) Are there any cognitive issues affecting number of choices, memory, etc.?
5) Will physical and cognitive abilities be changing over time?
Eli’s Situation

• I want to control my lights, telephone, and all of my audio and video equipment -- basically, I need it all. As I move around the classroom, it would be ideal if I could do all of that from my wheelchair.
Eli’s Situation

Applied Methodology:
1. Lights, Telephone, Audio/Video Equipment
2. Wheelchair mounting
3. Voice Control
4. No cognitive impairments
5. Stable abilities over time
Eli’s Situation

AT Solutions

- Pilot Pro
  The Pilot Pro offers advanced voice controlled ECU functionality.
- X-10 modules
  Various X-10 modules control lighting and appliances.
- Sero!™ telephone
  Easily-controlled compatible telephone.
- Latitude™ ARM and triangle plate
  Use the Latitude ARM and small triangular mounting plate for a steady position and easy adjustments.
Combining the best in Infrared and X10 remote controls, the Pilot Pro brings the freedom of natural speech to appliances throughout the home. With the Pilot Pro, spoken commands are used for remote control of numerous devices in multiple environments. Control a television, telephone, lights, door systems, and more with simple, intuitive commands like, "TV... On" or "Channel... Up".

Pilot Pro is portable and programmable, meeting the needs of users at home, in the office, or within a healthcare facility. And its accessible - with switch scanning and 96 unique commands, arranged to suit the specific needs of your environment. Contact an AbleNet ECU dealer to see how Pilot Pro can deliver powerful access at the sound of your voice.

**Key Features:**
- 96 different words available in menus
- RF and IR interfaces for all devices and X-10 controls
- Programmable, adjustable menus with support for macros
- Designed for complex home automation systems
- Voice training with no computer required
- Convenient graphic display
- Auditory and Visual feedback
- "Direct Learning" infrared for easy programming with your existing remotes
- Supports external microphones
- Latest generation speech recognition technology
- Internal microphone
X-10 modules

X10 communicates between transmitters and receivers by sending and receiving signals over the existing electrical wiring in your home. The X10 Transceiver then sends commands to the X10 modules. A separate X10 module is required for each appliance you want to control.

For example: This is a on/off control of 3 prong appliances for up to 15 amps.
The Possum Sero! provides, for the first time, a loud speaking, remote control telephone and answering machine with AAC communication aid functions. The Sero! can be operated via the majority of Possum, Infrared enabled home controllers and Communication Aids.

Communication (AAC)
50 User-recordable phrases (each 60 seconds long) allow people with partial or no voice to communicate crucial messages over the telephone.

SSI® (Secure Spoken Identity)*
Secure Spoken Identity, using caller ID services, will speak the name of the person calling (if the caller’s details are in the phone book). Unsolicited calls can be diverted straight to the answering machine.

Emergency Dialing Features Include:
• Remote activation of the emergency dial number via the Possum Jive!, Primo!, or any other appropriate infrared device.
• Automatic Help Call function which dials up to 8 contacts until a response is registered.

Key Features
• Hands free calling
• Remote Control via IR
• Emergency Dialing
• Speakerphone
• Answering Machine
• Recordable Memos
• Communication Aid Feature
• SSI® (Secure Spoken Identity) - Voice announcing caller ID*
The Latitude™ Customizable Mounting System provides an ideal balance of strength, durability, and flexibility. The Latitude™ ARM makes it easy to handle just about any mounting challenge. From a standardized base interface, to quick-release levers, to a universal plate connector, the Latitude™ ARM gives you all the options of a mounting system that costs much more.

**Key Features**

- **Plate Connector**: Allows for quick change of products
- **3D Joints**: All joints allow 360° of rotation on any axis (any direction) Unique design provides superior clamping strength Joints can be moved to any position along a tube
- **Quick Release Handles (Levers)**: Allows for easy positioning or adjustment without tools Pull and rotate handle to desired position after adjustment
- **Standardized Base Interface**: Allows for quick transfers between different base types and locations (Ex. Wheelchair to Bed Rail)
Exploring Assistive Technology

Strategies & Solutions
Future

• Evening out the playing field
• The Future is Contextual
  – GPS apps
  – Ads on Internet
  – Smart watches
  – Social Media
    • Proust.com

• Martha Rust
Locabulary

- Uses GPS to track user location and suggests appropriate vocabulary based on location
  - ie: McDonald’s starbucks
- A keyboard to type for text-to-speech
- User can tag their own locations and create vocabulary for each location
- Lite version Free; Pro version $130
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.
Presentation 2: Human-Robot Interaction: The Potential to Support Successful Aging

There is much potential for robots to support older adults in their goal of independent aging. However, for human-robot interactions to be successful, the robots must be designed with user needs in mind.

In the Human Factors and Aging Laboratory, Roger's lab is conducting research in the nascent field of older adult–robot interactions. In this presentation, Rogers will provide an overview of the needs, capabilities, preferences, and limitations of older adults. She will then discuss our current and planned research on the design of robots to support older adults and health care providers. Our focus is on understanding the interactions among user characteristics, robot characteristics, and the context of the interactions (e.g., task demands).

Presentation 3: Aware Home Technology to Support Aging-in-Place

Imagine if your home were “aware” of your activities so that it might help you remember what it was you went into the kitchen for or whether the visitor at the front door is someone you know or even what the proper procedure is for performing a recently learned home medical procedure. An aware home is not from the world of science fiction—it is within the realm of science. Such technological developments have the potential to enable older adults to maintain their functional independence and to “age-in-place.” They also have the potential to support families caring for children with developmental disabilities or individuals recovering from illness or injury. An innovative research program at Georgia Institute of Technology is focused on developing psychological and computer science to support home activities.

The presentation will include examples of health care technology, communication technology, and memory supports. These examples demonstrate the complexity of the issues involved in designing the computationally capable home of the future and provide direction for future research and development efforts.
Products and Services

VGo is an all-in-one solution that includes everything you need to establish your physical presence in a distant location.

With the VGo solution, an individual’s presence is replicated in a distant location such that they can interact and perform their job in ways not previously possible. Now they can see, be seen, hear, be heard and move around in any remote facility – just as if they were there. VGo will enable businesses to increase productivity of remote and travelling employees, healthcare providers to deliver lower cost services and improved quality of care, and homebound students to attend school – all with a great user experience and at an affordable price.

What is VGo?

How does it work?

How does it compare?
VGo Telepresence Robot

- Enables a person to replicate themselves in a distant location and have the freedom to move around as if they were physically there
- Reduces travel costs
- School
- Hospital
- Work from home
People with Disabilities in the Work Place

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
Introducing Beam
The premier remote presence solution.

Get Beam
“Exploring New Ideas with Advanced Social Robotics”

— an extension of humankind. RoboKind.
Meet NAO!
Kubi

- Telepresence
- $499
- Uses a tablet
- Uses free conference sites
  - Google Hangout
  - FaceTime
  - Skype
kubi

Be there with your team

Take charge of your video presence

kubi gives tablets remote pan and tilt controls, so you can see and interact with people during a video call.
Automatic Feeder

- Mealtime Partner
- Different mounts
- Battery operated
- Bowl tops controls amount of food
- Control Pause time between spoonful
- Adjustability of the spoon
Individuals who have limited range of upper body control or who fatigue easily from the effort of controlling their body movement should use *the Partner* mounted on the Support Arm. The Support Arm allows *the Partner* to be positioned so that the spoon, when extended out from the device, is positioned very close to the user’s bottom lip. With *the Partner* positioned this way, the user only has to lean forward slightly to take food off of the spoon, thus the user exerts very little effort.
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.
Electronic Sensors Printed Directly on the Skin

New electronic tattoos could help monitor health during normal daily activities.

By Mike Orcutt on March 15, 2013

Taking advantage of recent advances in flexible electronics, researchers have devised a way to "print" devices directly onto the skin so people can wear them for an extended period while performing normal daily activities. Such systems could be used to track health and monitor healing near the skin's surface, as in the case of surgical wounds.

So-called "epidermal electronics" were demonstrated previously. In research from the lab of John Rogers, a materials scientist at the University of Illinois at Urbana-Champaign, the devices consist of ultrathin electrodes, electronics, sensors, and wireless power and communication systems. In theory, they could attach to the skin and record and transmit electrophysiological measurements for medical purposes. These early versions of the technology, which were designed to be applied to a thin, soft elastomer backing, were "fine for an office environment," says Rogers, "but if you wanted to go swimming or take a shower they weren't able to hold up." Now, Rogers and his coworkers have figured out how to print the electronics right on the skin, making the device more durable and rugged.

"What we've found is that you don't even need the elastomer backing," Rogers says. "You can use a rubber stamp to just deliver the ultrathin mesh electronics directly to the surface of the skin." The researchers also found that they could use commercially available "spray-on bandage" products to add a thin protective layer and bond the system to the skin in a "very robust way," he says.

Eliminating the elastomer backing makes the device one-thirtieth as thick, and thus more conformal to the kind of roughness that's present naturally on the surface of the skin," says Rogers. It can be worn for up to two weeks before the skin's natural exfoliation process causes it to flake off.

During the two weeks that it's attached, the device can measure things like temperature, strain, and the hydration state of the skin, all of which are useful in tracking general health and wellness. One specific application could be to monitor wound healing: If a doctor or nurse attached the system near a surgical wound before the patient left the hospital, it could take measurements and transmit the information wirelessly to the health-care providers.

Electronic tattoo. The image shows a photomicrograph of an ultrathin mesh electronic system mounted on a skin replica.

Skin sample. This device, applied directly to the skin, can record useful medical information.

IBM System x Express servers
From $1,849 or $55/mo²
Learn more
TFL Environmental Control Lab

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.

Only $179.95
Google announces Calico, a new company focused on health and well-being

MOUNTAIN VIEW, CA – September 18, 2013 – Google today announced Calico, a new company that will focus on health and well-being, in particular the challenge of aging and associated diseases. Arthur D. Levinson, Chairman and former CEO of Genentech and Chairman of Apple, will be Chief Executive Officer and a founding investor.

Announcing this new investment, Larry Page, Google CEO said: “Illness and aging affect all our families. With some longer term, forward-thinking around healthcare and biotechnology, I believe we can improve millions of lives. It’s impossible to imagine anyone better than Art—one of the leading scientists, entrepreneurs and CEOs of our generation—to take this new venture forward.” Art said: “I’ve devoted much of my life to science and technology, with the goal of improving human health. Larry’s focus on outsized improvements has inspired me, and I’m tremendously excited about what’s next.”

Art Levinson will remain Chairman of Genentech and a director of Hoffmann-La Roche, as well as Chairman of Apple.

Commenting on Art’s new role, Franz Humer, Chairman of Hoffmann-La Roche, said: “Art’s track record at Genentech has been exceptional and we see an interesting potential for our companies to work together going forward. We’re delighted he’ll stay on our board.”

Tim Cook, Chief Executive Officer of Apple, said: “For too many of our friends and family, life has been cut short or the quality of their life too often lacking. Art is one of the crazy ones who thinks it doesn’t have to be this way. There is no one better suited to lead this new company and I am excited to see the results.”

Contact
Leslie Miller
Google Corporate Communications
Ten days with Google Glass

By Will Shanklin

December 23, 2013

Gizmag shares some more thoughts about being part of the Google Glass Explorer program

Image Gallery (7 images)

Here at Gizmag, we’re very interested in the present and future of wearable tech. So we thought it was fitting to sign up for the Google Glass Explorer program, to give you a better idea of what Sergey Brin and company have been brewing up in Mountain View. Though we aren’t quite ready to dish up a proper Google Glass review, we want to share some more thoughts about our first ten days with Glass.

www.lenscrafters.com

Official Site. Visit Us Now & Save!
Designer Eyewear, Lenses, & More.
A Closer Look at AT Solutions
Switch Access
Access - Joystick
Products / New Products

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.
Eyegaze Edge

- Eyegaze System
- Control computer and tablet using your eye
- Environmental Controls
- Communication
Computer Access
Mobile Technologies
Technology Rapidly Evolves

- June 2007- 1st iPhone
- Sept 2007- 1st generation iPod Touch
- October 2008- 1st Android phone sold
- April 2010- 1ST iPad
- 2010- Google launched its Nexus series of tablets and smartphones
- 50 billion downloads!
Which One???
Microsoft Surface

- Windows 8
- Slim and has a USB port
- Moveable Tiles
- Built-in Accessibility
  - Speech-to-text
  - Narrator
- Thin pressure sensitive cover that doubles as a keyboard
- Starts at $499
Samsung Galaxy

- Download Accessibility Features
- 7 inch or 10 inch screen available
- Compatible with flash/ WIFI
- 8.0 coming out February 2013 in Europe
- 8.0 will have a better camera and use a SIM card for storage
- Starts at $199.99 but 8.0 may be more
Apple iPad

- Multi-touch screen
- New iOS 7
- Millions of apps
- Surf web
- iTunes
- Videos
- Organization
- Accessibility
- Books
- Photos
- Speakers
- 5.0 megapixel camera
- Starts at $499/$399

Height: 9.50 in
Width: 7.31 in
Depth: 0.37 in
Weight: 1.44 lb
Apple iPod Touch

- 5 Megapixel Camera
- Millions of apps
- Videos
- Surf Web
- Voice Over
- Organization
- Speakers
- Bluetooth
- New iOS 6
- Starts at $299 / $199 4th gen
CONSIDERING ACCESSIBILITY
Comparing Tablets

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<th>Property</th>
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<td>ios7 (Sept 18, 2013)</td>
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<td>900,000 with 375,00 optimized for iPad/mini (mobileburn.com updated June 2013)</td>
<td>104,917 (winbeta.org updated July 4, 2013)</td>
<td>50,000 in Amazon App store also shop in Google Play Store (theverge.com updated August 2013)</td>
<td>10,000 in Barnes and Noble and have access to Google Play store (barnesandnoble.com updated August 2013)</td>
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<td>Interface</td>
<td>As designed by manufacturer</td>
<td>Icons and widgets designed by Apple</td>
<td>Metro style designed by Microsoft</td>
<td>Modified version of regular Android</td>
<td>Modified version of regular Android</td>
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www.bluebugle.org updated by TFL 2013
Our Question to You:  
What have You Learned today?
Contact

Carolyn Phillips
Director of Tools for Life
Carolyn.Phillips@gatfl.gatech.edu

Ben Jacobs
Accommodations Specialist
Ben.Jacobs@gatfl.gatech.edu

Liz Persaud
Training, Outreach and Development Coordinator
Liz.Persaud@gatfl.gatech.edu

Martha Rust
AT Specialist
Martha.Rust@gatfl.gatech.edu

Disclaimer
This presentation is produced by Tools for Life which is a result of the Assistive Technology Act of 1998, as amended in 2004. It is a program of the Georgia Institute of Technology, College of Architecture, AMAC Accessibility Solutions and is funded by grant #H224C030009 of the Rehabilitation Services Administration (RSA), Department of Education. The contents of this presentation were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, Georgia Tech, COA or AMAC and you should not assume endorsement by the Federal government.