

PM&R Assistive Technology Programs

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New VA invention prioritizes communication without substituting safety

By Megan Kon

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AT Newsletter Edited by:
Melissa Oliver, MS OTR/L
Richmond AT Program
Coordinator

The Clear Talker mask is the latest invention from the Central Virginia VA Health Care System (CVHCS) meant to aid in communication between patients and staff. The device, a product of the hospital's Assistive Technology (AT) team, could revolutionize this key piece of peoples' everyday lives.

When masks became a requirement at all federal health care facilities, AT realized how much current surgical masks hindered communication.

"I noticed after wearing a mask all day that I would come home and my eyes were tired," said Melissa Oliver, occupational therapist and program coordinator of the AT team. "I had to rely on just my eyes to physically express my greeting."

John Miller, Brian Burkhardt and Seth Hills are rehabilitation engineers who work with Oliver. Their expertise ranges from vacuum forming, injection molding, laser cutting, electronics, 3D printing and a whole range of other valuable skills used to help Veterans return to a sense of normalcy.

"[The Clear Talker mask] may not make the cover of a fashion magazine," said Seth Hills who has developed several adaptive sports tools, custom mounting solutions and a novel wheelchair interface while with AT. "The fact that you can see each other's faces and catch those social cues is invaluable."

The Clear Talker meets FDA's requirements for surgical masks under the emergency use authorization for single-use surgical masks during the COVID-19 pandemic, says Burkhardt. When the pandemic is over, the Clear Talker will be submitted for approval to become the new surgical mask standard.

The Inspiration Behind the Mask

John Miller from the AT team was the inspiration behind the Clear Talker mask. He was born with progressive hearing loss in both ears.

"As a person with hearing loss, I do have hearing aids that allow me to hear sound," Miller said. "But I also rely on lip reading to fill in the blanks that I miss with my hearing. After the pandemic started, I was grateful everyone was wearing masks, but it made my day-to-day life harder."

Miller's personal experience inspired him to pursue an engineering degree that would allow him to directly help people with disabilities.



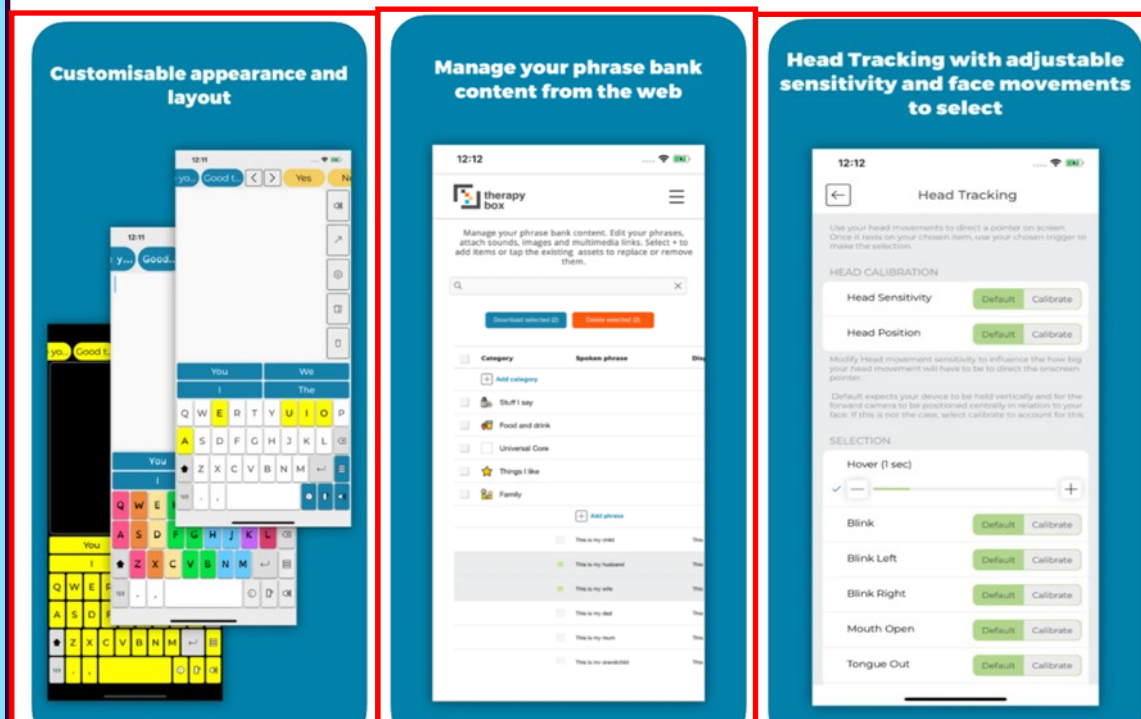
Seth Hills wearing the clear talker mask

The Design

"The first time the three of us had these masks on, I almost felt like a weight came off of my shoulders," said Burkhardt. "I felt lighter knowing the burden of (cont. page 9)"

AT PRODUCT REVIEW: Predictable 6.0 Text based AAC app v6 by Therapy Box Limited

By: Brianna Marchegiani, SLP Graduate Clinician
Telina Caudill, CCC-SLP, ATP (Supervisor)



only available on iOS Pro devices that have a facial recognition system. Predictable 6 supports Acapela and Model-Talker voices.

Consumer Repairability:

Issues with the app may be resolved by powering down the Predictable app, updating app, restarting device, referring to website (<https://therapy-box.co.uk/predictable>), or contacting the customer support team.

Dependability:

Overview

Predictable 6.0 is an iOS and Android text-based application that is designed for users who have speech impairments or have lost the ability to produce spoken language. The application allows users to type and store words, phrases, and sentences that can be spoken aloud with synthetic speech or a personalized synthetic voice. Predictable offers strong word prediction capabilities, learning from the user's input over time. Features that stand out compared to other TTS apps include a history and favorites strip, floor hold, chime alert and alternative access methods. Notable features of version 6 include a web platform for managing stored phrases and calling features. The update also allows for two devices to be logged in at the same time.

Indications

Predictable 6 is appropriate for those who are literate with speech impairment. Primary populations include ALS, Cerebral Palsy, head and neck cancer, TBI, vent dependence or any other individual with significant speech production impairments.

Users should be familiar with iOS and/or Android platforms and have adequate physical and sensory abilities for successful touch or adapted access. New call feature for iOS 13 and up indicated for users without landline phones.

Contraindications

Impaired vision, significant literacy/language/cognitive deficits and/or severely limited physical abilities. Additionally, users with limited tech experience and comfort may be inappropriate.

Criteria for Evaluation of Assistive Technology Device

Affordability:

159.99 for iOS. 174.99 for Android. Free two-week trial available upon email request at support@therapy-box.co.uk.

Compatibility:

Predictable 6 is compatible with iOS 10 or later and Android 7.0 or later. Predictable 6 is not currently available on Windows (Version 5 is). Head tracking is

The app has been reliable and dependable. No issues, glitches, or crashing have been experienced.

Durability:

Not applicable for the app; however, hardware is best protected with durable cases or mounting solutions. Backup feature beneficial to save customized settings and data.

Ease of Assembly:

Depending on user tech skill and physical abilities, assistance may be required for initial setup. For those competent tech users and intact UE function, the app is easily setup upon download.

Ease of Maintenance:

Normal mobile device maintenance including software and app updates.

Effectiveness:

The app is effective in accomplishing what it claims, which is using text words and (cont. page 3)

AT PRODUCT REVIEW: Predictable 6.0 Text based AAC app v6, cont.

phrases to replace or assist impaired verbal communication. Predictable helps to increase the user's independence by allowing them to 'speak' instead of having someone else speak for them and/or use other modes of communication. Floor hold, history and favorites strip, yes/no quick fires, and an alert chime are beneficial to maintain communicative independence and for rate enhancement.

Flexibility:

Predictable 6 offers three female voices and three male voices in English. Other languages available include Dansk, Deutsch, Spanish, French, Netherland, Norsk, Portugues, Finnish and Swedish. British, Irish, Australian, South African, and Scottish accents are available for free download. Speaking rate and pitch can be easily adjusted within the speech settings. Users can create custom pronunciations and abbreviations. The new history and favorites strip provide quick access to recents and frequently used messages. Modified visual settings include themes, color code buttons, font, font size, dexterity position, and home screen/keyboard layout. Predictable 6 comes with 5 different keyboard layouts. Phrases can be added and deleted within the app or by bulk within the web platform. Update offers Gesture Speak feature for ease of access and efficiency. Predictable 6 is compatible with alternative access methods including direct touch, screen tap, switch access, head tracking and scan & track. Bluetooth capable with success pairing to AbleNet Blue2 and Glassouse.

Learnability:

The updated app takes some time to learn as it is quite different from Version 5. The app icon is completely different, and I have had Veterans call unable to locate the app on their device as a result. With time and/or training prn; however, it can be mastered with ease. Within the app, help guides, online training and 21 video tutorials are available as well as direct contact by email to tech support.

Operability:

Easy to use and positive user feedback thus far.

Personal Acceptability:

Given the popularity and familiarity with iOS and Android devices, users tend to be more comfortable utilizing these devices in public and social settings vs a dedicated speech system.

Physical Comfort:

There should be no physical discomfort while using this device.

Portability:

iOS and Android devices are portable and lightweight for daily use for those with intact UE function. For users with physical impairments, mounting solutions are available.

Securability:

Access to the users iOS and Android devices can be secured with a password, thumbprint ID or facial recognition (dependent upon what device the app is installed). "Find my" is encouraged on both platforms in case of loss or theft.

Supplier Repairability:

Therapy Box website provides an email contact for technical support as well as FAQs and videos.

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
	Category		Score	
	Affordability		4	
	Compatibility		5	
	Consumer Repairability		4	
	Dependability		5	
	Durability		5	
	Ease of Assembly		5	
	Ease of Maintenance		5	
	Effectiveness		5	
	Flexibility		4	
	Learnability		4	
	Operability		4	
	Personal acceptability		4	
	Physical Comfort		5	
	Physical Security		5	
	Portability		4	
	Securability		4	
	Supplier Repairability		4	
	Average		4.47	

Site Update...San Antonio



- In June 2020, for the first time ever, the San Antonio VA added a Clinical (Rehab) Engineer to the Assistive Technology program. Welcome home Laura! Laura Hogan has worked for the VA since 2018 but most recently transferred to Audie L. Murphy VA hospital from Muskogee Oklahoma. Prior to her work in the VA, she was involved in prescriptions of complex wheelchairs for neurologically involved children. We feel fortunate to have her. Side note ... Thank you to the AT team at Richmond VA for providing a virtual internship to help provide our new Rehab Engineer with some clarity and vision.
- Effective June 1, 2020 E. Reuben Rodriguez assumed the role of A.T. Program Coordinator. Previously, Reuben had assisted PM&R service by acting in that role while primarily serving as Polytrauma Therapy Supervisor.
- Driver Training has received praise and commendation from Houston VAMC this year. With the retirement of the Houston VA Driver Trainer, the medical center has struggled to keep up with the demand for this unique service. During this void, San Antonio VA stepped in to help. As a result, eligible veterans have received needed services, who might otherwise have gone without a wheelchair van for passenger use. Assistance has been provided through virtual assessments and fittings, and eventual acquisition of wheelchair accessible vehicles.
- ALS Team members, Nicole Palmer (SLP) and Jennifer Otley (OTR) both earned the credentials of Assistive Technology Professional (ATP). That's not all. Evie Ehret (OTR) who is assigned to the Wheeled Mobility Clinic, recently earned the credentials of Seating and Mobility Specialist (SMS). Congratulations on big achievements!

American Legion Donates 50 iPads to the Minneapolis VA

COVID-19 has restricted how families and Veteran patients visit one another during extended stays. The American Legion has coordinated a \$18,000 grant under a Legion program called "Operation Comfort Warriors." The funds were used to purchase 50 iPads that Veteran patients can use to communicate with their families. The iPads will enable "virtual visitation" to patients and reflects the broader trend towards telehealth and using technology in VA treatment. MN American Legion Department Service Officer Jeremy Wolfstetter spearheaded the grant to make this happen for Veterans at the hospital during COVID-19.

The American Legion partnership with MVAHCS, in 2019:

- 247 regular volunteers
- 42,651 total hours
- \$27,573 monetary donations
- \$31,479 non-monetary donations
- 3 units volunteering

This donation was broadcasted by Reg Chapman from WCCO.



Legion Department Vice Commander Teresa Ash, Legion Department Service Officer Jeremy Wolfstetter, Minneapolis VAHCS Director Patrick Kelly.



Reg Chapman, WCCO, interviewing VA staff Benjamin Barrett and Angie Nichols via iPad.



Veteran and family member.



Site Update...Minneapolis

Since the start of the COVID-19 pandemic, the Minneapolis VA AT Program has been working to establish multiple initiatives to improve access to video communication for staff and patients. One of these initiatives - the Virtual Visitor Program - now has over 30 iPads in rotation throughout the inpatient wards of the medical center. Partnering with Voluntary Services has been essential in gaining access to generously donated funds and devices - such as the 50 iPads recently donated by the MN American Legion.

ASCIP Conference Pearl on Environmental Control Units

by Katie Powell OTR/L and Katie Schultz DPT, ATP

The Academy of Spinal Cord Injury Professionals held its first ever virtual conference in September 2020. James Gardner, OTR/L, ATP, gave an incredible presentation on the new Spinal Cord Injury rehabilitation unit at the Craig H. Neilsen Rehabilitation Hospital at the University of Utah. They had four basic tenets that guided the project development of their environment control units:

1. Think patient accessibility first
2. Think toward the future
3. Think communication and integration
4. Think redundancy.

The basic components include the latest Pro and Air versions of iPad, Crestron based lighting con-

trol, door openers for each inpatient room door, HVAC, TV/soundbar, window shades, Bluetooth, real-time audio/video streaming, nurse call, room clock, voice access elevators throughout the building, and a digital whiteboard that syncs with the EMR. Room control accessibility was achieved via direct touch, sip and puff, voice, or eye gaze. A few components are notable changes from the AutoMe that many VA SCI Centers utilize. The system was iOS/Crestron based instead of Windows based; it's compartmentalized so if one facet is outdated it can be replaced. It's integrated with their EMR so patients can ask questions via MyChart or the electronic

whiteboard allowing for communication with team members, it also automatically updates with their daily schedule. It also allows greater independence throughout the unit with room door and elevator access via voice control.

The Craig H. Neilsen Rehabilitation Hospital has raised the bar for hospital environmental control. If this has sparked your curiosity or if you have further questions—James Gardner is the point of contact and welcomes all communication at james.gardner@hsc.utah.edu.

FMA to Measure Wheeled Mobility Outcomes for Veterans with SCI/D

Collaboration between Department of Veterans Affairs and University of Pittsburgh

The Functional Mobility Assessment (FMA) outcome measurement tool is being implemented to measure wheeled mobility outcomes for Veterans served by the VHA Spinal Cord Injury and Disorders (SCI/D) System of Care. The project is supported by the Health Services Research and Development Service and the Center of Innovation for Complex Chronic Healthcare. The SCI/D National Program Office identified two priorities for which development and improved use of data can potentially enhance the Veteran experience and patient care: 1) the SCI/D annual evaluation; and 2) evaluation of wheeled mobility service delivery. The project aims to develop and improve the use of data, standardized across VHA SCI/D Centers, to enhance the Veteran experience and care, promote a learning healthcare system, and support innovations in care through research. Investigators will accomplish this through the development of a new nationally standardized and automated SCI/D Registry. The long-term goal of an outcome measurement system is to gain objective assessments of Veteran current circumstances, identify gaps in care, direct targeted interventions, monitor progress, and measure results. The FMA and a Uniform Data Set (UDS) will be integrated to assess satisfaction, participation, and health outcomes for mobility device users. The St. Louis VA SCI/D Center is the initial pilot site. Investigators from the Pittsburgh VA Center for Wheelchairs and Associated Rehabilitation Engineering and the University of Pittsburgh Department of Rehabilitation Science and Technology are collaborating with the St. Louis SCI/D team to design materials and refine data collection methods at baseline and follow up. The system will capture routinely collected information and Veteran-reported data in the SCI/D registry which will inform Veteran outcomes. While St. Louis is the first SCI/D Center to implement the FMA to measure wheeled mobility outcomes, the plan is to expand to additional sites with nationwide implementation across the SCI/D System of Care.

AT PRODUCT REVIEW: Vuzix M300 Smartglasses

By: Alicia F. Sullivan, M.Ed., OTR/L



Overview

The Vuzix M300 is a pair of professional augmented reality smartglasses (or smart glasses) made by Vuzix, an American multinational technology firm headquartered in Rochester, NY. Vuzix is a supplier of wearable display technology, virtual and augmented reality. The Company started with products for the military and U.S. Defense, but then began developing consumer electronics products in the 2000's. The M300 smartglasses were first introduced on the market in 2017. Although initial use was intended for the enterprise sector, the M300 smartglasses, opened up a whole new world of opportunities for individual consumer use. They offer hands-free mobile computing that will make multitasking easier than ever. It's like having another Smartphone that requires no hands. Features of the Vuzix M300 Smartglasses include:

- Multiple mounting options
- Ergonomically designed
- Water, dust, and dirt resistant
- Voice navigation
- 64 GB of onboard memory
- Programmable buttons
- Full-color display
- Wi-Fi
- Bluetooth
- Dual microphones
- Touchpad
- HD camera

Once Apps have been installed, the smartglasses can do the following and more:

- Take pictures
- Record videos
- World Wide Web searches
- Store images, video, & audio
- Barcode scanner

- Listen to music
- Calendar
- Reminders
- Calculator
- Clock, Alarms, Timer & Stopwatch

Imagine a completely "hands-free" digital world, where you can access information, collect data and much more, all while working your job, managing a household or completing every day activities. The Vuzix M300 Smartglasses Will Help You To Work Smarter.

Indications

This device is indicated for individuals with mild cognitive disabilities. Many features of the smartglasses are voice-controlled and require the user to have intact speech. When speech is not used, interaction is by finger tap, or swipe that requires fine motor control of the finger used.

Contraindications

This device is not indicated for individuals with moderate to severe cognitive impairments, who are unable to learn/retain the appropriate steps to manage the device independently, or for individuals with significant vestibular or visual deficits. Also, the screen is small relative to a smartphone and most features rely on the ability to read what is on the screen. A different device may prove a better option for individuals with above impairments.

Criteria for Evaluation of Assistive Technology Device Affordability:

The Vuzix M300 Smartglasses are avail-

able at the manufacturer price of \$999.

Compatibility:

The Vuzix M300 Smartglasses are compatible with VUZIX Basics Apps, a platform of Out-of-the-Box applications that are optimized for use with Vuzix smartglasses and Augmented Reality displays. These Apps are easy to use and quick. Bluetooth 4.0 makes connectivity with Android devices easy, but you can also connect wirelessly to the Internet with Wi-fi. It also gives a lot of versatility with voice, buttons, and a touch pad with gesture controls.

Consumer Repairability:

Vuzix M300 Smartglasses has a limited time (90 days, from date of purchase) warranty and must be sent back to the manufacturer, if repair(s) are needed. Some repairs may be subject to an out-of-pocket expense by the consumer.

Dependability:

The Vuzix M300 Smartglasses appear dependable, but continuous use would be recommended, to determine repeatable/predictable levels of accuracy.

Durability:

The product appears durable. The manufacturer indicates the device is "rugged", meaning it is water, dust, and dirt resistant. The manufacturer advises against dropping, striking or aggressive shaking of the device, as it may void the warranty.

Ease of Assembly:

The packaging of the Vuzix M300 is typical for a consumer electronic device. An individual must have fine motor control in the hands, in order to open the package and assemble the device. The Vuzix M300 Smartglasses Quick Start Guide v3.0 indicates 5 simple steps to assemble the device, but setup for opening a new account, (cont. Page 7)

AT PRODUCT REVIEW: Vuzix M300 Smartglasses, cont.

and downloading the App, may require assistance, depending on cognitive level of individual using the device.

Ease of Maintenance:

Normal maintenance (App updates, hardware updates, if needed, battery maintenance/charging) and ability to wipe down/clean (not saturate) device.

Effectiveness:

The device facilitates the memory for individuals with cognitive impairments, via hands-free mobile computing, making some daily tasks easier to complete.

Flexibility:

The device itself is one size, no customizations. As far as the applications, there are a few pre-installed applications such as Camera, Gallery and QR and Barcode Scanner, or applications can be managed from the Vuzix App Store. Applications not available on the Vuzix App Store can also be installed, but they must be downloaded from 3rd party sites and can then be pushed to the device by instructions provided on Vuzix.com.

Learnability:

Given that the device was originally designed for enterprise use, it is easy to learn how to use the basic functions, even for individuals with mild cognitive impairments, however, may require assistance for more complex functions, depending on the cognitive functioning of the individual using the device.

Operability:

For optimal ease of use, the M300 Smartglasses system offers multiple modes of interaction, including touch control buttons, touchpad or voice command, using built-in dual noise-cancelling microphones.

Personal Acceptability:

Generally, Users are comfortable using smart devices, however, this device does have a Star-Trek, new-age appearance and may cause discomfort wearing in public.

Will vary depending on individual using the device.

Physical Comfort:

The device is comfortable to wear, especially, if you are used to wearing glasses already. No discomfort or pain noted.

Portability:

The device is extremely portable, given the size of device and the fact that it's worn, on the face, not transported by hand. The primary battery pod, unfortunately, only lasts about 2 hours, per charge, however, there is Hot Swappable Battery or external battery, available to extend use to 12 hours.

Securability:

Very secure, as the device is worn on the face, like regular glasses, thus reducing the likelihood of theft or vandalism, however, with any smart device, there are risks of hacking.

Supplier Repairability:

There are no local suppliers or repair shops that can repair the Vuzix M300 smartglasses. They must be sent back to manufacturer.

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
Category			Score	
Affordability			2	
Compatibil-			4	
Consumer Repairability			2	
Dependabil-			3	
Durability			4	
Ease of Assembly			4	
Ease of Maintenance			3	
Effectiveness			3	
Flexibility			3	
Learnability			3	
Operability			3	
Personal acceptability			3	
Physical Comfort			4	
Physical Security			4	
Portability			4	
Securability			2	
Supplier Repairability			2	
Average			3.11	

Eye Gaze Controlled Wheelchair Drive System for Veterans with ALS

by Beau Bedore, SLP/ATP, Ezgi Tiryaki, MD, Erin Stern, BAN/CRRN, Ryan Bouslog, PT/ATP, & Kristin Scheel, OT/ATP

Introduction

The Minneapolis VA Spinal Cord Injury and Disorder (SCI/D) Center is a nationally recognized Center of Excellence by the Amyotrophic Lateral Sclerosis Association (ALSA). As a Center of Excellence, our program provides state-of-the-art, comprehensive interdisciplinary care for Veterans with ALS, a fatal, relentlessly progressive neurodegenerative disease that is twice as likely to occur in Veterans than in the general population. One of the most devastating consequences of ALS is the eventual loss of mobility. As the disease progresses, Veterans with ALS lose the ability to move their bodies and become dependent on a power wheelchair. While the loss of mobility has been an insurmountable barrier in the past, exciting new developments in the field of assistive technology (AT) show incredible promise for restoring mobility to Veterans with ALS. Recently, the Minneapolis VA ALS Team was awarded a grant by the Paralyzed Veterans of America (PVA) to study the impact of a revolutionary new eye gaze controlled wheelchair drive system commercially known as the Ability Drive. Our research team will investigate the impact of the Ability Drive on the ability of Veterans with ALS to operate their wheelchairs independently when all other options have failed.

Upon diagnosis of ALS, the majority of Veterans are still ambulatory and able to walk. As walking becomes more difficult, Veterans must transition to using a rollator (i.e., rolling walker). As walking continues to decline and the rollator is no longer meeting the Veteran's needs, a power wheelchair is required for maintaining mobility. A Veteran typically starts out driving their wheelchair using a joystick, but eventually must transition to an alternate drive system such as a head array, where the Veteran operates the wheelchair using head movements. During the final stages of the disease, operation of a wheelchair is no longer possible, leading to loss of mobility and ultimately death.

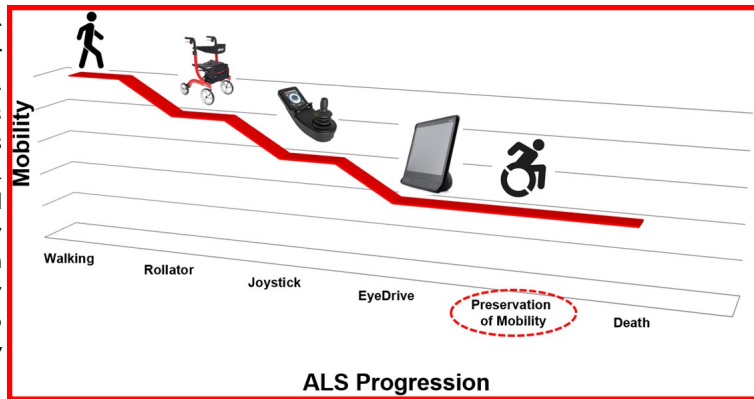
Now, for the first time, through the implementation of this eye gaze controlled wheelchair drive system, we can preserve independent mobility during the final stages of disease progression.

Background

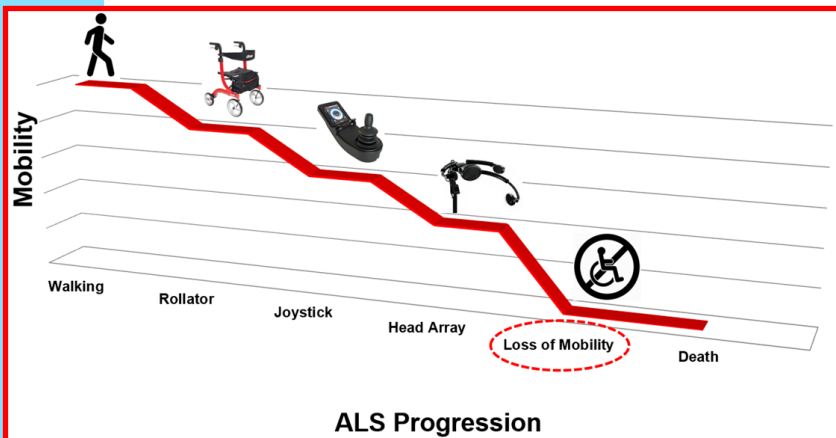
This breakthrough technology is the result of an innovative collaboration between Microsoft and Team Gleason. Steve Gleason, founder of Team Gleason and recent recipient of the Congressional Gold Medal for his advocacy and support of patients with ALS, is a former professional football player for the New Orleans Saints who retired from the NFL after being diagnosed with ALS in 2011. Shortly after being diagnosed, he founded Team Gleason as a non-profit organization to raise awareness and funding for patients with ALS and provide them with access to assistive technology. In 2014, Team Gleason issued a challenge to the accessibility community

to develop new technology that would help him and other individuals with ALS live more independently. Microsoft's Chief Accessibility Officer answered Team Gleason's challenge and coordinated a week-long "hackathon", bringing together a team of programmers to design a prototype for an eye controlled application that would allow Steve to drive his wheelchair using just his eyes. This collaboration resulted in Microsoft releasing the Windows Eye Tracking Application to the accessibility community as open-source code in an effort to promote ongoing innovation and led to the development of the world's first eye gaze controlled wheelchair drive system., (cont. page 9)

Preservation of Mobility



Loss of Mobility



In the past decade, Veterans were re-signed to accepting the eventual loss of mobility—in the face of an already devastating and fatal disease—when there were no other options.

Eye Gaze Controlled Wheelchair Drive System, cont.

1 Eye Gaze Device



2 Power Wheelchair



3 Ability Drive Interface & Software



Ability Drive System

The Ability Drive system consists of three components: The first component is an eye gaze device and mount (e.g., speech-generating device (SGD) that is used by individuals with ALS for

communication when they have lost the ability to speak or a tablet computer with eye tracking camera); the second component is a power wheelchair with an alternative drive controls port; and the third component is the interface kit and software made by Tolt Technologies (distributed through its distribution partners in the U.S.) that connects the eye gaze device to the power wheelchair and

turns the device into a virtual joystick. The patient with ALS is able to drive the wheelchair by selecting the direction of movement from an on-screen menu on the eye gaze device using his or her eyes.

New VA invention prioritizes communication , cont.



understanding was diminished with the ease of seeing the whole face.”

The clear masks on the market today have filters located directly in front of the mouth, which obstruct visibility of the mouth.

“The idea behind the Clear Talker was to create a product with the fewest manufactured parts, while still being able to read lips,” Burkhardt added, AT held focus groups to test the design to ensure it helped people read body language, facial expressions and improve the overall connection.

Oliver said she hopes to have all testing completed within a few weeks to begin distributing the masks to staff at the hospital.

To learn more about this highly specialized team, visit (Hyperlink) https://www.richmond.va.gov/services/Assistive_Technology_at_McGuire_VA_Medical_Center.asp

Veteran Success Story...Mike



Beau Bedore, SLP/ATP, Ezgi Tiryaki, MD, Erin Stern, BAN/CRRN, Ryan Bouslog, PT/ATP, Kristin Scheel, OT/ATP & Mike

This new technology is already making a difference in the lives of our Veterans with ALS: Mike, pictured here in the SCI/D Assistive Technology Lab with members of our ALS and AT Team, was diagnosed with ALS in 2017 and came to our ALS Center of Excellence in the spring of 2018. When we first met Mike, he was still able to walk short distances using a rollator, but our team anticipated his needs and ordered a power wheelchair as we knew it wouldn't be long before he could no longer walk. By September, he was dependent on his power wheelchair for mobility and could no longer use a joystick to drive his chair; just three months later, in December, he required an alternative drive system to operate his chair. Around this time, he lost the ability to speak and required a speech-generating device that he controlled with his eyes to communicate. By the spring of 2019 (just a year after Mike first came through our doors), he had lost all movement in both arms and hands and could no longer drive his wheelchair independently.

Mike was devastated by the loss of

mobility. He also became increasingly frustrated having to depend on his wife to operate his chair and had decided not to attend his Naval Academy Class Reunion—which was one of his most important Bucket List goals—because he did not feel comfortable having his wife operate his chair for him at the event. When our team learned about a new wheelchair interface kit that would connect Mike's eye gaze communication device to his power wheelchair and allow him to drive his chair with his eyes, we immediately contacted the vendor to obtain a trial kit so that we could evaluate the technology. After receiving the trial equipment, we spent several consecutive lunch hours in our Assistive Technology Lab learning how to connect and program the equipment and could often be seen driving around the SCI Center as we piloted the new system and learned how to navigate the on-screen virtual joystick. Within a week, our team reached the confident conclusion that this was just the solution we had been hoping

for and could restore independent mobility to Mike and other Veterans with ALS.

We scheduled Mike for a follow-up appointment that month and successfully configured his power wheelchair to allow him to drive with his eyes. Within minutes of configuring his chair, Mike was off and driving independently again!

Mike drove out the door of our building with a smile on his face as he left that day. Best of all, he became so confident driving his chair again that he decided to attend his Naval Academy Reunion and met his goal of revisiting his cherished academy and reconnecting with his life-long friends. This was truly a great moment for Mike and our team that worked so hard to make this patient-centered outcome possible.

Conclusion

Over the next year, our team will investigate the impact of the Ability Drive system on the independence and quality of life of Veterans with ALS, as well as the possible applications for individuals with spinal cord injuries who may also benefit from this technology. We have an amazing team of ALS clinicians and assistive technology specialists and are fortunate to have Dr. Ezgi Tiryaki as our principal investigator on this study. In closing, we want to impart these hopeful words from Steve Gleason: "Until there's a cure for ALS, technology is the cure." We certainly embody this philosophy in the work we do in our center and are committed to continuing to provide innovative, state-of-the-art technology as we strive to serve those who served.



Veteran Success Story...Nikeya



Nikeya S. Choate is a 42 year old, African American, female veteran, who was diagnosed with Multiple Sclerosis (MS) in 2007. She lives alone in a two-story, ramp accessible home with a first-floor set-up for bedroom and full bathroom. A caregiver helps her three days per week for three hours each day. Ms. Choate has had an increase in MS symptoms, causing difficulty accessing her home environment, essentially, leaving her bedbound, struggling with overall weakness, fatigue, spasticity, neurogenic pain and depression. Ms. Choate was referred to the Central Virginia VA Health Care System, Assistive Technology Program, through the Neuromuscular Disorders Clinic, for assistance.

Tell us about your experience with the Assistive Technology Program (Speech, driving rehab, OT/PT/RT).

My experience with the Assistive Technology has allowed me to have hope.

What challenges were you having that had you referred to the program?

I've gone through some major life changes with my MS. I'm in bed most of the day because I'm so weak and fatigued. I have trouble holding my phone because my hands don't work. My legs don't work either. I'm unable to

open my front door, so it stays unlocked, which makes me feel unsafe. I can't turn the tv or lights off and on, so I have to sleep with everything on. Have you ever tried sleeping with the lights on, all of the time? It's agony! It's more of an aggravation, but it really decreases your mood.

Who did you see?

AT: Alicia and Melissa. Rehab Engineer: John. Speech: Stacy. OT: Jenna. PT: Ricky. RT: Keshawn, and Krystal. KT Driver Rehab: Dave and Davin

What device/program did you get?

- Apple - 11-Inch iPad Pro
- Apple - Smart Folio for 11-inch iPad Pro
- Platform/Podium Desktop
- Livewire ECU/Home Automation System with assistive technology functions for mobile app and voice control.

How has the device(s) changed your life or impacted your life?

When your mindset is better, you just feel better. It might sound small for some people, but ALL of this has opened up a whole new world for me! The communication with the Assistive Technology Team has been great! You really feel that they care about you. They are changing lives everyday!!!

What activities (things) are you doing now that you were not able to do before?

I can get out of my bed, into my power wheelchair and go to my living room and look out my window. I can get to my kitchen, to fix something, instead of using the small fridge in my room. Getting to the internet was limited before, but now I can pay my bills online, look stuff up, and watch the Stock Market ("I'm learning about it"), using my iPad Pro. All of these ideas are popping into my head...I'm even journaling now, so I can write a book! I can call and talk to my grandmother, who is 80 years old, hands-free thanks to the stand that can hold my iPad Pro and my iPhone, at the same time! I can lock my doors, at night, and feel safe again

Would you say your quality of life has improved?

YES! Tremendously! I feel it's just the tip...not even fully there yet. I'm not seeing the end of the tunnel, but the silhouette of the city!



Several Veterans have expressed their appreciation for everything the Assistive Technology Team has done during this difficult time from providing telehealth to returning their call to creating a solution to their personal challenge...they say...



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 Updates... Richmond



COVID-19 RESPONSE

- ◆ Printed and assembled additional face shields for the facility
- ◆ Designed the Clear Talker-Mask

- ◆ Working through protocols and 3D printing nasal swabs for approval of usage

PRESENTATIONS

- ◆ Brian and Melissa presented a 3 part education series to VHA rehab staff on 3D printing in Rehabilitation Setting
- ◆ AT staff presented to several support groups virtually
- ◆ AT staff presented to OT and SLP students at state universities on AT devices viturally

TELEHEALTH

- ◆ Telehealth to home visits increased by 294% in fiscal year 2020.

CURRENT PROJECTS AND

PERFORMANCE IMPROVEMENT

- ◆ AT Catalogue is complete and plan to launch in January 2021
- ◆ AT Program is preparing for additional 3D printers and other additive manufacturing equipment

Site Updates...Tampa

OUTREACH

- ◆ E-consults 10
- ◆ Participated in a multi-disciplinary conference call with Cleveland VA for Q&A for ALS Clinic

PRESENTATIONS

- ◆ Ursula presented introduction to AT to OT residents at JAHVA.

TELEHEALTH

- ◆ Telehealth to home visits for FY 2019 to date total 622

CURRENT PROJECTS AND PERFORMANCE IMPROVEMENT

- ◆ Ongoing additions to the AT YouTube playlist training resource library; now totaling 22
- ◆ Ongoing preparations for our 4th CARF Survey December/January 2021
- ◆ AT Mentoring with New Orleans and Mississippi

