

Innovative Assistive Technologies for Inclusive Education

Technologies shown at the interactive exhibition on assistive technology, 7-8 March 2019, in Geneva, Switzerland.

Worldwide, around 93 million children under the age of 15 are thought to have a disability. Many are denied their most basic rights, including their right to an education.

By committing to Sustainable Development Goal 4, countries have pledged to provide a quality education for all children by 2030. This means that schools must be equipped to meet the needs of children with disabilities, including with access to assistive devices to support their learning.

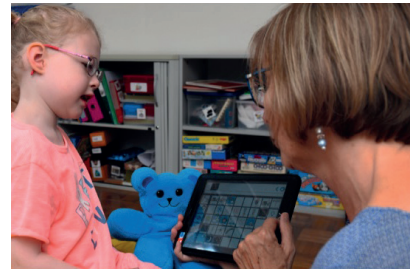
UNICEF, in partnership with the Permanent Mission of the Republic of Bulgaria, and other International Organizations in Geneva have organized a special exhibit of the latest innovations in the field. The Exhibit will showcase the potential assistive technologies offer to drastically improve children with disabilities' access to inclusive and quality education.

Active Communication

www.activecommunication.ch

Active Communication (AC) is part of the Swiss Paraplegic Foundation and is an expert in the field of digital Assistive Technologies. For 20 years, AC has helped thousands of individuals with physical or cognitive impairments or neurological disorders to develop a voice, gain access to communication and learning, and enjoy more independence, empowerment and participation.

From electronic communication tools and books, iPads and tablets with communication apps, all the way to devices controlled by the eye, we search for the most effective and suitable solutions to help children and adults achieve their goals, find their independence and grow as individuals.



©ACTIVE COMMUNICATION

AbleNet

www.ablenetinc.com

AbleNet products are a bridge to a life of accessibility and fulfilment for people with disabilities. We take this responsibility seriously, constantly reviewing their needs to offer the best support to unique individuals. We engage their feedback and develop better answers to their questions.

Our key areas of expertise include; Curriculum and Education, Healthcare and Hospital, Rehabilitation and Physical Therapy and Home and Community. Core AbleNet Products include; Switches and access, Assistive and alternative communication, Mobile device and computer access, Literacy and learning tools, Toys, games and entertainment and mounting and positioning hardware.



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Bookshare

www.bookshare.org

Bookshare is an ebook library for people who cannot read print books. People with disabilities like blindness, low vision, dyslexia, and cerebral palsy can use Bookshare to read in ways that work for them with ebooks in specialized formats like audio, large font, audio with highlighted text, and braille.

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Brailist

www.brailist.me

Brailist has developed a compact digital dictionary to help the blind learn and read Braille conveniently, anytime and anywhere. The portable dictionary makes it possible for Braille readers to identify any new or unknown letters and words immediately.

The Braille dictionary is based on Rivo, an assistive technology device designed to improve the user experience of smartphones for those who are visually impaired. Rivo provides essential functions for screen navigation, with sound feedback to make phone calls, use apps, write text, control music like a remote and use voice recognition like Siri.



©BRAILLIST

BrainControl AAC

www.braincontrol.com

This augmentative and alternative communication device is based on artificial intelligence for human-machine interaction through biofeedback.

It can manage multimodal and personalized methods of interaction methods, including Brain-Computer Interfaces for those with locked-in syndrome or complete locked-in syndrome and those who are completely paralysed. BrainControl AAC is a 'mental joystick' that makes it possible to overcome severe physical and communicative disabilities caused by pathologies such as muscular dystrophy and motor neuron disease. Its application includes communication, home control and robotics, such as telepresence functionalities based on robotic avatars and drones.



©BRAINCONTROL ACC

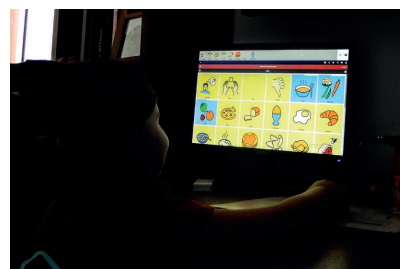
Cboard and Global Symbol

www.cboard.io

Cboard is a free and open-source augmentative and alternative communication application that features a text-to-speech function. It was developed to cater for a wide range of speech and language impairments such as cerebral palsy, intellectual impairment, and autism.

It supports 33 languages, works on multiple devices and comes with more than 3,400 symbols from the open source Mulberry Symbol Set for creating personalized boards.

'Global Symbols' aims to design, collect, harmonize and standardize collections of free and open symbols that can be seen in multiple languages.



©CBOARD

Compusult Limited

www.compusult.com/assistive-technology

Compusult has over 25 years of experience designing, manufacturing, and supplying innovative assistive technology products and services worldwide for people with disabilities, including solutions for education and workplace accessibility. As well as offering our own assistive technology and workplace adaptation products, we offer innovative solutions from many other sources. Compusult's products include the Jouse+ and Jouselite for computer and mobile device access, Outspoken Communicator Mobile systems for augmentative and alternative communication and other needs, handheld reading devices for education, universal switch controllers, robotics, and much more. Our solutions allow greater independence and accessibility at work, school, and home.



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eKitabu

www.ekitabu.com

eKitabu digitizes and adapts digital content for learners with disabilities in Africa, and has been recognized as a pioneer in its field by UNICEF Innovation, All Children Reading, and the Accessible Books Consortium. Building on open standards, we create accessible eBooks with adaptations for visually impaired learners, hearing impaired learners, learners with intellectual disabilities, and learners with multiple disabilities. As well as delivering accessible, digital content for schools, eKitabu provides interactive assessments, training to empower teachers, and open source resources and tools for governments and publishers to support their transition to accessible digital learning materials.

eKitabu is demonstrating its open source e-reader technology, paired with accessible digital textbooks and early grade reading materials, as well as its Studio KSL digital storybooks with their Kenyan Sign Language videos.



©EKITABU

(EPFL) Swiss Federal Institute of Technology, Lausanne

chili.epfl.ch

Nearly 10 per cent of elementary school students have trouble learning to write, with potentially long-lasting consequences for their education. Researchers from the Computer-Human Interaction in Learning and Instruction Laboratory (CHILI) at the Ecole Polytechnique Fédérale de Lausanne (EPFL) have developed a software programme that can analyze the difficulties these children are having with their writing and identify the causes with unparalleled precision.

This software enables doctors and therapists to make highly detailed, personalized assessments of these difficulties and to accurately identify the letters and numbers that are most difficult and, therefore, the most discriminative. It brings a dynamic aspect to the evaluation of a child's writing that is unique today.



©EPFL

INDEX Braille

www.indexbraille.com

It is important to help children with visual impairments to learn braille. Those who have learned to read and write braille are usually more successful in their education and have better prospects of finding employment as adults.

To assist (sighted) teachers, blind end users and others, the goal of INDEX is to simplify the printing of braille. All version 5 braille printers are equipped with an integrated and free-of-charge braille translation tool, which can translate standard texts automatically into braille, in many languages. Where possible, INDEX uses open source software.

To further assist easy printing, there is a free BrailleApp for mainstream mobile devices that enables wireless braille printing.



©INDEX BRAILLE

Livox

www.livox.com.br

Livox is an alternative communication software for Android tablets. Its intelligent algorithms make adjustments to cater for a wide range of disabilities. Livox also uses machine learning and natural language processing to enable non-verbal people with disabilities to communicate faster.

Livox was created by the father of a girl with cerebral palsy and is now being used by more than 25,000 people worldwide. It is used widely in schools to help people with disabilities or learning impairments and is available in 25 languages.



©LIVOX

Participant Assistive Products

www.participant.life

Participant Assistive Products was founded by experienced designers in 2018 to answer a call from the World Health Organization for affordable, high quality products for people with disabilities.

This wheelchair for children with cerebral palsy functions well in small homes and classrooms, and in tiny vehicles. To control costs, it is priced 60 per cent below competitors, is easy to provide, and expands to serve a growing child for years. It is designed for rural, suburban, or urban environments, and for tropical or warm weather.

Experts say that it is: “versatile and transportable,” “bridges a frustrating product gap,” and “revolutionary.”



©PARTICIPANT ASSISTIVE PRODUCTS

ProFit

proffit.com

Children who have congenital limb differences or have lost a limb often face significant physical barriers to their education. This may leave them illiterate, with limited prospects, isolated from society, and dependent on others. However, those with appropriate prosthetics have freedom of mobility and are better able to participate in education and in their community.

ProFit’s solution for fitting prosthetic sockets uses digital technologies and industrial additive manufacturing to improve provision of prostheses, including in remote and challenging environments. Globally scalable, it has already been deployed successfully in Europe, Asia Pacific, the Middle East and Africa.



©PROSFIT

Project Vive

www.projectvive.com

Project Vive's mission is to make speech generating devices (SGDs) available to children with communication disabilities everywhere so they can access education, participate and have their voices heard. Project Vive has created an adaptive case that transforms low-cost consumer tablets that have already gone to scale in various markets, into full-featured, robust SGDs that adapt to the abilities of users. This gives the tablet features such as high volume voice output, extended battery, universally-designed mounting and the ability to be controlled by a large variety of movements (e.g. foot, eye) using low-cost sensors. Our open approach invites groups to build upon our assistive technology.



©PROJECT VIVIE

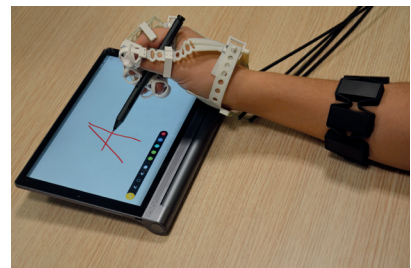
ReLive

Our innovation harnesses the synergies between biosensors and artificial intelligence to assist children with special needs.

Our soft exo-glove helps them carry out everyday activities. The exo-glove uses electromyographic signals to move fingers independently and assists in grasping or making gestures. It also helps children to write with a pen, which can enhance their cognitive skills.

An upper limb rehabilitation robot can be controlled with thoughts (using encephalographic signals). The robot can sense the user's intentions, supporting motions only when they are needed.

And our mobile application trains deaf children to speak in a moderate tone.



©RELIVE

SIMO – The Autism Simulator

www.theautismsimulator.com

The first Autism Simulator allows the user to experience the world of autism in virtual reality.

Children with autism often perceive sensory inputs such as sounds, lights, touch or smell more intensively. As a result, they seem distracted and may appear nervous, closed-off, or even aggressive. The Autism Simulator allows others to experience these feelings directly and better understand them.

The Autism Simulator is designed for family members, schools, organizations, universities, companies, professionals or simply anyone who wants to know more about autism.

This tool creates more empathy, tolerance, and understanding, enabling the smoother integration of autistic children into education.



©SIMO

UCP Wheels for Humanity

www.ucpwheels.org

Appropriate wheelchairs are essential for children who have impaired mobility, as indispensable tools for their participation in learning and social activities.

The provision of paediatric wheelchairs should be a fundamental component of inclusive education programming, but is often viewed as too expensive or impractical at scale. UCP Wheels for Humanity, and its CLASP project, aims to change that through increased access to a range of high-quality, affordable wheelchairs, and on-the-ground support in building wheelchair service delivery systems. CLASP enables buyers to make large or small orders of mixed products and sizes, delivering mobility devices that best suit children's individual needs faster and more efficiently. The CLASP hub stocks adult and paediatric wheelchairs, walking aids, cushions, spare parts kits, and modification kits from a range of suppliers.



©UCP WHEELS FOR HUMANITY

UNICEF

www.unicef.org

UNICEF is supporting accessibility of textbooks and learning materials for children with disabilities to improve learning for all in Uruguay, Paraguay, Brazil, and in Uganda, Rwanda and Kenya. The aim is to shape the market towards digital accessible formats and languages in Universal Design for Learning, including sign languages; encourage Ministries of Education to publish textbooks and learning materials in hard copy and accessible digital formats, and support commercial publishers to meet this demand.

Additionally, UNICEF is introducing applications for augmentative and alternative communication in Argentina and India that allow people who are unable to express themselves through spoken word on a computer, tablet or phone, create sentences with symbols. Open online apps create, select, store and retrieve the symbols in products and services.



©UNICEF KENYA

VerbaVoice LTD.

www.verbavoice.de

Verbavoice offers communication solutions for those who have visual or hearing impairments, centered on our online interpreting service. The interpreter can join the platform via the Internet and does not have to be on site with the client. The speaker uses a microphone that sends the audio to the interpreter who then turns it into text or sign language. People with hearing disabilities can read the text or watch the video from the sign language interpreter either on a canvas screen or on a mobile device, helping to support their education, work, and their participation in events and politics.



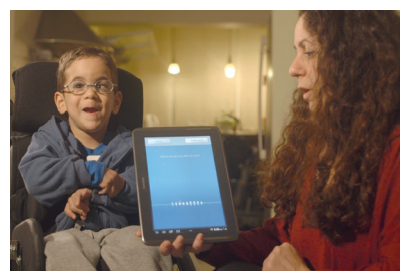
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Voiceitt Speech Recognition Technology

www.voiceitt.com

This technology translates non-standard speech patterns into clear speech in real time, enabling children with severe speech impairments or disabilities to communicate spontaneously and naturally by voice.

Supported by a combination of government grants, corporate cash prizes, and traditional investment, the Israel-based startup is in the advanced stages of development for its first commercial product: a language-agnostic mobile application that recognizes and translates unintelligible speech with a limited vocabulary. It features a unique and accessible set-up solution to enable children with accompanying motor control challenges to use Voiceitt's products independently. Currently being tested in four languages, five countries and over 200 users through its institutional partners, Voiceitt's ultimate goal is to make speech recognition technologies and products truly accessible to everyone, regardless of their physical limitations or motor disabilities.



©VOICEITT

Wheelchairs of Hope

www.wheelchairsofhope.org

Wheelchairs of Hope is an Israeli humanitarian and social impact initiative lead by a social agenda that has developed, manufactures and provides an innovative designed an affordable - \$100, light weight and durable wheelchair for children.

The wheelchair is designed for less developed environments to allow children with disabilities to access primary education.

Our Mission is: 'INCLUDING EVERYONE'

We aim to improve the lives of children with disabilities by enabling them to live up to their given potential. The three key elements of our initiative are to improve mobility for children with disabilities, empower their access to primary education, and allow their caretakers to work and integrate into society.



©WHEELCHAIRS OF HOPE

*The selected assistive technologies are from vendors who participated in the Exhibit on Innovative Assistive Technologies for Inclusive Education in Geneva, Switzerland on 7 and 8 March, 2019. UNICEF does not officially endorse any of these products.



UNICEF Europe and Central Asia Regional Office

5-7 avenue de la Paix CH-1211
Geneva 10 Switzerland

Telephone: +41 22 909 5111

ecaro@unicef.org

www.unicef.org/eca

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