DEPARTMENT OF VETERANS AFFAIRS

Assistive Technology AT

PM&R Assistive Technology Programs

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Expanding Telehealth: Audiology and Speech Pathology Services (June 12-14, 2018 SIM Learn Center, Orlando, FL

Inside this issue:

AT Newsletter Edited by:
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Richmond AT Program Coordinator

Anywhere to Anywhere Telehealth

The Office of Management & Budget published direct final rules for Department of Veteran Affairs' Authority of Health Care Providers To Practice Telehealth (also known as Anywhere to Anywhere Regulation) in the Federal Register on May 11, 2018.

In summary, the regulation, effective June 11, 2018, explicitly authorizes VA providers using telehealth to care for Veterans irrespective of VA provider or Veteran location.
http://vaww.telehealth.va.gov/pgm/a2a/index.asp

TeleAudiology Demonstrations:

Audiology/Speech Pathology Telehealth Fiscal Year 2017:

- Audiology Visits: 34,038
- An increase of 12% from FY16
- Speech Pathology Visits: 7,267
- An increase of 10% from FY16

Speech Pathology Telehealth Expansion

- In 2010, 15 facilities provided speech pathology services by telehealth.
- By 2017, 77 facilities provided speech pathology services utilizing telehealth technology.
- In 2010 there were 867 visits and in 2017 there were more than 7,267 telehealth visits

Speech Therapy Demonstrations:

VA Video Connect (VVC) or Video on Demand (VOD) is now available to reach patients in their home using their own computer or smart phone.
http://vaww.telehealth.va. gov/pgm/vvc/index.asp

AT PRODUCT REVIEW: Permobil Joystick Module

By Ursula Draper, OTR/L, ATP

Overview
One of the many capabilities of the Permobil Joystick Module (PJSM) is wireless technology allowing for a Permobil power wheelchair and Bluetooth enabled devices to connect. All of the connected devices are listed in the Bluetooth mode and connected-device switching is possible with unpairing. The device also allows for built in Infrared (IR) Control with memory. For the purpose of this review the focus will be on the Bluetooth capability only. The PJSM allows for 4 connected devices, 2 for PC/ Android and 2 for iDevices.

Indications
The PJSM is indicated for use for any individual using a Permobil Power chair. It is not dependent on the drive control.

Contraindications
3rd party drive control may not interface with the technology seamlessly.

Criteria for Evaluation of Assistive Technology Device

Affordability: The PJSM comes standard on the following Permobil power chairs: Permobil F Series, M300 Corpus 3G, M300 Corpus HD.

Compatibility: The Bluetooth connection has the ability to pair to 2 PC/Android devices and to 2 Apple devices. It can be any device tablet, laptop, phone or desktop computer. Bluetooth operating range is up to 10 Meters.

Consumer Repairability: The average consumer would not be able to repair the Permobil Joy Stick Module. It would have to be taken to an authorized dealer. A consumer or caregiver with a technical background should be able to trouble shoot connectivity issues.

Dependability: Based on consumer reviews, the Bluetooth connection is reliable, however there are times that it loses its connection and must be removed from the Bluetooth Devices on the connected device and paired and connected again.

Durability: The module itself is very durable and consumers find it can withstand hard use. However as with any electronic device care must be taken in its use.

Ease of Assembly: The PJSM comes already installed on a Permobil Power wheelchair. No assembly is required by the consumer.

Ease of Maintenance: Maintenance should be completed only by an authorized dealer.

Effectiveness: The PJSM allows for consumers to access their Bluetooth enabled devices from their drive control. They do not need another piece of equipment to access their devices.

Flexibility: There are many customizable options for the Bluetooth module. Many settings must be modified by the dealer.

Learnability: There is a learning curve when programming the device. However, there are tools such as tech support and online tutorials to assist with this task.
Once programmed, the device is simple to use. With a PC and Android, use as you would any other curser, just nudge to the left or right for a left click or a right click. It also be paired to scroll up and down.
With the Apple iPhone/iPad it is a little more complex using switch control to navigate the screen.

Operability: Consumer must be able to use their prescribed drive control and have enough muscle strength to move the joystick. They must be able to scroll through their menu to reach the mouse mode. They will need quick movement to make the nudge for selection of an item.

Personal Acceptability: The PJSM is readily accepted by consumers, as it is not another device attached to their power chair. It has a very low profile and does not bring attention to the fact that the consumer is using an adapted device.

Physical Comfort: The device does not lend itself to any physical discomfort.

Portability: The module is attached to the power wheelchair.

Securability: The device is securely mounted to the power chair. This is completed by the factory or authorized dealer.

Supplier Repairability: An authorized dealer can easily replace fix the module (cont. page 3).

AT PRODUCT REVIEW: Permobil Joystick Module, cont.

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		4	
	Dependability		4	
	Durability		5	
	Ease of Assembly		5	
	Ease of Maintenance		4	
	Effectiveness		5	
	Flexibility		5	
	Learnability		4	
	Operability		4	
	Personal acceptability		5	
	Physical Comfort		5	
	Physical Security		5	
	Portability		5	
	Securability		5	
	Supplier Repairability		5	
	Average		4.70	

Set up for iDevice

https://www.youtube.com/watch?v=tEm3tMWizVE

permobil POWER WHEELCHAIRS | JOYSTICK MODULE QUICK START GUIDE
IDEVICE BLUETOOTH SWITCH ACCESS FOR IPHONE, IPAD & IOS SOFTWARE

ACTIVATING BLUETOOTH MODE

1. Press and hold soft key # 1 (blue button in upper left corner) to enter settings menu.
2. Using joystick, scroll down to "Bluetooth", right command of joystick to select.
3. Scroll to enable desired iDevice ["iDevice" or "R-Net iDevice2"], right or left command of joystick to turn «on».
4. Scroll to "Exit" at bottom of screen, right command to "Exit" to settings menu.
5. Scroll to "Exit" at bottom of settings menu, right command to "Exit".
6. Power cycle chair, twice.

PAIRING PERMOBIL JOYSTICK MODULE WITH DEVICE

1. Press and hold soft key #3 (blue button in upper right corner) to enter Bluetooth Mode ["M3"]. Option to use power/mode toggle to access Mode 3.
2. Select desired device, if more than one device is active, by scrolling and selecting with right command of joystick.
3. Put in discoverable mode by holding joystick forward for 15 seconds until you hear a beep, repeat by holding joystick in reverse for 15 seconds until you hear a second beep.
4. Enter Bluetooth settings on device being paired, and if required search for new device. Pair with "iDevice 1" or "iDevice 2".

SETTING UP IDEVICE SWITCH CONTROL ON IOS DEVICE

1. Enable Accessibility Shortcut for Switch Control (Settings > General > Accessibility)
2. Turn on Switch Control
3. Recommend Scanning Style: Manual
4. Add Switches (Settings > General > Accessibility > Switch Control > Switches > Add New Switches > External)
   - Short= 0.1-2.0 sec, Medium= 2.0- 3.5 sec, Long= 3.5-5.0
5. Name Switch and assign command (Example Short Forward = Tap)
6. Turn Switch Control On

EXAMPLE EXTERNAL SWITCH SETUP USING DRIVE CONTROL

Short Command Forward — Tap
Short Command Right — Move to Next
Short Command Left — Move to Previous
Short Command Reverse — Scanner Menu
Long Command Reverse — Siri

IF USING WITH OMNI DISPLAY

- Follow instructions as outlined above for activating Bluetooth mode and pairing with device.
- "Bluetooth" should show in Omni user menu. User will select "Bluetooth" from user menu through right command of alternative drive control.
- If user only has one device active, that device will be selected and ready for use.
- If more than one device is active, reverse command will scroll down the device list and right command will select device. If user cannot see the Permobil Joystick Module (PJSM), he/she will need to memorize order of devices on the PJSM, and count beeps to know what device is active.

AT PRODUCT REVIEW: GlassOuse v1.2 with G Switch Device

By: Jody Bastien OTD, ATP, SCEM
Frantz Joseph COTA, ATP

Overview:

The GlassOuse v1.2 was released 2/28/18 as an upgraded model to the Glasshouse v1.1. The device was designed for those who have trouble operating or are unable to use a standard mouse or other input device. This device is a wearable wireless mouse alternative featuring a built-in motion sensor to track head movements and convert them to move the mouse pointer via Bluetooth connectivity. Mouse button clicks are provided by an alternative switch attached to the headset via a 3.5mm jack.

GlassOuse v1.2 gives people with disabilities more control of their computer mouse functions by allowing control of the cursor with simple head movements. The device is head borne and is donned like a pair of glasses. It can be used with regular glasses as the device fits above most glasses. The mouse scanning via head movement is comparable to a standard mouse and selections are made quickly with use of the alternative input. Mouse clicks are operated by a choice of G-series switches that offer access via bite, puff, finger, or foot switch or any commercially available 3.5mm plugged switch. The direct access method of a switch minimizes delay compared to that of a dwell selection.

Bite Click Switch

The mouth piece curves in front of the face like a headset microphone for easy access, and functions as a mouse click. Users can bite or press between the lips to activate and select items on the screen. The bite click allows for high precision control and is durable to the pressure of a hard bite. This switch is antibacterial with its waterproof cover and additional bite click silicone covers are available for purchase.

Finger Switch

Comes with a highly sensitive switch button that can be mounted on a touch fastener strap or any kind of fabric surface with its sticky bottom. Allows user to do clicking action with any part of their body - finger, arm, and even the head. A long cable provides the ability to use in different positions.

Foot Switch

Capable of detecting different amounts of pressure for clicking action. Made of durable material with non-skid bottom and long cable to allow positioning according to need. Mounts tightly to stay in place.

Puff Switch

Allows users to do clicking actions via simple puffs, unlike usual sip-and-puff systems. Working with a coin size battery, the built-in microphone has a blow trigger converting the frequencies derived from puffing action into signals automatically to do the clicks. Smart battery system turns the device off if idle for 3 hours to conserve battery power.

Connects via Bluetooth and responds to head movements to manipulate a cursor around the screen. For example, looking down moves the mouse cursor down and moving the head side to side moves the cursor left to right. Wide viewing angle allows easy use on a variety of screen sizes, from tablets to larger monitors.

Indications:

For individuals who require an alternative access method to standard mouse input. Ideal for individuals with diagnoses of traumatic brain injury, spinal cord injuries, cerebral palsy, multiple sclerosis, ALS, or other incoordination related conditions.

Contraindications:

Individuals with head or neck injury, specifically, acute phase cervical injuries or cognitive limitations that may impede in new learning.

Affordability:

The GlassOuse v1.2 Hands Free Assistive Mouse costs $499.00 and is available from Boundless AT or Enablemart.com. The G-Series Switches:Bite switch $49, Foot switch $29, Finger switch $39, or puff switch for $129. The Silicone Bite Click replacement (5 package) $20. Dwell clicker software $30 if needed.

Compatibility:

The GlassOuse is compatible with Bluetooth-enabled Windows, Linux, Android, Smart TV devices, Apple software pc (not I-pad or I-phone) and Chrome OS.

Consumer Repairability:

The consumer repairability is limited to simple diagnostics and device resets. Extensive repair would need to be done by the manufacturer,(cont. pg 5).

AT PRODUCT REVIEW: GlassOuse v1.2 with G Switch Device, cont.

If the battery needs to be replaced, the device will need to be shipped to the manufacturer.

Dependability:

The device appears dependable although at times there has been some difficulties pairing the device with the computer or tablet . The unit may need to have a hard reset done. The device needs to be charged fully for it to work especially the first time. It has been reported that WI Fi interference may take place in remote locations

Durability:

The device itself appears durable for home use. It is lightweight and is one unit with limited detachable parts for the switch access and charging cord. There have been reports of the bite click breaking due to extensive use or a very hard bite.

Ease of Assembly:

The GlassOuse comes fully assembled from the distributor. The user only needs to charge the device, connect to their device via Bluetooth to control the cursor with head movements, attach the desired switch access to the base of GlassOuse and don the device like a pair of glasses.

Ease of Maintenance:

The Glasshouse needs only to be fully charged for approximately 15 hours of wear time or every ten days.

Effectiveness:

The device has 160 degrees vertical and 180 degrees horizontal angle precision and 9 axis gyroscope to capture the smallest head movements accurately. The device could be used with an external switch to click and scroll. For dwell selection, recommend Dwell Clicker 2 software.

Flexibility:

The use of the device is quite broad as it allows people that have difficulties accessing and operating their mouse to be able to perform most computer functions independently. It is offered with a variety of switches for purchase, allowing for client customization.

Learnability:

The Glassouse is quite easy for users to learn with intuitive head movements to move the mouse. It is a "plug and play" device and it is easily paired via Bluetooth with many computers and tablets.

Operability:

The original access method on version 1.1 was only the bite piece, that curves in front of the face like a headset microphone for easy access to function as a mouse click. With version 1.2 there are additional switch control options via a 3.5mm jack. In the G-Switch series the additional options Rechargeable Lithium Polymer battery provides up to 15 hours of use. Smart battery automatically enters "sleep" mode if the click is not pressed for three minutes to extend battery life. Use the bite click or alternative click again to wake the Glassouse

The individual would need to have the physical capabilities to don the device on the head or have a caregiver assist.

Personal Acceptability:

The device looks like a pair of designed glasses and it does not stand out as something out of the ordinary.

1	2	3	4	5
Not satisfied at all	**Not very satisfied**	**More or less satis-**	**Quite Satisfied**	**Very Satisfied**
	Category		**Score**	
	Affordablitity		**4**	
	Compatibility		**4**	
	Consumer Repairability		**3**	
	Dependability		**4**	
	Durability		**5**	
	Ease of Assembly		**5**	
	Ease of Maintenance		**4**	
	Effectiveness		**4**	
	Flexibility		**5**	
	Learnability		**4**	
	Operability		**4**	
	Personal acceptability		**4**	
	Physical Comfort		**3**	
	Physical Security		**3**	
	Portability		**4**	
	Securability		**3**	
	Supplier Repairability		**2**	
	Average		**3.8**	

Site Updates…Albuquerque, NM

The New Mexico VA Health Care System at the Raymond G. Murphy VAMC in Albuquerque, NM has been developing an Spinal Cord Injury/ Disorders (SCI/D) based AT Lab for a few years now. We are pleased to announce that the SCI/D AT lab at the New Mexico VAMC is finally about to become a reality. As the newest innovation at the Southwest's regional VA SCI/D Center, the new SCI/D AT lab will serve Veterans from New Mexico and the surrounding states covering a very large and rural geographical area along with our 30-bed inpatient unit. In the next month, the lab will finally move into its brand new dedicated space which will house an occupational therapist/ATP, certified driver rehab specialist and a clinical rehab engineer. The SCI speech pathologist/ATP will also work closely with the team to coordinate assistive technology used by the Veterans. This collaboration between Veteran/care provider and SCI/D AT team will ensure the Veteran has the opportunity to trial a variety of AT devices and that the equipment being ordered works in conjunction with other devices used by the Veteran. It will also aide in fiscal stewardship of the funds being allocated for assistive technology. The lab space will be used for evaluation and training in the areas of mobility, computer access, smart home devices, alternative communication, cognitive aids and adapted driving. A dedicated space in the lab will house the rehab engineering workshop with a variety of tools and fabrication equipment to include 3D scanning and 3D printing capabilities. The lab will also host the new clinical exoskeleton program managed by the SCI physical and occupational therapists, and overseen by Dr. Gutierrez, Chief SCI/D Care Line. Adrienne Toubbeh (SCI/D Therapy Supervisor) has been working toward this vision for a state of the art SCI/D AT Lab for many years. Her vision, passion and advocacy along with Dr. Gutierrez's enthusiastic support of the program, and the support from the NMVAHCS leadership have been invaluable in securing the staffing, space and equipment funding over the past several

Site Updates…The Eastern Colorado Healthcare System

The Eastern Colorado Healthcare System (ECHCS) Assistive Technology program hosted an Assistive Technology Deep Dive in conjunction with University of Pittsburgh Rehab Science and Technology in May 2018. There were over 20 attendees from VA's across the country obtaining education and hands-on use of Augmentative and Alternative Communication devices, Cognitive Prosthetic Devices and apps, Computer Access technologies, Electronic Aids to Daily Living, Low Vision and Blind adaptations, Wheeled mobility and Adaptive Sports.

Program highlights:

- A member of the ECHCS Driver's Rehab Program participated in the Deep Dive and will take the test for the ATP certification.
- The ECHCS Assistive Technology/Wheelchair/Driver Rehabilitation program will have a Rehabilitation Engineer joining the team in the upcoming months.
- The Wheelchair program continues to increase use of telehealth to provide evaluations to Veterans in remote locations.
- Access technologies are currently being installed in the Spinal Cord Injury Center at the newly opened Rocky Mountain Regional VA Medical Center with an expected opening 2019.

Site Updates…Tampa

VA Secretary Wilkie Visit

The Honorable Secretary of Veterans Affairs Robert Wilkie visited James A Haley VA Hospital on August 9, 2018. During his visit, he toured many areas of rehabilitation including the Polytrauma Connected Healthy Smart Home. While in the Smart Home, Secretary Wilkie saw demonstrations of modern, commercially available products for environmental control and augmentative-alternative communication. He also saw demonstrations of telehealth for the provision of speech pathology services through the use of VA Video Connect on a Service Member's personal iPad.

Outreach

- Tampa and New Orleans has initiated a mentorship between the sites in order to facilitate development of an Augmentative and Alternative Communication (AAC)/AT Program in New Orleans. The partnership began with Speech Pathology communicating through telephone and email correspondence for recommendations on necessary equipment for a startup lab as well as sharing of evaluation templates for documentation. The meetings have since progressed to weekly Skype video calls with the incorporation of OT and hopefully PT to highlight the importance of inclusion of additional staff towards an interdisciplinary approach.
- Collaborated with Orlando and West Palm Beach through the utilization of inter-facility e-consultation (4 e-consults since summer 2018) to provide recommendations and/or follow-up AT services
- AT participated in the annual SCI Fair for staff and patients showcasing services offered by Speech Pathology and Occupational Therapy

Presentations

- Telina Caudill presented at the Expanding Telehealth for Audiology and Speech Pathology Services at the SimLEARN in Orlando in June 2018. Audience members were able to view collaborative eyegaze AAC assessment between two sites through the implementation of video telehealth demonstrating how others can connect to SMEs to support their clinical practice. Additionally, demonstrations were provided on how a clinician may provide AAC training via video telehealth.

Telehealth

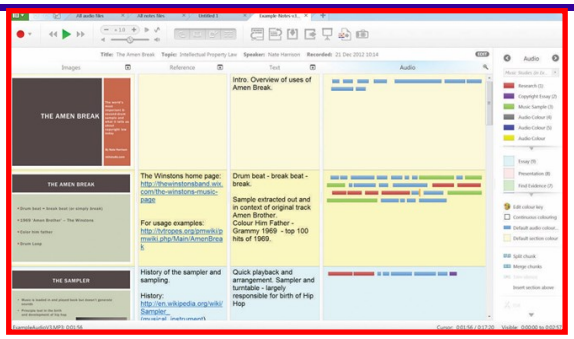
- CVT to Home visits for FY 2018 total 100. Primarily utilizing VA Video Connect and rarely using COTS tablets without existing mobile devices. Services include initial AT evaluations (both with and without AT vendors) as well as treatment for AT training, voice and message banking and general follow-up.

Current Projects and Performance Improvements

- Participation in the SmartHome CareHub app pilot Project
- Ongoing additions to the YouTube training resource library; now totaling 13
- Co-authoring chapter for Plural Publishing on AAC assessment for the ALS population through the implementation of video telehealth
- Partnership with University of South Florida Rehab Engineering for 3D printing
- Committee members for the development of the James A Haley Stroke COE
- Collaboration with the ALS team for the development of weekly interdisciplinary clinics towards certification as an ALS Center of Excellence.

AT PRODUCT REVIEW: Sonocent Audio Notetaker by Sonocent Ltd.

By Katelyn Smith, USF Graduate Student and Telina Caudill, MS, CCC-SLP, ATP



Overview Audio Notetaker by Sonocent is a notetaking and audio recording software program for PC and Mac (also has a free companion app for Apple and Android). Use of Audio Notetaker's recording function is intended to remove the burden of writing or typing notes during a lecture or presentation, thus allowing for increased engagement with information as it is presented. Audio Notetaker may bypass physical limitations and issues with working memory as the user captures audio without writing and simply clicks a button to highlight key points. Later, the user can annotate and incorporate slides, diagrams and other media to consolidate study materials into one document. Sonocent was originally founded by a speech technologist to use audio and multiple modalities to increase productivity. Their approach to notetaking reduces the burden of working memory by breaking down writing tasks into more manageable steps. Their process is highlighted by the acronym CARE: C for capturing audio, A for annotating, R for review, and E for engaging with the notes through multiple modalities. The three main components include audio, notes, and visuals. The software is used primarily by professionals, colleges, students, researchers, journalists, people with disabilities, and new language learners.

Indications

This application can be used for individuals with physical and/or cognitive disabilities that impact learning and productivity in the educational or work environment. Appropriate candidates may be those with TBI, ADD/ADHD, PTSD or other conditions impacting cognition and learning as well as amputation, orthopedic injuries, carpal tunnel, SCI or other neurological conditions resulting in paralysis, paresis or tremor that impact handwriting. This may also be an appropriate match for someone with cognitive impairment who simply types faster than writing (efficiency) or who has poor writing legibility.

Contraindications

Audio Notetaker is not appropriate for:

- Those with severe TBI, PTSD, cognitive, or physical disability that prevents comprehension and utilization of the software and/or computer.
- Veterans who do not have access to a computer or have a limited technological skill set.
- Veterans who do not have access to appropriate training of software.
- Significant vision or hearing impairment

Criteria for Evaluation of Assistive Technology Device

Affordability: Sonocent Audio Notetaker is available for download to PC or Mac from www.sonocent.com/en-us/download. There is a 30-day free trial and there are multiple purchase options,

- Individual Licenses
- 12-month for $99.00
- Perpetual for $250.00 (includes free updates for life)
- Institutional Licenses

Additionally, there is a free companion app, Sonocent Recorder, available for iOS and Android. It can be accessed through the Sonocent website, through the App Store, or on Google Play.

Compatibility: This software is available for PC or Mac computers. PC computers must be running Windows Vista or later and Mac must be running OS 10.5.8 Leopard or later. The companion app has limited function independently and requires communication with PC or Mac software for full capability.

Consumer Reparability: There are multiple options for troubleshooting. Within the software itself, there is section labeled "Help." Under this section, there are interactive tutorials, a user guide, and a reference guide. Additional tutorials and resources are available online. If those provided resources do not resolve the issue, further assistance can be accessed through Sonocent's technical support via email or phone (US and UK).

Dependability/Durability: Audio Notetaker requires access to the computer's microphone and may require internet connection if the companion app is being utilized. Continuous software and computer updates are required to maintain the latest features. Aside from updates, the software functionality is dependent on appropriate use and maintenance of the computer, (cont. page 9).

AT PRODUCT REVIEW: Sonocent Audio Notetaker , cont.

Ease of Assembly: In order to access a free trial of Audio Notetaker, an email address is the only requirement. To download the paid version, Sonocent requires an email address and payment details. The appropriate operating system is also a requirement for the download. The interactive tutorials will lead a user through set-up and orientation to the software.

Ease of Maintenance: Audio Notetaker can be maintained by ensuring the software is updated regularly. The user is notified of updates within the software program.

Effectiveness: This software program is effective in providing multimodal access to information. Training with Audio Notetaker gives proven strategies for revision, essay composition, idea generation, presentation practice, and study skills. These strategies are supported through Sonocent's tutorial videos. The most recent Sonocent user survey from 2015 provides subjective feedback of users' Audio Notetaker experience. Users indicated improvement in organization, clarity, and effectiveness of their notes after using the software. Other outcomes from the survey show the program decreases anxiety related to notetaking and studying. For the appropriate client, with appropriate training, this software program should aide users in effective notetaking.

Flexibility: There are a variety of notetaking options within Audio Notetaker that the user can choose depending on their needs and preferences. Modalities include audio, text notes, linked pages, and imported images. Furthermore, there are various ways to emphasize the importance of some notes including chunking, font changes, and highlights.

Learnability/Operability: Audio Notetaker provides easy access to tutorial videos. The interactive videos are available through the program or on the website. While the software is designed for streamlined use, there are many options for customization. However, Sonocent users claim that 30 minutes of training through tutorial videos is sufficient for adequate use of the program.

Personal Acceptability: This software program can be downloaded on a laptop or desktop computer. Some features of Audio Notetaker can be accessed through the companion app on a tablet or smartphone. All devices are commonly used within society. It is important to note, when using this program in a public setting, it may be necessary to request approval before recording others.

Physical Comfort: This software should not cause physical harm; however, may result in visual fatigue or headaches similar to that of extended computer use.

Portability/Securability: Audio Notetaker is as portable and secure as the device being used. Refer to the computer, tablet, or smartphone for information related to transportation, operation, battery, security, and other specs. As with any mobile device, risk of loss or theft is possible if left unattended.

Supplier Reliability: Sonocent provides a number of troubleshooting options within the program and through the website. Further technical support is available via the "Contact Us" tab on the Sonocent website. Users have the option to submit an enquiry form or contact support via email, phone, or post.

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		**5**	
	Consumer Repairability		**5**	
	Dependability		**5**	
	Durability		**5**	
	Ease of Assembly		**5**	
	Ease of Maintenance		**5**	
	Effectiveness		**4**	
	Flexibility		**5**	
	Learnability		**4**	
	Operability		**4**	
	Personal acceptability		**5**	
	Physical Comfort		**5**	
	Physical Security		**5**	
	Portability		**5**	
	Securability		**5**	
	Supplier Repairability		**5**	
	Average		**4.7**	

Veteran Highlight…Getting Technical with the Tecla-E

by: Beau Bedore, CCC-SLP, APT & Kristin Scheel, MOT, OTR/L

Mike is a 72-year-old male with a past medical history of C5-6 fusion in 1991 who was always highly active in his community, family life, and work life. He was a wrestling coach at DeLaSalle High School in Minneapolis, MN and coached five other sports. When he wasn't coaching, he enjoyed golfing with his two daughters. A former teacher, Mike later transitioned into a successful career in corporate training and human resources.

In June of 2017, he sustained a significant fall from his dock while trying to place a heavy battery on a shelf above his head on his boat. He slipped backwards and hit the back of his neck and landed in the water. Three minutes later, he was found by his neighbor who pulled him out of the water. Mike was unconscious and did not have a pulse. The neighbor initiated CPR and paramedics intubated him on the field when they arrived at the scene. He was taken to St. Cloud Hospital for medical stabilization. Initial imaging revealed C3-C4 dislocation with cord contusion. Neurosurgical intervention was not performed and he was placed in a cervical collar. Further examination revealed C2 AIS C tetraplegia with anoxic brain injury.

Following initial stabilization, Mike was transferred to Courage Kenny Rehab Institute at Abbot Northwestern Hospital where he completed two months of acute rehab. He was then transferred to Courage Kenny's Transitional Care Unit in Golden Valley, MN for ongoing rehab, where he received his **Permobil F5 Corpus VS** standing power wheelchair with full seating functions in October of 2017. He was initially set up with head array for independent driving before being placed at Koronis Manor Nursing Home in Paynesville, MN.

Mike was seen for the first time at the Spinal Cord Injury & Disorder Center at the Minneapolis VA Health Care System in February of 2018 for a comprehensive interdisciplinary assessment, during which time the SCI team determined that he would benefit from a two-week admission for subacute rehab for power wheelchair driving training using head array and ongoing spasticity management. Mike was agreeable to the admission, but reported that since being in the nursing home he had rarely used his head array due to staff having a difficult time consistently placing him in an accurate position in the chair. He said that nursing staff primarily used attendant control to drive the chair.

He returned to the Minneapolis SCI/D Center in August of 2018 for placement of a Baclofen Pump for spasticity management and further subacute rehab to address his assistive technology needs. Mike again reported that he had not used the head array for the past month due to persistent difficulty with nursing home staff positioning him correctly in the chair. He also said that while his iPhone was setup to use *Siri* to make calls and *Call Audio Routing* to answer calls, he was not able to use any other features of his phone. Therefore, Mike identified two primary AT goals during his interdisciplinary assessment:

He requested to trial driving with his right hand using a **Bodypoint U-Shaped Joystick** despite severely limited UE movement. The team worked with him to address this goal through improved spasticity management via Baclofen Pump and Botox injections into his pectoralis muscle; however, there was no significant functional change in UE function and Mike was ultimately unsuccessful driving with the joystick. After further education and discussion with the team, Mike was agreeable to trialing a **Therafin Sip-N-Puff** system for independent driving and seating functions. The team also introduced the **Tecla-E** assistive device to provide Mike with full access to both his iPhone and iPad using iOS Switch Control and the same sip-n-puff system when he is in his wheelchair and a custom-designed sip-n-puff switch and floor mount for when he is in bed.

After weeks of direct instruction training and errorless learning with the team, Mike was able to safely and independently drive his wheelchair and use the powered seating functions, including tilting for pressure relief. Additionally, he was able to fully access his mobile devices whether he was in his chair or in bed. Mike remains hopeful that he will still—one day—be able to drive his chair using his joystick, but he and his family are very satisfied with the AT intervention that was provided by the SCI AT Team: "The best part of this whole transition was the help I got from the VA staff, Kristin, and Beau to help me accomplish my goals." Mike is happy to be driving and using his technology, Pages 11-13 details of the set-up through pictures and tables.

Table 1. Mike's AT Goals

❶	"*I want to be able to drive my wheelchair independently.*"
❷	"*I want to be able to independently access and use my iPhone and iPad while I'm in my chair and in bed.*"

Veteran Highlight, cont...Mike's AT Configuration:

Figure 1. Permobil F5 Corpus VS standing power wheelchair with Mount'n Mover Easy Mover Dual Arm with Quick Connect plate, low-resistance hinge, and clear tray with lip by BlueSky Designs. iOS devices secured to tray with Velcro

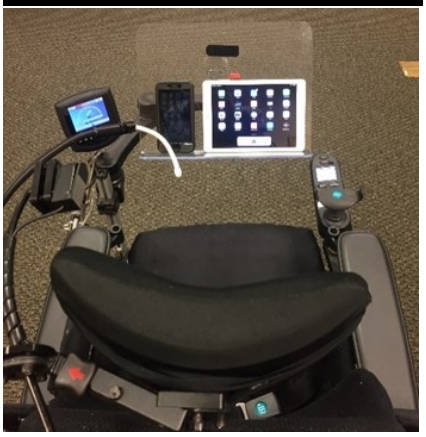


Figure 2. Bodypoint U-Shaped Joystick with Expandable R-Net Bluetooth capable controller (used as attendant control only); R-Net Omni Display with specialty input device interface for driving control using Whisper-Lite Swingaway Sip-N-Puff 24" Gooseneck by Theraf-in; Micro Light Switch by AbleNet for mode/reset.

Figure 3. R-Net Input/Output Module (IOM) connected to power source and attached to Tecla-E via 9-Pin (DB9) Male-to-Female Serial Port Cable.

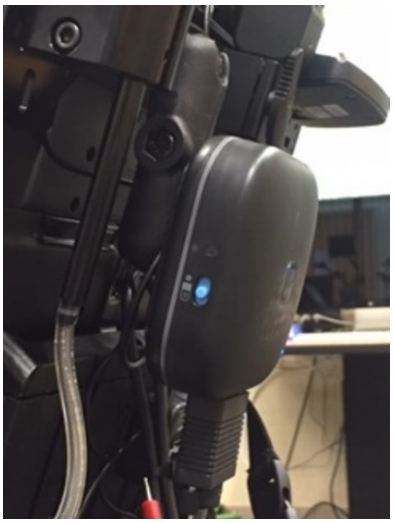


Figure 4. Tecla-E Bluetooth Switch by Komodo mounted to wheelchair using RAM components: RAM 1" Ball Adapter with ¼"-20 Threaded Post (Part# RAM-B-237U, attached to back of Tecla-E), RAM Composite Double Socket Arm for B Size 1" Balls, and RAM ¼"-20 Female Threaded Hex Hole with 1" Ball (attached to Uni-Track rail on back of chair using 10mm Hex Bolt with ¼"-

Figure 5. Permobil USB Charger powering Tecla-E via USB C cable. Tecla-E is accessed via profile/Mode 5 (programmed as an output module).

Table 2. Permobil Programming
Using programming software, the following parameters were set:
Configuration > Mode 5 > named "Tecla"
Output Module > Output Switching > Output 7 > Four-Way

Figure 6. 1/8" (3.5mm) Mono Male-to-Male 6 ft. cables were connected to Tecla-E Ports 'A' & 'B' for accessing iOS devices from bed using custom-designed sip-n-puff switch. Mono cables are long enough that Tecla-E can remain mounted to chair.

Mike's iPhone and iPad were programmed to provide full access using iOS Switch Control in Accessibility settings:

Bluetooth: Telca-E was first paired with iPhone 7 Plus (Device #1) and then paired with iPad 6th Generation (Device #2). (Note: Tecla-E can be paired with up to 8 Bluetooth devices and will "jump" from device to device—based on the order in which the devices were paired—whenever a switch input is triggered for a duration of 3 seconds.)

Accessibility Shortcut: Mike's iPhone and iPad were programmed so that the Accessibility Shortcut (Triple-Click Home button) would turn Switch Control ON/OFF. (Note: On newer models of iPhones you would Triple-Click the shutter button to toggle the Accessibility Shortcut.)

Switches: A total of 4 switch inputs were programmed on each of Mike's devices. Two of the switch inputs ("Puff" and "Sip") were programmed through Mode 5 of his wheelchair using his wheelchair sip-n-puff system. The additional two switch inputs ("Puff2" and "Sip2" were programmed using his Enabling Devices sip-n-puff switch when he was in bed.

Long Press: Long Press was enabled to add another action to a switch input that is activated when you hold the switch for longer than the duration specified. In Mike's case, the Long Press duration was set to 0.6 seconds. Using this feature, Mike was able to get 4 switch inputs using his sip-n-puff system.

Switch Configuration:
"Puff" & "Puff2":
Default Action: Move to next item
Long Press: Select Item
"Sip" & "Sip2":
Default Action: Move to previous item
Long Press: Scanner Menu

Recipes:
Recipes were created to allow Mike to read e-Books and scroll up/down:
"Turn Pages" Recipe:
-"Puff" & "Puff2":
Default Action: Right to left swipe
Long Press: None
-"Sip" & "Sip2":
Default Action: Left to right swipe
Long Press: Exit Recipe
"Scroll" Recipe:
-"Puff" & "Puff2":
Default Action: Custom Gesture
(Gesture: Swipe from bottom to top)
Long Press: None
-"Sip" & "Sip2":
Default Action: Custom Gesture
(Gesture: Swipe from top to bottom)
Long Press: Exit Recipe

Scanning Style: Manual

Tap Behavior: Auto-Tap (0.2 seconds)

Always Tap Keyboard Keys: ON

Menu Items: The Scanner Menu was simplified to hide all items except Home and Recipes: When Mike used a long press of input "Sip" or "Sip2", only Home and Recipes was displayed in the menu.

Group Items: The Group Items feature was turned OFF per patient preference.

Large Cursor: ON

Cursor Color: Blue

Additional Comments:
-Patient could use the Telca-E to "jump" from his iPhone to his iPad (back and forth) by performing a long sip for a duration of 3 seconds. The same Switch Control settings were programmed on each device.
-Mike's most frequently used apps were organized along the top row of his Home Page from left to right: Phone, Messages, Safari, Mail. Scanning would start in the upper-left hand corner of his device screen with the focus on Phone. On his iPad, Messages was the first app.

Veteran's Highlight, cont...Mike's AT Configuration:

Figure 7. CJT ET Roller XL Floor Mount with A2 Adapter Plate (for connecting tray with Quick Connect Plate to CJT mounts). Enabling Devices 37" Easy Flex Sip-N-Puff Switch – Double Closure (Item #1700) with anti-contamination filters and extra straws. (Note: This pneumatic switch is a special order product that was designed for the Minneapolis SCI/D Center; it is also available in a 25" gooseneck length.)

Figure 8. Enabling Devices Easy Flex Sip-n-Puff Switch clamped to Mount'n Mover tray with switch inputs 'A' and 'B'.

Figure 9. Mono Male-to-Male 6 ft. cables provide ample length to reach from Tecla-E (on back of chair) to Mike when he is in bed using his floor mount configuration.

Figure 10. Mono cables are removed from inputs 'A' and 'B' of Tecla-E (when Mike is not using his devices in bed) and are secured to CJT floor mount pole. Additionally, Enabling Devices switch is removed from Mount'n Mover tray and clamped to adjustable arm of ET Roller.

AT PRODUCT REVIEW: The Noddle by Voxello

By Caroline Layden, SLP Graduate Clinician & Telina Caudill, MS, CCC-SLP, ATP



Overview: The Noddle is a switch activated device that can be used with a speech generating device (SGD) or directly connected to a nurse call button. The noddle offers four different sensor options: the J-Mic, Vent-Mic, J-Touch, and the Bed-Touch Sensor. The J-Mic activates the Noddle with the click of a tongue and is more of a traditional mic that is positioned near the patient's mouth. The Vent-Mic is another sensor which activates the Noddle via tongue click but is specific for intubated patients and is attached to a clip that fits around the vent tube. The J-Touch is a pressure sensor that requires minimal intentional gesture. The Bed-Touch is a proximity switch that activates the Noddle by moving a finger or some other extremity near the sensor, or activates it with a micro-light touch. The mics are designed to filter out all environmental noise to only focus and activate with a tongue-click. The Noddle also offers the Noddle Chat, a companion speech generating device. The Noddle Chat app has pre-programmed pagesets for patients of varying age and genders. The user can create custom pagesets of individualized vocabulary and includes a basic QWERTY keyboard for the creation of unique phrases.

Indications: The Noddle is indicated for patients unable to produce voice, due to either acute or chronic illness, that are unable to call for a nurse or use a traditional nurse call system and who may need access to an SGD. This may include patients that are intubated, on the vent or with limited UE function, dexterity, and strength who have problems with access (i.e., ICU patients, SCI, ALS, etc.).

Contraindications: As this device is designed to be highly sensitive to specific sounds, the patient should be cognitively intact to activate and utilize this device properly and purposefully. Moderate-severe cognitive impairment may limit an individual's reliable and consistent switch activation. Additionally, pt. must have adequate lingual strength and/or ROM. Residential patients who have permanent Yankauers (oral suction wand) positioned at bedside may experience unintentional activations as well as those who exhibit involuntary movement such as frequent coughing.

Affordability: The kit costs $2,538.72 and includes the Noddle, Samsung Tablet, GCX Clamp, Rehadapt Mount/Arm, Noddle Chat TM Software, One Noddle Mic Sensor, and a full one-year Warranty. Price may vary depending on number of items ordered, or if ordering only specific items from the kit. Additional sensors were estimated at roughly $60-70 an item. Training is an additional fee.

Compatibility: The Noddle Sensors are known to only be compatible with the Noddle; however, the reps reported that they MAY work with other systems that have standard switch ports. The Noddle will work with any nurse call system with a female plug.

Consumer Repairability: The user can reset the Noddle by unplugging and re-plugging it into the power source. To reset the Noddle Chat on the tablet, the user can restart the tablet. For advanced questions about support or repairs, the consumer may contact info@voxello.com for additional information.

Dependability: It is this writer's experience that the Noddle is fairly reliable. The J-Mic activated the Noddle given set number of tongue clicks with near consistency; however, there have been some issues with the Noddle activating from movement or sound of a Yankauer in proximity to the mic. Additionally, the Noddle must have a charge/power source to function.

Durability: The sensors appear to be durable although they cannot be sanitized and re-used among patients so each patient use/trial requires a new sensor. The Noddle is not water-resistant.

Ease of Assembly: Setup of the Noddle is quick and easy; as the device advertises it is "plug and play" technology. Simply mount Noddle on available IV pole or stand, plug the Noddle into the power source, connect to the appropriate system (e.g. a nurse call system or Noddle Chat), and attach the indicated sensor. Setting up the switch in the proper location requires minimal time and training for caregiver/staff. Below is a link to the setup video on Voxello's website.

http://voxello.com/wp-content/uploads/2018/03/02-Equipment-Setup-2.mp4

Ease of Maintenance: The Noddle is easily maintained. The sensors for the J-mic need to be changed and replaced with a new mic every few weeks for sanitation purposes per the rep; however, there are no updates that are required for the sensors or Noddle itself, (cont. page 15).

AT PRODUCT REVIEW: Sonocent Audio Notetaker , cont.

Effectiveness: This product is functional and effectively does what it claims to do, which is activating given a tongue click or minimal movement. The Noddle; however, was also observed to unintentionally activate for other environmental sounds such as the movement of a Yankauer. This writer has only trialed it with one patient and may have alternative outcomes with additional trials.

Flexibility: The Noddle is not extremely flexible in that it reportedly must be used with one of its own sensors and its SGD (rep is not familiar with compatibility with other systems); however, they have 4 varying sensors available depending on the patients' abilities. Additionally, the Noddle has 3 options for mic sensors including 1-, 2-, or 3- tongue clicks. The communication software itself, Noddle Chat, is highly customizable and can be edited to meet the needs of the individual. The Noddle Chat comes with a standard pageset, however, can be adjusted as necessary. The editing of pagesets would require direct selection for input and would likely need to be completed by someone other than the patient.

Learnability: Learning the switch activation can be mastered quickly and easily with little instruction, provided the patient is relatively cognitively intact. Learning the layout of the Noddle Chat and switch scanning modality may require additional training and practice.

Operability: The Noddle is very simple to activate across the different sensors. The Noddle Chat software is also easy to use once customized for the patient if needed.

Personal Acceptability: The Noddle would be used with a patient having difficulty making needs known such as calling the nurse or verbally communicating. It is more likely to be used within the medical setting which may make the Noddle more socially and personally acceptable.

Physical Comfort: There should not be any discomfort associated with use of the Noddle, as long as the switch and/or tablet are positioned in a location that supports comfort (i.e. not making the patient strain their head to see the tablet, or reach the sensors).

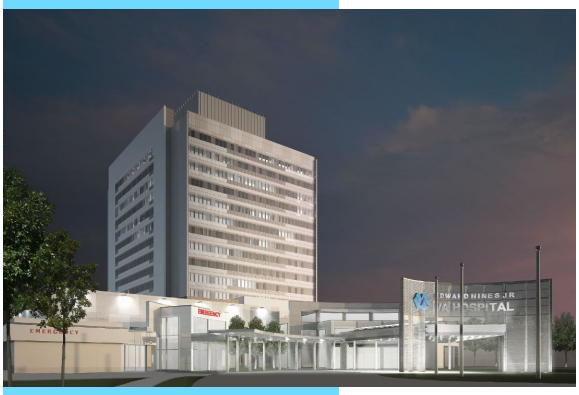
Portability: The Noddle requires some type of stand for mounting (e.g. IV pole, head board, etc.). It also requires an outlet for a power source. Both make the Noddle less portable for on-the-go use; however, if just transitioning between locations, the Noddle is easy to take down and setup again in a new location.

Securability: No security would be needed for use with nurse call system. Noddle Chat can be secured through use of a password on the Samsung tablet. Given dimensions and popularity of tablets, it is possible that an unsupervised tablet could be stolen.

Supplier Repairability: The supplier is readily able to provide suggestions and troubleshooting when using the device. If repairs or issues arise, contact info@voxello.com to discuss any issues. There is an additional fee for training included in the cost of the device. Videos are available for training purposes as well as simple, printed tutorials and cheat sheets.

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		**4**	
	Consumer Repairability		**4**	
	Dependability		**4**	
	Durability		**5**	
	Ease of Assembly		**4**	
	Ease of Maintenance		**5**	
	Effectiveness		**4**	
	Flexibility		**4**	
	Learnability		**4**	
	Operability		**5**	
	Personal acceptability		**5**	
	Physical Comfort		**5**	
	Physical Security		**4**	
	Portability		**4**	
	Securability		**5**	
	Supplier Repairability		**4**	
	Average		**4.3**	

Site Update...Hines VAMC



- Hired ATP certified Rehabilitation Engineer in May 2018
- Engineer has expanded AT services with SCI, ALS Clinic, HBPC and home visits, Powered Mobility Clinic
- Included Telehealth as an additional AT service
- Implementation of QUEST Outcome measure
- Currently a chair member of the Adaptive Sports Committee assisting our veteran Athletes
- Completed McGuire VAMC Assistive Technology Program
- Site is currently going for CARF accreditation
- Recently completed delivery, install, and training of 3D Printer (Stratasys F370)

Site Update...San Francisco VAMC

The San Francisco VA Healthcare System (SFVAHCS) continues to grow in meeting the demands for AT Services. Direct Scheduling is upon us! We continually work to get the word out and are ever striving to better bring these services closer to where our Veterans live. Over the summer we added an Occupational Therapy Wheeled Mobility Clinic Coordinator to our site. Welcome Leslie Mangiapani, OTR! She has been instrumental in improving and formalizing our processes. Where previously our AT services were primarily performed by several assistive technology enthusiasts, we are now cross training our newer therapists to increase exposure to relevant equipment. In the spirit of continued partnerships between Rehab and Prosthetic Services we are updating many of our current consult templates to standardize formats, decrease the need for clarifying information requests, and streamline the documentation process for therapists. Finally, with new resources we are working to expand our outreach efforts to our smaller Community Based Outpatient Clinics. Most staff are based at our main medical center, but with our new OT Wheeled Mobility Clinic Coordinator we are better able to bring expert Assistive Technology Services to our Healthcare System's smaller clinics. Overall this improves AT Services access for our Veterans by continually improving to bring these Services closer to their homes.

Nuts and Bolts…Where to put it all…a quick guide to mounting

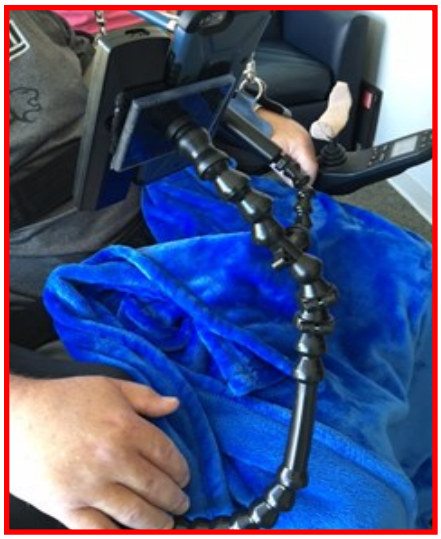
…John Miller, AT Rehab Engineering

For many veterans that rely on AT services, mounting the devices they use for computer access, phone access, communication, environmental control, or other technology is crucial. While it might seem like a pesky detail, good mounting can make it easier for caregivers to set up a device and for veterans to access the device. Without it, devices can go unused, failing to benefit a veteran's life as intended. AT relies on several mounting companies to get things mounted appropriately.

RAM Mounts is frequently used for holding personal devices where the veteran needs to access his/her smartphone or tablet device while in a wheelchair, scooter, or in bed. RAM Mounts offer many different components so that one can assemble the best solution, whether that's a circular clamp for attaching to tubes, a suction cup for attaching to flat surfaces, or an extra-long arm for closer access. Having a complete stock of RAM Mount components is very helpful when workshopping a mounting solution.

RAM Mount for cellphone

Another versatile mounting solution is LocLine, a series of small hose parts that can snap together to create mounting arms as long or short as you wish. LocLine offers various clamps, trays, discs, and device holders to be attached to LocLine hose. This solution is great for mounting switches, lightweight tablets, smartphones, and even long drinking straws. The hose can be easily bent and reconfigured to position the device as needed. While it can be used in a wheelchair or scooter, it tends to use it regularly for bedside mounting too.



LocLine for tablet on wheelchair

Mount 'n Mover is a heavy duty mounting solution, handy for smartphones and tablets but also for laptop computers if necessary. The company offers many different components so that their products can be easily mounted onto a power wheelchair for daily access or used on a table. They also have nice adjustability that can be set up with memory locks so that a mount can go between several different locked positions consistently, which especially eases the burden on caregivers when the veteran requires very precise mounting. The laptop tray is one frequently used, which can help veterans access a laptop while lying flat in bed.

One more mounting solution we rely upon is REHadapt. This company makes aluminum tubes, clamps, floor stands, and mounting brackets that are very durable and strong. If a veteran needs access to a heavy communication device (10lbs) while in his/her power wheelchair, REHadapt has components that can hold it reliably. Their components can be easily adjusted but also quickly locked down. REHadapt's floor stands are also excellent for mounting communication devices or computers and can be rolled around for use while in a wheelchair or in bed.

Mount 'n Mover

Sometimes the AT Rehab Engineering Team get to be creative when mounting things effectively, combining products or 3D printing components. Without these companies and their products, however, it would be a struggle to deliver optimal AT services to our veterans who rely on AT to go about their daily lives.

DEPARTMENT OF VETERANS AFFAIRS

Assistive Technology AT

AT EDUCATIONAL OPPORTUNITIES WITH EES

ASSISTIVE TECHNOLOGY MONTHLY EDUCATIONAL CALLS WILL RETURN IN EARLY 2019

VACO PM&R, PROSTHETICS AND SCI PLANNING 3 REGIONAL WHEELCHAIR TRAININGS ...STAY TUNED

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

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

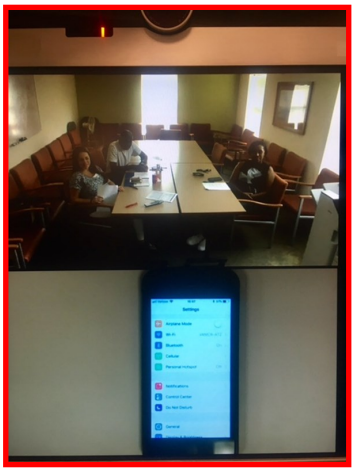
Site Update…Richmond

AT Outreach:

- Brian Burkhardt, Seth Hills & John Miller presented at the National RESNA Conference in July
- Seth Hills and John Miller both presented posters on an EADL case study and Gateway remote design
- Melissa Oliver presented at the Williamsburg TBI Conference as well as the INOVA Advances in the Management and Treatment of TBI Conference
- Seth and John Miller presented at the Williamsburg TBI Conference and the VISN 6 SCI Conference

AT Telehealth:

- Partnered with the Fayetteville VAMC to start a Smartsphone School via TeleHealth



- Provided telehealth to the homes in various states including Texas, North Carolina, Ohio and West Virginia

Other AT News:

- The AT Adaptive Sports program received a donation of a Paragolfer from two local country clubs. The Paragolfer will allow for increase independence in adaptive golfing.

- McGuire VA Medical Center partnered with Virginia Commonwealth University at their 3rd Annual HealthHacks focusing on Assistive Technology and Prosthetics on November 3-4, 2018. 10 Veteran and/or their rehabilitation therapists presented their challenges to more than 150 students. The AT team were mentors throughout the weekend and have plans to work with some of the student teams to further their solutions.