



PM&R Assistive Technology Programs

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Assistive Technology Labs – A Decade Later

—Bill Wenninger, MS PT

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AT Newsletter Edited by:
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A decade ago, the VA began the journey of developing Assistive Technology (AT) labs at the Polytrauma Rehabilitation Centers (PRC). The initial proposal was put forward by Dr Lucille Beck, VHA's Chief Consultant for Rehabilitation Services. Dr Beck championed the development of the PRCs and the Polytrauma System of Care to meet the needs of the severely injured post-9/11 Veterans and active duty personnel. It was recognized that the potential of rapid technological advances would be able to assist individuals overcome disabilities that were being treated in the VA. From a sense of history, the first iPhone was introduced in June 2007.

In February 2009, a contract was awarded to the University of Pittsburgh to shepherd the development of AT labs in Richmond, Tampa, Minneapolis and Palo Alto. In May 2009, the Physical Medicine & Rehabilitation Program team, (Bill Wenninger, Cindy Poorman, and Dr. Barbara Sigford) met with members of the University of Pittsburgh team to define the milestones and timelines for the AT contract. Additionally, the PRC sites received funds for staffing, equipment, education and travel. The initial "deep dive" kick-off meeting, was held in Richmond in the spring of 2009 led by Dr. David Cifu, VA's new National Director of PM&R. This meeting laid the groundwork for the development of the AT labs. Along the way, the programs developed the ability to provide evaluations in the 7 strategic areas of Assistive Technology; Augmentative and Alternative Communication, Electronic Cognitive Devices, Adapted Computer Access, Wheeled Mobility and Seating, Adapted Automotive Equipment, Electronic Aids to Daily Living, and Adapted Sports and Recreation. The fifth PRC in San Antonio was added to the group in 2011.

The AT programs have flourished and provided innovative options to promote independence for Veterans with various disabilities. Several AT labs added Rehabilitation Engineers to their staff and began working with 3-D printing technology to design custom made products for individuals with unique needs. Four programs further embraced quality metrics and achieved accreditation through the Commission on the Accreditation of Rehabilitation Facilities within the Assistive Technology Supports and Services Standards. Each of the 5 programs have become a resource within the Polytrauma System of Care to promote access to assistive technology throughout VHA. In the past decade, the AT Labs have grown with new space, additional staff and new technologies to serve more Veterans and to support other programs across the country with consultations and staff training. In Fiscal Year 2018, there were over 8000 Veteran visits to Assistive Technology clinics. Technology continues to expand at a rapid rate and because of the AT labs, VA will be able to provide innovative care for Veterans into the future. Information on the programs can be found in the AT VA Fact sheet at <https://www.rehab.va.gov/PROSTHETICS/factsheet/AT-FactSheet.pdf>

AT PRODUCT REVIEW: Aegir Smartpen by Livescribe

By Brittany Reed, M.Ed., CCC-SLP

Overview

The Aegir Smartpen is newest model added to the Livescribe brand of Smartpens. It is the lightest and slimmest of the pens allowing users to take live notes with the bonus of adding voice to notes, known as a Pencast. Pencasts audio are synced to written or drawn notes. The Aegir Smartpen only works with the Livescribe-dot pattern enabled paper/notebooks and must be utilized with the Livescribe+ App on Android or iOS smartphones or tablets. Notes can be stored, shared, and managed across cloud services allowing users to sync and access notes across devices. With the Livescribe+ App users are able to connect their note to outside accounts such as OneNote, EverNote, Google Drive, Dropbox. Notes can be shared electronically via various formats as well. The Aegir Smartpen would be ideal for those individuals who need assistance with note taking as a result of memory/attention/executive functioning impairments.

Indications

The following criteria should be met in order for the veteran to receive a SMART PEN:

- ◆ Evaluation completed by a qualified clinician
- ◆ Cognitive impairment that would benefit from an electronic cognitive device (ECD)
- ◆ Cognitive impairment are a result of medical, psychiatric and/or psychological disorders
- ◆ Veteran demonstrates interest
- ◆ Veteran has the necessary cognitive and language skills, motor control, sensory-perceptual capacity, and initiation and persistence to utilize the ECD safely and efficiently
- ◆ Veteran is able and committed to properly maintain device

For further details, reference the Handbook and Clinical Practice Recommendations for guidance.

Contraindications

- ◆ Veteran does not have a cognitive impairments in which this ECD is needed
- ◆ Veteran does not achieve improvements with use of the ECD
- ◆ Through trials, veteran does not demonstrate ability to achieve adequate proficiency
- ◆ Veteran's functional needs can be met effectively with non-electronic cognitive aids or other behavioral interventions

For further details, reference the Handbook and Clinical Practice Recommendations for guidance.

Criteria for Evaluation of Assistive Technology Device

Affordability: The Aegir Smartpen can be purchased for \$99. In order for the pen to work, it must be utilized with the Livescribe dot-pattern paper which ranges from \$8-\$30. The Livescribe+ app is offered free through the Android or iOS app store. If the user desires to sync Livescribe notes with external sources (i.e., EverNote/OneNote) there may be a separate fee associated with the purchase of this software. Users will also need to replace the ink cartridge in the Aegir Smartpen at \$9.95. A charger is provided at no additional cost. Livescribe will replace any defective products during the 1-year warranty period.

Compatibility: The Aegir Smartpen utilizes the Livescribe + App which is available on both Android and iOS operating systems (tablet and smartphones). Livescribe is currently working on a windows desktop application that will support use of the Aegir Smartpen

Consumer Repairability: Livescribe offers a 1-year product warranty. Additionally, a 'Support' page is provided through their website.

Dependability: Users of the Aegir must have access to either an Android or iOS tablet or Smartphone. Device software must be up to date and charged to work

properly with the Aegir. The Aegir does work via Bluetooth which may cause some connection issues. The Aegir utilizes an LED indicator to communicate the status of the smartpen (example: solid green would indicate the Aegir is awake and can be used to write on the Livescribe paper but is not connected to a Bluetooth enabled device). It can store up to 1,200 pages of notes prior to syncing to the app via Bluetooth. The Aegir may also require a firmware update to successfully work.

Durability: The Aegir utilizes a lithium battery which offers 10 hours of usage. According to Livescribe, the battery should not have to be replaced during the lifetime of the pen. The pen is not effected by temperature and appears durable if dropped. Livescribe does offer a 1-year warranty for any defective products. The overall life of the pen will highly depend on the users care of the Aegir.

Ease of Assembly: The Aegir comes ready to use, no assembly required. Users must download the Livescribe+ App. Customer friendly instructions are provided with step-by-step instructions to connect the device with picture supports. To activate the pen, users must connect it to a charger. A blue blinking light will appear indicating the device is ready to be paired. Simply open the Livescribe App and 'pair device' should appear. Once selected, the device is now paired and ready to use. Settings can be adjusted to sync notes in various locations (i.e., Evernote or Google Drive)

Ease of Maintenance: The Aegir is easy to maintain. Software updates may be recommended at no additional cost to the user. Android and iOS device operating systems will need to updated as recommended.

Effectiveness: The Aegir is a functional compensatory strategy for individuals with cognitive communication deficits specifically with memory + attention. It is best suited for individuals who utilize note taking and may have difficulty (cont. page 3)

AT PRODUCT REVIEW: Speech Assistant AAC App by Asoft.nl

By: Alice Eugene, BSW, SLP Graduate Clinician
Telina Caudill, MS, CCC-SLP, ATP (Supervisor)



Overview

Speech Assistant AAC is a text-based app with keyboard and stored phrases layout that is compatible with Amazon Kindle, Android, and iOS software for both smartphones and tablets. The application includes customizable categories and phrases as well as an autocomplete function to provide quick speech output. It can be accessed via direct selection using the touchscreen built-in adjustable keyboard or via Bluetooth/USB keyboard. This app is intended to serve as a means of communication for those with intact cognitive/linguistic abilities who have impaired or loss of speech due to brain injury, stroke, amyotrophic lateral sclerosis (ALS), or other related illnesses/disabilities.

Indications

The Speech Assistant AAC application is designed to facilitate face-to-face communication as well as other modes of communication such as emailing, messaging via Google Hangouts, and social media. Users can communicate via text or synthesized voices available on their device using saved phrases and selected text/new entries. Populations using the Speech Assistant AAC application primarily include those with voice disorders and motor speech disorders related to MND, ALS, CVA, other neurological disorders, head and neck cancer, and tracheostomized/ventilator dependent patients.

Contraindications

Speech Assistant AAC application users must be literate to effectively use the speech generating app to communicate. Users must be able to construct phrases independently. Adequate vision and motor skills are required to read and select text via direct selection. The application is not recommended for those with significant vision or motor impairment.

Affordability: The Speech Assistant AAC application costs \$5.20 for Android and \$9.99 for iOS. A free version is available.

Compatibility: The Speech Assistant application is compatible with both Android, Kindle and iOS. It requires iOS 9.0 or later and is compatible with iPhone, iPad, and iPod Touch. Android users must have 4.4 and up to download the application. In addition, the application is compatible with Android TV stick and images can be projected to a television screen using a Miracast adapter.

Consumer Repairability: Tech support is limited to email contact with the app developer.

Dependability: Per reviews of Speech Assistant AAC, the application is known to be dependable and remains reliable under repeated use, despite varying environments. Users report that the app developer considers and implements their feedback.

Durability: Dependent on mobile device on which app is installed and implementation of protective accessories. However, categories and phrases can be backed up to be recovered or used on a different device using iCloud for iOS or via Gmail on Android devices.

Ease of Assembly: Users will purchase and download the Speech Assistant AAC application on their device. An internet connection is necessary to install the app and send messages via social media or email. The application's default is 12 categories with up to 200 phrases each, how-

ever, users can generate additional categories and desired phrases. The limit is 30 categories.

Ease of Maintenance: Maintenance includes battery charging of device, software updates and avoidance of water/temp exposure.

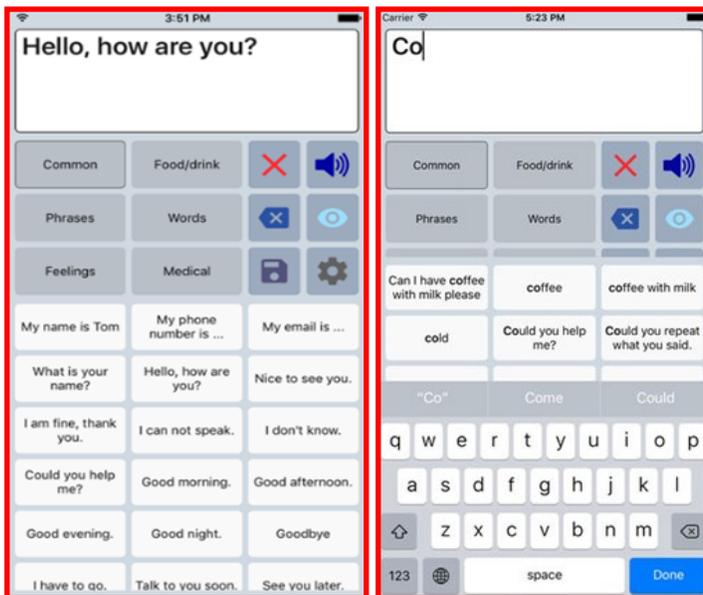
Effectiveness: The Speech Assistant application is user-friendly and effectively allows users to personalize their application for speech output. After brief education and training, the application meets the communication needs of users matched with the app.

Flexibility: Text messages and emails can be sent via the application as well as messages via WhatsApp. Available social media platforms include Google Plus and Twitter. Font and button sizes and colors can be adjusted for vision impairments. A disable time for buttons can be changed to decrease sensitivity. A Bluetooth keyboard is an alternative to touchscreen. Voice rate and pitch are adjustable within the app. The developer seeks to make the design of the application and its availability compatible with various lifestyles, providing a "show" option to showcase enlarged text without utilizing the speak feature.

Learnability: After receiving brief education and training on the Speech Assistant application, users should be able to immediately navigate and use the app effectively. Icons are organized to be user-friendly, however, the layout can be modified and re-labeled as needed.

Operability: To open the Speech Assistant application, the user would select the app icon from its location on their device. The application is ready to be used at that time. The screen should be positioned at a comfortable distance for access, (cont, page 5).

AT PRODUCT REVIEW: Speech Assistant AAC App, cont.



Personal Acceptability: Given compatibility across mobile devices and platforms, users can select that which meets their lifestyle.

Physical Comfort: Varies from device to device in terms of dimensions, display and potential to become heated with use.

Portability: Compatible with handheld mobile devices. The length of battery charge and dimensions are dependent on the selected device(s). However, the battery life of phones can be preserved using most of the features of Speech Assistant due to it not requiring Wi-Fi connection.

Securability: Individualized categories and phrases can be backed up using iCloud or Gmail, however, cannot be transferred from device to device. The user can use the privacy and security settings native to the mobile device to secure the app.

Supplier Repairability: Any issues or glitches with the app can be reported via email to A-soft by selecting “email feedback or questions” on the app. The developer does not disclose how frequently emails are monitored, hours of operation, or by when to expect a reply. For further information and support, visit the Speech Assistant AAC website: <https://www.a-soft.nl/speechassistant.html>.

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
			Category	Score
			Affordability	5
			Compatibility	5
			Consumer Repairability	3
			Dependability	5
			Durability	5
			Ease of Assembly	3
			Ease of Maintenance	5
			Effectiveness	5
			Flexibility	3
			Learnability	4
			Operability	5
			Personal acceptability	4
			Physical Comfort	5
			Physical Security	5
			Portability	5
			Securability	3
			Supplier Repairability	3
			Average	4.35

AT PRODUCT REVIEW: WinSlate 12D with Enable Eyes by Forbes AAC

By Sydni Berninger, BA, SLP Graduate Clinician, Telina Caudill, MS, CCC-SLP, ATP (Supervisor)

Link to website: <https://www.forbesaac.com/winslate-12-enable-eyes>



Users must have sufficient cognitive skills, head/neck control, vision and oculomotor range of motion. Those with conditions such as cataracts, ptosis, nystagmus, visual field deficits or thick, reflective eyeglasses may have difficulty



The device includes links to learning resources and help videos in the Eye Gaze Settings and a quick start guide as well. Remote support is available via the Remote Help Desk feature. Users can be connected by simply clicking the icon. Major repairs will require the device to be sent to Forbes AAC.

Dependability:

Given reviews of the WinSlate12D Enable Eyes, the device is known to be reliable with few glitches reported. Users report the device to be reliable in a variety of environments. As with any Bluetooth technology, pairing issues (phones, Alexa) may arise depending on WiFi and other factors.

Durability:

The WinSlate 12D Enable Eyes device and software is claimed to be both durable and reliable, especially with the included case and handle. Various mounts that may be purchased for an additional cost are said to be sturdy and easily adjustable.

Ease of Assembly:

The Enable Eyes eye control module, SoundPOD Wearable Speaker, FlexABLE Handle and Stand, WinSlate and SoundPOD chargers, soft carry case, quick start guide, and stylus are included in the box upon receiving. The WinSlate 12D Enable Eyes comes with all software features installed. The device will need to be turned on and set-up via touch when first received. The device then needs to be calibrated for eye gaze selection.

Ease of Maintenance:

Caregivers and/or users can maintain this device with basic care. The (cont, page 9)

Overview

The WinSlate 12D with Enable Eyes is a speech generating device using eye tracking technology and Windows 10 software. The device includes computer use, environmental control, and social media. The WinSlate can be controlled through direct selection, scanning, gyroscopic head mouse, head pointers, IR head mouse and eye gaze. This device is intended for those with speech difficulties due to injury, disability or illness (ALS, stroke/aphasia, SCI, autism, etc.).

Indications

The WinSlate 12D with Enable Eyes is designed for face-to-face communication, long distance communication, computer access, environmental controls, and social media interaction. Users with physical impairments limiting their ability to communicate by verbal speech, gestures or writing and typing may benefit from this device which provides digitized or synthesized voice output via text or symbol representations. Populations using the WinSlate 12D Enable Eyes may include those with ALS, Cerebral Palsy, Muscular Dystrophy, Spinal Cord Injury, TBI, Stroke symptoms, and Spinal Muscular Atrophy.

Contraindications

accessing gaze interaction. With the sophistication of the device, it may be complicated for individuals with cognitive impairments to use. The WinSlate is not recommended for those without adequate caregiver support or lack of technological skills.

Affordability:

The WinSlate 12D Enable Eyes device costs \$15,214. Without the Enable Eyes add-on module, the device costs \$7,595. Accessories such as mounts and EADL components are additional costs.

Compatibility:

The WinSlate 12D is pre-loaded with Grid 3 communication software, the SymbolStix symbol set, Acapela synthesized voices, and the Windows 10 operating system. With the additional purchase of Environmental Control hardware, users can control household lighting, television, doors, and more. Forbes AAC states the WinSlate 12D is compatible with both Android and Apple smartphones; however, texting is reportedly more seamless on Android.

Consumer Reparability:

AT PRODUCT REVIEW: Sonocent Audio Notetaker , cont.

WinSlate 12D should not be left in extreme temperatures or around water. Adequate caregiver support is needed for those who cannot maintain the device on their own as it will need to be donned/doffed from the mount, charged, and repositioned often. Both Windows and Grid software updates must be completed regularly.

Effectiveness:

The Forbes AAC website states to “have gone to great lengths to make the most durable, reliable and easy to use products on the market today.” With adequate training and caregiver support, the effectiveness of this device is anticipated to be high across a variety of user needs and environments.

Flexibility:

WinSlate devices are intended to help users communicate daily using email, texting, Skype, chat, or phone calls using Bluetooth. Users have access to internet, games, environmental controls, photos/camera, music, social media, and more. With various mounting options, users can also communicate from different environments. Screen selection display can be modified as well as optical filters allowing accuracy outdoors and near windows. The device also includes a SoundPOD wearable speaker making it possible to communicate with caregivers from different areas of their home. The communication software has a multitude of customization options to meet the user’s needs in terms of language, vision, hearing and physical access.

Learnability:

With appropriate education and training, the WinSlate 12D operating system can easily be learned. An appealing, organized screen makes desired options easy to find and select. Within the Eye Gaze Settings, there are links to learning resources and help videos. Those with moderate-severe cognitive deficits should

not be recommended to use this device given its complexity.

Operability:

To turn on the WinSlate, the user must press the power button until the LED lights illuminate and the device starts-up. The volume control buttons are located on the left side. The Enable Eyes control bar and Grid 3 Software should also turn on at start-up. The Enable Eyes bar has two LED indicators, corresponding to the users right and left eyes. When the software recognizes the eyes, the LEDs illuminate yellow. The device should be about 20-24 inches away from and parallel to the user’s face. The center of the screen shows a circle representing the user’s face. This circle should be green and both eyes should have red and blue crosshairs over them. Make sure the user is in a comfortable position, and one in which they will be using the device in, before calibrating. Once the device is calibrated to its user, no further modifications are needed. The device can be placed in “Rest” mode to allow the user to scan the screen without selecting an item. Many options (e.g., power, volume) can be accessed via eyegaze once programmed.

Personal Acceptability:

The WinSlate 12D device resembles many touch-screen tablets with its slim dimensions. Some users; however, may prefer/need a larger display such as a 13” or 15” screen. Acceptability of this device should be favorable given the many features it provides to users. (cont, page 9)

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
Category			Score	
Affordability			3	
Compatibility			3	
Consumer Repairability			4	
Dependability			4	
Durability			5	
Ease of Assembly			4	
Ease of Maintenance			4	
Effectiveness			5	
Flexibility			4	
Learnability			4	
Operability			4	
Personal acceptability			5	
Physical Comfort			4	
Physical Security			5	
Portability			5	
Securability			5	
Supplier Repairability			3	
Average			4.18	

Site Updates...San Antonio



Telehealth

Telehealth continues to grow in the number of visits as well as the scope of services provided. Some of those areas include using telehealth for, independent living assessments, follow up for complex seating and mobility devices, and ECU assessments. Visits are made using video connect into patient's homes as well as CBOC's in rural areas. Dr. Rebecca Tapia and two of our therapists (OT Jim Ferneyhough and PT Colln Wiest) presented at the Telehealth Grand Rounds Webinar on February 11th Entitled: An Interdisciplinary Approach to Home Safety Assessment (HSA) and Durable Medical Equipment (DME) Follow Up

ALS Clinic

Our hours have expanded. Previously, the ALS clinic was open weekly on Monday afternoons only. The demands for service in this area warranted that clinic hours expand to include Thursday afternoons

Education/Outreach

Presentations on OT and AT were provided to Audiology and Speech department next week
Presentations on wheeled mobility were provided to medical residents at UTHSCSA

PTRP

PTRP OT and SLP have been working together exploring new apps to help patients (e.g. Google Maps) safely and effectively complete a bus or walk route in the community. OTs has been collaborating with psychology in teaching patients how to use Fit Bit technology to track sleep patterns. OT and nursing are exploring new apps (e.g. WebMD) to help patients increase their independence with medication management.

Driver's Training

Drivers Training Specialist and OT Theresa Prudencio is participating in a research project in collaboration with BAM-MC's clinical and research staff. The study seeks to extend the efficacy of a driving simulator as a driving assessment tool. It proposes to use Driving Rehab Specialist ratings of driving fitness based on simulated drives as the primary outcome measure and as the second-best alternative to an on-road driving test. The study is aiming for a sample size of 70 patients, most of which will include traumatic brain injury, but will also include stroke, intracranial hemorrhage, aneurysm, and tumor. It's a 4-year study.

PRC Inpatient

One of our PRC OT's Amy Snoga passed her test this past week and is our newest ATP. OT Brittany Wolf is scheduled for testing in the near future. PRC has started utilizing the Tobii eye gaze tracking system along with Tobii Pro software to develop a standardized assessment and collect data from our Emerging Conscious patients. The research surrounds the question, "Can eye gaze tracking systems, like the Tobii, be used to more accurately detect visual fixation and visual tracking of patients who are in a state of unresponsive wakefulness?" This would identify their progression and enable reclassifying the patient as minimally conscious. The current strategy involves using a mirror to see if patient will fixate on their own image and track their image in the mirror as it moves. This innovative technology would be a more accurate prediction of this transition toward minimally conscious. In some states, including Texas, a family can decide to withdraw medical support – namely feeding for an EC patient who remains in an unresponsive wakefulness state. Data suggesting a transition out of that state would justify the need for ongoing medical support and rehabilitation.

QIFY'19 Updates (as available) & Plans for FY'19

Space changes associated with the new Whole Health initiative have had some unintended benefits for the wheeled mobility program. Our current space has been a make-shift space that's been tough to work in but we've done the best we can with what we've had to work with. In February of this year, the AT/Wheeled Mobility program moved into a larger and new and improved dedicated clinic space.

Site Updates...Tampa



OUTREACH

- ◆ Bay Pines E-consults - 1
- ◆ West Palm Beach E-consults – 1
- ◆ Miami E-consults – 1
- ◆ New Orleans E-consults – 12
- ◆ New Orleans CVT consults – 2
- ◆ Tour for the Denver AT group including Michael Bastien, MSLVR, CLVT, ATP and Jody Bastien, OTD, ATP, SCEM
- ◆ Tour for the Office of Public and Intergovernmental Affairs including Pamela J. Powers, Chief of Staff of Veterans Affairs
- ◆ Representation at the 2019 State of Uptown at University Mall

- ◆ Tour for USCENTCOM International Medical Security Cooperation Exchange
- ◆ Representation at the TBI Awareness Fair
- ◆ Representation at the Cancer Awareness Fair



PRESENTATIONS

- ◆ Ursula Draper presented on Current Computer Access on the Market for a VA OT national webinar
- ◆ Telina Caudill and Ursula Draper presented at the national ALS Symposium held in Tampa, FL
- ◆ Telina Caudill, Jenifer Juengling-Sudkamp (New Orleans) and Ellen Cohn (University of Pittsburgh) co-presented at the American Telemedicine Association held in New Orleans,

TELEHEALTH

- ◆ Telehealth to home visits for FY 2019 to date total 66.

CURRENT PROJECTS AND PERFORMANCE IMPROVEMENT

- ◆ Ongoing participation in the SmartHome CareHub app pilot project
- ◆ Ongoing additions to the YouTube training resource library; now totaling 14
- ◆ Continued partnership with USF Rehab Engineering for 3D printing
- ◆ Committee members for the development of the James A Haley Stroke COE
- ◆ Preparations for our 4th CARF Survey Spring 2020
- ◆ Collaboration with CERNER for AT-related templates within the new EHR



AT PRODUCT REVIEW: Sonocent Audio Notetaker , cont.

(cont. from page 7) Physical Comfort:

The WinSlate 12D includes a FlexABLE Handle to allow various set-up options. The device can be handheld, propped up using the included handle, or fixed to a stand for appropriate Eye Gaze positioning. Given the intended population, fatigue is expected with extended use of Eye Gaze. It may be recommended to take intermittent breaks if users' neck control is weak or eyes easily become fatigued.

Portability:

The WinSlate 12D Enable Eyes weights about 3.4 pounds with a battery life lasting up to nine hours of video playback, varying on individual usage. Floor-stands and table mounts are available to accommodate the WinSlate 12D in various environments. This device is Bluetooth integrated with a built-in stereo microphone and FlexABLE Handle, making it easy to carry and travel. Can be used both indoors and outdoors, although high-glare environments should be considered. Users require adequate caregiver support as the device will need to be donned/doffed from the mount, charged, and repositioned as needed.

Securability:

With any device, there is the possibility of loss or theft. Although there are options to enable a passcode to secure the software, that requires the user to do so consistently, which may become irritating or fatiguing. The WinSlate 12D comes with an IT software that automatically backs-up to a microSD card on a regular basis to save user data.

Supplier Reparability:

WinSlate devices include a built-in Remote Help Desk feature allowing Forbes AAC technical support team take control of your device remotely with adequate internet connectivity. This feature can assist users with technical issues, uploading/downloading grid sets, performing updates, or demonstrating programming functions. To allow access, users must grant permission and provide an ID number and then will be connected. The Help Desk is available Monday-Friday 8am-5pm EST. For further information and support, visit the Forbes AAC website: <https://www.forbesaac.com>

Veteran Highlight...The Cat's Meow: Braze Mobility System for Veteran with Legal Blindness

by: Ryan Bouslog, DPT, Chris Schieffer, DPT & Beau Bedore, CCC-SLP, ATP



Phil is a 68-year-old male veteran of the United States Marine Corps with a complex past medical history that includes primary lateral

sclerosis (PLS), bilateral above-knee amputation for non-healing multiple fractures, tracheostomy tube, respiratory insufficiency, and legal blindness. He has been followed at the *Minneapolis Spinal Cord Injury & Disorder Center* since 2015 and was seen in April of 2018 by AT Program Director for comprehensive AT needs assessment.

During the course of his AT evaluation, Phil requested information about a possible obstacle detection system for his power wheelchair as his visual deficits were making it more challenging for him to drive at home and in the community. He stated: *"Just the other day I ran into a child's stroller. The kid was alright, but it scared me."* Phil said he was interested in an alerting system that would provide auditory or tactile cues to alert him to obstacles in his environment.

Table 1. Phil's AT Goals

1	Identify an obstacle detection system for his power wheelchair.
2	Safely operate his power wheelchair at home and in the community.

AT Program Director provided Phil with educational information about the new **Braze Sentina** by *Braze Mobility, Inc.*: <https://brazemobility.com>.

After further discussion of his AT needs and *Braze Sentina* system, Phil said, *"This is exactly the kind of system I've been thinking of!"*

AT Program Director referred patient to PT for assessment and clinical trials of *Braze Sentina* system. He was seen for evaluation by PT in Wheelchair Clinic in May of 2018.



Figure 1. The *Braze Sentina* can attach to any wheelchair and provides 180 degrees of blind spot coverage using blind spot sensors mounted to the frame of the chair. The system automatically detects obstacles and provides alerts to the driver through multi-modal, customizable feedback: Visual, auditory, and vibratory feedback relays information to the driver about objects in the environment, helping the driver to avoid collisions.

Table 2. PT Evaluation Summary

Current Seating/Mobility: Chair: Quantum Q6 Edge Cushion: Aquila cushion Backrest: Custom with deep lateral support
Equipment Tried: <i>Braze Sentina Plus</i> , <i>Echo Head Sensors</i> (x3), <i>Vibration Modules</i> (x3)
Equipment Configuration: <i>Braze Sentina Plus</i> : Mounted on back of Wheelchair (pictured in Fig. 1) <i>Echo Head Sensors</i> : Mounted on front of wheelchair (R, L, and Center) <i>Vibration Modules</i> : L and R modules on top of armrests and center module on top of backrest pad
Clinical Trials: Tried driving in small, busy therapy gym environment at slow speeds. He was able to see the lights on the LED display and control panel mounted on his joystick controller. Using the visual feedback from the LED display and the vibratory feedback from his armrests and backrest, he was able to navigate around objects at slower speeds. He also trialed driving in an open hallway at faster speeds using the larger sensory field and was able to navigate the hallway safely using multi-modal feedback from <i>Braze Sentina</i> system.

Phil completed a 2-week clinical trial period using *Braze Sentina* system at home and in the community following PT assessment. During this trial period, it was determined that the *Echo Head Sensors* on the front of his chair were not working optimally. Based on this feedback, Braze Mobility contacted PT and veteran and notified them that Braze had developed the **Sentina Mini**, which is similar to the **Sentina Plus** sensor bar (on the back of Phil's wheelchair), but is attached to the front. Braze Mobility completed in-home visit to interface *Sentina Mini* with his prior configuration.



Figure 2. *Sentina Mini* by Braze Mobility.

Following this visit, Phil's system was modified to provide vibratory feedback to the L and R armrest modules and center module on backrest from the rear sensors of the **Braze Sentina Plus**. Additionally, the front sensors of the newly installed **Braze Sentina Mini** were configured to provide visual feedback to the LED (light) display and control panel mounted on his joystick controller.

After successful modification of system and protracted clinical trial period, PT obtained updated quote from vendor to submit to *Prosthetics and Sensory Aids Services* for procurement of Braze Mobility system.

Veteran Highlight, cont...



Figure 3. Sentina Mini on front of Phil's chair.

Table 3. Phil's AT Configuration

Braze Mobility System:

Braze Sentina Plus
 Braze Sentina Mini
 Vibration Modules (x3)

Two months after successful implementation of Braze Mobility system, AT Program and Braze Mobility obtained summative feedback from Phil as part of follow-up and follow-along process of AT service delivery model.



Figure 5. Braze Mobility display (back view) mounted to his joystick controller.



Figure 4. LED display and control panel (front view) that indicates location and proximity of obstacle.

Table 4. Summative Feedback

“Without a doubt, having a Sentina in both the front and rear has been the cat’s meow for me. It is everything I had hoped for and expected. I won’t hesitate to recommend it.”

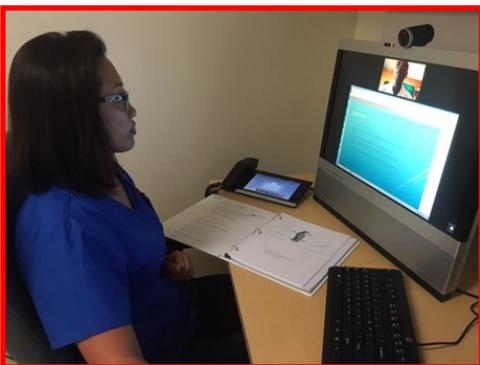
“It really makes me more mobile, safe and secure. I am really pleased with it.”



Figure 6. Phil using the Braze Mobility Bluetooth Customization Terminal on his Samsung Galaxy tablet. This feature of the Braze Sentina allows him to customize the distances monitored by the system, the type of feedback provided (visual, auditory, vibratory), and the intensity of the light brightness from the LED display.

TeleRehabilitation

The TeleRehabilitation Enterprise Wide Initiative (TREWI) hub sites in Richmond VA, Seattle WA, Minneapolis MN, San Antonio TX and Tampa FL have been exponentially increasing their use of telehealth across the nation. Each hub site has been working to provide specialty care services via telehealth to smaller spoke sites across the country; as well as, provide telehealth directly to Veterans' home or community through VA Video Connect. Last year, each site increased their use of telehealth by over 50% and the numbers keep growing! As the use of telehealth is rapidly increasing across departments we are finding that TeleRehabilitation not only increases Veterans' access to care but is also greatly improving the rehab process. For instance, Karissa Serio, TREWI Physical Therapist in Richmond VA, serves many Veterans struggling with low back pain. Below, she is pictured teaching a Veteran education about the spine and exercises to decrease pain. By offering telehealth visits throughout treatment plans, Karissa has been able to see Veterans complete recommended exercises and various activities within their home setting. Both Karissa and the Veterans, agree that telehealth has played a big part in helping them reach their goals.



Richmond's Amputation Care team is also utilizing VA Video Connect for Veterans' prosthetic check out visits. After limb loss, Veterans receive a prosthetic limb from a community prosthetist and return for a 1-2 week follow up appointment. With the use of Telehealth, we are able to combine the community prosthetist visit and the VAMC "check-out" visit, allowing for a more comprehensive appointment. Below the community

the Veteran are all present providing collaborative care in one visit. Combining these two appointments not only improves the rehab process but also improves access to care for the Veteran by saving drive time, wait time and in many cases... time off work.



The Richmond Assistive Technology Department has increased their use of telehealth by over 100% since 2017. Rehabilitation Engineers have utilized VA Video Connect to follow up with Veterans regarding various adaptive equipment. Pictured below, Brian Burkhardt Rehabilitation Engineer, is following up with a Veteran over telehealth regarding 3D printed make-up brush holders. Brian was not only able to see this Veteran more frequently, he was also able to observe her using the make-up brush holders in her home environment.



These are just a few examples of how telehealth has not only increased access to care but has also improved the quality of our treatment plans. In an effort to support the growing number of TeleProviders within Physical Medicine and Rehabilitation across the nation, the TREWI sites are hosting quarterly National TeleRehabilitation Grand Rounds discussing best practice related to telehealth across a variety of disciplines.

Multiple disciplines are welcome and a variety of CEUs offered! Upcoming dates and topics are listed below;

- May 1, 2019, 12pm EST: "TeleRehabilitation for Assistive Technology and Blind Rehab Services, an Interdisciplinary Approach"
- June 2019, date TBD: "Bridging the Gap: Using Telerehabilitation to Improve Care Across Different Settings"

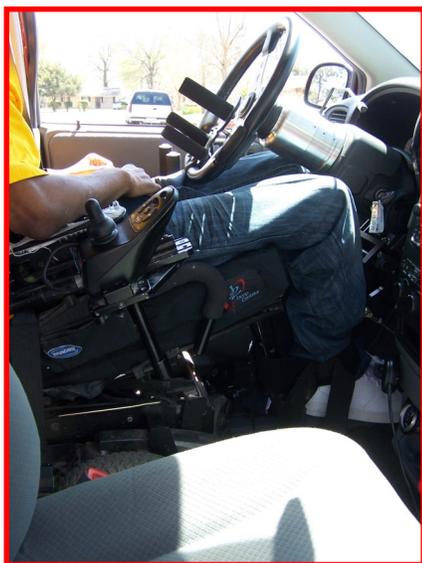
Driver Rehabilitation Specialist Professional Certification—Elizabeth Green



ADED

The Association for Driver
Rehabilitation Specialists

For those working in the field of driver rehabilitation, the Certified Driver Rehabilitation Specialist (CDRS®) credential is the benchmark for excellence. A CDRS® is an advanced driver rehabilitation specialist who has received certification from The Association for Driver Rehabilitation Specialists (ADED) upon fulfillment of specialized experience and education requirements and successful completion of the CDRS® exam. Driver rehabilitation professionals represent a cross section of allied health professionals including occupational therapy, physical therapy, kinesiotherapy, and speech and language pathology, among others. Other professionals in the field represent the driver education profession, researchers and educators. Many allied health professionals in the VA system have obtained their CDRS credential to ensure that they are providing the highest quality service. The CDRS exam is designed to test a well-defined body of knowledge – representative of professional practice – in the field of driver rehabilitation.



The 2019 CDRS® examination will be offered at over 200 testing centers across the US. The computer-based test will occur during the month of August while the paper/pencil version of the exam will continue to be held on-site at ADED's annual conference. ADED will be conducting the 2019 CDRS paper/pencil exam on Tuesday, August 13 at the ADED Annual Conference, being held in Lexington, Kentucky, at the Hyatt Regency Louisville. For those examinees unable to travel to Lexington, the computer-based exam will be offered at testing centers throughout the month of August. The 200+ computer-based testing centers are in all 50 states and the District of Columbia.

The CDRS® Examination consists of 100 multiple-choice questions. The content of the CDRS Examination has been defined by a national role-delineation study. The study involved surveying practitioners in the field of driver rehabilitation to identify tasks that were performed routinely and considered important to competent practice. The examination has been developed through a combined effort of qualified subject-matter experts and testing professionals who have constructed the examination in accordance with the CDRS Examination content outline. ADED is the only organization in the United States to offer the multi-disciplinary CDRS® certification and has been conducting the exam since 1996.

To find out more about the CDRS® designation, examination application criteria, and exam details, contact ADED at (866) 672-9466, visit www.aded.net, or e-mail info@aded.net. Applicants ready to take the exam are invited to visit



www.goamp.com and submit their application on-line.

ABOUT ADED: The Association for Driver Rehabilitation Specialists, or ADED, is a non-profit organization made up of members dedicated to promoting safe, independent community mobility for persons with disabilities and the aging. The group provides education, research, and support to professionals working in the fields of driver education, driver training, and transportation equipment modifications for those with disabilities. ADED is the only organization in North America to offer the Certified Driver Rehabilitation Specialist (CDRS®) designation. The first CDRS exam was conducted in 1996. In 2018, ADED members numbered over 1020 worldwide. There are currently 378 active CDRS® professionals. ADED is registered as a 501 (c) (3) corporation. For more information, visit www.aded.net. For more information, contact Elizabeth Green, Executive Director, ADED, The Association for Driver Rehabilitation Specialists at (828) 855-1623 or Elizabeth.green@driver-ed.org

AT PRODUCT REVIEW: SpeechVive by Speechvive, Inc.

By Nitza M. Robles-Sanchez MA, SLP-CCC; ATP



Overview

SpeechVive is a prosthetic device designed to augment the laryngeal and respiratory functions for people with Hypokinetic Dysarthria (with Parkinson's patients). The SpeechVive device plays background sounds in the person's ear while the person is talking and turns off as soon as the person stops talking. This causes the person to immediately and automatically speak louder, slower, and more clearly. The Speechvive is worn over the ear and contains an accelerometer that detects when the user speaks. It provides more intelligible speech with symptoms of hypokinetic dysarthria.

Indications

Individuals with Parkinson's disease (PD) demonstrate low vocal intensity (Hypophonia) which results in reduced speech intelligibility (Hypokinetic dysarthria). When patients are utilizing the SpeechVive prosthetic device, they might experience an increase in sound pressure levels (SPL), changes in rate, and overall increases in speech intelligibility. If the patient is stimutable by increasing their sound pressure level (SPL) with the SpeechVive in place, they will most likely be a good candidate for the device. In sessions, the Speech-Language Pathologist (SLP) gathers baseline data and recalibrates the SpeechVive to immediately increase the patient's target sound pressure level.

Contraindications

Patients with aphonia, lack of motivation to speak and to participate in therapy are not

appropriate for this device.

If the patient is wearing hearing aids, he/she should remove the aid on the ear. The patient should never immerse

the SpeechVive in water. The SpeechVive device should be removed before bathing, showering, swimming, sleeping or when undergoing x-ray procedures. It is not recommended to use soap, cleaning detergents, or solvents to clean the ear-piece or device. X-radiation (e.g. CT scans) may adversely affect the correct function of the SpeechVive.

Criteria for Evaluation of Assistive Technology Device

Affordability:

The price of the device is \$2495.00. This can very cost effective as a patient doesn't require an intense protocol of 12 -16 sessions in 1 month and can mitigate the need for a high level of patient participation in daily exercises. Patients could experience immediate improvement. Given that patients will require less sessions for the same outcomes at behavioral protocols, this means less cost overall and more patient/caregiver satisfaction. It also allows you to add additional areas to your POC for your patient without increasing patient/caregiver burden for additional visits.

Compatibility:

Calibration software is compatible with Windows 7, Windows 10 and Mac OSX Yosemite or newer. Has been approved for download by the VA, system wide.

Consumer Repairability:

SpeechVive, Inc. provides a lifetime warranty. The warranty covers repairs and replacements due to manufacturing defects. No warranty claims will be considered for improper handling or care of the device.

Dependability:

The device has a lifetime manufacturer's warranty which covers any type of manufacturing defect.

Durability:

Designed for daily use and not water resistant. The device should be stored in a cool, dry place because the moisture will damage the device.

Ease of Assembly:

No patient assembly required. Assembly of device for calibration by the clinician takes less than 5 min. The clinician needs to:

1. Attach a silicone Ear tip
2. Connect the charging station.
3. Charge the SpeechVive.
4. Assemble the microphone
5. Plug the Micro USB into the

SpeechVive under the rubber flap located at the bottom of the device and

6. Connect SpeechVive and microphone to the computer for the calibration.

Ensure the microphone is a distance of 12 inches from the patient's mouth for correct positioning during the evaluation.

Clinician has to download the software at www.speechvive.com/download.

The Calibration takes 5-10 minutes with the easy-to use software. The SpeechVive accelerometer sensitivity settings are programmed by the user's SpeechVive trained specialist.

Ease of Maintenance:

No maintenance required other than battery change 1x /3-5 years. To replace it, it must be shipped to SpeechVive. A battery replacement is \$150. SpeechVive, Inc. should be contacted to replace the battery. The patient needs to inspect the silicone tip for earwax and moisture accumulation. Use the cleaning tool to gently scrape ear wax from the inside of the silicone tip. Use a soft, dry (cont. pg 15)

AT PRODUCT REVIEW: SpeechVive, cont.

cloth to clean the outside of the silicone tip. Patient needs to ensure there are no cracks, hardening or changes in the silicone tip color. If there are changes, SpeechVive Inc. needs to be contacted to order replacement ear tips.

The device may stay in the charger with the lid closed overnight or when not in use. Storing the SpeechVive in the charging station will maintain optimal battery performance.

Effectiveness:

Published studies show that 75% of people with PD experienced immediate +3-5 dB increase in sound pressure level with spontaneous connected speech sample. In addition, research shows that physiologically, the device helps patients regain normalized elastic recoil and VF valving for speech—leading to a more efficient use of the mechanism to sustain speech. However, this might vary patient to patient.

Flexibility:

No need to train for carryover. As the cognitive load of a conversation increases, the device continues to be effective.

Learnability:

Minimal. Patient education is provided for charging and use of device. It is recommended that the patient wear the SpeechVive every day during times when he/she will be talking. The patient needs to wear it at least 3 hours a day. For best results, it is recommended that the patient read aloud for approximately 30 minutes, 5 days a week. However, this might vary depending on the recommendations of the SpeechVive-trained specialist.

Operability:

Designed to not require any instruction for operation on the part of patient. It should only be used for the intended application. User should follow the recommendations by the trained specialist on how to care and use the device. For the specialist, calibration training is provided via web conference (45min) free of charge. The main goal of the initial calibration procedure is to determine if the patient is stimuable to the Lombard effect. The patient needs to charge the SpeechVive every night. The light on the charging

station will turn green when the device is fully charged. A full charge could take approximately two hours.

Personal Acceptability:

Main reason for return is lack of support from caregiver/SLP to provide the feedback people with Parkinson’s Disease need to understand their communication disorder/needs. The clinician will basically answer yes/no at the end of calibrating the device.

Physical Comfort:

The majority of the patients do not complaint of discomfort while wearing the device. However, they must get used to the Lombard effect. During the initial evaluation the clinician will determine if the patient is stimuable of the effect and able to tolerate the sound by adjusting the sensitivity.

Physical Security:

Should not impact.

Portability:

The SpeechVive is highly portable and comfortable.

Securability:

The SpeechVive is a small device and it could be secured easily in any type of lockable container.

Supplier Repairability:

The supplier will repair and/or substitute damaged units due to manufacturing defects. No warranty claims will be considered for a device exhibiting improper handling care.

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
	Category		Score	
	Affordability		3	
	Compatibility		3	
	Consumer Repairability		4	
	Dependability		5	
	Durability		5	
	Ease of Assembly		5	
	Ease of Maintenance		5	
	Effectiveness		3	
	Flexibility		5	
	Learnability		5	
	Operability		5	
	Personal acceptability		5	
	Physical Comfort		5	
	Physical Security		4	
	Portability		5	
	Securability		5	
	Supplier Repairability		5	
	Average		4.5	

Site Update...Hines VAMC

Outreach and expanding Rehabilitation Engineering services

3D Printing and assistive technology

Recent Co-treatment with occupational therapy using 3D Printer for custom 3D Splint designs to help treat contractions in hand and pain in joint.



Oval 8 splint



Custom splint- Custom designed with different angles of degree to help improve extension of joints during ongoing treatment plan



3D design-custom size to fit Pt finger better than the manufactured option



Assistive Technology and Vocational Rehabilitation

Recent Co-treatment with therapist to assist in continuing employment for a veteran with with Cerebellar Ataxia. Veteran presents with dysmetria when attempting to write and in need of adaptive devices to assist for notetaking. Using the Livescribe smartpen and Dragon Dictation Software for adaptive computer access, notetaking, and increase productivity to assist veteran with continuing employment.



3D Printed clothing clip switch mount- for users with limited UE ROM- issued to veteran with ALS and limited UE ROM to activate an AAC device using switch access



3D Printed design- ease of repeatability, customizable to accommodate different switches as needed



ATIA Annual Conference 2019 Update

...John Miller and Seth Hills, AT Rehab Engineers

John Miller and Seth Hills, rehabilitation engineers in McGuire's Assistive Technology Program, attended the Assistive Technology Industry Association (ATIA) Annual Conference 2019. Attendees included education professionals, social workers, psychologists, rehabilitation engineers, and physicians, as well as speech, recreational, occupational, physical, and kinesiotherapists. Many AT trends, products, organizations, and practices were featured in presentations and the exhibitor booths.

For the deaf and hard-of-hearing, Live Transcribe is a new app developed by Google for Android phones. Live Transcribe takes real-world speech and automatically turns it into real-time captions using just the phone's microphone. This app has the potential to help people engage in social activities, communicate their needs more quickly, and make everyday living more accessible.

A teaching tool for autism spectrum disorder is the Milo, a humanoid robot who resembles a kid. It delivers an evidence-based curriculum without the use of negative reinforcement to teach social, emotional, behavioral and verbal skills. Milo's consistent repetition of realistic reactions to verbal cues helps people on the autism spectrum to learn facial expressions and what they mean. At 2.5 feet tall, Milo looks like a child, is facially expressive, and has moving arms and legs. Milo delivers 1500 lessons verbally, and as he speaks, symbols displayed on his chest screen help learners better understand what he's saying. Milo doesn't do all the work on his own. He teaches the lessons, along with an educator or therapist, and then collects the student learning data. Milo's a great friend and instructor who never gets frustrated or tired, and scaffolds learning to build skills and confidence.



At ATIA, Magic Wheelchair, a non-profit organization that builds free costumes for children in wheelchairs, revealed a brand new build of a BumbleBee Transformer costume their local group had built. It was impressive and brought so much joy to the young man that received it. Magic Wheelchair relies on a network of volunteers and connects them with families and kids and build these costumes. Sign up at their website (<https://www.magicwheelchair.org/>) if you are interested in participating.



Makers Making Change, a non-profit based out of Canada presented a variety of open-source assistive technology solutions. Their mission statement is to "connect makers to people with disabilities who need assistive technologies." MMC has developed a sip/puff mouth joystick, various pencil holding devices, adaptive nail clipper, key grip adaptations, Xbox controller adaptations, and several low-cost switch alternatives, all open source. They provide instructables on how to make these tools and adaptations yourself, with minimal design and manufacturing cost. Seth jumped into their conference makeathon by helping therapists and clinicians learn how to solder and assemble their own low-cost adaptive switches.



Two new products sure to make

waves in the world of AT are the AMAneo BTI Assistive Mouse Adaptor for iOS and the Sidekick from AbleNet. Previously iPads and iPhones were only accessible via switch input, but coming this summer/fall, these two adapter products allow any USB mouse (including adaptive mice) to plug into Apple products. Being able to point and click will open up new access possibilities for social media, email and phone functions, communication apps, and/or much more.

The Tap was another interesting product showcased at ATIA. It's a finger-mounted gesture-based keyboard tool, allowing users to tap out letters



with their fingers on any surface rather than typing physical or virtual keys. It connects to any Bluetooth-enabled device, and the battery lasts for up to eight hours of tapping. It could be advantageous for people with one-handed function, or for wheelchair users or those on bedrest who either do not want to or lack the ability to set up a keyboard. The downside is that in order to use it, one must learn the gesture corresponding to each letter and punctuation mark. During the demo, John was able to learn the five vowel gestures after only a few minutes of practice, but it would take some time to master all the gestures. Tap has an app to learn and practice these gestures. Additionally, Tap can be used for switch control or adaptive gaming.



Assistive Technology Program Mission

To enhance the ability of Veterans and Active Duty members with disabilities to fulfill life goals through the coordination and provision of appropriate interdisciplinary assistive technology services.

To serve as an expert resource to support the application of assistive technology within the VA health care system

Site Update...Richmond

The AT Program in Richmond celebrated 10 years of AT with an AT Open House where the local media attended.



In addition, the AT Program took over the Richmond VA Facebook Page highlighting all the areas of AT as well as updated their AT Program Videos—



VACO PM&R, PROSTHETICS AND SCI PLANNING 3 REGIONAL WHEELCHAIR TRAININGS:

- ◆ June 18-20—St. Louis
- ◆ Aug. 27-29—Orlando

https://www.richmond.va.gov/services/Assistive_Technology_at_McGuire_VA_Medical_Center.asp

