



ability

Assistive technology at work

Issue 92 Winter 2013

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Political parties should adopt the idea of a basic set of accessible technologies, argues Kevin Carey



John Lamb unstitches wearable computing, the latest fashion in assistive technology

The emperor's new clothes

“Learn about the 20 ways Google Glass can be used to help individuals with disabilities,” promises a flyer for a recent American seminar.

Interest in wearable computing such as Google's system, which displays information and gathers data from a device mounted on a pair of spectacles, has never been higher.

Not since the invention of text-to-voice and speech recognition software has a tech invention had such potential to help disabled people.

The technology promises hands free interaction, delivering applications such as voice recognition and image recognition in a more discrete fashion.

Cheaper, more versatile devices should be able to run specialised apps developed specifically for the needs of people with disabilities.

At the turn of the year a £900 rival to Google Glass – the Vumix M100 – went on sale, becoming the first smart glasses to hit the market.

However, the idea of technology that is worn on someone's body is not new. As long ago as 1968 Hubert Upton described a wearable system for lip reading.

Warehouse workers have been using systems that deliver voice instructions via a computer strapped to their wrists for years.

What has changed is that what was once an expensive and cumbersome technology has developed enough to be of real value.

Wearable computing systems specifically for disabled people are already on the market. A device called OrCam identifies objects picked up on its camera, mounted on a pair of glasses.

OrCam's recognition algorithm is capable of reading road signs and detecting whether a traffic light is red or green. The \$2,500 device stores objects it has seen in its memory to make it easier to spot them again.

Although its designer acknowledges that the OrCam is far from perfect, many are convinced that this type of miniaturised device will free people from the need to use keyboards and large screens to access a variety of digital services.

Researchers are already looking into the possibility of creating a single remote interface that could be used by people with a hand or arm impairment to operate a wide range of electronic products.

It is tempting to look at wearable computing as the emperor's new clothes. And it is true that there is a lot of hype about the technology.

The trick will be to ensure that designers have inclusion in mind as they roll out this latest digital fashion.

At least the promoters of the Google Glass seminar were realistic enough to include the five cons associated with wearable computing in their presentation. ■

Christmas is a turkey for online shoppers

Disabled shoppers were ill-served online by retailers this Christmas, according to AbilityNet.

The charity carried out a shopping test using people with a range of conditions including blindness, low vision and learning difficulties.

They set out to buy a turkey, a Christmas pudding and a dozen crackers at the five top online food retailers using website and mobile apps.

Of five websites sampled – Sainsburys, Morrisons, Asda, Tesco and Ocado – only one met basic

access requirements with disabled users on some sites taking over an hour to make their purchases and on others unable to complete the checkout process.

Of the top five supermarket sites, only Tesco's met the needs of visitors with a visual impairment, physical difficulties or dyslexia, and attained three stars on AbilityNet's five star scale.

Sites and apps were tested with the most commonly encountered access technologies including magnification software and screen

readers. They were also judged according to whether they could be accessed using a keyboard instead of a mouse.

Ocado performed best out of all the mobile apps tested, achieving a four star ranking, with Tesco's app a close second with a three star rating.

"A score of less than three stars means that many customers will fail to fill their basket let alone successfully complete the purchase," said Robin Christopherson, AbilityNet's head of digital inclusion. ■ www.abilitynet.org.uk

High street becomes less accessible

High street firms are less accessible than they were five years ago, says a survey by assistive technology retailer Really Useful Stuff.

The company spoke to 350 disabled people and asked about their experiences with banks, supermarkets, mobile phone retailers and estate agents.

Nearly half of respondents were dissatisfied with the level of reasonable adjustments in place to make services accessible.

Banks did best, but only 43% of people were satisfied with their reasonable adjustments.



Estate agents are locking out disabled customers

Supermarkets got the thumbs up from 40% of respondents; while mobile phone retailers only

persuaded 30% of customers they were doing a good job.

Estate agents did worst. Only 20% of customers were happy with their accessibility.

"Many businesses have taken their eye off the ball and allowed poor accessibility to creep back in," said the study's author May-Anne Rankin.

Web accessibility was often reported to be poor, with the effect that those using assistive technology to access websites were missing out on internet shopping or online service options. ■

www.reallyusefulstuff.co

IIC show opens in Manchester

Ability will be visiting the new IIC show taking place at Manchester Central on February 14-15.

IIC Show will be showcasing inclusive and innovative technologies to help ease the lives of disabled people. The highest concentration of disabled people in England – 1.8m – is in the North West,

Assistive technology specialists from Inclusive Media Solutions will be on hand to demonstrate the use of

mobile technology for students with learning difficulties.

Software specialists Crick software will be showcasing Clicker 6, the award winning literacy tool that supports learners of all ages and abilities including those with a wide range of special needs.

With 11 BETT awards under its belt and with the software being used in over 90% of UK primary schools, colleges and homes, Clicker 6 really

is a revolutionarily technology.

There will also be a number of seminar stages at the show all providing free continuing professional development accredited seminars as well as a specialised inclusive sports and activities area.

With up to 250 exhibitors all offering advice and showcasing resources and services, and a fun packed family fun inclusive area, IIC Show is definitely set to be the disability event of 2014. ■

Register at www.iicshow.co.uk

Paypoint to speech enable ATMs

Retail financial services company Paypoint is the latest ATM operator to speech enable its cash machines.

However, the company admits the Tidel and NCR machines it has operated since 2007 could have been speech enabled sooner.

The machines had the feature, but it was not switched on. "We didn't know about speech enablement," said Peter Brooker, head of corporate affairs at Paypoint.

Making its network talk, which has earned Paypoint an exemplar



award from the Royal National Institute of Blind People (RNIB), cost £20,000 in software development.

Around a quarter of Paypoint's 3,250 machines in shops and public spaces are now capable of providing spoken instructions that guide users through the steps involved in transactions such as withdrawing money and finding out how much they have in their account.

Paypoint's decision follows a campaign by RNIB called Make Money Talk to get banks to speech enable their ATMs.

A RNIB study found that 89% of blind or visually impaired people find it difficult or impossible to use an ATM independently. "It is impossible for me to use an ATM unless it can talk," said RNIB campaigns manager Natalie Doig.

Every high street bank has signed up to the campaign, but they have had mixed results in making their machines talk.

All the Co-operative Bank's machines are speech enabled, while Barclays has achieved a 75% success rate. A software glitch has delayed Lloyds' roll out, while RBS has yet to overhaul its machines.

HSBC also announced it will introduce talking ATMs. ■

Business leaders get lesson in accessibility

Fifty future business leaders were recently treated to a demonstration of what it is like to make travel arrangements online if you have a disability.

The guinea pigs – all taking a master of business administration (MBA) degree at the Said Business School in Oxford – had to book flights using a smartphone.

Some had their vision limited by

blurry glasses and eye patches, while others put socks on their hands so they could not use their fingers.

"I had to unlock my phone with my elbows and then use voice recognition. It was not easy at all," said student Tiffany Matthias.

The students then brainstormed a wide variety of ideas for making life easier for disabled users, ranging from magnetic bag handles to

always-on voice recognition.

The session was led by Stacey Chang, of design firm IDEO, and Astrid Weber, who specialises in accessibility for Google Research.

"Successful innovations answer needs at a level that people are often not able to articulate, and the only way to develop empathy as innovators is to put yourself in their position," said Chang. ■

Briefs

Extra £2m for Access to Work

Access to Work, the government scheme that provides assistive technology to disabled employees, has been extended to cover internships organised by trainees. Hundreds of people on work experience placements will be able to apply for a share of £2m set aside for the extra costs they face. Until now Access to Work has only offered this support to disabled people who engage in work experience

placements that have been organised through Jobcentre Plus. www.gov.uk/dwp

Smart specs in store

Vuzix has launched M100, the world's first commercially available smart glasses. The £800 Android-based glasses provide hands free access to data via a computer mounted on spectacle frames. Pre-installed apps can record and playback still pictures and video, track timed events, manage a user's calendar and link to their phone.

Wearable technology has been hailed as a boon to disabled people. www.vuzix.com

Interactive exam papers

Standards and guidelines for interactive GCSE exam papers that can be accessed by pupils using assistive technology are due to be agreed by April. GCSE English exams to be held this June and July will be the first to adopt a standard for interactive PDFs agreed between exam boards, the RNIB and the British Dyslexia Association.

NOTES

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Fix the Web wins \$10,000 grant for relaunch

Fix the Web, a campaign to persuade website owners to make their sites accessible, has received a \$10,000 grant that will go towards relaunching its service.

Deque, a US company that has developed software that can be used to make websites accessible, has stumped up the cash.

Fix the Web has recruited over 1,000 volunteers and people with disabilities since it was launched in 2010. Its volunteers find accessibility errors across the web and alert

website owners.

"Web accessibility is not improving very quickly despite the efforts of many experts. The scale of the problem is huge and there is a need for culture change among web developers and website owners," says the organisation.

"Our solution is to make it super easy for people facing accessibility issues (such as many disabled and older people) to report problems with websites."

Volunteers do the work of

contacting the website owners and signposting them to support. In doing this work, volunteers will understand more about e-accessibility for themselves, as well as giving crucial information to website owners.

So far the project has seen over 2,500 websites reported with potential accessibility issues that can be addressed.

Fix the Web is an initiative of Citizens Online, a charity that campaigns for internet access for all. ■ www.fixtheweb.net

Accessible photo booth clicks with Reading

Disabled shoppers in Reading will now be able to take a selfie.

The UK's first accessible photo booth is not only large enough to take a wheelchair, but it also has software that works out whether a snap meets the rules that apply to passport or visa photographs.



The disability photo booth has big buttons and software that tells you when you have gone wrong

complies with International Civil Aviation Organisation regulations alerts a sitter if a picture is blurred or if they are not positioned correctly.

The photo booth, which has been installed at the Oracle shopping centre, is controlled by means of five large buttons and guides a user through the process of taking a picture using voice output and text.

Software that

Pictures take half a minute to print out.

"The booth has been specially modified to enable wheelchairs to fit easily within the space and also offers the option to pull down a seat and use the handles for support for anyone needing assistance without a

wheelchair," said a spokesperson.

Developed by Scope and CRIDEV, the French association of sensory handicaps, the booth is intended to meet the Equality Act, which requires that services are accessible to disabled people at reasonable cost. ■

Briefs

Essilor buys Humanware

HumanWare, the company specialising in assistive technologies for people who are blind or have low vision, has been taken over by the French lens maker Essilor. The tie-up will significantly increase Humanware's market share in the rehabilitation sector and among eye care professionals, says the company. Humanware launched the Prodigy reading system last year. www.humanware.com

Tool to assess workers' needs

Jobcentre Plus staff need a tool to assess the needs of customers with disabilities, health problems and impairments, says Shaw Trust. The recommendation is part of a 10 point plan drawn up by the charity

as part of a research programme called Making Work a Real Choice: Where next for specialist disability employment support? The tool would enable Jobcentre Plus staff to identify which back-to-work programme is the most appropriate for each person.

<http://bit.ly/1eJLVyd>

Robot rules in class

Using a humanoid robot as an educational tool could significantly improve the engagement of children with severe intellectual disabilities, researchers have found. Experts from Nottingham Trent University and the University of Nottingham found that engagement of pupils who interacted with the autonomous NAO robot was up to five times greater than when in a standard classroom setting.

www.aldebaran-robotics.com

Wireless technology opens windows to automation

Wireless technology, better sensors and improved motors are making it easier for disabled people to operate doors and windows.

Cheshire-based Dyer Environmental Controls has recently launched a solar powered system for opening and closing windows.

The company's Solis product, which costs £345 including VAT, consists of a solar panel that generates and stores enough electricity to operate a chain-driven mechanism for opening and closing windows and roof lights.

Developed in partnership with Salford University, the device is controlled by a wireless remote unit that can operate up to 10 windows.

"We had to start from scratch in designing the Solis because this is a power hungry application and we had to store all the power on a device on the window frame," said John Crossley, managing director of Dyer.

"We also had to design in safety in particular to ensure that a window will close before it runs out of charge and cannot be moved."

The energy-saving Solis can be fitted to existing windows by DIY enthusiasts, says the company, and does not require any wires.

Dyer has also developed a rain sensor that will automatically close a window in inclement weather and a temperature sensor that will adjust ventilation according to the room temperature.

A second company called Axxium has developed a cheap electronic lock for doors that can be controlled by a mobile phone.

"Our idea was to produce a mass market product at around £225 plus VAT, compared with current electric locks that cost upwards of £400,"

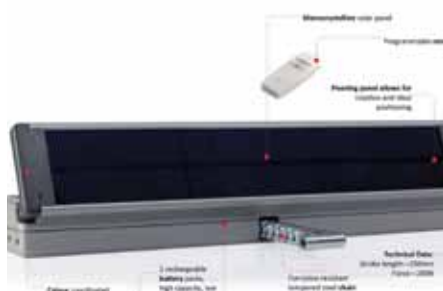
says the company's managing director, Andrew Taylor.

Taylor's business plan for Axxium was hatched after he visited a wheelchair-bound friend and saw how difficult it was for him to open and close doors and windows.

"He left the doors in his house open most of the time, which meant that he had to heat the whole of his house," Taylor explained.



Sun powered Solis in action



Dyer's window system needs no wires

"My first idea was to devise an inexpensive door closer but then I realised that a major problem for people (in assisted living) was getting a carer in and out. Carers use a box with a digital keypad containing a key outside the house, but these are often broken into. In addition, carers regularly phone their supervisor to say that they are in the house: clocking on and off each job in this way."

Taylor set out to develop a remote

controlled lock with sensors that would support the smooth working of the lock itself, for example ensuring that the bolt was not thrown when the door was open.

The lock's sensors are designed to be connected to a nearby access control centre equipped with a SIM card and which can be operated remotely from a mobile phone or call centre.

In this way, carers can gain access by keying a code into their mobile phone rather than using a key. Staff monitoring a resident from a call centre can gain information about a door's openings and closings and even control the door themselves.

"Our initial objective was to develop an on-board control system so that the lock could be operated via any form of access control," said Taylor.

"Generally, you associate electronic locks with gears and motors, but a friend asked me whether I had tried a linear motor, which he pointed out was very easy to control and can be reversed quickly.

"The two main advantages of a linear motor are its small size and the speed with which it responds; about four microseconds."

Locks operated by mobile phone are already on the market, but Taylor is convinced he has a superior product.

"There are two or three locks in the US operated by mobile phone, via Bluetooth connections. But ours are better because US locks are nothing like as high security as European locks. Their key mechanisms are the kind we use to train apprentices to pick locks." ■

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Hearing Link goes national with loop campaign

Millions of hearing aid users could benefit, says campaign manager

It was at Hearing Link's annual conference three years ago when delegates decided that improving the effectiveness of hearing loops in public places was a key priority.

And that prompted the birth of 'Let's Loop Eastbourne'.

Now with a new year beckoning the national charity, which is based in Eastbourne, it is planning to take this work across the UK during 2014 with pilot projects in a number of towns.

"This is a really exciting development in Hearing Link's journey," explained Dave King, the charity's user experience manager, and the man charged with rolling out the initiative nationwide.

"When we launched 'Let's Loop Eastbourne' in 2013, the campaign was designed to transform this beautiful resort into one of the best looped towns in the UK.

"It was all about creating awareness of the value of hearing loops; not only among hearing aid wearers, but particularly with service providers such as shops, churches, theatres, hotels, the railway station, as well as public buildings including the library, council offices and even the local crematorium.

"We are working with audiologists, the local council and even the media by changing a culture of ignorance to create a better quality of life for the estimated 20,000 hearing aid users in Eastbourne.

"In the space of 12 months we have achieved a lot and more needs to be done, but the Eastbourne model is the one we're looking to replicate nationwide."

Hearing loop systems work for people with hearing aids and some cochlear implants by cutting out extraneous noise.

In noisy settings, such as a shop or a bank, they allow someone



Dr Walter Wigfield from Hearing Link with equipment he uses to assess hearing loop systems

with a hearing loss to be able to communicate far more effectively.

The loops themselves provide a magnetic, wireless signal which is picked up by the hearing aid or cochlear implant when a Telecoil setting is selected.

The hearing loop consists of a microphone which picks up what is being said, an amplifier which processes this as a signal, and then a cable or wire is placed around the perimeter of a specific area which radiates the signal to the hearing aid or cochlear implant. It is very simple, but extremely effective.

There are three types of hearing loop systems; room loops, countertop loops or portable loops, with public and commercial buildings able to use all three. There are also loop systems which can be used in the home.

Hearing Link is working with partner organisations to make sure the loop system is available and working in a wide variety of environments.

Currently, a partner scheme to promote loops is taking place in Surrey in conjunction with the Surrey

Coalition of Disabled People and among their first pieces of work, volunteer loop checkers visited 23 libraries in the county to check the effectiveness of the hearing loops.

"Hearing Link is working closely with the Surrey Coalition of Disabled People on this project which will develop during 2014," added King.

"They have half a dozen very keen volunteers who are going to check whether public buildings and businesses in Surrey have loops, that they are working with good signage, and that the staff are trained in what the loops are all about.

"The challenge is going to be to find more volunteers who are prepared to help us make these checks.

"In a sense, we are giving hearing aid users the perfect opportunity to take control of their environment, to encourage more working loops to be installed in places which really matter.

"Millions of people in the UK use hearing aids and hundreds use cochlear implants – a large proportion of whom could benefit greatly from using hearing loops.

"What we are trying to do is empower people firstly to make sure they get the T-setting activated on their hearing aid – this is something which is easy for an audiologist to do at the time of fitting or when checking a hearing aid. Then they should make a point of using the hearing loops that are available in banks, shops, council offices, healthcare facilities and theatres."

Over the next year similar schemes are being planned for Bournemouth, Southampton, Swindon, Brighton, Lewes, Cambridge, Liverpool, Newcastle, Edinburgh, Stirling, and Cardiff, as well as in Northern Ireland. ■

www.hearinglink.org

Vivoca gives speech impaired people a voice

Voice recognition system speeds up communication

Researchers at Sheffield University have developed a voice recognition system that turns the sounds made by people who find it difficult to talk into clear, synthesised speech.

The Vivoca device, a world first, was developed by the University's new Centre for Assistive Technology and Connected Healthcare (CATCH) together with communication aids company Toby Churchill.

A microphone in the Vivoca picks up the sounds made by people who have difficulty articulating their speech and translates them into synthetic speech that is output through a loud speaker.

"The problem for people with dysarthria, who have difficulty speaking, is that the number of words existing software can recognise is very small even if you train it," said Professor Mark Hawley, director of the Centre. "It is designed for normal speech and you just can't move the model that far."

The Vivoca software, which runs on Toby Churchill's SL40 communications aid hardware, is trained to understand a user's often limited vocabulary, typically 30 words.

Professor Hawley estimates there are some 3,000 people in the UK who could use the Vivoca. For some users it will be the first time they can communicate with people beyond their close family and friends.

At present the device is being trialled with five users, but Professor Hawley believes that it will be made more widely available.

"We are evaluating the Vivoca at the moment and I hope it will come to market and that Toby Churchill will be involved," he said.

The alternative to using the Vivoca for many people is to use a switch to scan through lists of words

that are then spoken by a synthetic voice.

"The Vivoca is faster than a scanning switch and you can use it without looking down so it makes for more natural conversations," said Professor Hawley. "We have also had feedback from people who say they prefer speaking to clicking buttons."

Jon Toogood, who has cerebral palsy, is one of the patients in the Sheffield city region currently trialling the market-ready version of the technology.

"Not being understood can be degrading, as some people assume that my speech impediment means that I must have learning difficulties and treat me like a child," he said.

"As an intelligent adult this is both frustrating and annoying. Vivoca helps me to communicate faster and more clearly when I need to and it's helpful in noisy situations.

"It also will give me the confidence to talk to people I don't know as sometimes I can't be bothered to put myself in a situation where I know someone may not understand what I'm saying."

The Vivoca was demonstrated at the official opening of CATCH. The Centre brings together the University's expertise in health research, engineering, psychology, computer science, architecture, and social science to develop new technologies to help people to live independently.

"Vivoca is a good example of what can be achieved with this kind of collaborative research," said Professor Hawley.

"As well as computer scientists – who develop the software – the project has involved healthcare professionals and industry to turn an idea into a product which is now ready for market.



Professor Mike Hawley (left) with Jon Toogood

"What's special about CATCH is that by integrating researchers from so many different fields, we are able to look at the whole picture – not simply the technical issues, but also how a technology can help improve or reduce the costs of healthcare and how it can respond to the needs of the people who will use it."

Two other technologies developed at the University of Sheffield were also shown at the launch: NANA, a technology to help elderly people manage and improve their nutrition and SMART, which helps people who have had a stroke to manage their conditions and improve their quality of life.

CATCH will also house a new laboratory – called Home Lab – which mimics rooms in an ordinary house but which is fitted with cameras and other sensor equipment.

The Home Lab will be used to test – in 'real' situations – how people use new technology or devices in the home, to help ensure they meet the best design and healthcare standards. ■

www.sheffield.ac.uk

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Have laptop, can travel

Mark Davidson looks at how easy it is for disabled business travellers to access assistive technology

With many organisations sending their employees to meetings and conferences around the world, the need for hi-tech gadgets has never been greater.

Whether it is the latest laptop, smart phone or iPad, users often need access to information straight away. This may not be an issue for the majority but what if you have a disability?

How easy is it for an amputee to operate a touch screen device or someone with hearing difficulties to communicate if they are in an overseas environment where the same devices might not be available as can be found in the UK?

For many office environments, a number of software products are on the market. For employees with partial or no sight who need to read webpages or Word documents there are a number of programs available such as Jaws, NVDA and Hal for Windows operated PCs.

Jaws is one of the more popular pieces of software on the market. It works with many different applications and converts the text on screen to synthesised speech.

Due to worldwide availability, the majority of organisations should be able to accommodate this type of software in meetings.

Apple Macs tend to have a built-in screen reader so these issues should not arise on those machines.

If the need arises to scan text, Kurzweil is the ideal software for the job. It reads out the words that are on the document and is one of many optical character recognition (OCR) products in use.

In meetings around the world, businesses are recognising the need to value their employees at all levels within organisations and many wheelchair users have their chairs adapted to allow them to work more freely in modern open office spaces.

A number of companies have devices which fit onto chairs and hold any range of touch screen devices, at an angle, directly in front of the user. Smile Rehab sells a number of mounts to fit chairs of all sizes.

European and American companies aside, there are still issues in parts of Asia and the Indian sub-continent where technology is less likely to be accessible.

Many people with disabilities face problems getting employment in developing countries and, as a result, some technologies are not available in the work place.

China, however, due to its growing economy, has realised the potential of including employees with impediments and the China Disabled Persons' Federation has been encouraging businesses to employ more people with disabilities and making workplaces more accessible.

In countries where blindness is a big problem, there have been initiatives set up to help those who have difficulties reading documents unaided. It is hoped this will encourage a number of organisations to employ more people who cannot see properly.

In India, the National Institute of Visually Handicapped (NIVH) launched the Online Braille Library at the Ali Yawar Jung Institute for the Blind in Bandra.

With over 12,000 titles in 14 different languages, the NIVH hopes the scheme will encourage more students to go into business, thus raising disability awareness in big corporations globally.

Large screen magnifiers are a simple solution to help people if they cannot see properly and they can fit many VDUs in different shapes and sizes. For those with no sight, braille has been vital in allowing documents to be read.

Braille displays are electronic devices that connect to computers to produce tactile braille output from the display on-screen. Similarly, note takers are mobile devices that use either braille or a keyboard for input and voice and refreshable braille for output.

There are also embossers, which are specialised printers that produce embossed documents – using translation software to convert electronic documents into braille before printing. There are a number of other sight products available.

A screen reader is a specialised program that converts electronic text to speech and outputs it to headphones, speakers or refreshable braille devices in line with user preference.

They utilise an accessibility application programming interface to access either a web browser or the web content, which in turn communicates with the software.

In many western organisations, business technology is taken for granted and global meetings are easy to set up, even for those who need extra help. The audio induction loop is widely available in offices around the world, allowing those who have partial hearing to hear

When overseas, disabled business travellers may not find it easy to source the assistive technology they need



everything that goes on within the office environment.

They are basically a loop of cable around a building or designated area. This generates a magnetic field that is picked up by the hearing aid.

These are becoming more widespread in the western world. C-Tec is one company that has developed a portable induction loop system, making it possible to set up this system in different locations.

However, in some poorer countries, there is still an issue as to availability. In the United States, a newer technology using FM transmission as an alternative to neck loops is becoming widely established and they are seen as a good alternative to the traditional hearing loops.

In every office, in every building, it seems that everyone has a smart phone or similar touch screen device. Unfortunately, not everyone finds them easy to use. If you have arthritis, for example, or you are an amputee, your prosthetic limb probably means that you cannot use a touch screen.

There are many varieties of stylus pens on the market. These come in handy if you have problems touching the screen accurately.

In addition to the main manufacturers, companies such as Adapt-It produce a variety of mouth operated products ranging from devices to operate a computer mouse and gadgets for controlling a keyboard or screen without the requirement of someone's hand.

There are number of specialist mobile phone manufacturers that make devices for those with visual impairments and learning difficulties. NRS is one organisation that supplies phones specifically for these markets.

The company's phones feature large buttons, not

only for dialing but which can be used to store contact numbers, making it easier to recall numbers in future.

In summary, whenever you need to be at an important business meeting, whether it is in the United Kingdom or abroad, the likelihood is that there is technology available to cater for your every business need.

So, the next time you need to fly over to America, just sit back, relax and enjoy the trappings of business class instead of having to worry about the meeting ahead. ■

Some of the products mentioned in this feature and where to get them

Jaws screen reading software is developed by Freedom Scientific Software
www.freedomscientific.com

C-TEC is one of the leading manufacturers of induction loop systems.
www.c-tec.co.uk Tel: 01942 322744

Smile Rehab Limited sells iPad mounts in different sizes.
www.smilerehab.com Tel: 01635 37550

Adapt-It sells a number of products, such as a head operated mouse.
www.adapt-it.co.uk Tel: 0844 414 1325

NRS healthcare sell telephones with larger buttons.
nrs-uk.co.uk Tel: 0845 154 0204

Bad press for Wordpress

One fifth of all websites are produced using Wordpress, but the free content management system is low on accessibility features. It is vital they are improved, argues Graham Armfield

WordPress is the world's most popular web content management system (CMS) and is now used on over 20% of the world's websites for small businesses through to large organisations.

But how easy is it to produce and run an accessible website using WordPress?

WordPress started life in 2003 as a blogging tool, but it has evolved over the years to become a true web CMS.

It can be used for pretty much any type of website – from a simple brochure ware site for a small business, through to a complex e-commerce site.

WordPress has helped revolutionise the production of websites. No longer is it necessary to learn HTML and CSS, and craft all your pages by hand.

WordPress can provide a free-to-download framework that anyone can use to create and maintain a dynamic website with no technical knowledge.

As well as the functionality provided by the WordPress framework, a WordPress website also consists of a theme and, optionally, a series of plugins – as well as the content itself of course.

The fundamental building block of a WordPress website is its theme. A WordPress theme is the template that is responsible for the layout and styling of the pages of the website.

It also includes the necessary functionality to pull the content (stored in a database) onto a web page.

A WordPress site will only have one theme active at one time, but it is possible to switch between themes at any time.

There are many thousands of WordPress themes

available – many are free, but paid for themes are also available.

The first place to start looking for WordPress themes is the WordPress theme repository (<http://wordpress.org/themes/>). There are also links within the repository to other third party companies that distribute and market themes.

Plugins can extend or change the functionality of a WordPress website. Some are simple, and some much more complex.

For example, they can add a Twitter stream to your site, improve the search functionality, or even add full e-commerce functionality.

As with themes, there are many thousands of plugins available and WordPress has a plugin repository (<http://wordpress.org/plugins/>).

Most of them are free to use. Unlike themes, it's possible for a WordPress website to utilise many different plugins at the same time.

The good news is that there is nothing in the core WordPress functionality that would prevent a WordPress website from being accessible.

And it's easy for content authors to add alternate text to images, use headings, and add meaningful links.

Most of a site's structure and functionality is provided by the theme, but searching the themes repository for accessible or accessibility will yield few results.

And the ones that are found seldom offer many options for customisation so may not be suitable for small businesses or larger organisations.

But does that mean that all the other themes will make a website inaccessible? The answer is that it's difficult to tell without investigating the individual themes in detail.



But from experience, most themes do contain elements or functionality that can compromise the accessibility of a website.

Typical issues would include poor visual indication of focus, keyboard accessibility of dropdown menus, multiple 'Read more' links and poor colour contrast.

Of course, if you're commissioning a website developer to build you a WordPress theme you can specify the level of accessibility that you wish to aim for.

Many plugins will change the HTML within sections of a website. So there is a real risk that these plugins can adversely affect the accessibility of a website, even if the underlying theme has a good level of accessibility.

Examples include: adding a non-keyboard operable lightbox, adding form elements without labels and so on.

As with themes, searching the WordPress plugin repository for mention of accessibility will yield few results.

There are plugins that claim to improve the accessibility website, but some of them are quite old and no longer function.

However, one plugin that is good is Joe Dolson's WP Accessibility plugin (<http://wordpress.org/plugins/wp-accessibility/>), which can help with issues such as removing redundant title attributes and adding skiplinks.

Unfortunately, the only way to successfully judge whether themes or plugins enhance or compromise accessibility is to try them out.

As well as considering the accessibility of a website produced with WordPress, it's necessary to mention the accessibility of the WordPress admin screens.

These are the screens that are used by the site administrators and content authors to maintain the website.

While the level of accessibility across most of the admin screens is fairly good, there are some key areas where accessibility is lacking.

Typically, there are areas that can't be used without a mouse, and there are also some places where the link text is not very informative. In certain situations some of the input fields also lack explicitly linked labels, and colour contrast needs improving in certain areas.

Generally, however, the level of accessibility is gradually improving with each new version of WordPress.

One of the reasons that progress on WordPress accessibility is slow is that it is built by literally hundreds of developers.

It's open source software and so anyone can sign up to contribute functionality to the WordPress core, or provide themes or plugins.

The level of accessibility knowledge within developers can be patchy or non-existent and it's unfortunately still the case that new functionality within the administration screens sometimes features a poor level of accessibility.

Given the popularity of WordPress and its use in so many websites now, it is vital that the level of accessibility within WordPress themes, plugins and the admin areas is improved.

Matt Mullenweg, a co-founder of WordPress, views WordPress as a tool for democratisation of the web. There is a danger that inaccessible features offered by WordPress could tarnish that view.

The good news is that there is a team of volunteers within WordPress who are trying to do something about this: the Make WordPress Accessible team.

The team members are mostly not employed by Automattic (the business behind WordPress), and many within the team are not at all technical.

But the team all share an ambition that there should be no accessibility issues within WordPress that would hinder maintaining an accessible website.

The team has recently been building bridges with WordPress developers to spread knowledge about accessibility and encourage them to discuss accessible solutions when new functionality is being developed, or changes to existing functionality are made.

A new accessibility evaluation stage is being added to the theme approval process – the process by which themes are accepted into the WordPress theme repository. Initially this accessibility evaluation stage is optional, but the Make WordPress Accessible team is keen to make it a mandatory check.

There are no current plans for a corresponding accessibility check for plugins, but this would certainly be useful.

The WordPress Accessibility team is keen to recruit more members – especially those who have experience with using assistive technologies such as screen readers or voice recognition software.

The cycle of development within WordPress never ends, and the open source nature of the WordPress project means that anyone can make significant input into the future accessibility of WordPress.

If you'd like to get involved, or if you wish to comment on the accessibility within WordPress, please contact the Make WordPress Accessible team via <http://make.wordpress.org/accessibility/> ■

Graham Armfield is web accessibility consultant and developer at Coolfields Consulting



The hidden cost of kit

Mark Davidson questions the one size fits all approach of the NHS that leaves some people out of pocket when they have to pay hundreds of pounds extra for equipment that meets their needs

With life expectancy due to rise considerably over the next few years, it is natural to assume that the cost of healthcare will do so as well.

Sometimes, for many, a visit to a hospital or medical centre will necessitate nothing more than a routine check-up with their local doctor.

However, what happens when a patient is diagnosed with a condition or illness that requires the use of equipment?

If it is a short term ailment for injuries such as a broken leg, you may need the use of a wheelchair or crutches for a while.

These can be borrowed from the local hospital at no cost and returned in due course. It is often thought that people with disabilities get all their equipment free from charities and the NHS.

However, for many wheelchair users a basic chair doesn't always meet their requirements and, as a result, they have to pay towards or fund entirely the cost of a new wheelchair.

Similarly, people with impediments who drive often have to pay to have their vehicle modified. This can run into many thousands and this is not always covered by the Motability scheme.

For those with disabilities or impediments receiving equipment provided by the National Health Service, it can be a different matter entirely as long term decisions have to be made as to the cost involved.

Standard pieces of equipment are often 'one size fits all' due to budget constraints, so many opt to pay for their own pieces of equipment. For others, funding from the government is not always possible so they have to pay for goods and services themselves, thus leaving them out of pocket for other essentials.

Companies such as Home and Medical provide kit for those who may find standard pieces of equipment do not meet their exact requirements.

"Our customers tend to come to us to access a



much wider range of specialist products with many more features and higher specifications; equally, they perhaps need to replace mobility items that have been withdrawn even though the need for these items still exists," says the firm's Robert Shimmin.

"For example, we provide discreet pull-up pants for incontinence – not normally available as free issue but they provide greater ease of use to sufferers. People buy these from us because they cannot get them through the NHS.

"We also sell a range of lightweight products designed for travel – not usually available on loan – but they give users great freedom and ease of portability. People also tend to top up their incontinence products from us because supplies to them are limited.

"The NHS may not have the necessary items available so they have to go private and it seems many disabled people's reasonable requirements are not being met under the current system."

David Nawej from the Haringey Wheelchair Users Group relates his own experiences.

"I purchased my first wheelchair on the internet, which lasted a couple of weeks and broke down while I was visiting my GP.

"In view of the circumstances, he referred me to the Haringey Wheelchair Services (now Mobility and Seating Solution). The chair I received was heavier and very difficult to manoeuvre.

"I then received a lighter one, which I have been using until this November, with the assistance of my wife. On the same day, at long last, I received a powered (electric) wheelchair.

"It was such a change and a relief. From then onwards, I felt I was more independent. I can move where I want and go out and about without the help of my wife.

"It is also a relief for her and it has brought a huge change to our lives. The provision of Mobility and Seating Solution is great.

"My contribution to this powered wheelchair consisted of a subscription and insurance along with some essential accessories. The insurance costs £59 a year, which I am very pleased to contribute to."

Graham Day who runs the Haringey Wheelchair Users Group adds: "It is

often the case that the type of chair that is offered to the client of a wheelchair service may be different to the type of chair the client would like. In these instances the option of choosing a chair through the voucher scheme may resolve the issue. This is, however, on a case by case basis."

The National Health Service wheelchair voucher scheme is provided to help those who need the use of a chair, although many feel that although it does not meet their exact requirements, it seems to be a case of make do with what you are given.

In operation since 1996, it was devised to give the user a greater choice in the wheelchair they receive. If a user agrees to maintenance of the chair by the NHS, they will have to return the chair to the local health service when they no longer need it. However, wheelchair users can opt for private maintenance, which will allow them to keep the chair permanently.

One of the most famous recipients of assistive technology is Stephen Hawking with his augmentative

and alternative communication (AAC) device.

However, for many the cost of these devices can be prohibitive and as result leave them without the proper means to speak to those around them.

There are many costs associated with communication devices, not all funded by the NHS. Due to research and design, the latest devices are often out of reach for all but the richest in society.

The charity Aspire is one organisation that tries to help people with spinal injuries who may need additional technology.



David Nawej, from the Haringey Wheelchair Users Group, struggled to get the right powered chair that suited his needs

"One of the principal reasons Aspire provides practical support to spinal cord injured people is that disability is expensive. SmartNav technology, which can help someone without the use of their hands to use a computer, costs £250," Amy Wackett from Aspire points out.

"A lightweight wheelchair, which allows for greater independence, can cost in excess of £3,000. At Aspire, we know from experience through providing the Aspire grants service

that essential equipment like this is out of reach for many people.

"The wheelchair voucher scheme is supposed to enable people to use the money that the NHS would have spent on providing a wheelchair to buy one that is better suited to them.

"Of the 24 people who applied to us last year with a voucher, the average shortfall between the value of the voucher and the price of the wheelchair they needed was £1,800.

"While we work to provide practical support, changes need to be made at policy level to ensure that disabled people have access to the equipment they need to live independently, and that this equipment is seen as a necessity, not a luxury." ■

Further links

The following DirectGov website offers general advice for people with mobility issues: www.direct.gov.uk/en/DisabledPeople

Smart answers

Ted Page, Jon Gibbins and Lucy Pullicino look at progress towards making exams accessible and conclude that smart mobiles could provide some of the answers

Last year saw assistive technology (AT) allowed into GCSE and A-level examination rooms for the first time (*Ability* issue 91, Autumn 2013).

However, permitting the use of AT is one thing – ensuring that exam papers themselves are accessible, both technically and in terms of their content, is quite another.

It is clear that pupils with special educational needs (SEN) are still being outperformed by those without such needs.

According to the Department for Work and Pensions statistics for 2010/11, the percentage of pupils achieving five or more GCSE or equivalent qualifications at grades A* to C were:

- Pupils without SEN: 88.9%
- SEN pupils without a statement: 59.2%
- SEN pupils with a statement: 24.9%.

Although these figures are better than those of previous years, there is clearly still a long way to go.

The reasons for these disparities are many and various, but there can be little doubt about the impact of an exam paper that is difficult to read, navigate or otherwise understand using AT.

Often the simplest option for making exam papers accessible, given the current state of technology, is a properly tagged PDF.

In many cases it's fairly straightforward to convert an exam paper designed for the printed page to an accessible PDF.

The need for 'tagging'

Provided the content is created in an accessible way, and provided you have the necessary 'tagging' know-how, a PDF can be created in such a way that AT users should have no problem using it, including inputting their answers.

However, as the examples below will show, technical accessibility is not sufficient. The questions themselves may be drafted in such a way that they create barriers.

Generally, text-based exams, such as English GCSEs, present few problems. However, other types of content can be less straightforward.

For example, in an informal survey of 20 recent Maths GCSE papers, on average some 25% of the questions

contained accessibility issues.

As will be seen, some of these problems can be fixed relatively easily, some may require a bit of thought and the odd workaround, but some may be resolved only by exploiting more modern technologies (more on which below).

Our first example is simply a less-than-optimally worded question: "A cuboid has ... faces?"

In this case a student using a screen reader would typically hear something like: "A cuboid has edit number of faces type in text faces".

The structure of this single string of text is:

1. The first part of the question
2. Instructions on how to answer the question
3. The remainder of the question.

Without the aid of the visual cues built into the layout of the text, this is likely to be confusing, time-consuming and energy-sapping to deal with.

However, if the wording was changed to: "How many faces does a cuboid have?" ..., the screen reader user would instead hear something like: "How many faces does a cuboid have? Edit number of faces, type in text."

The structure of the reworded question is, of course:

1. The question
2. Instructions on how to answer the question.

The result is a clear, simple, usable and accessible question.

The second example, as it stands, assumes both that the candidate is sighted and that he or she can use a pencil to draw a graph.

The question is as follows:

"On the grid draw the graph of $y = 2x + 3$ for values of x from -2 to 2."

In order to assess how accessible this question is, it is essential to be clear about what aptitudes are being tested for.

At a minimum the candidate is required to solve the equation, to calculate different values of y for given values of x , and hence to specify a set of co-ordinates from which to plot the appropriate line.

If this was indeed the only aptitude being tested for, the question could be made accessible to various AT users who certainly could answer by describing in words the process of calculating the required co-ordinates.

However, if the examiners also intended to test for the ability to correctly draw a line based on those co-ordinates (and perhaps also to verify that the line accurately represented the equation) then, as will be seen below, this is where a PDF will need to give way to newer technologies.

Lastly, consider the following question:

"Measure the length (in centimetres) of the line AB. Write your answer in the box provided."

A _____ B

This is included as an example of a question that's very difficult or even impossible to make accessible to standard AT using a PDF.

It would perhaps be possible to accommodate using older technologies such as tactile graphics and a Braille ruler, but the cost and practical difficulties are likely to be prohibitive.

Accessible and inclusive education

Education has an exciting future for all students, but in particular technology will allow education to be much more accessible and inclusive.

Affordable, smart mobile devices are increasingly offering a high standard of assistive technology, including screen readers, zoom tools, Braille device support and many more innovative features.

Already, there are apps available for iOS and Android devices that help SEN students: large-text and talking calculators; games to help develop literacy, maths and dexterity; augmentative and alternative communication aids; sign language tools, and so on.

In addition, ebooks are making text books more accessible to students, and technologies such as HTML5 and Mathematical Markup Language (MathML) can be used to make even the most complex content accessible.

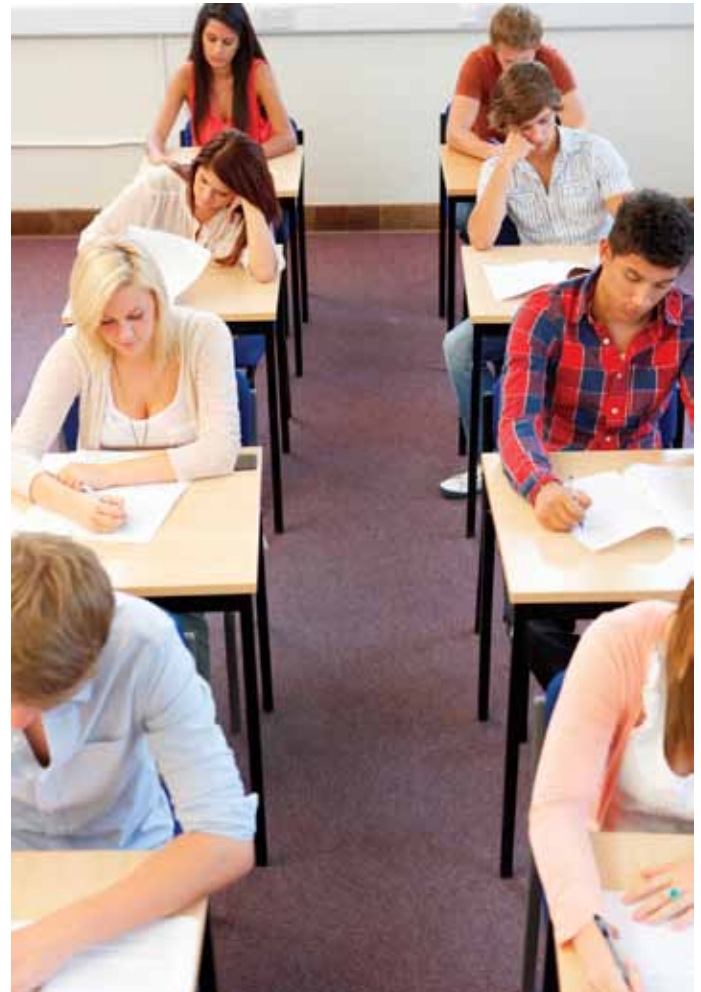
MathML enables mathematical information and structure to be coded so that web browsers, ebooks and apps can accurately portray it, whether visually or through alternative means such as speech or Braille.

Apps and ebooks will take centre stage

Future developments will see apps and ebooks play a more important role in classrooms and exam rooms. The prevalence of touchscreen devices now means that we can provide students with more accessible, interactive learning environments and exam questions.

Take our second example from earlier where students may be required to plot a graph. It is entirely possible to develop interactive graph paper for touchscreen devices. A blind student, for example, could plot graph points using only fingers and spoken feedback from a touchscreen tablet.

Alternatively, graph points may be plotted using voice commands: speech recognition software exists that can



Exams remain inaccessible for many students

understand mathematical commands to create graphs.

Data can also be used to generate sounds that aid understanding. Imagine audio graphs in which data is plotted as a musical melody or whistling pitches.

Research shows this to be fast and reliable, and is likely to be a much better way for visually impaired students to work with data than traditional tabulation.

The future of education is an exciting area. Innovations are bringing assistive technologies into the mainstream and making them affordable.

However, there is certainly a conversation yet to be had between accessibility specialists, technology experts, exam boards and examiners, teachers, students and test centres, to ignite new ideas and drive development forward.

We look forward to being a part of that conversation. ■

Ted Page is accessibility consultant and director, DIG Inclusion

Jon Gibbins is mobile accessibility specialist and technical director, DIG Inclusion

Lucy Pullicino is user experience specialist and director, DIG Inclusion

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So much more to see

The BETT show is now one of the largest Educational Events in the calendar and since the move to the Excel Centre its growth has continued at a rapid rate, becoming even more of an international event than previously, writes Stuart Pattison

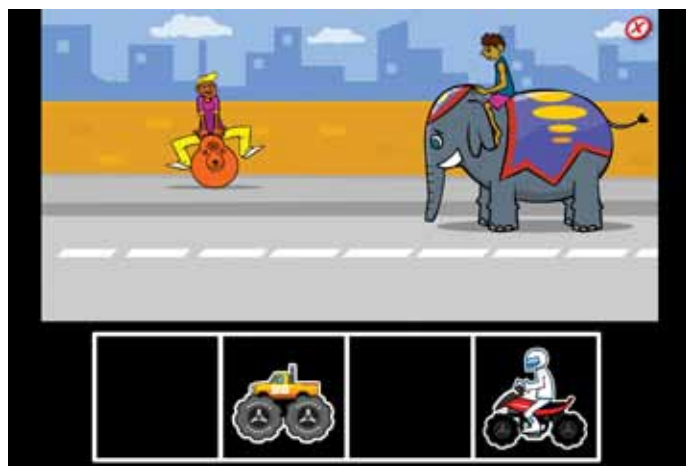
The result of the growth of BETT is that many suppliers now launch their new products in time for the show. This is fantastic in some regards for the visitor as it provides an opportunity to see everything that is new in one place but the down side is that it is difficult to see what is out there when there is so much to see.

Here is the pick of the companies that are launching or promoting new products at BETT 2014.

HelpKidzLearn – Stand SN95

Inclusive Technology will be having a big push on its online service HelpKidzLearn, www.helpkidzlearn.com, this year.

The service works as a online resource for a range of activities as well as a showcase for Inclusive's other products, especially the new version of the popular Choose It Maker which will feature prominently at the show.



One of the games available on HelpKidzLearn

The resources have the distinctive style and high quality of Inclusive Technology products and the price of £99 per school and £39 for an individual for a year's subscription seems fair for the range of resources provided.

Like many exhibitors at BETT, HelpKidzLearn has moved onto apps with a range of apps based on the activities on the website available for both Android and Apple devices alike.

These are especially useful if one particular activity is a favourite as it is worth remembering the main site does

not work through tablet devices.

The site continues to grow and it is adjustable for different levels of skills and, as with many sites which are designed for SEN, it can also be used with early years.

HelpKidzLearn will feature on the large Inclusive Technology stand at the show. Before the move to Excel, Inclusive set up the Special Needs Fringe but now the company is very much part of the main show and well worth a visit.

Crick Software – Stand D210

One company looking to build on a highly successful year is Crick Software whose Clicker 6 set the standard for new products, winning two BETT Awards and an Educational Resources Award.

Designed with close collaboration from teachers, Clicker is a high quality program that has provided the base for their new range of products.

At the heart of Clicker is an effective word processor in which word prediction and word banks can be used to aid writing.

Effective speech software reads back what has been written, albeit in the ubiquitous robotic voice.

It is how well the software works that really sets it apart from other programs.

Once you have scratched the surface, however, there is a great deal more to Clicker. The world wide community of users means that there is a huge number of resources available to all users for free.

This means that if you are looking for a resource there is a very good chance that someone else has already made it, saving you time.

Crick will be launching Clicker Books at the BETT Show. It is an app designed for students to produce their own talking books.

Based on the framework of Clicker 6, the app is designed to be used by a wide range of students and is easily picked up by Clicker 6 users.

It is a complimentary product to Clicker Docs, which was launched with great success last year. Docs is effectively portable Clicker for the iPad, turning it into an accessible word processor very easily.

Both resources cost around £20, which means that they are not unreasonably priced for the functionality they provide.

Crick will also be heavily promoting its secondary education resource WriteOnline. This is a word processor designed to aid students with word prediction and word banks in a more secondary layout.

The tool is especially useful as it can be installed on an individual computer as well as through the web. An iPad version is also available.

It is a strong line-up from Crick and the company will surely be in contention for another BETT Award this year.

Connevens – Stand A450

Connevens will be promoting its Soundfield system this year with the emphasis on a new wireless version. The system works by increasing the volume of a teacher's voice.

This does not mean, however, that it is a PA system in the traditional sense.



Soundfield saves teachers' voices

Soundfield is designed to produce a natural, slightly amplified sound throughout the classroom from wall mounted panels. This means that all students can hear much better especially those who are hearing impaired.

The system is easy to fit, says

Connevens, with a neck microphone for the teacher, which is wirelessly linked to the speakers on the wall.

Connevens has found that in most classrooms only 15% of the sound reaches the back of the room. The Soundfield system enables students at the back to hear as well as those at the front and saves teachers' voices.

In addition the system can be expanded for much larger spaces and as a result school halls or lecture rooms can be set up so that all students can hear much more clearly.

The classroom system is around £700 with a whole school hall costing £2,200. It is a relatively inexpensive way of making sure all learners are engaged.

iansyst – Stand B25

iansyst will be showcasing app and cloud technology developments including CapturaTalk, azzapt and Accelerate Accelewrite. The company will also be demonstrating its existing education product portfolio.

The company's stand has the latest literacy support software including version 4 of its CapturaTalk for Android. CapturaTalk allows learners of all ages and abilities to take a picture and convert it into digital text

using Optical Character Recognition (OCR) technology and hear it read back aloud on Android mobile phones and tablet devices.



iansyst's CapturaTalk synchronises colour highlighting of words or sentences as they are read aloud

Texthelp – Stand SN100

Texthelp launched the latest version

of its literacy application Read&Write Gold last year. The software is aimed at dyslexic students and provides reading, writing and study skills support.

Additional features include Voice Note that allows users to create and embed recorded voice notes within a Word document and Word Cloud, which enables a user to create a visual presentation of words as a list or cloud.



Students at Sacred Heart School using Texthelp's Read&Write Gold

New expressive male and female voices have also been added to the software's speech output, as well as an enhanced spell checker that produces more accurate suggestions.

A flexible toolbar enables students to work independently in class and on coursework. It can also be used as a computer reader in exams. At BETT, Texthelp will be giving away headphones and running a daily competition to win an iPad mini. ■

Stuart Pattison is head of ICT Vision at St Hugh's Communication and Interaction Specialist College, Scunthorpe.

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Dragon users take wing

Assessor and software trainer Carol Doyle explains how she goes about ensuring students make best use of voice recognition software

Voice recognition software is a vital aid for people with a wide range of disabilities, making it one of the most widely used pieces of assistive technology.

Those who benefit from being able to talk to their PC or tablet computer range from people with literacy difficulties such as dyslexia through to people who do not have full use of their upper body. The technology can also be used to combat repetitive strain injury.

Although voice recognition is now built in to many systems, users often opt for a third party application such as Nuance's Dragon NaturallySpeaking for the PC or the company's Dragon Dictate, for Apple systems.

These Nuance products are by far the most widely used voice recognition packages, offering greater accuracy and more features than manufacturers' own versions.

However, practice in using the software is vital in getting the most out of Dragon, says software trainer Carol Doyle, who assesses and trains students at the Open University as well as doing assessments at Cardiff and Swansea universities.

Doyle estimates that she assesses up to 120 students

and trains approximately 50 students a year.

"Of the students I assess at the brick-built universities, about 80 or 90% have a specific learning difficulty such as dyslexia or dyspraxia," she says.

"With the Open University, the cohort of students is very different; some students I assess and train can have up to five or six conditions including a mental health condition and several physical conditions such as arthritis, fibromyalgia, disc degeneration and so on.

"The students I assess can range from an anxious 17 year old who had not attended school for many years due to his condition to a 74 year old studying law because it was something he always wanted to do."

A wealth of experience

Doyle has extensive experience in assisting disabled students. So much so that at one time she was commissioned to write a guide for academic staff on ensuring that their curriculum was accessible to all disabled students.

Doyle wrote *Accessible Curricula: A Good Practice Guide for All* while working at Cardiff Metropolitan



University.

"At assessment, if a student has not heard of Dragon or seen it in operation, before demonstrating it I often introduce them to its benefits by creating a personal scenario for them so that they can visualise how Dragon will aid them," Doyle continues.

"For instance, if a student has a back problem and has difficulty sitting at a workstation for too long before having to get up and move around due to pain, I explain that with the wireless version of Dragon he can stand up, walk around and still dictate.

"By creating this kind of scenario and outlining some of the basic principles of Dragon before demonstrating the software gives students a good idea on how easy it is to use and how it will benefit them."

The students she has assessed have a large number of different conditions including specific learning difficulties such as dyspraxia and dyslexia to medical conditions and mental health.

"To ensure that students fully understand Dragon, I always allow three hours for training. Many other pieces of software can take less training time, depending on how computer savvy a student is.

"This is in order for the student to feel comfortable with the concept of talking to the PC as much as it is to direct them how to use it. Once the training has been completed, I always stress that the more Dragon is utilised the more accurate it will become, particularly as the user becomes proficient in the use of commands.

Doyle does not see students after training so she does not always know to what extent Dragon has benefitted them. However, she often hears success stories.

"I once assessed a 70 year old student who had pain in his wrists due to dystonia and this impacted on the amount of work he could produce using a keyboard and mouse input method," she recalls.

"I recommended Dragon as a strategy for him. Once my recommendation had been approved by the finance body I re-visited him and carried out the training.

"Some months later I received an email from the student thanking me for my support and telling me how much Dragon had changed his life.

"In his email he told me that not only had he submitted his first essay to the Open University but had done it all



via Dragon. He even created the email using Dragon."

Dragon can also benefit students with complex conditions, says Doyle.

"I assessed a quadriplegic student who had had an accident that broke his neck and left him paralysed. He was determined not to let this stop him playing wheelchair basketball and had returned to work part-time.

"He commenced a part-time degree in Spanish with Open University. I introduced him to the idea of using Dragon to aid him to produce written work more easily; he was using his knuckles to access the keyboard.

"Understandably, the suggestion of this greatly improved strategy for producing work excited the student. We agreed on him using the Spanish version of Dragon.

"When I went to his home to commence training on all the software that was recommended, it was Dragon he wanted to try first.

"During training – and even with the student's very strong Welsh accent – he was able to dictate a large paragraph in Spanish without one recognition error."

Doyle says she still hears occasional negative comments about Dragon.

"There is the perception that it doesn't work effectively but this is often based on experiences from years ago or hearsay.

"Years back, some needs assessors were reluctant to use or recommend Dragon. I tell students that Dragon has been on a long road to improvement and it has come a long way in the last five years.

"I explain that it has improved greatly and tell them, 'please don't think that it doesn't work...as I have a long list of happy students that can prove that it does.' ■

www.nuance.co.uk/go/education

The best way to help Dragon users

- Deliver the whole training session
- Explain to the student where and how Dragon can benefit them
- Let them feel their way around Dragon naturally and let their intuition guide them
- Stress the need for continued use and perseverance to achieve the best results

Tech visionary

Paul Hopkins runs a business at a leading college for blind students. He talks to Ray Piggott about the technology that's important to him



Paul Hopkins relies on technology to carry out his work

It's 11pm in Los Angeles, California. Relaxing at home a local resident hears an 'incoming' alert from his smartphone.

The picture he receives is one of an empty blue sky; the accompanying message asks simply, "what's the weather looking like today?" He pings back a reply.

Meanwhile, eight hours ahead of LA, it's 7am in Birmingham, England.

In an instant, the reply has travelled 6,000 miles across the continental USA and the Atlantic Ocean to arrive on Paul's iPhone in Brum.

Paul is blind. He uses his iPhone's inbuilt voice output to listen to the message; it says "looking good buddy, just a few high clouds in a blue sky, have a good one."

Twenty minutes later Paul leaves for work, dressed appropriately for the day ahead.

VizWiz is an iPhone app that allows blind users to receive quick answers to questions about their surroundings.

VizWiz combines automatic image processing, anonymous web workers, and members of a user's social network in order to collect fast and accurate answers to their questions.

It's 8.30am in Paul's office where, as manager of 'All Formats', he heads up a team of five producing information in braille, large print and audio for customers including major banks and telecoms providers.

The office is hectic as the morning's raw data has just arrived. However, Paul's right hand man is already fast asleep in the corner. Head on paws, Usher has guided Paul safely from home to work using the train, bus and pavement.

Paul is a tech-head and uses technology constantly in both his work and personal life. We caught up with him for *Ability*, while he took Usher to stretch his legs at lunch time.

Ray Piggott: Have advances in technology left you

behind or have they levelled the playing field for blind people?

Paul Hopkins: A bit of both really. Convergence of technologies has meant that many features that benefit sighted people also help blind users. Voice recognition and speech output are examples. This means that everyone wins from the research and development.

What's happened socially is incredible, we turned our backs for a second and the future arrived.

I have come to rely totally on my iPhone, Apple seems to have nailed accessibility and the needs of blind people really well, with Android coming in a close second.

Even with Usher I use talking satnav all the time. Online, real time bus and train information has improved exponentially.

VizWiz and Tap Tap See can help me by identifying things I cannot see, such as what's in a letter I receive? Or maybe, what's in this tin, strawberries or baked beans? Hot strawberries on toast are not good.

RP: Has the growth of smartphones with touch screens excluded you from joining in the online conversation?

PH: Not at all, I live on social media, and on business networks. These are as accessible to me as to a sighted person. For some people, being blind can mean they become isolated, physically and emotionally; social media makes a huge difference.

Leisure seems to have been the biggest driver in the use of accessible technologies.

VIPAdvisor is a general help and advice service for the VI community and I curate a couple of platforms myself.

Audio Boo is a service that allows us to upload and share audio clips and of course Twitter, Facebook and Foursquare are invaluable.

I text and email constantly. Voice recognition on my phone allows me to do this as well as use the notes, calendar and reminders – it's been a revolution for me

and for thousands of visually impaired people.

Having bought myself an iPad I found that a midsize or smaller screen is easier to navigate without sight. So a smart phone or mini tablet are perfect."

RP: Have websites become more accessible?

PH: Not so much in themselves, but rather than rely upon web designers I use discrete software for navigating websites.

Safari seems to respond really well to web based infrastructures and I could not work effectively if it were not for products like Jaws or SuperNova. There's some pretty good free software out there too.

The great thing about smartphone apps is the ability to feedback straight to the developers. This has enabled me to influence updates of apps I use regularly.

RP: How do you remain productive at work, compared with sighted colleagues?

PH: Mostly it's about making myself an indispensable asset. My special skills are in braille and audio production.

The available technology enables me to be highly productive using my Windows PC and I am the only one in the office who can check the braille output first hand for accuracy.

When I use a screen reader to read what is on my PC I set it to read at seven times normal speed. This is about the same rate at which someone with sight would read.

Through practice I am able to understand the output, which sounds to most people like an excited chipmunk. This means that I can access information at the same pace as my sighted colleagues."

RP: Does the way you use technology give you any advantages over sighted people?

PH: Yes, some equipment has a braille keyboard and soft or refreshable braille output, a bit like a laptop without a screen. Using my braille skills I can make notes very quickly and access information literally at my fingertips.

Another benefit I have, through constant practice, is getting information from the web. I reckon I can find out any train or bus time or a piece of information quicker than someone with sight."

RP: Has technology replaced traditional braille?

PH: Definitely not. Nothing beats being able to dip into information in a non linear fashion. Audio books are great but they don't allow the listener to use their own imagination. Reading is a very different experience to listening. If it were not, the printed word would have become obsolete for everyone.

There has been some progress in labelling items,

including medicines, with braille. Braille signs are also essential in many buildings and braille menus allow my partner and me to be independent as diners, rather than dependent upon someone to read to us. There is still a long way to go though.

RP: How can employers help?

PH: Make sure that recruitment processes are as inclusive as possible. Let a visually impaired candidate bring in and use the technology they are familiar with, to demonstrate their abilities and productivity in their own way. Remember that there is more than one way to skin a cat.

RP: Do you have any advice for visually impaired job seekers?

PH: Some employers are far more inclusive than others. Make it your business to find out who they are. Decide your potential area of excellence, it may well lie in your use of technology.

Become the 'go to' person in that field. Use the resources available to you, there is a wealth of free information on the web and social media.

RP: What is your personal vision for the future of technology?

PH: In a word, haptics. I am convinced that soon touch screens will provide a range of tactile information through electronic means.

On screen, buttons will become 'feelable' and might even

detect where your finger is and move toward it. I also hope that through haptics, braille output will be possible on a standard touch screen.

I would like to see more developments for assistive technology in the workplace, the advancements in accessibility in social and leisure probably reflects the low number of people with a visual impairment who secure full-time employment.

RP: Finally Paul, will technology ever replace your guide dog Usher?

PH: No, I don't believe so, his innate ability to find his way around problems as they arise is invaluable. I use technology when it is the best tool for the job but Usher brings so much more, we are a team.

At the sound of his name Usher wags his tail and looks at Paul dotingly. There's no app for that! ■

Ray Piggott is director of Business Development at Queen Alexandra College, Birmingham and organiser of QAC Sight Village accessible technology events throughout the UK. www.qacsightvillage.org.uk



Hopkins is a committed Braille notebook user

Picture Perfect

Index Braille and Thinkable bring the visual world one step closer to blind and partially sighted people, writes Allana Grant

How does the old saying go: a picture paints a thousand words?

These sentiments are no less true for a visually impaired person.

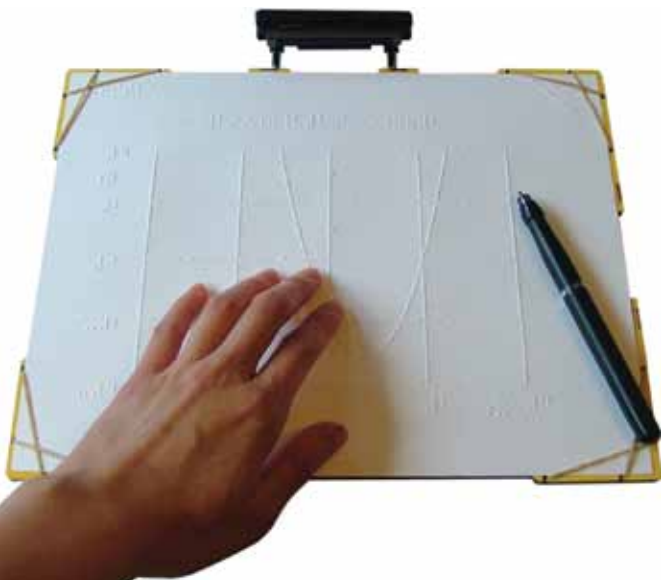
The last few years have witnessed a worldwide growth in demand for the conversion of images into tactile representations; with visually impaired people of all ages and backgrounds using raised diagrams for educational, recreational and professional purposes.

While a tactile diagram couldn't possibly come close to replacing a visual image; it does often form a useful aid to understanding the visual world.

Presenting complex and colourful images in a form that is meaningful to visually impaired people has traditionally been an extremely arduous and time consuming process.

Although drawings and photos are extensively available to us in journals, from books and on the internet; the majority of these images cannot be transferred directly to tactile format. Often, drawings are too detailed, colours are similar enough to cause confusion and shapes are difficult to distinguish.

So the image must be prepared for creation by removing much of the complex detail. The biggest difficulty lies in striking the correct balance: presenting visually impaired users with a diagram that provides them with all the relevant information as well as retaining some of the realistic features of the original image.



Thanks to Thinkable, developer of the TactileView software, and Index Braille, one of the world's leading producers of braille embossers, this situation could be set to change.

Index Braille announced, in a November newsletter, that all customers purchasing a new V4 Index braille embosser would receive a free copy of the TactileView Mini design software.

TactileView is a design programme that allows you to create and produce your own tactile drawings using a PC and a braille embosser.

The process is simple, focussing on designing a diagram rather than creating it from physical materials, and can take mere minutes in some cases.

Select an image to work from, import it in to TactileView, convert to a line drawing and customise it to suit your individual needs using the software's array of drawing and editing tools. The diagram is then ready for printing from an embosser.

An image from the internet, a scanned photo from a book/magazine or a drawing of your own design, the software will enable you to create a tactile image using almost any source materials. Once you have selected your image and imported it in to TactileView, customisation and processing begins.

The software allows users to reduce the complexity of the image, leaving as much or as little detail as is necessary: cutting an image down to its basic contours for example.

TactileView also gives users the option to add information for clarification. For example, include brailled explanations or use a variety of line styles, thicknesses and textures to create contrast.

The software has extensive drawing tools that are of great use in a learning environment, such as a compass for drawing pie charts. It is also highly effective as a mobility aid: allowing users to print raised street maps.

Processing complete, hook your PC up to a V4 embosser and away you go. Index's V4 series boasts a whole host of features which make them highly compatible with the TactileView software.

TactileView takes advantage of a V4 embosser's ability to print up to 50 dots per inch in tactile resolution, to produce high-resolution diagrams.

These machines also have the option to print on differing paper sizes as well as a function for making unlimited copies of your diagram. You can additionally choose to just print a braille diagram or one which has corresponding print graphics overlaying the braille.

Index V4 embossers and TactileView software combine to ensure that blind users can enjoy tactile images of any kind. ■

www.tactileview.com

www.indexbraille.com

Driving on the tip of your tongue

Researchers are building systems that allow power wheelchair users to steer with their tongues or by eye gaze, finds Allana Grant

Recent advances in digital technology have revolutionised the way in which power wheelchairs are controlled.

Research into robotics and advances in biomedical technology have led to the recent unveiling of two control systems that are set to change the lives of wheelchair users who are completely paralysed or have limited power in their arms and hands.

Who would have guessed that a simple tongue piercing could transform the way people with quadriplegia or tetraplegia interact with the world?

A team from the Georgia Institute of Technology, led by Dr Maysam Ghovanloo, has developed a ground-breaking product that will enable people with paralysis below the neck to control a range of devices using their tongues.

How does it work? The person has an unobtrusive tongue piercing, housing a tiny magnet. The movement and precise position of the piercing are detected by sensors in the cheeks and converted into commands.

Pre-determined commands are passed to the 'tongue-drive' wheelchair's computer device via wireless technology, giving the user operational control.

Why the tongue? This organ remains unaffected by spinal cord injuries as it has its own hotline to the brain.

Therefore, the technology is ideally suited to people who are unable to manoeuvre power wheelchairs. In addition, our tongue is incredibly supple and deft, with an astonishing capacity to perform intricate movements.

Results of a recent trial were extremely encouraging. Able-bodied and tetraplegic people took part, utilising six pre-programmed tongue positions to control various devices.

On average, the people with tetraplegia performed designated tasks three times faster than their non-disabled counterparts. The piercing's accuracy levels also compared favourably with those of other technologies currently on the market.

There are however, a few creases to iron out before the technology becomes commercially available.

The team from Georgia is working to improve the product's performance and there is red tape still to bypass.

The greatest challenge, however, will lie in making this costly product accessible to the general public.

Stumbling blocks aside, the future looks promising. Researchers hope eventually to develop a command for every tooth in the mouth.

Another initiative, which is taking centre stage this year, is the Robotic Adaptation to Humans Adapting to Robots (RADHAR) project, funded by the EC.

RADHAR's brief is 'to build a system that can develop better wheelchairs for those suffering from multiple sclerosis, cerebral palsy or a variety of other syndromes, such as autism and muscle diseases.'

Lead researchers from five European countries have developed technology that enables wheelchair users to navigate safely while enjoying increased autonomy and control.

This unique technology uses co-operation between human beings and robots to ensure that wheelchair journeys are much smoother.

Signals from the human user and information about their environment – identified by two Kinect cameras and an on-board computer – combine to enable a robot to navigate safely in a variety of terrains.

One camera constantly scans the user's environment. The computer generates a map, based on these scans, which identifies hazardous obstacles.

Meanwhile, a second camera focuses on the user, analysing the direction of their attention. Finally, the user gives the robot steering signals via a joystick.

This has inbuilt haptic sensors that provide the robot with information about the strength and accuracy of these signals. The robot collates all information, interprets it and plots an uninhibited path for the chair to travel.

The system works on the assumption that the focus of your gaze correlates with your intended route.

RADHAR provides a solution for people who are unable to operate a wheelchair due to a physical or cognitive disability: it is smart enough to interpret and correct inaccurate or weak steering signals.

The robot provides as much or as little assistance as the user requires, depending on what they communicate to it via sensors. ■



Dr Maysam Ghovanloo (left) with his tongue drive system

Respexi ensures no one is alone

Sight and Sound Technology, a company that supplies technology for people with sensory disabilities, has developed a system designed to combat loneliness among older people.

The company's Respexi tablet, available in February, is aimed to be easy to use and accessible to those with dementia or sensory loss.

On the tablet's home screen, there are nine simple icons. They provide access to messages, a diary, reminders, a radio, photos and people who can be contacted via a video call.

Three other buttons allow users to set up preferences, see a video how-to guide, and summon remote assistance from a Sight and Sound helpline.

The tablet can be contacted by anyone who is on an approved contact list from any other device with a secure internet connection allowing

messages, reminders, photos and video calls to be transferred from anywhere in the world.



Respexi aims to break down the isolation of elderly people

If a user or anyone supporting them runs into problems, assistance is available by phone.

"The aim is to prevent isolation in the homes of as many individuals as possible; no one

deserves to feel alone," says Sight and Sound managing director Glenn Tookey.

The service costs £399 to install, which involves putting in broadband, taking over a user's phone line, setting-up, training and the cost of a tablet.

Monthly charges consist of £39.99 (including VAT) for the Respexi service and £19.99 for the phone line and a broadband service. ■

www.sightandsoundtechnology.co.uk

Reading program uses phonics

Entrepreneur Gordon Phillips has designed a program to help children learn to read based on his experience of being dyslexic.

His uSelfLearn, Read and Spell software is based on phonics, a system that teaches pupils to link the sounds of words to their written forms.

The web-based program features 24 levels of audio-led, interactive reading and spelling tasks with an incentive of being able to play a game at the end of each level.

Studies by the Department of Psychology at Swansea University

have shown that after two months working with uSelfLearn for three hours a week, children gain six months in reading age.

Poor literacy costs the UK an estimated £81bn per year, including approximately £23bn in social-care costs and loss of potential future earnings. Poor reading also increases the costs associated with the health services and the criminal justice systems.

A year's subscription for 250 pupils costs £150, while a single user licence is £30. ■

www.uselflearn.co.uk

Briefs

Dolphin refreshes Guide

Dolphin has produced a new version of its Guide software that provides older people who have limited eyesight or mobility with a talking computer. For Guide 8, Dolphin has re-written the web support provided by the software, which now has simpler voice announcements on each page, a new welcome page and browsing tips. Navigation has also been revamped with keys that jump straight to the next item on a web page. Guide costs from £495 for the standard program. A hands free version, with voice recognition, is available as a package that includes a computer from £2,300.

www.yourdolphin.com

Reasonable adjustments

The Business Disability Forum has released 2013 editions of its Line Manager guides Working with disabled colleagues and Reasonable adjustments, both of which are sponsored by Microlink. The latest publications are part of Business Disability Forum's Line Manager Guide series which gives practical, hands-on guidance on managing disabled employees fairly.

<http://businessdisabilityforum.org.uk>

Remploy's profiler

Remploy has introduced a computer-based suite of assessments and screening tools called Ability Profiler. Developed with Do-IT Solutions, Ability Profiler provides employers with tools to assist with optimising the potential of workers, reducing staff turnover and helping recruitment. The assessments take a few minutes to complete and result in a detailed report for employees and links to short videos and fact sheets that provide assistance.

www.abilityprofiler.co.uk/

Learning Labs offers online training

Learning Labs has launched an online training service for assistive technology aimed at students and employees.

Disabled users can access videos, written guides or kinaesthetic guides, to learn how to use a wide range of features for each piece of hardware or software through tutorials.

The company has developed materials for different kinds of learners that are presented as a series of 'Labs'.

Subscribers can choose to learn by watching and listening with Multi-sensory Labs, by reading and hearing with Phonological Labs, and by doing and experiencing with

Choose How You Learn Watch, Read or Interact

Our learning materials are available in a choice of 3 different learning environments, each designed with help from learning specialist and neuropsychologists.

In a Multi-Sensory Lab, watch and listen to an expert video.

In a Kinaesthetic Lab, interact with a software simulation.

In a Phonological Lab, download step-by-step instructions.



Kinaesthetic



Multi-sensory



Phonological

Kinaesthetic Labs.

Learning Labs has developed its own materials including high quality 3D-style videos. Courses are accessed through a personal dashboard.

At the moment Learning Labs covers a limited range of hardware and software but there are plans to add more.

Software covered includes Read&Write Gold, ClaroRead, Inspiration, Mindview, Dragon, Word and Windows 8.

Tutorials for Olympus recorders

and the Livescribe Smart Pen are also available.

There are a variety of packages and rates for different types of users. For example, the standard price for a year's

access to Read&Write Gold Learning Lab is £49.

However, the price for DSA students to access the Read&Write Gold course is £25, while others in education are charged £36.75. DSA students in Scotland, Wales and Northern Ireland can have a five year licence for £41.25. Learning Labs also offers complete suite packages.

The company is lobbying Student Finance England to allow English students receiving DSA to access Learning Labs. ■

www.learninglabs.co

FreeRider turns a switch into a mouse

Portset has introduced FreeRider, a Bluetooth joystick that simulates a mouse from a switch.

The company has taken a four-way switch and added three extra switch inputs.

These additional switches offer right and left click and a toggled highlighter for drag and drop.

FreeRider's joystick can be flicked left and right to provide the switch equivalent of a mouse click.

This feature can be selected or disabled via a rear control switch.

The mouse action uses a speed control algorithm which detects the time that a switch is held in a particular direction to change the mouse cursor speed.

The Bluetooth joystick is supplied with a special program dongle which ensures a unique pairing so that devices do not interfere with each other in a classroom or workplace.

The wireless device, which costs £262, allows wheelchair switch users to control their PCs without being hampered by bundles of wires.

The joystick has an internal Lithium-ion rechargeable battery, which provides several hours of operation.

Indicators are provided for Bluetooth connectivity, battery charging and battery level. ■

www.portset.com

Luna goes into orbit in Oldham

Danish mobility company Ergolet has installed a Luna overhead hoisting system at Kingfisher Community Special School in Oldham to improve pupils' access to the building.

The installation – the first of its kind at a UK special school – was part of a multi-million pound refurbishment programme at Kingfisher.

A total of 18 rooms at the school, including classrooms, toilets and a hydrotherapy pool and changing areas, were fitted with the system.

The E-track and Luna system covers the full length and breadth of each room allowing the most severely disabled, who are usually reliant on floor hoists or fixed-track overhead systems, to reach all

corners of the room.

The E-tracks are fitted on opposite walls along the length of each room, a traverse track is fitted to the E-track to span the width of the room, and the Luna lifting unit is connected to the traverse rail.

A hand-held remote control device controls lifting and lowering, while carers at the school can assist with movement around the room. ■

www.ergolet.com

The British Assistive Technology Association (www.bataonline.org) represents all those involved in assistive technology. This is the first of a regular page reporting on BATA's efforts to promote assistive technology



Annual General Meeting

"BATA must push forward," said Mark McCusker addressing the association's annual general meeting (AGM) on January 16.

"What we have is a perfect storm of disruption and hence there has never been a greater need for BATA," he told members at the AGM held in central London.

The AT ecosystem was getting more complex. Vendors' margins on hardware were falling and the supply of apps virtually cut out the distribution channel, he said.

McCusker pointed out that research firm Gartner forecast that by 2018, only 0.01% of apps would make money for developers.

The market was also moving towards commodity pricing for products that fundamentally are not commodities, he went on.

"This is a very significant issue for BATA. We have two challenges: to help the government funding bodies to understand that AT is not a commodity and to ensure that our own members understand the dangers of commodity pricing."

The challenges facing the professional community were equally difficult. They had to do more for less at the same time as keeping up with technology changes.

Consumers rightly expected developers to embrace the latest technology. "Personally, I think we are on the edge of a whole new world of interfaces built around gesture, brain signalling and wearable technologies," he said.

McCusker paid tribute to two outgoing directors: Dave Stevens from Claro and Martin Littler from Inclusive Technology. "Without Martin's drive and determination and provision of free resources to manage and run our website, BATA

simply would not exist today," said McCusker.

"Martin is a giant of the AT sector and on behalf of BATA I would like to extend our thanks to him for everything he has done for our industry."

BATA was connecting with more like-minded organisations with the common goal of supporting the disability community, McCusker continued.

The challenges facing the industry continue to grow, but so did the opportunities.

"I am confident that we have the determination and commitment to achieve our full potential. Many thanks for your continued support, without which none of this would be achievable," McCusker concluded.

Executive director Barbara Phillips reported on the activities that council members had been involved in during 2013, including two major reports, a member survey and many meetings with other organisations in the AT field.

There had been steady progress, but the pace was reliant on a council of unpaid volunteers, she said. BATA now had 88 paying members and 1,000 non-voting subscribers. For more on the AGM go to www.bataonline.org

BATA's plan to improve DSA

BATA's Disabled Students Allowances Suppliers' Subgroup has been working hard over the past 18 months to improve the system for providing students with AT.

Suppliers are concerned about the long-term impact on the quality and effectiveness of DSA provision because of the 'three quote rule' currently in operation.

The rule inevitably leads to the cheapest quote being successful,

threatening the sustainability of the sector. A reduction in the number of suppliers would adversely affect students.

Recently, executive director Barbara Phillips wrote to policy advisor Elaine Underwood at the Department of Business Innovation and Skills proposing a system of annually fixed fair pricing and asking for a meeting to discuss BATA's ideas.

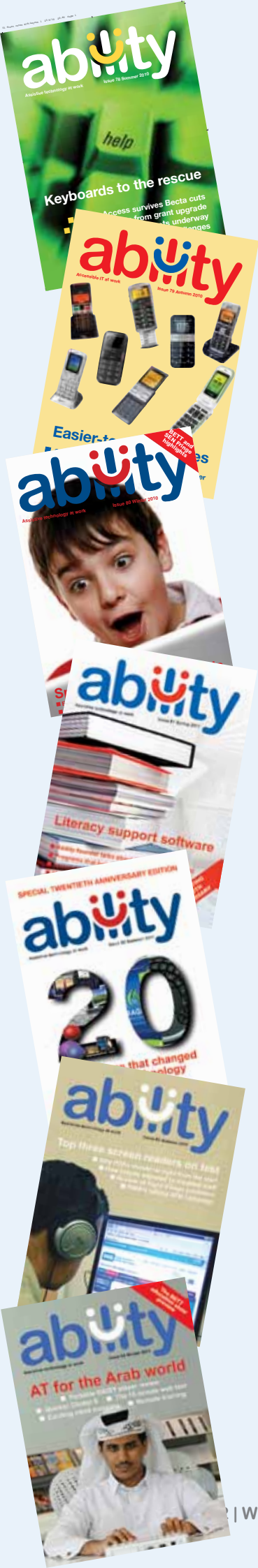
Fair pricing would save some of the costs and time involved with maintaining price lists and managing the quotation system.

Fresh blood in the council

Myles Pilling, an accessibility consultant at AccessAbility Solutions, has joined BATA's council. Pilling has over 30 years teaching experience and worked for a local authority for the past 10 years as an ICT SEN advisor prior to setting up his own consultancy. He is a parent of an adult with learning disabilities. He has been involved with ICT and SEN since the early 1980s and has a passion to see pupils reach their full potential through the use of ICT. ■



Pilling using an iPad



Subscribe to Ability magazine and win a Slouch Mat worth over £12. The Slouch Mat is a mouse mat designed to use on uneven and narrow surfaces such as your lap or the arm of a wheelchair.

How to subscribe

There are two options: a personal subscription or an organisational subscription.

The organisational subscription comprises five copies of each print edition of Ability magazine per year and a licence to distribute an ebook edition (accessible PDF version). The annual subscription fee is £175.

The personal subscription consists of either a print or ebook edition (PDF). The annual subscription fee is £65.

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Diary of events

BETT 2014

22-25 January

Excel, London

Michael Gove, Secretary of State for Education, will officially open BETT this year. One of the biggest tech shows in the UK, attracting over 600 educational suppliers and 35,000 visitors, BETT has a strong SEN accent with Learn Live sessions presented by practising teachers. Delegates are also invited to attend Nasen Live 2014, which is a dedicated SEN event with a wide range of exhibitors displaying innovative education products.

Fees: Free

For further information: www.bettshow.co.uk

CABINET OF CURIOSITIES: HOW DISABILITY WAS KEPT IN A BOX

5 February

Edward Lumley Hall, Royal College of Surgeons

Actor Mat Fraser looks at the history of disability using museum objects and their histories through a blend of drama, comedy and cabaret, film and music hall pastiche, to question our attitudes towards difference.

Fees: £8

For further information: email museums@rcseng.ac.uk or visit www.hunterianmuseum.org

WESTMINSTER EMPLOYMENT FORUM KEYNOTE SEMINAR: DISABILITY IN THE WORKPLACE – TRAINING, CAPABILITY ASSESSMENTS AND SUPPORT

11 February

61 Whitehall, London

Topics for discussion include what steps can be taken to encourage and support more employers to take on disabled workers, particularly the future of the Access to Work scheme; concerns surrounding Work Capability Assessments for Employment Support Allowance (ESA); and the impact of the Work Choice programme.

Fees: £190 plus VAT

For further information: Email:

info@forumsupport.co.uk; telephone: 01344 864796; web: www.westminsterforumprojects.co.uk

INCLUSION INDEPENDENCE CHOICE (IIC) SHOW

14-15 February

Manchester Central (GMEX), Windmill St, Manchester

Billed as the most comprehensive resource and shopping event on disability in the North West of England, this is the first year for the IIC Show. With 250 exhibitors, IIC will cover healthcare, social-care, law, leisure, mobility, and the latest technologies. The organiser, UKFE is championing universal design: "We believe in universal design. As a society we must take the responsibility for creating new environments that do not disable people. Great design works for everyone."

Fees: Free

For further information: www.iicshow.co.uk

ASSISTIVE TECHNOLOGY INDUSTRY ASSOCIATION CONFERENCE AND EXHIBITION

29 January – 1 February

Caribe Royale Convention Centre, Orlando, Florida, USA

The annual ATIA conference provides an opportunity for people with disabilities, and those who support them to meet annual professional development requirements, get more out of existing AT or learn about the latest technologies. The event features more than 200 educational sessions and an exhibition hall where visitors can see AT in action. Professionals, teachers, users and parents will all benefit from this conference, says ATIA.

Fees: Standard registration from January 11 is \$550 for three days. Various discounts are available

For further information: Contact the ATIA office via email at info@atia.org or visit www.atia.org

COMMUNICATION MATTERS STUDY DAY: SYMBOLISATION TOWARDS LITERACY

13 March

The Royal National Hotel, London

The study day will explore the relationship between symbol communication and the development of literacy. The event will be presented by Dr Janice Murray (Manchester Metropolitan University) and Dr Martine M Smith (Trinity College Dublin).

Fees: If you are a current member of Communication Matters, you can claim the member's rate of £90 (non-members £130). If you use AAC or are a family member, the fee is £50 (£70 if you are not).

For further information: www.communicationmatters.org.uk

CALIFORNIA STATE UNIVERSITY, NORTH RIDGE (CSUN) 29TH ANNUAL INTERNATIONAL CONFERENCE

17-22 March

Manchester Grand Hyatt Hotel, San Diego

The annual CSUN conference is the largest event in the world covering assistive technology. Organised by CSUN's Centre on Disabilities, the show runs over six days.

Fees: Early Bird: \$455 (by February 10, 2014). Regular: \$510 (after February 10, 2014). Late: \$550 (after February 28, 2014 & on-site).

For further information: <http://csunconference.org> or email conference@csun.edu

CREATING IMPACT THROUGH INNOVATION BRITISH DYSLEXIA ASSOCIATION 9TH INTERNATIONAL CONFERENCE

27-29 March

G-live conference centre, Guildford

The conference will cover all aspects of research related to dyslexia, including identification, theoretical views, intervention and support for children, students and adults.

Fees: From £140

For further information: Email: conference@bdadyslexia.org.uk; web: bdadyslexia.org.uk; telephone 0845 251 9003

Core campaign

Kevin Carey urges disabled people to ensure political parties adopt the idea of a set of basic accessible technologies

You might think that it is perhaps a little bit early to start getting ready for the General Election of 2015, but this is the time when organisations lobby the political parties to get material inserted into manifestos.

By the time the official campaign begins it will be too late and it might even be illegal to try.

The record of the coalition, as with that of New Labour, has been woeful, with an emphasis on granting theoretical rights but denying any responsibility for their enjoyment.

In Brussels, the emphasis is still on trying to achieve a Web Accessibility Directive, the technological equivalent of regulating sailing ships.

My simple conclusion is that there is no point messing about. What we need is to agree, as a sector, on the core technology attributes every digital information system should contain and just bang on about it until the major parties commit themselves to adoption.

We might have our own pet requirements, but, as an opening position in negotiation with industry, the whole sector should just get behind the guidelines on what constitutes a core technology that have already been drawn up by the OneVoice for Accessible IT.

The following are ranked in approximate descending order:

1. Ensure that the end user (the citizen/consumer with an impairment) understands and can comply with the intentions or requirements of the author or publisher (the producer) in respect of consuming, processing and creating information by:



Kevin Carey is Chair of RNIB (www.rnib.org.uk), and Director of humanITy (www.humanity.org.uk)

Specifying the purpose of the information being offered. For example, entertainment, information provision, sales channel, regulatory/legislative instrument or pro forma

Arranging elements in an obvious lexical order to clarify the sequential process path for efficient task completion

Enabling the establishment of a cursor in all situations where the consumer is expected to input data

Employing consistently positioned and arranged task selection indicators

Adhering to a common array of icons and buttons within the corporate family – separating navigation buttons from taxonomical indicators, locating the most frequently used in the same place on each page/display/iteration.

2. Provide as near an equivalent data experience as possible for any person with one or more impairments, enabling multiple

device data input and data output in different modes..

3. Enable the presentation of customisable data:

3.1 Text:

Size 6-24 point

Font

n-height ratio, leading, kerning

Colour (text and background)

Language (ranked below first preference; symbolic).

3.2 Images:

Present images composed of their separate layers (not bound)

Enable differential magnification and reduction of discrete visual elements

Always separately present subtitles and signing.

3.3 Audio:

Present audio in its initial track specification (prior to mono, stereo, quadrasonic binding)

Always separate audio/video description track for visually impaired people.

4. Offer full keyboard operability.

5. Construct common navigation processes to interface with 'the internet of things'.

6. Provide biometric admission systems to:

Enable child protection

Reduce log-in time.

7. Design digital information systems so that the defaults at activation are:

All the above features switched on

Array at its simplest, capable of enrichment. ■

Queen Alexandra College

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www.qacsightvillage.org.uk

sight village

2014

**Edinburgh
23rd April**

Hilton Grosvenor Street, EH12 5EF

**Glasgow
24th April**

Marriott Hotel Argyle Street, G3 8RR

**Birmingham
15th & 16th July**

New Bingley Hall, B18 5BE

**Leeds
25th September**

Royal Armouries Hall, LS10 1LT

**London
4th November**

Kensington Town Hall, W8 7NX

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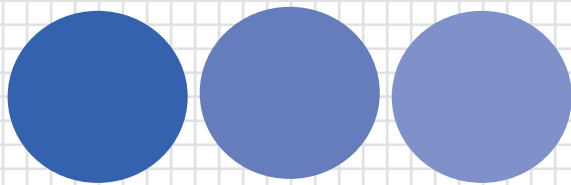
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