The 15th International Conference of the
Association for the Advancement of Assistive Technology in Europe (AAATE)

Global Challenges in Assistive Technology Research, Policy & Practice

Bologna, Italy
27-30 August 2019

www.aaate2019.eu

The Innovation area

The following companies and research labs will be presenting in the Innovation area:

AbleNet, Inc.

Paul Thompson, International Sales Manager, AbleNet inc.

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We will discuss **accessibility to an iOS device** through either Switch control or mouse control, how to set up a device for either and demonstrate head mouse control of the iOS device. iOS devices are still the choice device of many and as such should not be inaccessible to the disabled User, working with Apple, AbleNet have and remain at the forefront of these devices accessibility features. AbleNet produce the only accessible device that is approved by Apple to connect through the lightening connector doing away with potential Bluetooth connectivity issues. AbleNet also manufacture the only Apple approved Head mouse that takes advantage of the new mouse accessibility function within the iOS operating system and we will look at this in use and how to get the most from this new feature.
http://www.ablenetinc.com
TRL: unknown

Texthelp

Roy Neill, RoW Channel Manager, Texthelp

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Browsealoud software is an innovative toolbar, which adds text-to-speech, translation, magnification and screen-masking to websites; facilitating access and participation for people with dyslexia, low literacy, mild visual impairments, or for people who speak a different language. The toolbar makes websites more accessible, reducing barriers between online content and website audiences. Online content can be read aloud in multiple languages using the most natural and engaging voice. Browsealoud enables organisations to demonstrate greater social responsibility. The software is currently available on the market.
https://www.texthelp.com/en-gb/products/browsealoud/
TRL: 9 (already available)

Rehabilitation Engineering Laboratory, Department of Health Sciences and Technology, ETH Zurich

Gantenbein Jessica, ETH Zurich

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The **MiAssiSt** is an open source, low-cost, wheelchair-mountable assistive device to support elbow flexion and extension for users with reduced upper limb muscle strength. It assists the user in various ADLs such as eating, drinking or using computers. It consists of a passive counterweight and an active add-on. The

adjustable counterweight passively compensates for the weight of the lower arm and enables the user to use his own remaining muscle strength as often as possible. If needed, the active add-on provides additional support for lifting heavier objects such as a full glass of water or to reduce muscle fatigue. The add-on is controlled by the index finger of the unsupported arm. The MiAssiSt is a new prototype developed for a specific user with spinal muscular atrophy. The prototype was developed in close collaboration with the user, extensively tested at his home, and will be made accessible to persons with similar needs under an open source license and made available on a patient innovation community website.
TRL: 7

Advanced Manufacturing Research Centre, University of Sheffield

Valdis Krumins, Advanced Manufacturing Research Centre, University of Sheffield
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The concept is to produce at a low cost devices that can be generated locally 'on the spot' and individualized for the user. It embraces three products identified in the Priority Assistive Products List by World Health Organisation: walking stick, elbow crutch and walker frame. The product family can be produced locally, is comfortable to use, high quality and low cost. The concept is created with the following considerations in mind: ease of production requiring only a minimal set of tools, personalisation, ease of repair and a smallest number of unique components used. This is a new product and it is not currently available on the market
TRL: 5

National Institute of Advanced Industrial Science and Technology (AIST)

Ikushi Yoda, National Institute of Advanced Industrial Science and Technology (AIST)
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Augmentative and Alternative Gesture Interface (AAGI). Gesture interfaces to operate PCs for people with sever motor dysfunction who have difficulty operating a standard keyboard and mouse. Specifically, a contactless, non-constraining interface using a commercially available imaging range sensor to make it affordable for all users. The software has 9 types of recognition engine and is already available for people with Severe Motor Dysfunction on the web site. Software is currently applied in Japan. Some users use the interface daily.
http://gesture-interface.jp/en/download/
TRL: 7

Liquidweb srl

Pasquale Fedele, CEO, Liquidweb s.r.l.
p.fedele@braincontrol.com

BrainControl AAC is an augmentative alternative communicator designed also for LIS (Locked-in state) and Complete-LIS patients). It is a Brain-Computer Interface based on a proprietary framework of Artificial

Intelligence for human-machine interaction. It interprets the electric map that corresponds with certain brain activity and allows patients to control a communicator, home controls, robotics and other assistive technologies.
BrainControl is a CE class I Medical Device, available on the market. It fills a technological void for most locked-in patients (e.g. those who cannot use eye-tracking systems) and satisfy many of the unmet needs for patients in less advanced states. Today, users are mainly from Italy (where the national health system already provides the reimbursements), Germany, Sud Korea and USA.
TRL: 9

Dreamwaves

Hugo Furtado – Dreamwaves, Austria
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A navigation and orientation solution to assist blind and visually impaired people in overcoming their mobility challenges. The key aspect of the solution is that people can understand where they need to walk to, in the most natural and intuitive way. Much like being able find out where a ringing phone is located in a room (and walk up to it without even seeing it) we create virtual sounds embedded in real world locations - for instance in a street corner where the user might need to turn. With headphones, the users can hear the virtual sounds as if they were real existing objects. They can therefore walk towards this “sound object”. In this way we avoid the need for interpreting audio instructions and rely only on the intuitive ability of finding sound location.
The product is not yet on the market. We currently have a proof-of-principle prototype which people already tested with a variety of headsets. We estimate to have a product ready in the last quarter of 2019.
TRL: 8

AIAS Bologna onlus

Chiara Lepore e Lisa Cesario . AIAS Bologna onlus
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WeCareMore: The product is a completely functional prototype, that reuses mainstream market devices and an existent opensource framework to build a new type of customised health and social care service. The devices can be chosen by the user without compromising the effectiveness of the system. This approach can prevent refusal or abandonment by those users that are intimidated by technology. The added value of this infrastructure is given by the opportunity to use the data gathered for inferring health and social condition with a non-invasive approach in a protected environment, with the goal of planning more personalised care. This product was developed as a part of the exploitation strategy of the ProACT project.
TRL: 7

Raised Lines Foundation

Prof. Meenakshi Balakrishnan – Professor, Department of Computer Science and Engg., IIT Delhi & Ms. Neha Jhadav, Project associate, AssisTech, IIT Delhi

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Tactile diagrams are the embossed representation of diagrams for people with visually impairment. Haptic nature of diagram enables a blind person to access the graphic content thereby making it helpful for concept understanding. These diagrams are essential in subjects like Mathematics, Science, Economics and Geography, where diagrams are essential components of description/explanation in the text books. Existing methods for diagram production are either tedious (requiring lots of manual work and thus non-scalable) or expensive that limits its penetration in low resource settings like South Asia, East Asia as well as Africa. To overcome this major bottleneck, end to end mechanism for design and production of tactile diagrams has been developed by ASSISTECH, IIT Delhi. The group has developed a large amount of tactile material with many of these books are school books, in Mathematics, Science and Economics.
TRL: 9

AssisTech Lab

Prof. Meenakshi Balakrishnan – Professor, Department of Computer Science and Engg., IIT Delhi & Ms. Neha Jhadav, Project associate, AssisTech, IIT Delhi
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DotBook is a feature-packed, yet affordable Refreshable Braille Display, designed to enable easy access to digital content for people with visual impairment. It is developed using an indigenous patented Braille cell technology based on Shape Memory Alloy wires which brings the cost down to 1/5th of the commercially available displays with same features and technical specifications. DotBook enables users to read books, create and edit word documents, browse the Internet, manage emails, connects directly to online libraries through built-in applications. The device has a tactile Braille output interface in the form of raised dots, through which the user can access the content line by line. It is available in 40-cell QWERTY Keyboard and 20-cell Braille Keyboard versions and also allows 3rd party apps to be added. DotBook enables social Inclusion and equal opportunity for persons with blindness and deaf-blindness by connecting them to the Digital World.
TRL: 9

Flexmotiv Technologies Pvt Ltd

Arvind Suresh Ambalapuzha - Director, Flexmotiv Technologies Pvt Ltd & M.S.R Student, Indian Institute of Technology Delhi
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Flexmo Crutch: A novel design (patent pending) of underarm and Elbow crutches. It is All Terrain (Tested in snow, sand dunes, slippery surfaces , rocks mud). By using specially crafted metal flexures, the FlexCrutch substantially improves the stability and mobility of a patient while keeping the cost low. It also incorporates smart techniques to keep the energy usage low. The flexures work like a leaf spring and absorb the impact when the person tries to propel and later while the person tries to lift the crutch for the next gait motion, the stored energy is released leading to the more relaxed lifting of crutches. The design also ensures the smooth transition of forces in body swing phase, conveying less jarring forces to the body. The ultimate result for a user is that energy used is minimal and there are no impact forces carried to the body thus

mitigating side effects. It is a new product and is scheduled to launch in market in India in August 10th through the University startup – Flexmotiv Technologies Pvt Ltd.
TRL: 9

ERGOTEK s.r.l.

Stefano Tedesco, Paolo Monticelli
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Smart chair. A smart chair was developed in order to assess the posture of a seated person in real-time and detect the intention to get up. This ergonomic chair was properly designed for this project's target population (i.e., the elderly). It includes pressure sensors, a computation module, and a communication module. A unique identifier is associated with every smart chair in order to identify and locate the object. The chair was fabricated by positioning several load cells in the feet, seat frame, and backrest plate. The real-time data on the load measured by the load cells are locally processed end transferred to the shared HABITAT's architecture by the Arduino board. The system is able to identify different sitting conditions (e.g., upright sitting, front sitting, left and right sitting…). Even though advanced features are not made available to the user, they are used by the system to personalize feedback and messages and, in general, enhance the user's experience. All of this information is presented in a summary report to give useful advice to improve sitting posture. Available on the market next year (2020)
TRL: 5

University of Pisa

Luca Fanucci - University of Pisa.
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El.Go. the Electronic Goalkeeper. Social integration is an essential part of life of every human being, but for people with disabilities there are many situations in which it is still very low. For instance, in sports and outdoor gaming there is a sort of social barrier between disabled players and non-disabled ones. Individuals with disabilities play sports nearly exclusively with disabled players and vice versa. We believe instead that the mix of people with and without disabilities is a cornerstone of social inclusion, thus it must be promoted at every level. Therefore, our objective is to allow a person with mobility impairments to play on the same ground as her/his non-disabled mates. To this aim we present a novel piece of Assistive Technology that lets a person with motor-skill impairments to play the role of the goalkeeper during a live non-professional football match. The main goal of the project is the improvement of the accessibility for people with disabilities at the sport, in particular at the football.
TRL: 7

UrAbility

James Northridge - UrAbility
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Online Assistive Technology courses for parents. We have developed an online course for parents of students with disabilities to learn how to use and support their children with assistive technology. The

training is very much based on the learning we have gained when using 5 years of AT summer camps with kids with disabilities in Ireland. Parents are the one constant in a child's life. It is vital that parents know what technology works for their learning and can engage with it on a daily basic. We currently have over 120 Irish parents taking this course, we are reviewing their experience and feedback, before rolling this model out to other parents across Europe. The innovation is not the technology, but more so the approach to empower parents and allow them to the drive the change that is needed in their child's education journey. There is no other online course on AT that supported parents.

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Presentation schedule

Day 1 28/08/2019	11.35-12.00	Texthelp
	12.05-12.30	Dreamwaves
	12.35-13.00	Flexmo Crutch
	13.35-14.00	Ergotek
	14.05-14.30	Liquidweb
	14.35-15.00	AbleNet
	15.05-15.30	AIAS Bologna
	15.35-16.00	MiAssiSt
	16.00-16.30	**Opportunity to meet the presenters**
	16.35-17.00	AIST
	17.05-17.30	University of Sheffield
Day 2 29/08/2019	09.00-09.30	TECHNOLOGY TRANSFER POLICY SESSION
	09.35-10.00	
	10.05-10.30	
	10.35-11.00	Ergotek
	11.05-11.30	Liquidweb
	11.35-12.00	Texthelp
	12.05-12.30	AIAS Bologna
	12.35-13.00	AIST
	13.35-14.00	Dreamwaves
	14.05-14.30	Raised Lines Foundation
	14.35-15.00	AssisTech
	15.05-15.30	University of Pisa
	15.35-16.00	Flexmo Crutch
	16.00-16.30	UrAbility
	16.30-17.00	**Opportunity to meet the presenters**
Day 3 30/08/2019	09.00-09.30	Raised Lines Foundation
	09.35-10.00	AbleNet
	10.05-10.30	University of Sheffield
	10.35-11.00	MiAssiSt
	11.05-11.30	UrAbility
	11.35-12.00	University of Pisa
	12.05-12.30	AssisTech
	12.30-13.00	**Opportunity to meet the presenters**

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Guidelines for presenters: 5 minutes set up time, 15 minutes of presentation, 10 minutes for questions and answers. In case people want to discuss further this can happen outside the room in or during the timeslots indicated and during which we ask the presenters to be present.