

Technology and Disability Policy Highlights

WINTER ISSUE: December 2017 – January 2018

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Overview

The turn of the year saw much regulatory activity concerning emergency communications. Given the intensity of natural disasters in 2017, including the hurricanes and wildfires, concentrating efforts on identifying emergency communications access barriers and advancing rulemakings that address the same is apropos. To that end, the FCC (Federal Communications Commission) released the [*Hurricane Response Public Notice*](https://apps.fcc.gov/edocs_public/attachmatch/DA-17-1180A1.pdf) [**17-344**] requesting stakeholder input about the effectiveness of emergency communications technologies, procedures, and policies that were employed in response to hurricanes Harvey, Irma, Maria, and Nate. The information will identify trends in communications access issues and where improvements to the systems can be made. Of note, the FCC poses a series of questions regarding the Communications Service User Experience, to collect data on the accessibility of emergency alerts for people with disabilities, issues related to disrupted cell coverage, and 9-1-1 access.

Regarding the latter, in efforts to address 9-1-1 access disparities, the FCC is moving forward with the transition from legacy TTY (teletype) to real-time text. RTT, when available on mobile devices and adopted by call centers, will provide people with hearing and speech disabilities a way to communicate with 9-1-1 operators expediently and conversationally (i.e., more equivalent to a voice call). The FCC’s [*Final Rule*](https://www.gpo.gov/fdsys/pkg/FR-2017-12-21/pdf/2017-27502.pdf) [**16-145; 16-169**] regarding TTY to RTT transition guidance was published in the Federal Register, thereby receiving approval of the U.S. Office of Management and Budget (OMB). The Final Rule covers information collection requirements, waiver conditions and reporting requirements, and consumer outreach guidelines.

The Wireless Emergency Alert (WEA) system made headlines in the wake of the California wildfires as many residents questioned why they did not receive a mobile alert. Emergency managers across the nation have stated a hindrance to their adopting WEA centers on issues with geotargeting. In response, FCC Chairman Ajit Pai released the [*WEA Second Report and Order and Second Order on Reconsideration*](ttp://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0109/DOC-348630A1.pdf) [**15-91; 15-94**] proposing to improve geographic targeting of alerts to raise community awareness and encourage the use of WEA in crisis situations. The WEA Second Report and Order mandates that wireless providers deliver emergency alerts to targeted geographic areas, with no more than a 0.1-mile overlap over non-crisis coverage areas. The proposal also aims to help first responders more accurately and quickly target messages to populations in the impact zone through the improved geographic targeting. Many more activities of the FCC, Congress, and the U.S. Department of Justice are detailed in the newsletter.

This issue also includes news about smart glasses, 3D printed teaching aids, Seeing AI, a star wars inspired prosthetic hand, a “wide-eyed” robot, and more.

**Click the headings below to link directly to a particular section.**

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Legislative Activities

# Congress Passes H.R. 2331 Mandating Mobile Friendly Web Design

January 10, 2018 - The 115th Congress has passed the *Connected Government Act* [**H.R. 2331**] to increase mobile access to federal websites. Many people rely on their smartphones and other devices to connect to federal websites for vital information. The H.R. 2331 would require federal agencies to ensure that websites intended for public use are mobile friendly to increase ease of use when opened on smartphones, tablets and, other mobile devices. This bipartisan piece of legislation codifies an existing 2016 memorandum from the U.S. Office of Management and Budget. The intended impact of this legislation is to increase public engagement of federal agencies’ websites and information. [Source: U.S. Congress]

#### Additional Information:

[H.R.2331 - Connected Government Act](https://www.congress.gov/bill/115th-congress/house-bill/2331/text)

[<https://www.congress.gov/bill/115th-congress/house-bill/2331/text>]

Regulatory Activities

# B-L-U Alert Code to Improve Safety for Law Enforcement Officers

January 18, 2018 - The Federal Communications Commission (FCC) published new rules for the Emergency Alert System (EAS) and Wireless Emergency Alerts (WEA) that are effective January 18, 2018. The regulation stipulates that a new event code, B-L-U, will be integrated into EAS on January 18, 2019, and into WEA on July 18, 2019. The B-L-U code will “allow alert originators to issue an alert whenever a law enforcement officer is injured or killed, missing in connection with his or her official duties, or there is an imminent and credible threat to cause death or serious injury to law enforcement officers.”

The EAS system was established on January 1, 1997, and serves as a national warning system to alert the public of local weather emergencies. It is coordinated jointly by FEMA (Federal Emergency Management Agency) and the FCC and can deliver messages via AM, FM, broadcast television, and cable television. In a statement by FCC Chairman Ajit Pai, the B-L-U alert is similar to Amber alerts and will allow “state and local authorities to send warnings over broadcast, cable, satellite, and wireline video networks to quickly warn a community of imminent threats to police.”

For more information and the full regulation document, please visit <https://www.gpo.gov/fdsys/pkg/FR-2018-01-18/html/2018-00595.htm>. [Source: Federal Register]

#### Additional Information:

Blue Alert EAS Event Code

[<https://www.gpo.gov/fdsys/pkg/FR-2018-01-18/html/2018-00595.htm>]

# Proposed Rules to Improve Geographic Targeting of Emergency Alerts

January 8, 2018 - The FCC has been working to improve its response and readiness to wireless emergency alerts (WEA). To this end, FCC Chairman Ajit Pai has released the *WEA Second Report and Order and Second Order on Reconsideration* [**15-91; 15-94**] proposing to improve geographic targeting of alerts to raise community awareness and encourage the use of WEA in crisis situations. Speaking of the proposal, Chairman Pai said, "When disaster strikes, it’s critical that Americans receive the information they need to stay safe. During the last few months, we’ve seen that Wireless Emergency Alerts are an important tool for quickly delivering warnings in times of emergency. Whether you are in the path of a hurricane or a wildfire, you can receive life-saving alerts on your mobile device.”

The WEA Second Report and Order mandates that wireless providers deliver emergency alerts to targeted geographic areas, with no more than a 0.1-mile overlap over non-crisis coverage areas. Further, all emergency alerts must be retrievable and remain on the consumer device for at least 24 hours. This improved geographic targeting will take effect on November 30, 2019. The WEA Second Order on Reconsideration mandates that Spanish-language emergency alerts be expanded from 90 characters to contain up to 360 characters, with a compliance deadline of May 1, 2019.

The proposal also aims to help first responders more accurately and quickly target messages to populations in the impact zone through the improved geographic targeting. On this need, Chairman Pai said, "The most important feature of this proposal is the requirement that wireless carriers participating in the Wireless Emergency Alert program deliver alerts in a more geographically targeted manner. Emergency officials across America have told the FCC how important it is to better pinpoint these alerts to impacted communities.” Further details on this proposal will be discussed at the Commission’s January 30th Open Meeting. A draft of the proposal is available at http://transition.fcc.gov/Daily\_Releases/Daily\_Business/2018/db0109/DOC-348630A1.pdf.

Additionally, on January 12, 2018, the effective dates for the WEA Final Rule concerning alert gateway logging requirements. All providers that participate in WEA are required to keep a log of timestamps for when the alert gateway received a WEA message, if and when it was transmitted or rejected, error codes of rejected messages, and active and canceled messages. These logs should be made available, upon request, to the FCC and emergency management agencies. These requirements intend to establish a baseline by which the system can be evaluated and bolster the confidence of emergency managers that WEA is a reliable method for reaching the public. [Source: FCC and the Federal Register]

#### Additional Information:

[Chairman Pai Proposes Improvements To Wireless Emergency Alerts](https://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0108/DOC-348595A1.pdf)

[FCC Fact Sheet and Draft Proposal](http://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0109/DOC-348630A1.pdf)

[ttp://transition.fcc.gov/Daily\_Releases/Daily\_Business/2018/db0109/DOC-348630A1.pdf]

[Final Rule Concerning CMS Alert Gateway Logging Requirements](https://www.gpo.gov/fdsys/pkg/FR-2018-01-12/pdf/2018-00463.pdf)

[https://www.gpo.gov/fdsys/pkg/FR-2018-01-12/pdf/2018-00463.pdf]

# Denver to Improve Accessibility to County and City Services

January 8, 2018 – Working under their Project Civic Access initiative, the Department of Justice reached an agreement with the city of Denver regarding their ADA compliance efforts. According to Acting Assistant Attorney General John Gore of the Civil Rights Division, “Denver has committed to ensuring all of its residents, including persons with disabilities, have access to county and city services and programs.” The agreement reached requires Denver to improve accessibility in public buildings that have been deemed inaccessible. Denver will continue to survey buildings that were not previously surveyed by the Department to find all areas where improvements are required. The city will continue to provide accessibility of its emergency operations plan. Sign language interpreters, Relay Colorado, and text-to-911 are several intended strategies that have been identified to facilitate communications with people with hearing disabilities. [Source: DoJ]

Additional Information:

[Justice Department Reaches Agreement with Denver to Improve Accessibility](https://www.justice.gov/opa/pr/justice-department-reaches-agreement-denver-improve-accessibility)

[<https://www.justice.gov/opa/pr/justice-department-reaches-agreement-denver-improve-accessibility>]

# FCC Grants Final Waiver to Video Game Developers

December 26, 2017 – The FCC has granted the Entertainment Software Association (ESA) a final one-year extension of the Commission’s accessibility requirements for Advanced Communications Services (ACS) in video games. The regulation will require communications over voice and text in video games to be made accessible to people with disabilities. The ESA has argued successfully in the past that voice and text communications are not central to the video games functionality, and that implementing any meaningful accessibility features would be difficult and costly, as video games are played on a variety of systems and screens. Since 2012, these waivers have been narrowing to include less of the video game industry, and the ESA feels that given one more year, video game developers will be able to meet the standards set by the regulations. The ESA has stated that this will be the last requested waiver. Companies must comply with CVAA regulations after the waiver expires on December 31, 2018. [Source: FCC]

Additional Information:

[FCC Grants Final Waiver to Video Game Developers](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1226/DA-17-1243A1.pdf)

[<http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1226/DA-17-1243A1.pdf>]

# Transition from TTY to Real-Time Text Technology

December 21, 2017 – The FCC’s *Final Rule* [**16-145; 16-169**] regarding legacy TTY (teletype) to real-time text (RTT) transition guidance was published in the Federal Register, thereby receiving approval of the U.S. Office of Management and Budget (OMB). The Final Rule covers information collection requirements, waiver conditions and reporting requirements, and consumer outreach guidelines. Regarding the latter, wireless providers and manufacturers that elect to transition from TTY communications via the public switched telephone network (PTSN) to RTT communications transmitted via a wireless internet protocol-based network are encouraged to:

* Develop educational materials about their RTT transition timeline
* Conduct online outreach using accessible formats
* Standup a hotline to answer consumer questions regarding RTT service
* Train staff on RTT details so that they are able to address consumer issues; and
* Ensure that all outreach efforts employ the use of accessible formats including American Sign Language interpreted, captioned and video described video content, Braille, large print, electronic and print materials, among other appropriate formats and mediums. [Source: Federal Register]

Additional Information:

[Final Rule – Transition from TTY to RTT](https://www.gpo.gov/fdsys/pkg/FR-2017-12-21/pdf/2017-27502.pdf)

[<https://www.gpo.gov/fdsys/pkg/FR-2017-12-21/pdf/2017-27502.pdf>]

# University of Vermont Medical Center to Improve Disability Accommodations

December 20, 2017 – Following the filing of two separate complaints from patients of the University of Vermont Medical Center, the Office for Civil Rights (OCR) began a compliance review of adherence to relevant sections of the Rehabilitation Act, the Affordable Care Act, and the Americans With Disabilities Act. Both complaints state that there was inadequate provision of auxiliary aids and services to effectively communicate with the medical staff and understand the treatments being prescribed. The two complainants are deaf and communicate using American Sign Language, and believe that appropriate accommodations were not provided. Following the review, OCR Director Roger Severino said that “If patients cannot communicate effectively with medical providers, their access to health care will suffer.”

The federally funded University of Vermont Medical Center has reached a three-year agreement with the U.S. Department of Health and Human Services (HHS) Office for Civil Rights (OCR), the U.S. Department of Justice, and the U.S. Attorney’s Office for the District of Vermont (DOJ). In response to issues brought to light from the complaints and compliance review, the Medical Center will pay the complainants $20,500 in damages. To address the needs of future patients, the Medical Center will notify patients of available auxiliary aids and services, create a procedure for patients to leave feedback, provide additional training to its employees, and update policies as issues arise. During the three years of the agreement, the OCR and the U.S. Attorney’s Office will continue to review changes being made at the Medical Center to ensure the Center is improved to acceptable standards. [Source: DoJ]

#### Additional Information:

[OCR works with DOJ to ensure federally funded medical center provides communication services for deaf and hard of hearing patien](https://www.hhs.gov/about/news/2017/12/20/ocr-works-with-doj-to-ensure-federally-funded-medical-center-provides-communication-services-for-deaf-and-hard-of-hearing-patients.html)t

[<https://www.hhs.gov/about/news/2017/12/20/ocr-works-with-doj-to-ensure-federally-funded-medical-center-provides-communication-services-for-deaf-and-hard-of-hearing-patients.html>]

# FCC and FTC Memorandum of Understanding on Restoring Internet Freedom

December 14, 2017 - In a Memorandum of Understanding (MOU) introduced into the FCC and the Federal Trade Commission (FTC) on the Restoring Internet Freedom Order (WC Docket No. 17-108), Chairman Ajit Pai and Commissioners Michael O'Reilly and Brendan Carr voted in favor of the proposal, while Commissioners Mignon Clyburn and Jessica Rosenworcel were in opposition. Under this new Order, broadband internet will no longer be classified as a Title II service, and regulations applied under that classification via the previous Net Neutrality rules will be removed. Under the previous regulations, broadband companies were restrained from blocking or throttling the speed of content delivery. Under the new regulations, these restrictions have been removed, and home and mobile internet service providers (ISPs) will no longer have greater disclosure requirements about hidden fees, data caps, and differential connection speed by price. The FCC and FTC will now have shared jurisdiction over internet service providers (ISPs), and states will not be able to override the new Order with legislation of their own. [Source: FCC]

#### Additional Information:

[\*Draft\* Restoring Internet Freedom FCC-FTC Memorandum of Understanding](https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1211/DOC-348192A1.pdf)

[<https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1211/DOC-348192A1.pdf>]

# Early Findings from 2017 Nationwide EAS Test

December 7, 2017 - The FCC, in coordination with FEMA and the NWS, conducted a 2017 Nationwide EAS Test that included participating companies and providers ranging from television and radio broadcasters to cable and wireline video systems.  The recently published docket detailing findings from 2017’s EAS test stated, “Overall, performance appears to have improved over what we observed in the 2016 nationwide EAS test.”

A similar number of participants were surveyed in 2017 (19,069) as compared to 2016’s EAS test (20,389). The system reportedly delivered the alerts successfully to 95.8% of participants, a slight improvement from 2016’s 95.4% mark. Participants retransmitted the test alert with a higher success rate (91.9%, up from 85.8%). Among participants that filed Form Three, in which complications and means of communication were recorded, there was roughly an 8% decrease in reported complications in receiving and retransmitting the alert. Other encouraging statistics include the 207 participants that retransmitted the IPAWS-generated Spanish alert version, a significant increase from the 75 retransmissions in the 2016 test. More data will be released by the Bureau as the findings are analyzed.

The Public Safety and Homeland Security Bureau continues to review the 2017 nationwide EAS test data and will take further action to improve the EAS during 2018. [Source: FCC]

#### Additional Information:

[Public Safety and Homeland Security Releases Its Initial Findings Regarding the 2017 Nationwide EAS Test](https://apps.fcc.gov/edocs_public/attachmatch/DA-17-1184A1.pdf)

[<https://apps.fcc.gov/edocs_public/attachmatch/DA-17-1184A1.pdf>]

# Communications Service User Experience During 2017 Hurricane Season

December 7, 2017 – Following the particularly devastating 2017 hurricane season, the FCC is requesting stakeholder input about the effectiveness of emergency communications technologies, procedures, and policies that were employed in response to the hurricanes Harvey, Irma, Maria, and Nate. The information will identify trends in communications access issues and where improvements to the systems can be made. The *Hurricane Response Public Notice* [**17-344**] asks a series of questions regarding communications infrastructure, any issues encountered with the FCC’s response and support, the communications service providers experience, and the user experience. Questions asked regarding Communications Service User Experience include the following:

* How widespread and effective was the use of Emergency Alert Systems (EAS) and Wireless Emergency Alerts (WEA)?
* Could 911 services be reached through voice and texts?
* Were communications made available to people with disabilities?
* Were consumer complaints responded to quickly and appropriately?
* How did Public Safety Answering Points (PSAPs) function during the storms?
* Could first responders use their mobile networks and personal devices during the storms?
* How did the Government Emergency Telecommunications Service (GETS) and Wireless Priority Services (WPS) affect the performance?
* Was there any involvement in the disaster response process with amateur radio operators?

If any of the mentioned communication channels were not functioning to your complete satisfaction, the FCC would like to know if you have ideas or specific strategies on how these areas can be improved. The reply comment period is open until February 21, 2018. To submit comments go to <https://www.fcc.gov/ecfs/filings>. In the “Proceedings” box of the form enter the docket number, “17-344.” Your prepared response can be uploaded via this form. Any member of the public is welcomed to provide input, from individual citizens to industry giants. [Source: FCC]

Additional Information:

[Public Safety and Homeland Security Bureau Seeks Comment on Response Efforts Undertaken During 2017 Hurricane Season](https://apps.fcc.gov/edocs_public/attachmatch/DA-17-1180A1.pdf)

[<https://apps.fcc.gov/edocs_public/attachmatch/DA-17-1180A1.pdf>]

Wireless RERC Updates

# Technology and Disability Policy Highlights 2017 Top 25 Topics

Image shows the top 25 key words with those that appeared with greater frequency being larger than words that appeared less frequently.  In descending order, the words are:
Disabilities 
Wireless
Information
Technology
FCC
RERC
Accessibility
Emergency
Communications
Government
Policy
Education
Research 
Service(s)
National
Devices
Health
Assistive
Alert(s)
ADA
Digital
Mobile
Design
Internet
Technology and Disability Policy Highlights (TDPH) editors covered a wide range of disability access issues in 2017. The graphic word cloud depicts the twenty-five most used keywords in 2017. The top five words by frequency in the 2016 and 2017 TDPH’s were the same, varying only slightly in incidence and order. Thetopic that experienced the greatest shift from both years was “community,” shifting from 17th in 2016 to 36th in 2017. Compared to 2016, 2017 content featured more health, assistive technologies/services, American with Disabilities Act (ADA), design, government, and education subject matter.

The top five most cited words for 2017 were: disabilities, wireless, information, technology, and FCC. Under the “disabilities” keyword, the most covered disability type was vision, followed by deaf, mobility, and cognitive. A sampling of the disability-type-specific coverage included WayBand, a running assistant for users that are blind; smart glasses as an object and print-reading technology for people that are blind; telecommunications relay services; American Sign Language (ASL) interpreted emergency messages; Ava App, that facilitates group discussions for people who are Deaf or hearing impaired; and statistics on smartphone use by adults with physical, sensory and cognitive disabilities.

Improvements in sensor and wearable technology and internet communication this past year are rapidly accelerating the pace of research, development, and deployment. Content covered under the wireless, information, technology, and FCC topics reflect these advancements, covering artificial intelligence (AI), augmented reality (AR), virtual reality (VR), the internet of things (IoT), 3D printing, robotics, wearables, emergency communications access, and autonomous vehicles. In 2017, Nucleus 7, the first cochlear implant, fully with the iPhone, was approved by the U.S. Food and Drug Administration. A Google Glass app was created to work as a communication assistant for children on the autism spectrum. Sign-To-Text, a prototype Smart Sign Glove, is advancing the goal of bridging the communication gap between people who primarily communicate using ASL and people that use spoken languages. Also, 3D printed models were used as educational aids for students with cognitive and vision disabilities.

Augmented reality and virtual reality technology continue to advance at a prodigious rate, with new technologies allowing for great increases in resolution, computational power, and portability. Relúmĭno, launched in 2017, is a Samsung Gear VR app that pairs the headset with the user’s smartphone cameras to make images more accessible through magnification, color contrast adjustment, outlining objects, and screen filtering. Microsoft’s second HoloLens featured a built-in AI co-processor to make mixed-reality smarter. Apple announced its new augmented reality platform, ARKit, a free programming framework that lets developers and consumers create their own augmented reality applications. 2017 also saw virtual reality used in immersive digital therapy to reduce phantom pain in people with spinal cord Injuries.

Artificial intelligence boomed last year like few other areas in tech, with big tech companies like Google, Apple, Microsoft, and Facebook having poured tons of money into the AI field. Labs and universities published papers at a higher volume in 2017. Companion robots that science fiction has promised have finally hit the U.S. Leading the way are robot assistants, like Mayfield Robotics’ Kuri. Kuri is a companion robot that can offer users a variety of personalized reminders and communication options, such as home security surveillance and a virtual assistant for various tasks through a small, human-centered form factor and interface.

The legislative and regulatory activities were responsive to many of these advances in technology. Throughout 2017, the FCC sought stakeholder input on regulatory, technical, and consumer issues related to the fusion of broadband and health care delivery,access to 9-1-1, enhancing emergency alerts, hearing aid compatibility of wireless devices, and of course, their decision to partially repeal the 2015 Open Internet Order, reclassifying Internet once again as an information service. In the legislative arena, there was movement on autonomous vehicles legislation, and many states and organizations have emphasized the technology's potential to improve independent transportation access for people with disabilities and older adults.

Also, federal agencies advanced the modernization of digital policy and infrastructure in 2017, including changes to regulations affecting the delivery and specificity of alerts in crisis situations, and promotion of digital inclusion of minority, rural and disability populations. These include transitions from legacy text telephone communications (TTY) to Real-Time Text (RTT), new guidelines for emergency alert systems, and mobile coverage across rural America. One challenge the FCC addressed was the granularity at which emergency alerts could be targeted geographically. Newregulations focus the precision with which emergency alerts must be transmitted. 2017 also marked the 27th anniversary of the American with Disabilities Act (ADA). The FCC and the Department of Justice (DOJ) released information on how they are guiding policy and enforcing laws to advance a more inclusive society, further outlining agencies’ roles in complying with the ADA and outlining FCC initiatives that advance information and communications access by people with disabilities. Moreover, at long last the Section 508 Information and Communication Technology (ICT) Standards and Guidelines (ICT-Refresh) were published in the Federal Register, starting the compliance clock for the federal agencies to make their electronic and information technologies and services accessible to people with disabilities.

2017 was a seminal year for accessible technology and policy, with many technologies introduced and refined, in addition to major policy changes that will deeply influence how we communicate and access information digitally moving forward. These technologies will undoubtedly have large effects on the technological landscape of 2018 and onwards. No matter the shifting landscape, the Wireless RERC will continue to analyze and present the policy implications of an increasingly connected world, and describe technologies’ effect on our daily lives. Increasingly, smart devices can sense, collect, store, and often act upon, or induce user actions based on data received and displayed, bridging physical and digital environments and allowing for innovative approaches to health promotion, community integration, and independent living. With the massive data exchanged via Internet-connected devices and their rapidly growing popularity, 2018 should continue the trend of national debate of the consideration of the health and social implications of this research. The Wireless RERC will continue our work in examining how people with disabilities, and by extension society, can benefit from technology in 2018 and onwards.

We would like to thank our community of readers from across the U.S. and around the world. The TDPH reaches 882 subscribers directly via email and extends to a much larger audience through social media. We engage over 890 members in our LinkedIn Group ([ATPG](https://www.linkedin.com/groups?gid=1854667&trk=my_groups-b-grp-v)), 1124 followers on Twitter ([@CACPGT\_wRERC](https://twitter.com/CACPGT_wRERC)), and 337 fans on Facebook ([WirelessRERC](https://www.facebook.com/WirelessRERC)). If you have not already, please join us on social media. None of this would be possible without you, our readers. You may receive this newsletter directly as a monthly digest, or as-it-happens updates on social media. Either way, we appreciate your being a part of our network.  As always…thanks for reading and sharing!

# Take and Share the Survey of User Needs

The Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC) announces the launch of its updated Survey of User Needs (SUN). The SUN is the Wireless RERC's cornerstone survey on wireless technology use by people with disabilities. It has been completed by over 7,500 consumers with disabilities since it was first launched in 2001.

This latest version represents the 6th version of the survey, which is updated periodically in response to changes in technology. In addition to questions about cell phone and tablet use, this latest version of the SUN collects information about wearables, "smart" home technologies, and other next-generation wirelessly connected devices. User responses will help designers and engineers make updated wireless devices and services for people with disabilities. Data from the SUN also provide important information to the wireless industry, government regulators, and other researchers to help them make wireless technology more accessible and more useful to people with all types of disabilities.

If you have a disability and have not already taken it, please consider taking this survey. If you know someone who has a disability, please forward the survey to them.

[Take the Survey](http://b.gatech.edu/2yvCHnz) and [Share the Survey](http://www.wirelessrerc.gatech.edu/wireless-rerc-launches-latest-survey-user-needs)

#### Additional Information:

[Take the Survey](http://b.gatech.edu/2yvCHnz)

[<http://b.gatech.edu/2yvCHnz>]

[Share the Survey](http://www.wirelessrerc.gatech.edu/wireless-rerc-launches-latest-survey-user-needs)

[http://www.wirelessrerc.gatech.edu/wireless-rerc-launches-latest-survey-user-needs]

Other Items of Interest

# 2018 Consumer Electronics Show Highlights Tech that Enables Independence

January 2017 – Hosted by the Consumer Technology Foundation (CTA) foundation, the Consumer Electronics Show (CES) 2018 included technologies and ideas related to accessibility for seniors and persons with disabilities. Regarding the yearly event, Steve Ewell, executive director of the CTA Foundation, said “Whether it is in IoT, smart homes, robotics, health and fitness, vehicle tech, smart cities or any of the other innovative, breakthrough technologies at CES, we’re excited to see technology enabling independence for people of all ages and abilities across the show.”

Two new panels focused on:

* **Living Independently in Smart Homes** – Discussing the benefits of smart home technologies for the elderly and people with disabilities
* **Accessible Self Driving: Innovations for Independence** – Discussing ways in which self-driving vehicles will enable independence for the elderly and people with disabilities.

The five winners of the Accessibility Contest were also announced:

* **Blind Touch** – Tactile features that connect to smartphones for ease of use with persons with vision impairments.
* **Lili Smart** – A smartwatch designed to connect the elderly with their caregivers. Allows for organizing meal and medicine information, as well as setting location boundaries on the person being cared for.
* **SignAll** – Using three webcams and a depth sensor, SignAll interprets signs and creates grammatically correct sentences from the motions. This technology could allow for “voice commands” of sorts using sign language in the future, and it presently allows for signs to be understood by those who cannot communicate in sign language.
* **SofiHub** – An in-home AI system that learns the habits of those living in the home. SofiHub notifies a caregiver if unexpected behavior occurs. Allows for independence for the elderly and peace of mind for their caregivers.
* **Unaliwear** – The Kanega smartwatch by Unaliwear is a voice-controlled watch that allows for emergency assistance if requested or if the watch determines that the user has been immobile for extended periods during the day and is unresponsive. The watch can additionally receive information from the user’s pharmacy to allow for medication reminders.

These startups were featured in Eureka Park during CES 2018. A pilot version of the AccessibleOlli, a self-driving electric shuttle, was on display in the convention center. Many disability organizations had representatives at CES to engage with industry on technology-based initiatives. [Source: Global Accessibility News]

Additional Information:

[CTA Foundation Announces Accessibility Award Winners, Exhibitors, Programming at CES 2018](http://globalaccessibilitynews.com/2017/12/22/cta-foundation-announces-accessibility-award-winners-exhibitors-programming-at-ces-2018/)

[<http://globalaccessibilitynews.com/2017/12/22/cta-foundation-announces-accessibility-award-winners-exhibitors-programming-at-ces-2018/>]

# Aira Smart Glasses to Assist Travelers with Vision Impairments

January 2, 2018 - In partnership with technology company Aira, the Memphis International Airport (MEM), has initiated a new program to help people with vision impairments navigate their airport more easily. Travelers can use the Aira smart glasses or their own smartphone camera to obtain information on airport signs, routes, crowds and other navigation tools. Scott Brockman, President and Chief Executive Officer of Memphis-Shelby County Airport Authority, said: “We are extremely excited about this programme and the additional accessibility it provides to blind and low vision passengers.” Live Aira agents help guide users through the camera, and can assist with baggage claim, finding transportation and other travel help.

Kevin Phelan, Vice President of Aira, added: “We’re proud to announce this partnership with an innovator like Memphis-Shelby County Airport Authority. As today’s fastest growing assistive community for the blind or low vision population, we focus on delivering immediate, accurate information anytime and anywhere. “With the dynamic nature of traveler information, needs to quickly adjust to schedule or gate changes and challenges of moving through a crowded terminal, this is a perfect fit for what we do.” The Aira smart glasses are available for free at the MEM airport to all travelers. [Source: Global Accessibility News]

#### Additional Information:

[Memphis Airport uses Aira smart glasses to simplify airport experience for blind and low vision travelers](http://globalaccessibilitynews.com/2018/01/02/memphis-airport-uses-aira-smart-glasses-to-simplify-airport-experience-for-blind-and-low-vision-travelers/)

[<http://globalaccessibilitynews.com/2018/01/02/memphis-airport-uses-aira-smart-glasses-to-simplify-airport-experience-for-blind-and-low-vision-travelers/>]

# Samsung’s Relúmĭno Glasses Help Users with Vision Impairments

January 2, 2018 - At the 2018 Consumer Electronic Show (CES), Samsung’s Creative Lab demonstrated its Relúmĭno Glasses to help people with vision impairments see more clearly. Samsung estimates that approximately 86% of people globally with vision impairments are not totally blind, and as such can benefit from assistive technologies that improve vision. In conjunction with the Relúmĭno app unveiled at last year’s Mobile World Congress, the glasses make blurry images clearer by identifying the outlines of objects and making them more prominent. The glasses can also invert colors to help users see the color contrasts on their screen more easily. Samsung is hopeful that the small form factor of the glasses and its capabilities will help users with vision impairments access print more easily. [Source: David Nield, New Atlas]

#### Additional Information:

[Samsung's Relúmĭno glasses bring smarter vision for partially sighted people](https://newatlas.com/samsung-relumino-glasses/52795/)

[<https://newatlas.com/samsung-relumino-glasses/52795/>]

# Smart Glasses as Reading Assistant

December 29, 2017 - A recent article in Japan Times detailed Oton Glass, a Japanese startup that has developed a set of smart glasses designed to help people with dyslexia to read more easily. The glasses feature a 3D printed frame, two small cameras and an earpiece that reads out words in the eye-line of the user. Oton Glass CEO, Keisuke Shimakage was inspired by his experiences with his father’s health and reading issues following a stroke. Speaking to this, Shimakage said, “It was after my father was hit by the stroke that I first realized our world is actually full of letters, and that being unable to read them may cause a significant disadvantage in our daily lives. Seeing that, I realized it might be a great help for people who have difficulty reading if I develop a device that converts the text they see to speech so they can access various information without the help of others.”

The Oton Glass uses a 3D printed frame and a Raspberry Pi for its processing, uses eye tracking to determine what the user wants to be read aloud. In addition, the device is capable of connecting to Google’s cloud translation software to translate from one language to another. On why he chose a glasses format, Shimakage said, "The key is how we can let users experience the device as a part of their own body. Holding up a smartphone is not an instinctive human action, and it looks odd from the standpoint of other people as well. However, seeing something through glasses is closer to people’s instinctive behavior."

Shimakage hopes to continue developing the Oton Glass and expand its reach into other communities. On the company's future he said, “Ultimately, I want Oton Glass to be a device that enhances the basic senses of human beings. And I believe people who have difficulties in their lives are important partners for me to work with together toward that goal.” [Source: Shusuke Murai, Japan Times]

#### Additional Information:

[Oton Glass CEO looks to help those with reading disabilities and ease their lives](https://www.japantimes.co.jp/news/2017/12/29/business/tech/oton-glass-ceo-hopes-reading-disabilities-will-help-ease-lives/#.WljMHJM-fBJ)

[<https://www.japantimes.co.jp/news/2017/12/29/business/tech/oton-glass-ceo-hopes-reading-disabilities-will-help-ease-lives/#.Wm933-dOnce> ]

# Tactile 3D Printed Cards to Aid in Teaching Children with Disabilities

December 29, 2017 - Maggie LeDoux is a Speech Language Pathologist at Moton Elementary School in Florida who has developed an innovative teaching tool for a student of hers with multiple disabilities. The student has cerebral palsy, is on the autism spectrum, and was born blind. Ledoux in coordination with the student’s mother and Cynthia Dills, a vision teacher at Moton, created a series of 3D printed cards that the student can interact with to enhance learning. On the challenge of developing an effective tool for a child with disabilities, Ledoux said, “People don’t realize that there is limited access to materials for multiple disability kids.”

The student can hold the 3D printed card in his hand, feel the raised outlines and associate that with verbal input. Ledoux has prepared a binder which helps him communicate more easily and plan his day. On this binder, she said, “He has cards for major activities in his day, like going to speech or PT, as well as basic wants and needs like ‘goldfish snack,’ ‘bathroom,’ his ‘walker,’ etc. The tactile cards are in a binder, and he feels across the page until he gets to what he is looking for and usually pairs it with a verbal response to make a request.” However, a challenge with 3D printing is the long printing times of a single card, ranging from two hours to two days.

Ledoux when considering how she would like to continue expanding this tool said, “Long-term, I would like him to independently access his tactile cards to make requests on his own and reduce the amount of prompting and modeling I do for him to express his wants and needs. “He’s blossomed with the visuals- I think he feels the independence.” Ledoux hopes this model can be adapted for other children with disabilities and is looking for grant funding. On how the tactile 3D cards have changed her student’s life, LeDoux said, “I gave him access to something, and he’s a different kid. It would be really beneficial for the county, as well as other students, to have access to this.” [Source: Julie Maglio, Hernando Sun]

#### Additional Information:

[New learning tool for visually impaired](https://hernandosun.com/New-learning-tool-for-visually-impaired)

[<https://hernandosun.com/New-learning-tool-for-visually-impaired>]

# Improving Tornado Alerts for People with Hearing and Vision Impairments

December 13, 2017 - Drs. Jason Senkbeil and Darrin Griffin from the University of Alabama (UA) have received a grant of over $250,000 from the National Oceanic and Atmospheric Administration to conduct research on improving tornado warnings for people who have vision or hearing impairments. People with disabilities rely on the accessibility of emergency alerts to be informed during a crisis. However, many alerts are not accessible to people's specific needs. Dr. Darrin Griffin, a UA Assistant Professor of Communication Studies, said, “As a society, our goal is to become better, to achieve progress. To meet people’s civil rights, you have to understand them. You have to understand their culture, their communication, and their psychology. I like doing research on Deaf people because it lets us see how the brain adapts when the auditory channel is not available.” The grant will enable this team to build and test a system whereby people that are deaf can view a local weather broadcast in a split-screen format. Half of the screen will show a meteorologist and the other half will show an American Sign Language (ASL) interpreter.

The team believes their tornado model could be expanded to include other emergency situations and could be adapted to a variety of alert forms such as text, emails, or breaking news reports. Dr. Jason Senkbeil, UA Associate Professor of Geography, said, “The tornado warning scenarios and technology we plan to test and implement will hopefully help us understand how to improve risk communication for people who are Deaf and Deaf-Blind. In the process, what we learn will most likely improve tornado warning communication for everyone.”

By examining how officials and emergency responders can more effectively communicate with people with disabilities, the team believes their work could be expanded to include people from multiple backgrounds and need requirements. Drs. Senkbeil and Griffin hope the first phase of their research leads to more grants to continue studying how to improve emergency alerts and promote communication in crisis situations for people of all disability status. [Source: Global Accessibility News]

#### Additional Information:

[Researchers study how to improve tornado warnings for people with disabilities](http://globalaccessibilitynews.com/2017/12/13/researchers-study-how-to-improve-tornado-warnings-for-people-with-disabilities/)

[<http://globalaccessibilitynews.com/2017/12/13/researchers-study-how-to-improve-tornado-warnings-for-people-with-disabilities/>]

# Microsoft’s Seeing AI App

December 13, 2017 - In 2017, Microsoft launched Seeing AI, an app to help users with visual impairments more easily navigate the world around them. With 100,000 downloads to date, the app provides audio feedback to users in a variety of applications, such as currency recognition, clothing color, and now, handwriting recognition. The app is available in 35 countries and allows users to customize the speech rate and other features to improve accessibility. Cameron Roles, a blind lecturer at the Australian National University College of Law, wrote of his experience using Seeing AI, “I absolutely love Seeing AI. If my children hand me a note from school or if I pick up a book, I can use Seeing AI to quickly capture that text and just give me a very brief instant overview of what's on the document. I can quickly be right on top of it.”

Microsoft was been integrating AI into many of its products including its search service Bing and Word to provide users with personalized recommendations and behind the scenes assistive features respectively. Speaking of AI’s opportunity to help users with visual impairments Roles said, “Technology can be such an enabler of good and such an enabler for people to shrink the world, for the world to come closer together, and for people to be able to achieve so much more than they ever could without it.” The Seeing AI app can be downloaded from the Apple app store now for free. [Source: Microsoft Accessibility Blog]

#### Additional Information:

[Updated with currency and color recognition, Seeing AI is available in 35 countries](https://blogs.msdn.microsoft.com/accessibility/2017/12/13/seeing-ai-new-features/%20)

[[https://blogs.msdn.microsoft.com/accessibility/2017/12/13/seeing-ai-new-features/](https://blogs.msdn.microsoft.com/accessibility/2017/12/13/seeing-ai-new-features/%20)]

# Star Wars Inspired Prosthetic Hand

December 11, 2017 - Researchers at the Georgia Institute of Technology revealed their work on a new generation prosthetic hand that provides the most accurate and subtle control yet. The device uses ultrasonic sensors that provide users with fine motor control of each finger and gestures compared to traditional electromyogram sensors. Jason Barnes has used a traditional prosthetic hand since 2012, powered by (EMG) sensors attached to the muscles that used to control his fingers. As a musician, he found this device cumbersome and inaccurate. The new prosthetic has been compared to Luke Skywalker’s bionic hand in Star Wars and is a large improvement from Barnes’ original prosthetic.

According to Gil Weinberg, Director of Georgia Tech’s Center for Music Technology, “EMG sensors aren’t very accurate. They can detect a muscle movement, but the signal is too noisy to infer which finger the person wants to move. We tried to improve the pattern detection from EMG for Jason but couldn’t get finger-by-finger control.” In 2014 the same team provided Barnes with a prosthetic hand that would allow him to continue playing the drums. Comparing that device to the new one Barnes said, "It's completely mind-blowing. This new arm allows me to do whatever grip I want, on the fly, without changing modes or pressing a button. I never thought we'd be able to do this."

Gil Weinberg, Georgia Tech College of Design professor and project lead said, “Our prosthetic arm is powered by ultrasound signals. By using this new technology, the arm can detect which fingers an amputee wants to move, even if they don’t have fingers.” The force seems strong with this new device Weinberg noted, “If this type of arm can work on music, something as subtle and expressive as playing the piano, this technology can also be used for many other types of fine motor activities such as bathing, grooming, and feeding. I also envision able-bodied persons being able to remotely control robotic arms and hands by simply moving their fingers.” The team will continue their work in providing more dextrous devices for people with disabilities. [Source: Jason Maderer, Georgia Tech News Center]

#### Additional Information:

[The Force is Strong: Amputee Controls Individual Prosthetic Fingers](http://www.news.gatech.edu/2017/12/11/force-strong-amputee-controls-individual-prosthetic-fingers)

[<http://www.news.gatech.edu/2017/12/11/force-strong-amputee-controls-individual-prosthetic-fingers>]

# Wide-Eyed Robot Companion Teaches Communication Skills

December 5, 2017 - Researchers from Gallaudet University in D.C. in partnership with Yale, the University of Southern California and the University of D’Annunzio in Italy have announced a “wide-eyed” robot that helps children that are deaf learn to communicate more effectively. The robot was designed to be a playful companion to children with hearing and communication impairments, and an on-screen human avatar can look the children directly in the eye and communicate sign language and gestures. The avatar and its robot companion are not meant to act as a surrogate for parent’s attention and communication with their child; rather, the avatar was created to present an engaging and interactive stimulus to promote play and the development of communication skills. Though the human avatar is currently limited in its range of facial expression, its wide and animated eyes have proven to be an effective way of guiding children to important stimulus and communicating with them.

Gallaudet neuroscientist Laura-Ann Petitto said, “The same neural sensitivities, they are processed in the identical swatches of brain tissue. The brain tissue that we used to think was only responsible for sound is not the unique bastion of sound processing. It's the unique bastion of human language processing.” A hat-like device with a variety of sensors is placed on the infant’s head to monitor what areas of their brain demonstrate activity when stimulated. A thermal camera on the robot is also utilized to detect minute changes in temperature of the infant’s eyes and face, which indicate increased attention. The human avatar can then help direct the infant’s gaze to areas of interest and knows when they are truly paying attention.

Diane Paul, Director of Clinical Issues in Speech-Language Pathology at the American Speech-Language-Hearing Association, said, “It's not the tablet itself, it's not the computer itself or the TV itself, it's the way it's used. We actually want families, caregivers to be reading to their children, speaking to their children, signing, singing. We want that social interaction because it's within that context that you learn speech and language or signing skills.”

Gallaudet’s “wide-eyed” robot is a novel example of using technology to increase the accessibility and engagement of children with hearing and communication impairments while building important life-long skills. Source: Matt Simon, Wired. [Source: Matt Simon, Wired]

#### Additional Information:

[The Wide-Eyed Robot Teaching Deaf Children To Communicate](https://www.wired.com/story/the-wide-eyed-robot/)

[https://www.wired.com/story/the-wide-eyed-robot/]

# W3C releases new video introducing Web Accessibility and W3C Standards

December 5, 2017 – In partnership with the Internet Society (ISOC), W3C Web Accessibility Initiative (WAI) has released a video detailing new web accessibility features. According to the video, approximately 15-20% of the population, over one billion people, have a disability. Shadi Abou-Zahra, Accessibility Strategy and Technology Specialist at W3C, on their mission said, “Web accessibility means that people with disabilities can use the web equally. For example, somebody who cannot use their arms and uses a mouth stick to type. Or someone who cannot hear well, and uses captions to watch videos. Or someone who cannot see well, and uses a screen reader to read aloud what’s on the screen. People with age-related impairments, such as reduced dexterity, benefit. In fact, everyone has a better user experience with improved layout and design.”

Web standards and codes from W3C such as HTML code and the Web Content Accessibility Guidelines (WCAG) provide support for many accessibility features that can be built into the underlying code of websites and applications. The WCAG are shared guidelines for web content accessibility that are built around four core principles: “1) perceivable: so that people can see the content or hear it, for example, 2) operable: so people can use the computer by typing, voice or other input, 3) understandable: so people receive content in language they can understand, and 4) robust: so people can use different assistive technologies.”

In addition to WCAG, W3C provides Authoring Tool Accessibility Guidelines (ATAG) which “defines requirements for content management systems, code editors, and other software.” The video ends with Abou-Zhara saying, “Implementing accessibility standards is essential for people with disabilities and useful for all.” The video is available here:  <https://www.w3.org/WAI/videos/standards-and-benefits>. [Source: Global Accessibility News]

#### Additional Information:

[W3C releases new video introducing Web Accessibility and W3C Standards](http://globalaccessibilitynews.com/2017/12/05/w3c-releases-new-video-introducing-web-accessibility-and-w3c-standards/)

[<http://globalaccessibilitynews.com/2017/12/05/w3c-releases-new-video-introducing-web-accessibility-and-w3c-standards/>]

# All Children Reading Launch $500,000 Challenge to Promote Innovation in Deaf Literacy in Developing Settings

December 4, 2017 – At the International Conference of the World Federation of the Deaf in Budapest, a $500,000 grand challenge was announced to spark innovative solutions to expand access to sign language education in developing nations. According to the press release, there are an estimated 32 million children worldwide who are deaf or hearing impaired, of which only 2% receive sign language education. Without access to education, many deaf or hearing-impaired children will face serious communication challenges throughout their lives. The competition, called Sign on For Literacy, is being organized by All Children Reading and is looking for applications through mid-February 2018. The competition will take three phases: the first seeks to identify promising project proposals that will increase sign language literacy and educational outreach, the second for development of a prototype device, and the third for the refinement of the prototype.

For more information on how to apply, please visit the following link on the Sign on For Literacy website: <https://allchildrenreading.org/challenge/sign-literacy-prize/>. [Source: Dian Schaffhauser, Campus Technology]

#### Additional Information:

[$500,000 Grand Challenge Wants Tech Innovations in Deaf Literacy](https://campustechnology.com/articles/2017/12/04/500000-grand-challenge-wants-tech-innovations-in-deaf-literacy.aspx?s=ct_nu_121217&mkt_tok=eyJpIjoiWmpFNVltUXdNRFEyTURJMiIsInQiOiJQaGNxdmlnTkswV2t4VDdNOUgzTkRGTEhacjlFdnoyN01TaFwvb3NySXhENzM1cklaV0I2Mlc5WkRua1JuMHJiS1NremVtOG5wK3pVRXV1TE55b0xoc3VcL2dBeE8zUUZJb3JCd05NWWRwVlwvcXlVRnlmY1k3S3djQ1ZlY2ZLdGtJaiJ9)

[<http://bit.ly/2DKUApw>]

Upcoming Events

# 2018 CSUN Assistive Technology Conference

The *33rd CSUN Assistive Technology Conference* (CSUN), organized by California State University – Northridge, will convene March 19 through March 23, 2018, in San Diego, California. CSUN is the largest international conference addressing topics regarding people with disabilities and assistive and accessible technologies. Conference topics typically pertain to the domains of education, employment and workplace, entertainment, independent living, law and policy, and transportation.

#### Additional Information:

[Conference Web Page](http://www.csun.edu/cod/conference)

[<http://www.csun.edu/cod/conference>]

**Technology and Disability Policy Highlights,** December 2017 – January 2018

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The contents of this newsletter were developed under a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90RE5025-01-00).  NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS).  The contents of this newsletter do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.