

ability

Accessible IT at work

Issue 75 Autumn 2009

Are mobile phone firms listening to their users?

- 999 communication
- Tech firms change their image
- Interview: Cynthia Waddell
- Road testing BBNav GPS



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For more information or to register a place on the event, contact
Dr Senaka Fernando
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E-INCLUSION



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Kevin Carey explains why the assistive technology industry needs a shake-up



John Lamb highlights two initiatives that underline the need for universal design

Groping in the dark

It is often said that the best way to ensure technology is accessible is to build in accessibility from the start. The process is called universal design. It sounds obvious, but it is easier said than done.

First off designers have to have disabled people in mind before they turn on their computer aided design software: something that is difficult if a designer, cocooned in his or her studio, has little experience of disabled people.

Second, those who develop new products need to have a clear idea of the requirements of people with very different abilities and how those requirements affect the systems they develop.

Ability has come across two exciting initiatives recently that break down these barriers. One is aimed at everyone, the other is about changing the way professionals approach design.

In a darkened room in Atlanta in the US, visitors grope their way through a pitch black maze of rooms encountering everyday objects such as a park bench, supermarket shelves and a busy street crossing.

Helped by a blind guide, groups of sighted people are learning a bit about what it is like not to see in a setting that is realistic enough to include the feel and smells of familiar places.

Dialogue in the Dark exhibitions have been staged in some 30 countries and are intended to increase social inclusion and provide work for blind people. Sessions are also run for businesses and even include meals eaten in the dark.

Back in the UK, Middlesex University is also doing its bit to improve social inclusion. After research that has involved surveying 23 universities in Europe, Middlesex will open its doors this January to students taking a Master of Science degree in digital inclusion.

The first such degree in Europe will give students the technical knowledge and experience to solve accessibility issues in all kinds of organisations.

The move follows the publication earlier this year of a national plan for digital participation aimed at getting the 17m people in Britain, who currently have no access to the internet, connected.

Finally, our lead story this week concerns the setting up of the British Assistive Technology Association with the object of raising the profile of assistive technology companies.

Chairman Martin Littler argues that what is a small but successful industry will benefit from working together to promote both the use of assistive technology and the organisations that supply it.

Littler wants to get rid of the industry's 'men in sheds' image. More power to his elbow. ■

Amazon's Kindle wins the first TASBO

At AbilityNet we champion a digitally inclusive future and among the expanding choice of innovative hardware, software, on-line systems and applications available, there are many worthy examples that are truly accessible.

However, there are at least as many instances where the basic principles of design for all are willfully ignored and, in so doing, also flout the legislation devised to protect 'non-standard' consumers (who incidentally make up over 16% of the population).

This is why my colleagues and I have decided to award TASBOs (Technology Anti-Social Behaviour Orders) and it's difficult to pick just one offender among the competing array of web and software developers, manufacturers of mobile phones, digital TV desktop sets and MP3 players.

So often we look at a new product and wonder – how could the needs of disabled users be disregarded quite so completely? And, how could access be so readily sacrificed for slight improvements in speed or other functionality?

But one industry has recently distinguished itself by its uniquely disdainful indifference towards the disabled community and we are proud to award our first TASBO jointly to (drum roll) Amazon.com and the American Publishing Industry.

If you don't know the story, it concerns the launch of Amazon's latest version of e-book reader (the Kindle DX) with built-in text-to-speech. A great step forward, one would think, heralding greatly enhanced access to reading for those with vision impairment, dyslexia and a wide range of other sensory and physical needs.

With titles now exceeding 300,000, outstripping all US sources of alternative formats for the 'print disabled' combined, it's understandable that our vision impaired friends across the pond were getting excited about equality of access.

But all was not as it seemed. Despite the best efforts of the American Reading

Rights Coalition, which represents the 15 million Americans who cannot read print because of blindness, dyslexia, spinal cord injury and other so called 'print disabilities', the Authors' Guild claimed that the device would not only represent an infringement of copyright, but would also presage a dramatic decline in audio-book sales.

As such, they've pressured Amazon to give authors and publishers the right to block access by text to speech in the Kindle. So... Amazon backed down and removed the text-to-speech function from the planned product, unless specific publishers or authors approved the use of text-to-speech for their works.

Hurrah! Vested interests or, let's just cut to the chase and call it barefaced greed, has conspired to deny millions of people a basic human right – that of access to information, culture and the arts – in one fell swoop.

The 31 disability groups, from which the Reading Rights Coalition derives its membership, held a protest outside the Guild's offices in New York stating their collective belief that "access to the written word is the cornerstone of education and democracy; and that new technologies must serve individuals with disabilities, not impede them". So far though, their voices have yet to be heard.

May we however congratulate those authors who have publically come out in support of access to text for all? Among others, please step forward: Kinky Friedman, George Pelencanos and Cory Doctorow – your gesture is much appreciated.

David Banes
Director of Development
AbilityNet

We need to work together to improve the look and feel of AT

Assistive technology undeniably makes a huge positive contribution to many people's lives; however it sometimes lacks the look and feel of more engaging mainstream technologies.

This still often leads to SEN students standing out as different in class, which inhibits true inclusion. I am keen to see educational and SEN companies working more closely together to achieve more up-to-date interface design, engaging graphics, effects and multimedia elements for SEN technologies, putting assistive technology on a more even par in terms of visual appeal with the broad-line consumer products that we are all familiar with.

An even bigger leap for education would see educational ICT vendors working alongside mainstream consumer companies such as games developers, which could result in educational software with a true at-home feel that students know and love.



Neil Milliken: championing AT for all

Assistive technology is designed to be easy to use for people with different learning difficulties. However, it can also prove incredibly beneficial for all students in the mainstream classroom.

Teachers should discuss with their school's SENCO the different benefits assistive technologies bring to their SEN students as different features and applications will help support a variety of learning styles.

For example, dyslexic students often experience issues with comprehension and so rely on software that can record and read back their lessons or homework.

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who would benefit immensely from the use of text-to-speech software.

Integrating assistive technology into the mainstream classroom is also a massive step towards a greater acceptance of disabilities as SEN students are not set apart from their peers when using it.

Neil Milliken

*Head of Service and Mobile Development,
Jansyst*

Social networking is a force for change

I have always argued that computers and the internet have been the greatest inventions for disabled people, particularly for people with significant impairments.

As someone with substantial cerebral palsy, it is clear that without a computer I would be going to day care and doing basket weaving. Without the internet I would not be able to work or be able to run a business in the way I have done for many years, including writing and filing this article!

But the internet has moved into a new stage of its ongoing development: what people often call social networking. This can be best compared to the wine and cheese party that takes place after many conferences when you really get the opportunity to interact with people rather than either just read or listen to what they say on websites or old style blogs.

A number of recently formed services such as Youtube, Twitter, Facebook and Secondlife have taken the concept of blogging to the next level into more user friendly services which encourage real interaction between people.

Youtube was the first of these, creating an opportunity for users to create video blogs or vlogs. This simple concept has already changed how we watch and interact with television in terms of video on demand, and allowed a lot of previously unseen media to be shared in a way that allows a whole range of viewpoints.

Twitter is like a personal news ticker service where people can send short messages at any time of day via the web or email to a range of users who subscribe to

it. So people's work and personal lives can be documented and broadcast 'as they happen', bringing everyday lives into the public domain.

Facebook takes Twitter to the next level with user-friendly social networking tools that bring people together in a variety of ways and it appears to be setting the standard in the field as it becomes better known and used by increasing numbers of people.

Secondlife takes social networking into a fully 3D world, bringing people together in a way that feels contextually real. The world is created entirely by its residents who build homes, shops, offices and even a disability-themed nightclub, but that's another story!

Secondlife is not a game and the interaction between residents is as real, with the same longlasting consequences, as it would be in any other situation.

So, why is social networking so important to disabled people and particularly people with significant impairments? Well, it could be strongly argued that this is the first time many disabled people have a voice that can be heard by anyone.

Rather than relying on organisations to represent them, disabled people can now express their own view themselves and come together with like-minded people (such as people with cerebral palsy who are also gay) to talk, share ideas and experiences.

This is not only a good thing but it could also be argued that these are the sparks for new social movements that can in turn create social change and improve the public understanding of specific needs, wishes and ideas.

Going back to Youtube, many people with cerebral palsy, as well as other impairments, have uploaded video blogs



Simon Stevens: lost without his computer

and documents made about them. Some are good, some are not so good and some are totally incomprehensible!

But the point is that they are expressing themselves in a way that was previously impossible as it would not have fitted into the mainstream requirements of traditional television.

In combining these tools, disabled people are potentially more empowered than they have ever been and there could be a lot more to come. In meeting others who are very similar to ourselves, it is possible not to feel 'alone' anymore.

The true benefits of social networking are just appearing for everyone and this can only help the inclusion of disabled people.

Simon Stevens

Independent disability trainer and consultant

HAVE YOUR SAY

Ability welcomes letters and articles on all issues relating to IT for disabled people in work, education and daily life.

Contributions can be sent to the editor, John Lamb, at john.lamb@abilitymagazine.org.uk

Web Accreditation Service

Why is Web Accessibility Important?

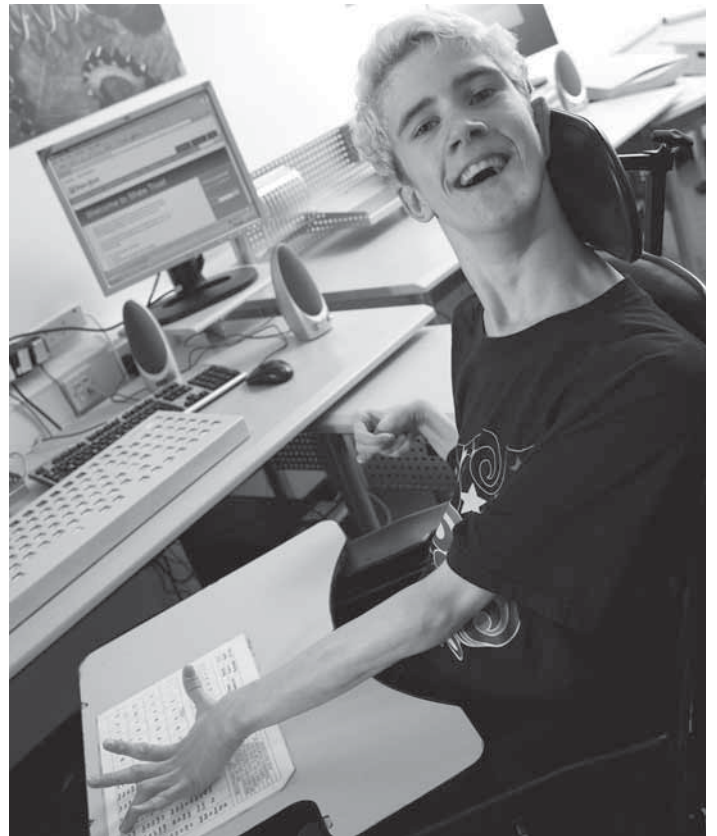
First and foremost, because it is a legal requirement for your organisation's website and intranet to comply with the Disability Discrimination Act (DDA). But perhaps more importantly, it makes good business sense to ensure all your customers can access your goods and services.

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The service offers a full technical audit with rigorous user testing. Every member of our testing team is an experienced assistive technology user.

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or call 0300 30 33 120

Visit: www.healthyworklife.org.uk

Industry aims to change 'men in sheds' image



Leading assistive technology companies have set up the British Assistive Technology Association (BATA) to rid the industry of its 'men in sheds' image.

A group of 27 founder organisations met at the Institute of Directors recently to set up BATA, which will be chaired by Inclusive Technology chief executive Martin Littler.

Representatives from companies, charities and government agencies agreed the body should:

- Lobby for the rights of those who need assistive technology
- Provide expert support to government departments
- Educate people on the benefits of assistive technology
- Promote British assistive technology products

Those who attended the historic event

decided to create different types of membership for companies, individuals and charities.

Littler, who called the summit, explained that he had been stung into action by officials who viewed the industry as "men in sheds".

"The implication is that we are a piddling industry and this may explain why we are not thought able to receive invitations to tender when the sole subject of the tender is assistive technology.

"In fact if you were able to add up the revenue of the organisations (interested in the association) you are probably talking about £60m to £70m annual turnover with 10-15% exported worldwide."

He added he would like to see both those numbers double in the next five years.

"After the United States we have by far the biggest assistive technology industry in

the world with several companies that lead the world in their field.

Littler is convinced there is a great deal of scope to improve the take up of assistive technology. "Our competition is ignorance, not each other. Any customers turned on by a competitor's product is a customer turned on to AT, and may soon be my customer too.

"Banding together offers new and cost-effective opportunities for influence and publicity for AT."

One of the first things BATA intends to do is set up a website to promote the industry.

Companies that attended the inaugural meeting included Claro Learning, Clarosoft, Crick, Dolphin, Hands-Free, Iansyst, Inclusive Technology, Keytools, Liberator, Microlink PC, SEMERC, Texthelp and Traxsys. ■

Briefs

Audio iPlayer

The BBC has introduced 40 hours per week of audio described programmes on its iPlayer software for downloading content over the web. The same amount of programming is available on BBC TV. Audio descriptions exploit gaps between dialogue to describe what is happening in a programme to vision-impaired people. iPlayer's audio description recently won the home category at this year's Access-IT awards.

www.bbc.co.uk

Doing IT Differently

The Royal Association for Disability Rights (RADAR) has published a guide called *Doing IT Differently* aimed at helping people overcome barriers to using IT. It guides the reader through a host of jargon on how to choose and use personal computers, desktops, laptops, mobile phones, smartphones and TVs. Mastering IT, says RADAR, can enable people to improve job prospects, access training and education, shop, bank, save money and communicate with friends. The guide costs £3.95. For bulk discounts email katherine.ledger@radar.org.uk. <http://radar-shop.org.uk/>

Google's captcha pledge

Search firm Google has pledged to improve the accessibility of captchas, the visual and audible tests used to keep automated tools out of websites. The announcement follows the company's purchase of reCAPTCHA, the firm that makes the most widely used audio captcha on the internet. Audio captchas are disguised words that blind people listen to and then type into their computers to gain access to web pages. One area that Google may look at is developing logic captchas that can be used by people who have both hearing and sight impairments. <http://recaptcha.net/>

Digital age does not deter disabled entrepreneurs

Hot debate over whether technology blocks business ambitions

The notion that disabled entrepreneurs are at a disadvantage because of the importance of technology in business was rejected by those who took part in a formal debate recently organised by the Information Technologists' Company (ITC) in the City of London.

After a heated discussion, the majority of the 60 people at the event voted against the motion "this house believes it is harder for disabled entrepreneurs to compete in the fast moving digital age".

"How would people running a business manage if they couldn't open a spreadsheet or were unable to sign electronic documents," said Penny Melville Brown, of Disability Dynamics, speaking for the motion.

"Imagine pitching for business and you can't use PowerPoint or trying to manage your clients without a customer relationship management system?

"Technology is working against entrepreneurs in terms of competitiveness: 80% of websites don't meet basic accessible standards," said Melville Brown, who campaigns for the employment rights of disabled people.

"The Office of Government Commerce has a lot to answer for with systems such as Bravo (the electronic procurement system used by government departments). Accessibility never entered their fluffy little heads."

Speaking against the motion, Andrew Thomson, director of video signing firm sign-now.com and winner of a Stelios award for disabled entrepreneurs, argued that it was society's attitude not technology that stopped people from gaining employment.

"Technology has given us an access to the mainstream world, we should embrace technology not criticise it," he told the audience. "The IT is fine. It comes back to money and disabled organisations are not doing enough to bang on the doors."

Other speakers backed Thomson, pointing out that attitude was the thing that changed barriers and that in any case mainstream media hid the fact that people are disabled.

"There are ways round problems by using different technologies," observed Gary Macfarlane of Blue Badge Finder. Macfarlane said he had started his company by using a mobile phone.

Kevin Carey, a consultant from ATcare, an organisation that funds technology research projects, said disabled people had

benefited from technology, but had fallen behind comparatively. "Learning to use a screen reader is more difficult than the work you will use it for," he said. However, Carey concluded that no matter how good the technology was, disabled entrepreneurs still had to compete in the right market.

"Disabled people should be at the base camp when technology is being designed," said Phil Friend, chair of the Royal Association for Disability and Rehabilitation (RADAR). "I actually think the real test is for organisations to work with disabled people who are using IT to help them to develop accessible products."

Several other speakers also insisted technology was a stumbling block.

"Technology is a great enabler but some disabled people are on the wrong side of the digital divide," said Merlin Hay, Earl of Erroll. "They are seen off in terms of cost, complexity and the way instructions are written. You can't afford to ignore a useful part of the population."

Melville Brown claimed that there were 500,000 disabled people in business, many of whom provided services to disabled people. There were a further 175,000 disabled people who wanted to work but

could not start a business.

She maintained that the high cost of technology and lack of support from government agencies such as BusinessLink was a major obstacle.

A survey of disabled entrepreneurs conducted by the ITC before the event revealed that the biggest hurdle they faced was finding funding. Some 80% said it was very difficult or impossible to obtain.

Lack of funds was followed by problems caused by entrepreneurs' disabilities and other people's reaction to them. Would-be business owners also struggled getting sales and marketing right. Loss of benefits, especially during the start up phase, was also a concern raised by many.

Specialist software was cited as the thing that would help most in setting up a business, although the survey's authors noted that disabled entrepreneurs were not very au fait with the latest collaborative software available via cloud computing.

The high cost of training was mentioned by a third of respondents who were also keen to be mentored by experienced entrepreneurs. ■



For the motion – Penny Melville Brown

Government trials 999 text service

The Government is calling for thousands of people to take part in a national trial of a 999 text service aimed at those who have difficulty making emergency voice calls.

The service is specifically intended for people who cannot make voice calls because of their hearing loss, speech impairment or other disability.

Users must register by texting the word 'register' to 999 and accept a series of terms and conditions.

In an emergency, texts are sent to relay assistants who pass the message to the police, ambulance, fire rescue, or coastguard. The assistants then send a reply back to the sender.

Senders are warned not to assume that help is on the way until they receive a

reply, typically after two minutes. People who send hoax messages can be barred from the system and may be prosecuted.

"Access to 999 could literally be a matter of life and death, yet until now many people who are deaf or hard of hearing have found themselves unable to contact the emergency services while on the move," commented Guido Gybels, RNID's director of technology.

The emergency SMS trial is run by Government and is supported by the emergency services, Ofcom and the RNID. Telecoms companies 3, BT, C&W, O2, Orange, T-Mobile and Vodafone are also supporting the scheme.

Individual emergency services around the country have run similar schemes for

over four years, but this is the first national one. If successful, it could become permanent early next year.

RNID is also involved in an EU-funded project, called Reach112, to improve access to emergency services.

The project is looking to improve access to emergency services for disabled users by using a mixture of text, video and voice – also known as Total Conversation.

People who are deaf or hard of hearing are asked to fill in an online questionnaire about their experiences and requirements when contacting the police, ambulance and fire services and the coast guard. ■

www.rnid.org.uk
www.reach112.eu

Symbols show the way in Eden

The Eden Project in Cornwall has collaborated with software company Widgit to use symbols to guide visitors who have difficulties with the English language.

As the result of an eight-year programme, Widgit symbols are widely used on signage, exhibits and educational information throughout the Eden Project. They provide visual prompts to illustrate the meaning of individual words.

Developed over the last 20 years, Widgit Symbols are used across the world. They are designed to illustrate a single concept without adding unnecessary information.

There are more than 7,000 images covering a vocabulary in excess of 40,000 words. This vocabulary is continually being extended.

For example, Widgit Discover Eden packs have been designed in association with the Sensory Trust (a national charity making outdoor environments accessible to all people) as guides to exhibit areas at the Eden Project.

One exhibit tells the story of how coffee

is produced using only symbols engraved into the edge of a wooden coffee boat.

The symbols are also being used on the Eden Project's website to make information accessible to people who may have a poor understanding of the English language.

Widgit's new 'Point' plug-in means website users can simply point with their mouse to a word they find difficult – and a symbol will appear to help them read it.

There are at six symbol systems used in the UK. Some are suitable for designing and printing communication displays. They are aimed at therapists, teachers and carers.

Others are designed to help users develop their literacy skills. These are used by people with complex communication and learning difficulties.

Some symbols are very picture-based, however abstract language is hard to represent graphically and users have to be taught each symbol system. ■

www.edenproject.com
www.widgit.com
www.sensorytrust.org.uk



The Eden Project has been working on symbols for eight years. The picture above shows the symbols on the edge of the coffee boat



Disabled bankers get a bonus

An estimated 30,000 disabled people and their carers involved with the banking business will soon be able to access financial and social support over the internet.

In a joint initiative, the Bankers Benevolent Fund and the Leonard Cheshire Disability charity have set up a dedicated area for bank staff on Leonard Cheshire's Yoodo web portal.

The new service is being trialed by Barclaycard staff before it is made available to everyone connected with banking employment in the UK.

The two organisations have been working together for a year to develop the technology, which they are willing to share with other benevolent funds and employers.

The service will support people in the workplace and at home. It includes information, access to expert advice and mentoring for those with physical, sensory and cognitive impairments, as well as their carers. The service also provides a gateway to sources of funding.



"When I tell people that I work for the Bankers Benevolent Fund they often say 'why do bankers need a benevolent fund?'" said Fred Payne, chief executive of the Bankers Benevolent Fund.

According to Payne, research shows that of 2m people connected to banking there could be 30,000 disabled people and their carers on low incomes and with little in the way of savings.

"This was true even before the recent debate about pay and bonuses in the sector," said Payne. ■

www.bbfund.org.uk

www.yoodo.org

University offers degree in digital inclusion

Middlesex is the first university in Europe to offer a masters degree in digital inclusion.

The move follows the publication earlier this year of a national plan for digital participation aimed at getting the 17m people in Britain who currently have no access to the internet online.

An essential part of the plan is that more people need training in how to design and develop accessible systems.

The university's MSc in digital inclusion will give students the technical knowledge and experience to solve accessibility issues in all kinds of

organisations. The curriculum for the degree has been designed in collaboration with European experts in design for all and universal design from 23 European countries.

Students will be taught four modules that focus on awareness of user diversity; human rights and the regulatory framework; accessible web design and user experience. They will also carry out practical assignments.

The programme is led by Gill Whitney and Suzette Keith, who are experts in digital inclusion. ■

www.mdx.ac.uk/digitalinclusion

Briefs

Access-IT Awards

Over 100 research groups battled it out for European honours in the Access-IT Awards organised by accessibility groups e-ISOTIS and AbilityNet. Accessible Twitter, the social networking service, won the Web 2.0 category and iPlayer, BBC software for playing programmes over the internet, triumphed in the home award. The learning award went to RoboBraille, an email service that translates electronic documents into audio files, while the award in the work section went to ECDL Hellas, an accessible qualification for computer users.

www.access-it-events.org

BT sees it right

BT has become the only FTSE 100 company to hold the coveted See it Right industry accreditation for its inclusion website, www.bt.com/inclusion. BT was awarded the certification by both the Royal National Institute of Blind People (RNIB) and AbilityNet for the easy navigation, layout and usability of the website.

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Aileen Hanrahan, M.Sc., H.Dip SPLD, Assessor SpLD ACP.

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BlackBerry and iPhone battle over accessibility for blind users

The BlackBerry Smartphone from Research in Motion (RIM), is going head to head with Apple's iPhone in improving accessibility for blind users.

Following Apple's introduction of VoiceOver on iPhone, Orator's screen reader software for the BlackBerry smartphone will be available in the UK later this year. The product, aimed at vision impaired users, is the result of a collaboration between three companies.

The project was led by HumanWare together with the Spanish firm Code Factory, which designed the Mobile Speak screen reader for Windows and Symbian-based phones, and Research In Motion, the Canadian maker of the BlackBerry.

Orator, which will run on the new QWERTY BlackBerry smartphones, including the new BlackBerry Tour 9630, is designed so that all core BlackBerry

applications are accessible.

Among the features announced by Humanware are:

- Auto start mode when the device turns on
- Full control over the speed and pitch of the voice
- Different verbosity levels to allow users to define the amount of information provided
- Keyboard echo settings for text entry
- Training mode to help users learn how to use the product.

RIM has created an accessible applications interface for third-party applications developers to streamline the process for creating applications.

At the time of writing no UK prices had been announced for Orator, although sources point out that mobile phone screen readers typically cost an extra £60.

iPhone's VoiceOver software reads aloud what is touched on screen, allowing users to command the smartphone by tapping or dragging items on the screen. The advantage of VoiceOver is that it allows people to know what icons are on screen and their relationship to one another.

Some blind users believe the BlackBerry beats the iPhone. "There are other factors which, for me at least, are beginning to make the purchase of a new BlackBerry smart phone desirable even over an iPhone, which I thought would never happen," says one blind blogger.

"Firstly, the Orator is only supported on new Smartphones with full QWERTY keyboards. While this does make the phone somewhat larger, you don't have to hunt and peck as you would if you were using an iPhone." ■

Lord Rix wants websites for learning disabled

A call for a nationwide rollout of accessible websites for the 1.5 million people with learning disabilities has been made by Lord Rix, President of Mencap.

Lord Rix was speaking at the launch of Click Start, a project that uses accessible website software developed by the Rix Centre.

Ten London boroughs are involved in the Click Start project, and more than 150 accessible Click Start 'wiki' websites have been created across the boroughs to date.

The wiki-sites provide vital service information and peer advice about the transition to adult life in the community to young people with learning disabilities.

Many of the sites have been created by young people with learning difficulties and disabilities themselves. Click Start aims to double the number of wiki-sites across the 10 boroughs, giving young people with learning disabilities a 'one-stop shop' web

portal to help them in their transition to independent living.

Developing their own accessible websites using multimedia technologies helps people with learning disabilities gain confidence and empowers them to present valuable peer information and advice for the learning disability community.

Two young people with learning disabilities who were members of the



Jason Wilkinson and Lee Cornwell outside the House of Lords

Editorial Team at the heart of the Click Start project, Jason Wilkinson and Lee Cornwell, showed their work at the House of Lords reception hosted by Lord Rix. ■

Voice enabled

Banker Stuart Mangan found independence through speech-enabled PC applications

As for any 26-year-old professional, Stuart Mangan's PC is an indispensable part of his life. He moves deftly from responding to a stream of emails and phone calls, to looking up the latest changes to his website, even pausing to turn on the TV and catch up with the latest news.

Watching him it is easy to forget that in spring 2008 – when Stuart was paralysed from the neck down as the result of a rugby tackle – he had little to look forward to.

Unable to breath without the aid of a ventilator and needing nursing care 24 hours-a-day, the prospects for any kind of life beyond the confines of a wheelchair were slim.

Stuart, who comes from Fermoy in County Cork, Ireland, was a man with a bright future ahead of him. He was not only an avid rugby player (turning out for Hammersmith and Fulham RFC), he had recently landed a job in banking with BNP Paribas after gaining a first class degree in law and a masters in European business at the prestigious École Supérieure de Commerce in Paris.

'No hands' PC use

His injury, described by his medical specialist as the most severe spinal cord damage it is possible to get as the result of a sporting accident, meant that Stuart had to find a way to control his PC without using his hands.

Through his own determination and with the help of Dragon NaturallySpeaking speech recognition software, Stuart

has been able to use his computer to reach out to the wider world and escape the isolation that is all too often the lot of people in his situation.

At first, occupational therapists at the Royal National Orthopaedic Hospital in North London, where Stuart was initially treated, tried various assistive technologies including eye tracking software, a switch system operated by sucking and puffing on a small pipe and Dragon NaturallySpeaking, which not only takes dictation but can be used to command a wide range of off-the-peg programs.

Opting for speech recognition

Stuart found that speech recognition offered the most natural and effective way to operate his computer. "My accident changed the course of my life but there are lots of positive things that have come from it," says Stuart. "I was quite determined to use my voice although at the time it was quite weak.

"The day I first used it my brother rang me from the States and said 'I am on my way to a computer store to buy this new software that the guys in the office are using: it's absolutely amazing, it's called Dragon'. I said 'I have already got it'."

The first three line email took Stuart about two and a half hours to write because his voice, which had also been affected by his accident, was not strong enough to enable the Dragon software to recognise all the words he spoke.

However, he persevered. "I used to put hours and hours of



Photo courtesy of SugarSnap TV

work into it," he says. "My friends say 'oh my god, the change'. They remember me last year saying 'scratch that, scratch that, scratch that' (an erase command on Dragon NaturallySpeaking). Some of the nurses used to call me 'scratch that' because that was all they heard coming from my room."

Stuart is now able to access a wide portfolio of applications through Dragon NaturallySpeaking version 10, including the Microsoft Office programs Word, PowerPoint and Excel. Stuart uses the Outlook Express client and a Hotmail account for email, while his voice recognition software also allows him to surf the web and search for information using Google.

Working through his Nokia PC

Another vital voice-enabled application for Stuart is Nokia PC Suite, which allows him to control his mobile phone through his computer with the help of a Bluetooth wireless headset. The software enables him to make calls and compose text messages without assistance from anyone else. He can also operate his TV and change channels by means of Slingbox, a remote TV streaming device that redirects programs and controls to a PC.

Much of the training and development of Stuart's systems has been carried out by Gary May, managing director of consultancy Freedom of Speech. Gary has worked with Stuart to set up systems, to identify new technology and to produce all-important macro commands for Dragon NaturallySpeaking.

Now Gary and Stuart are looking at radio frequency plugs

that would allow Stuart to switch lights on and off, turn on a kettle and perhaps even answer a door bell. "I like to master each thing as we go along rather than jumping ahead," Stuart points out.

Stuart's online presence is vital in promoting the Stuart Mangan Trust, a charity that has been set up to raise funds to cover the millions of pounds that is required to care for him and others like him. Scores of events have already been held to raise cash for the appeal.

"It astonishes them that they send an email thinking they might get a message back next week. Instead they get one back a few minutes later. They like the fact they can communicate with me so readily. The trick is learning the commands: you have to store each command in your head. Day to day, if I didn't have technology and computers I would not have the ability to communicate as readily with the outside world.

"Definitely Dragon has taken me on quite a journey since last July when I first started ... having got to where I am now it is incredible the freedom it has given me and the enjoyment, as well as being able to use computers just like I could before my accident." ■

A few days after this interview Stuart Mangan passed away. His parents, who are determined to help others in the same position as their son, have asked that we publish this account of his efforts to harness technology. They are planning to establish a foundation in Stuart's name that will continue the work already begun during his life.

Freedom of Speech Ltd

Columbia House | Columbia Drive | Worthing | West Sussex | BN13 3HD

Specialists in providing speech recognition software, customisation & training

Freedom of Speech Ltd has a collective experience of over 30 years installing, training and supporting speech recognition solutions & assistive technology for a wide variety of individuals & companies across the UK.

"Our aim is to improve the accessibility of clients' computer applications, reduce the communication barriers that using a keyboard & mouse can put up and empower PC users in both the home and work place" - Gary May (Managing Director).

As a Dragon Gold Certified Partner, their skills lie in both their ability to custom Dragon NaturallySpeaking Professional 'speech recognition' software but also deliver user focussed training courses on a one-to-one basis. Their strength is being able to integrate NaturallySpeaking into almost any Windows based application giving you the freedom to control your applications using simple voice commands.

"We are proud to have recently released 'Ultimate Access version 2', a speech recognition software bundle that incorporates Dragon NaturallySpeaking Professional version 10, over 300 custom voice commands for commonly used Assistive Technology applications, a noise cancelling headset, USB audio adapter and simple user reference guides" - James Kirk (Technical Director).

To find out more about speech recognition software, 'Ultimate Access version 2' and how Freedom of Speech can assist you, use the contact details below:

Telephone: 01903 263007
E-mail: info@freedom-speech.co.uk
Website: www.freedom-speech.co.uk





Cynthia says

Outspoken accessibility advocate Cynthia Waddell visited London in the autumn. **Ability** caught up with her at the RNIB's Techshare conference

Cynthia Waddell is one of the few women who can claim to have a website called after her. The Cynthia Says web accessibility testing site was named in her honour, although in typically modest fashion Waddell says it was because the site's founders wanted a female name as an alternative to the name Bobby, which had been given to the first automatic testing service.

The site is a fitting tribute to her immense influence, often in the teeth of criticism from industry interests, on the design of accessible IT systems. Not many people have played as big a part in shaping official attitudes to inclusive technology as Waddell.

The disability rights lawyer from California is consulted by presidents and government ministers from around the world on how to ensure disabled people can use IT. In a hectic schedule, she travels the globe addressing politicians, industry groups and students in her own passionate style.

Viewed as a bridge

"After 20 years of speaking and writing," she says with a characteristic twinkle in her eye, "I am viewed as a bridge between the policymakers and technologists. My lifetime goal in my work as a disability rights advocate has been to understand how best to bring about systemic change to improve the quality of life for persons with disabilities."

She has certainly succeeded in doing that. The laws Waddell has put her stamp on include Section 508 of the Americans with Disabilities Act, the ground breaking legislation that required government departments to buy accessible IT, and the UN Convention on Disability Rights, which the UK signed into law this June.

More recently Waddell has also helped the telecommunications industry tackle accessibility. She acts as an accessibility consultant to the International Telecommunication Union, the UN body that fosters

communication networks around the world.

She has also turned her attention to the Kindle 2 controversy, which has seen authors refuse to allow their works to be accessed via text-to-speech software installed on electronic book readers,

"When visiting the Amazon website I found a electronic book for sale where the text-to-speech feature was marked 'not enabled'," she recalls. "A pop-up box explained that this was at the request of the author."

Determined to make changes

Waddell wants to make changes in the intellectual property laws to ensure people who have problems reading print have access to all electronic works.

Her life could have been very different. Waddell was born with a hearing loss and did not speak at all until she was five. Since she was a first child her parents did not realise anything was amiss for some years. When Waddell's condition was eventually recognised her family was told that her disability would make it difficult for her to learn.

"There were two schools of thought about how best to help deaf people: either to teach them sign language or instruct them how to lip read," she explains. Waddell's parents decided she should learn to lip read and enter mainstream education.

Armed with two hearing aids she attended school in Los Angeles and each day for 15 years underwent speech therapy and training in lip reading after classes. Eventually she won a place in law school. It was there that Waddell formed her lifelong passion for disability rights law and the way it is implemented.

Working at the Impact Employment Law Center, Waddell cut her teeth on pursuing class actions on behalf of groups of disabled people and setting precedents in the process. "My career really got started with a class action law suit against the City of San Jose, which was the 10th largest city in the United States," she says.

"Under the Americans with Disabilities Act they were required to hire a full time compliance officer and coordinator to ensure disabled people had access to garbage, auditoria, arenas, the city hall and so on. But they didn't have one."

As a result San Jose, which is at the southern end of the home of high tech industry – Silicon Valley – set up a Disability Advisory Committee and appointed Waddell as its chair. The mayor then made her Americans with Disabilities Act compliance officer for the city's airport, arenas and convention centres.

Although she had a small budget and two assistants, Waddell punched above her weight by ensuring every city department had a disability liaison officer to act "as my eyes and ears".

Started with education

To begin with her job involved educating and training city employees and investigating complaints. One complaint came from a blind city commissioner who pointed out that San Jose's website was not accessible. She couldn't read documents produced in pdf format.

Waddell herself was affected when the city began audio streaming council meetings: they lacked the captioning that would allow her to access them. "I began to see other issues such as access to keyboards and problems for those with cognitive issues," she says.

Determined to ensure that disabled people could be fully involved with local democracy, Waddell wrote the first accessible web design standard for local government. Not everyone welcomed her work.

"We were in the capital of innovation in Silicon Valley. And here was this upstart lawyer saying I can't use your website. People weren't pleased. I first became known as the person who asked 'if we can identify the elements in the built environment that ensure accessibility, then why not in technology?'"

Waddell became involved in training webmasters, requiring them to go to a laboratory to hear their sites read aloud by a screen reader. "They claimed I was requiring them to have a dumbed-down non-glitzy website. I demonstrated this was not the case."

The upstart lawyer soon caught the attention of President Clinton and was invited to speak about the growing digital divide at the first conference on the digital economy.

Those were the days when vice president Al Gore coined the phrase 'the digital superhighway'.

"I argued that the more services went online the more we would be creating a new class of disenfranchised people."

As the momentum for legislation grew, Waddell got involved in broadening her original work on websites to cover six areas of IT – software, operating systems, internets, intranets, multimedia and hardware.

"If you let the marketplace determine consumer needs, then disabled people would be a minority and businesses would not invest in accessibility. We created a marketplace and said if businesses wanted to participate in the public sector they would have to provide accessibility."

Despite an undue burden clause that allowed some government agencies to get round Section 508, companies faced losing multimillion dollar government contracts.

To make things easier, Waddell proposed that companies fill in a Voluntary Product Accessibility Template that made it possible for officials to understand the accessibility features of IT products and compare them.

Waddell's involvement with the United Nations as an ambassador for ICT and the built environment meant six years work on Convention for Disability Rights. She describes ICT accessibility as the Convention's elephant in the room.

Missing the boat

Standards setting bodies, she says, missed the boat on accessibility, which is why the Convention was necessary.

"Industry is the best position to understand what it can do in technology innovation. It is very difficult for the law to keep up. I hoped to create a law that will keep up with technology and not stifle innovation.

"The more law is specific in technology the more danger there is of it being out of date. The Convention doesn't say how to do it, just what should happen."

The Kindle debate has given Waddell new dragons to slay. She has become involved with the World Intellectual Property Organisation in a bid to agree an international treaty on accessible works.

"Hopefully, the controversy will be resolved quickly so that everyone, including people with disabilities, will be able to benefit from this new feature," she says. "My lifelong work is systematic change – practical ways for everyone to be happy." ■



Protect & survive

How technology is helping the authorities to alert and inform disabled people more effectively during emergencies

When the Bunsfield oil storage depot in near Bedford exploded and burnt for several days, health officials wanted to tell people with respiratory problems to seek medical advice.

The warning was given by a senior police officer at a televised press conference. Unfortunately, despite the fact that all channels had the capability to caption their broadcasts, in the rush to cover the fire subtitling was overlooked and the advice went out without a text alternative. Deaf people watching the broadcasts would not have received the warning.

The UK's approach to improving access to information in emergencies is piecemeal, with a patchwork of measures that leave few organisations involved in responding to emergencies with a comprehensive approach to inclusivity.

Until recently preparing for civil emergencies was low on the UK's national agenda. This is due in part to the fact that large scale natural disasters such as hurricanes, earthquakes and forest fires are rare and other disasters are usually comparatively limited.

The result is that the UK has not invested a great deal of time and money in civil defence. However, climate change, health scares and terrorist threats have bought a change in official attitudes.

A big impact on disaster policy

A series of crises in the early 2000s known as the three Fs – a fuel shortage caused by a strike of tanker drivers, a foot and mouth epidemic and a number of damaging floods – had a big impact on government thinking.

In 2001 the Civil Contingencies Secretariat was established to take over responsibility for emergency planning in the UK from the Home Office. The role of the secretariat is to ensure the country's resilience to disruptions and to do this by working with others to 'anticipate, assess, prevent, prepare, respond and recover'.

By 2004, the UK Government had passed a Civil Contingencies Act which meant that for the first time local



authorities and other agencies had a statutory obligation to plan for disasters. However, catering for disabled people does not feature prominently in the Act.

There are some 11m disabled people in the UK out of a population of 61m. On average, 18% of the population of any given community will have a disability as defined by the UK's Disability Discrimination Act. The range of disabilities that emergency services can expect to have to deal with in a disaster is as follows:

- 33% mobility impairments
- 10% mental health problems
- 4% sensory impairments
- 2% learning difficulties
- 52% other disabilities including diabetes, HIV, Epilepsy, heart and lung conditions.

Following floods in 2007 the Secretariat published guidelines on 'Identifying people who are vulnerable in a crisis'. But the guidance is currently being rewritten after feedback from disabled groups.

The latest version will include advice about communicating with people with impairments and the need for advance information about how disabled people should prepare for specific threats.

At present, the guidelines tell agencies to identify vulnerable people and use as many different channels to reach them. Agencies are advised to work with groups that represent vulnerable people in order to identify those most likely to be threatened by an emergency.

Last year, the government published a National Risk Register which identifies risks that are most likely to occur and provides information on how best to deal with them.

So far as technology is concerned, the secretariat takes a

conservative approach. It favours knocking on doors over sirens and other methods. In the UK wind-up radios are considered the most reliable way of keeping in touch in the event of an emergency.

Unlike some other European countries such as Italy, Germany and the Netherlands, which have a civil protection force, in the UK disasters are tackled by individual emergency services and local authorities working together.

This has important implications for the way that disabled people are considered: the provision of accessible warnings and information depends on how aware organisations involved in emergencies are of their needs. Some are better at it than others.

The Environment Agency, for example, has set up a multi-channel system for flood alerts. Floodline Warnings Direct is a free service that provides flood warnings to those in areas in danger of flooding by local radio, television, telephone, cell phone, email, SMS text message and fax. A Floodline website is updated every 15 minutes.

Types of warning

The Environment Agency issues four different kinds of pre-set flood warning messages. Three of the codes indicate the severity of the warning, and a fourth is an 'all clear'. All use simple language and symbols. At present the service is an opt-in one. However, the Environment Agency is looking to make Floodline an opt-out service. This means people will automatically receive alerts unless they ask not to.

Setting up the service will involve gathering telephone numbers from a variety of sources, which could raise privacy issues.

SMS text is also being piloted as an alternative to voice calls on the 999 UK emergency phone number and the 112 European emergency number, which operates alongside national numbers in many EU countries.

A number of local police forces have set up their own 999 SMS services. However, a national SMS service for emergency calls has recently been launched. Deaf and speech impaired people can access the emergency services via a human operator once they have registered with the service.

A more ambitious 112 multimedia service called Total Conversation (to be tested in the next few months) will allow users to alert emergency teams through a combination of voice, video and real-time text.

This is a far more accessible alternative to voice-only emergency communications, which cannot be used by people with hearing or speech impairments or those with serious injuries.

The UK is also involved in European efforts to establish national emergency cell broadcast systems that would relay SMS alerts to mobile phone users in designated areas.

UK agencies are participating in Chorist, an EU research project to develop a system for warning citizens via the short message service (SMS), digital audio broadcasting (DAB) and digital video broadcasting (DVB). The first application of cell

broadcasting for citizen warnings in Europe will be in the Netherlands next year.

Efforts have also been made to improve the accessibility of the language used in emergency alerts. For example, a form of English called Easyread was used in recent official alerts about swine flu.

Easyread has just one concept per sentence and is usually accompanied by symbols. The Department of Health's advertisements about swineflu also included subtitling and British Sign Language translations.

Television and radio are the main means of getting warnings and information to people in a disaster and the UK Government has the legal power to take over editorial control of the BBC during a national emergency.

The BBC has set up an online guide called *Connecting in a Crisis*, which sets out to encourage emergency planners to work more closely with broadcasters on strategies for communicating essential information.

"Usually, the response during an emergency is instinctive rather than prepared," acknowledges the BBC. "It relies on normal day-to-day arrangements with information providers that are rarely robust enough to cope in a crisis."

So far as accessibility is concerned, the BBC subtitles 100% of its output. However, there have been problems with the service.

The increasing use of multimedia communications can only improve the chances that the emergency services will reach disabled people with accessible and appropriate alerts.

"The system is not perfect, but most disabled people in the UK are in a much better position than they were five or ten years ago," says David McQuirk, a specialist consultant in emergency planning and disaster management with consultancy Disability Forward. ■

Further information

- David McQuirk, *Disabled People and Emergency Planning*, Blueprint issue 42
- BBC, *Connecting in a Crisis*, <http://www.bbc.co.uk/connectinginacrisis/02.shtml>
- Civil Contingencies Secretariat, *Identifying People Who Are Vulnerable in a Crisis*, Feb 2008
- Environment Agency, *Floodline Warnings Direct*, <http://www.environment-agency.gov.uk/homeandleisure/floods/31618.aspx>
- Integrating Communications for Enhanced Environmental Management and Citizen Safety (CHORIST) <http://www.chorist.eu/>
- Office for Disability Issues, *Background: The Easyread Format*, <http://www.officefordisability.gov.uk>

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Phones on fast forward

We examine the efforts of the mobile phone industry to keep pace with the needs of its disabled customers

There are more mobile phones in use in the UK than there are people to use them, according to the International Telecommunications Union, and yet for many the technology presents huge challenges.

Small displays, fiddly buttons and touch screens, not to mention interference with hearing aids and complex menu systems can make it hard for disabled people to keep in touch on the move.

Nonetheless, some mobile technologies such as the global positioning system (GPS) – used to provide spoken directions – and optical character recognition (for converting text to speech) have added an important extra dimension to the lives of disabled people.

However, fast moving mobile phone technology in which handsets can have a life of a few months before becoming obsolete presents a difficult target for accessibility designers who always seem to be playing catch up.

For example, it took Apple two years to introduce VoiceOver, the screen reader software that makes the iPhone's touch screen interface accessible to vision impaired users.

Different taps and gestures allow blind users to have key functions read out, activate buttons and adjust sliders such as volume controls.

Similarly, Research in Motion has spent over a year working with Humanware and Code Factory to equip some models of its BlackBerry smartphone with screen reader facilities.

Haptics improve touch screens

Other companies have turned to an intriguing technology called haptics to improve the accessibility of touch screen products.

Touch screen displays show touchpad keys but they lack the tactile feedback a user gets from touching a real button. In addition, it is difficult to identify where one 'button' ends and another begins.

Researchers at Glasgow University have demonstrated an iPhone application that generates a vibrating pulse when a user's finger passes over an on screen button. The button vibrates again when it is pressed.

The iPhone has a vibrating actuator that is capable of working at 12 different speeds, which enables the Glasgow team to produce different sensations. They are also working on creating bars across the screen which aid users in scrolling through lists of items.

Samsung uses 22 different kinds of vibration to provide feedback from its Anycall Haptic touch screen phone. In one application of haptic technology, Anycall simulates both the sound



Apple's iPhone took two years to receive accessibility makeover

and feel of the clicks on an old-style volume knob on a real radio.

Developers are also pressing ahead to incorporate braille output into mobile phones using haptic technology. Nokia's experimental Braille Reader, for example, can read out text messages character by character using vibrating dots that correspond to braille characters. The software can be downloaded from Nokia's Beta Labs website.

Hearing impaired phone users are also benefiting from improved accessibility. Many use SMS for communicating, but texting is too slow for the relay services that facilitate conversations between voice and text users via a human operator.

The RNID has developed a mobile edition of TalkByText which allows hearing impaired users to send messages character by character between mobile phones or to human operators over the relay service.

TalkByText removes the delays that affect even the fastest instant messaging service, so that as soon as a character is typed at one end it appears at the other. Mobile TalkByText is available on a number of Nokia and Ericsson handsets, but it can only be used on handsets with a full keyboard.

Phones without a QWERTY keyboard that rely on predictive texting are not supported because the predictions are also transmitted over the service, creating confusion. Unfortunately only outgoing calls can be made from mobiles using TalkByText, because no network operator supports the service yet.

The radio transmissions from a mobile handset can interfere with a hearing aid, so some mobile users can only talk on a mobile with the aid of a handsfree kit. Mobiles are available that suppress the interference or are fitted with induction loops that communicate directly with a hearing aid. However, they are not

Survey shows what users want from their phones

A survey by City University and AbilityNet reveals that disabled people value the same features of mobile telephony as other users. Size came out top as the most liked feature followed by ease of access and functionality.

When it came to more up-to-date features such as internet access, those who took part in the survey were more wary. Calling up web pages from a mobile phone involved going through inaccessible mobile provider sites, wrestling with jargon and ran the risk of hefty charges for downloads.

Nokia came out ahead of other phone makers for accessibility as far as visually impaired people were concerned although overall, there was criticism of an inability to personalise text sizes and background colours on many handsets.

Although most major phone companies acknowledge the need to provide accessible handsets and service, disabled customers complain that they are not well

served in retail outlets.

"People in the shops are confusing and distracting," said one respondent to the City University survey. "I once got into a Vodafone shop to get some assistance with my handset.

"But a member of staff said I should change my phone because it was rubbish. He tried to sell me a new contract: my disability is not obvious."

Among the services mobile phone users want to see is the opportunity to try before they buy – particularly important for more complex assistive technologies.

Other suggestions included some form of accessibility testing for mobile systems and more information about accessibility features.

The RNIB goes even further. It urges the communications watchdog Ofcom to ensure that mobile phone providers have at least one fully accessible product in their range, without an additional charge to the end user.

available in the UK. The RNID is lobbying Nokia for its hearing aid compatible model to be made available here.

Assistive software proves invaluable

Assistive software can turn mobile phones into very versatile tools. For example, there are two optical character recognition programs on the UK market. They help people who have difficulty reading by using a phone's camera to turn text into speech.

The knfbReader Mobile from Sight and Sound and Iansyst's CapturaTalk both use optical character recognition to turn images of text into voice output. The programs can recognise printed documents, labels and packaging instructions.

The ability of the satellite-based global positioning system (GPS) to pinpoint a device on an electronic map has been a boon for vision impaired users. Satellite navigation systems that read out directions and indicate points of interest using a mobile phone as a platform are cheaper than purpose-built guidance systems.

Wayfinder Access from Humanware and free software called Lodestar are the most widely used packages for turning a mobile into a sat nav. Both systems work on Symbian Series 60 phones such as those produced by Nokia and require software to voice instructions from the mapping system.

Talks from Nuance and Code Factory's Mobile Speak text-to-speech software are the most commonly used programs for this purpose. Dolphin's Smart HAL provides speech output for smartphones running the Microsoft Mobile 5 operating system.

GPS has also been added to mobile phones used by elderly people in order to enable carers to track them when they are out and about. In a pilot project called Locomotion some mobiles were

fitted with a panic button that connected users to carers in a call centre.

Many users find operating a mobile phone difficult. Manufacturers have developed various types of phone with larger displays, bigger buttons and simplified operating procedures. Many of these phones are marketed as handsets for older people who account for 60% of disabled people.

However, switch operated phones such as the Click-to-Phone enable a user to bypass a phone's keypad altogether and control the handset using a variety of devices including a single 'on/off' switch, a joystick on a wheelchair or a five switch device.

There is unlikely to be any let up in the development of mobile phones as their use becomes integral to the way people work and spend their leisure time.

That makes it all the more important for the industry to make the benefits of the technology available to everyone by giving accessibility as high a priority as possible. ■

Useful resources

■ AbilityNet Global Assistive Technology Encyclopaedia

<http://abilitynet.wetpaint.com/page/Mobile+Phones>

■ RNIB Guide to Accessible Mobile Phones
www.rnib.org.uk

■ RNID Mobile Phones Factsheet
www.rnid.org.uk

■ Emptech database of assistive products
www.emptech.info

Text-to-speech after SpinVox

Annie Turner asks the RNID's Guido Gybels about the prospect for new technologies that will help people with hearing loss

In July, SpinVox, which offers a service that transcribes voice messages into text, admitted it relied heavily on human intervention in the shape of thousands of call centre agents around the world.

Previously it claimed the bulk of the transcription was performed on Artificial Intelligence (AI) machine translation software and was hailed as a breakthrough.

Fast, accurate audio-to-text transcoding has been long promised and would be a great boon to people with impaired hearing, but Guido Gybels, director of technology at the RNID, said, "We are always being asked why we don't use it, but we are no nearer to accurate, fully automated conversion of audio stream into text than we were in the 1970s, despite frequently being told we are.

"There is as yet no scientific basis for AI that can emulate humans' understanding of context and myriad other clues that help us make sense of speech (the difference between 'ice cream' and 'I scream', for instance). Let's not forget, voice-to-text technology we have now is useful, it helps human operators transcode faster."

Gybels believes other digital technologies have more potential to enable greater inclusion for people with hearing loss into mainstream society and Digital Britain – the government's blueprint for the UK's economic future.

He said, "The web already enables people to communicate in text and pictures, while the proliferation of affordable, high speed broadband will enable the more widespread use of video, which will facilitate sign language users." Already lots of hearing impaired people use email, text and instant messaging.

The fruits of Moore's Law

He added, "The good news is that these are not niche technologies, so there are no problems with price, interoperability, poor design, retrofitting something for a different purpose and no stigma attached. Texting on a mobile doesn't immediately label you as being deaf."

Gybels believes this positive trend will continue with devices becoming ubiquitous and more powerful, although costing less – a development predicted by Gordon Moore of Intel in 1965, known as Moore's Law. For instance, he pointed out that hearing aids have become ever smaller and more efficient, working far better with phones and TVs.

He said, "Broadband and the fruits of Moore's Law will enable us to deploy solutions that previously were beyond our reach, with more capacity in both the devices and the networks they communicate across.



Gybels: We need an appropriate regulatory and legal framework ... this is one of the RNID's priorities

"For instance, in-vision, whereby a sign language interpreter appears in a corner of an ordinary TV screen, distracts and annoys hearing audiences. However an interpreter could be available as an (out-of-band) option on IPTV, delivered across the broadband network."

The BBC's iPlayer is perhaps the best known example of IPTV in the UK. Indeed, according to Gybels, the BBC have worked on this out-of-band option for years and the technology is available.

Gybels claimed the barriers to such a service are economics, plus the lack of political will and consequent disjointed effort – "the end-to-end process for broadcast technologies at the moment is not part of the broadcast delivery mechanism". He stressed the legal and regulatory framework doesn't take into account broadband and the convergence of technologies.

He said, "The Communication Act of 2003 doesn't cover internet-based services at all, hence the rules that apply to linear TV don't apply to IPTV, in effect stifling their development. Even worse, telecom regulation doesn't regulate technologies such as voice over IP at all and increasingly that will be how the world's telephony traffic is carried."

Gybels added, "Digital inclusion is not simply about technology, it is about citizenship and life chances. It affects people's social life, employment and education. We need an appropriate regulatory and legal framework to make it work consistently and this is one of the RNID's priorities."

He concluded, "Yes, there are lots of outstanding issues, but already there are great benefits for those with hearing loss and we are going in the right direction. We must exploit developments as they come along rather than wait for everything to be perfect." ■

Journey without maps

John Lamb recently took the first disability-friendly sat nav in the UK for a spin

With a growing number of databases of accessible facilities now available online it was only a matter of time before someone came up with a sat nav for disabled travellers.

The BBNav, built by GPS software developer Navevo and distributed by Gowrings Mobility, is the first sat nav to show disabled parking, accessible toilets and other points of interest (any point on a map that is not a street address).

The sat nav is intended to help users navigate to blue badge car parks and over 10,000 on-street parking bays in 150 cities and towns across the UK, including all the London Boroughs.

Although sadly my home town of Lewes, county town of East Sussex, is not one of them.

The system's maps go into impressive detail. Besides indicating how long you can park in blue badge bays and red route box bays, BBNav also details local council parking rules by means of six colour codes that show which spaces disabled drivers are permitted to park in.

Car parks have been graded according to levels of disability and mobility, with Grade 1 being suitable for wheelchair users travelling independently; Grade 2 for wheelchair users travelling with some assistance, and Grade 3 for wheelchair users able to walk a limited distance. They also show height restrictions.

My first test was to plan a route to Western Road, a main shopping street in Brighton where I wanted to find a blue badge parking bay. After keying in the town and the road into the BBNav I selected points of interest and asked to be directed to a parking bay. The device was soon working out a route for me: the trouble was it wanted to take me to Brighton Road, Sutton, 25 miles in the wrong direction.

Oh well start again. This time I forgot about the points of interest, got my route to Western Road up and then zoomed in on my destination. No parking bays, but there was a grade three car park (the lowest), which was accessible only to a wheelchair user able to walk up a maximum of three steps.

It is sometimes difficult to make out the symbols on the map;

either because they are tightly clustered together (zooming in usually solves this one), or they are obscured by the street names which always go over the top of the parking symbols.

My next journey was to West Street in Lewes where I know there is a car park with a blue badge bay. I got West Street up OK, but again when I keyed in points of interest and selected blue badge parking I was directed to a road in Eastbourne 15 miles away. I tried Western Road again and again the sat nav pointed me to Eastbourne.

A patient man at BBNav goes through the same routine and comes up with the same results. Could it be that Brighton is not

one of the 150 towns, I asked. He didn't think so but suggested I need to upgrade my system by downloading new mapping information. Could this be a plot by the Eastbourne tourist board?

Pondering on this I continued to use BBNav to find my way around Sussex. However, the rather tinny voice soon began to grate, especially since the navigation software only has a shaky grasp of which roads have priority over each other. Irritatingly it constantly told me to go straight on when there was no way of turning left or right.

Sometimes I came to a road junction and the machine was silent. More worryingly it told me to turn the wrong way on several occasions, contradicting the route shown on the on-screen map. And the battery only lasted about an hour after it was unplugged from my cigarette lighter.

I conducted a side-by-side test with a Tom Tom. And although the BBNav is not as smooth and user friendly, it did pick a better route through Tunbridge Wells, according to a friend with local knowledge.

Overall though, BBNav promises a lot more than it can deliver. Maybe with new software I could have found those parking bays, but on this showing it is difficult to justify a price that is twice the cost of a Tom Tom.

BBNav is available from Gowrings Mobility for £195 + £9.50 postage and packing. ■ www.gowringsmobility.co.uk



BBNav: does it promise more than it delivers?

Video conferencing for learning disabled

A Derbyshire-based arts organisation, First Movement, has launched a videoconferencing product for learning disabled users.

Level Screen enables people miles apart to meet, connect and interact in a virtual screen space. People can see themselves and others in the same space.

The Level Screen, which consists of a screen, camera and control unit, has been developed as a tool for social, education and creative collaboration.

The equipment can be operated by people with little technological knowledge, says First Movement. A single system, which costs £2,500 to lease for a year,

can be ready to use in a few minutes.

First Movement has 10 systems and intends to build a network of schools, colleges and arts organisations using Level Screen to work with learning disabled people. Organisations can either take two units or connect with another organisation that already has a screen.

The development of Level Screen follows on from the launch of a new £1.8 million publicly funded Level Centre in Derbyshire in 2008, which incorporates a state-of-the-art performance space and a digital editing suite. ■

www.first-movement.org.uk



Level Screen lets learning disabled people interact over long distances

Voice recognition from Vlingo

Voice recognition software from Boston company Vlingo, which enables users to verbally command a mobile phone, is available on Nokia phones sold in Europe.

Boston-based start-up Vlingo Corporation has developed software that enables users to press a button and speak normally to use virtually any application on their device. Users are able to use voice to:

- open third party and native applications such as camera and calendar
- send a limited number of text or email messages

- find and dial numbers
- search the web
- create notes to themselves

A basic version of Vlingo is available from Nokia's online Ovi store as a free download. It is also preloaded on the Nokia N97 and the Nokia E72 phones.

For a one-off fee of £12, or a monthly fee of £3.49 for Vlingo Plus, users can send unlimited text and email messages.

Vlingo is designed to continually adapt to the voice and vocabulary of users. Adaptions are applied to everyone who uses the phone. ■

www.vlingo.com

Big button talking telephone

The RNIB and Geemarc have collaborated on developing a big button talking phone.

The DH275 announces all numbers and functions in a female, English voice, confirming to users that the number they dialled is correct.

The telephone also announces the whole menu, enabling blind and partially sighted individuals to be able to set it up to their own preferences.

The large buttons are raised, spaced apart and use different shapes to help with their identification.

There's also a liquid crystal display screen which displays information in extra large characters, 2.3cm high.

The telephone is priced £110.40 inc VAT. Contact RNIB on 0303 123 999 or visit rnib.org.uk/shop for more information. ■

Radio aids go digital

Gordon Morris has launched the first radio microphones on the UK market that use digital technology to connect with hearing aids and neck loops.

The Comfort Digisystem is designed to let people with hearing loss listen to presentations, lectures, discussions and so on at a distance.

Up to now systems like this have used FM radio waves. However, digital technology eliminates background noise and uses encryption to prevent others listening in.

The Digisystem, made by Comfort Audio of Sweden, relies on patented secure stream technology (SST) to deliver improved sound.

Microphones cost between £345 and £2236. A handset receiver is available for £550 and an earset model for £453. Devices have been designed to mirror the look of MP3 players.

The system, which connects to a variety of receivers, can also be used at home for watching TV and using phones. Users can receive funding for the Digisystem via schemes such as Disabled Students Allowance or Access to Work. ■ www.gordonmorris.co.uk

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AbilityNet is a totally independent national charity, working directly with thousands of people every year to find accessible IT solutions, no matter what their age or disability. We know from practical experience what works and what doesn't, and the real problems people face. As a result we now help and support a wide variety of professionals who wish to extend their knowledge or solve difficult issues. For informed, impartial advice it makes sense to contact AbilityNet.

AbilityNet's one-stop shop includes free information and advice; individual assessments, installation, training and support; accessible IT kits for public access centres; courses, seminars and practical workshops; accessible web design and audit service; consultancy.

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The logo for AbilityNet, featuring the word 'AbilityNet' in a serif font, with a green swoosh underline that starts under 'Ability' and ends under 'Net'.

Adapting Technology ■ Changing Lives

VoiceCorp revamps ReadSpeaker

VoiceCorp, developer of ReadSpeaker text-to-speech software for websites, has revamped its products and appointed a new UK manager.

The company, which has been keeping a low profile in the UK following the loss of key staff, has put its head over the parapet with a flurry of activity.

Among the latest releases is ReadSpeaker webReader service which is aimed at websites run by small companies

and individuals. The scaled down version of ReadSpeaker enables smaller blogs and websites to speech-enable their online content on the fly.

The company has also introduced embedded highlighting as an add-on for the ReadSpeaker Enterprise package. The feature highlights words and sentences in a web page as they are read to aid understanding.

ReadSpeaker podCaster is an

automatic podcast generation service for companies and government organisations that want to offer fully automated podcasts from their RSS feeds.

And ReadSpeaker Speech Machine is a web-based speech application programming interface for web campaigns and web applications.

For firms involved in making digital talking books, VoiceCorp has introduced a server-based production system to create fully synchronised digital talking books in the DAISY format.

VoiceCorp recently voice enabled a site run by SITA, a company that provides IT network services to airlines, airports and other companies involved in air transport.

"We feel that adding an audio dimension to our text content brings our site to the next level by introducing greater usability for all, irrespective of any disability," explains Michael Clevestig, senior manager online marketing, SITA. ■ www.voice-corp.com



Air transport firms can listen to SITA's website with ReadSpeaker

Fluency Tutor helps young readers

Texthelp Systems has announced Fluency Tutor, software to improve oral reading skills. Fluency Tutor is an online tool which helps develop oral reading fluency for early learners. Children from five years old can log on to Fluency Tutor at school or at home and practice their reading.

The software allows the child to listen to passages being read aloud before they record themselves reading and submit assessments to their teacher for marking.

Fluency Tutor provides feedback to the student through a series of easy to understand graphical displays.

Fluency Tutor allows teachers to select the right text difficulty level of exercises for each pupil and to monitor a reading running record of their progress. Teachers can evaluate the fluency errors made, words correct per minute score and level of prosody (expression of reading) for every pupil using Fluency Tutor.

Mark McCusker, CEO, Texthelp Systems, comments "The development of Fluency Tutor is based upon the reading fluency cycle of practice, assessment and instruction, which are proven methods of learning. Fluency Tutor is the first truly web-based technology for developing fluency allowing access both in school and at home."

A one year subscription for a school costs £500, for two years the price is £800 and for three years £1050, all plus VAT. ■ www.texthelp.com/fluencytutor

Audio Notetaker updated

Iansyst has introduced an updated version of its Audio Notetaker program for managing digital recordings.

The company, which specialises in tools for dyslexia, has added facilities that allow users working on a PC or laptop to

add keywords, highlight key points using coloured markers or to break up their notes into sections as they are recording.

An additional development in Audio Notetaker enables students to display PowerPoint slides, images alongside text from documents, web pages or notes alongside an audio recording, providing a workspace for comparing and reviewing different sources of information.

Operating in 'full-screen mode', students can playback, edit and review their notes alongside the support documents making it easier to organise documents and notes and view relevant files at the same time.

Audio Notetaker costs £79.95 + VAT (VAT exempt for education) for a single user licence. ■ www.iansyst.co.uk
www.dyslexic.com



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Employers' Forum on Disability Events Calendar, November 2009 to February 2010

Visit www.efd.org.uk/events to find out more about these events and to make a booking.

NOVEMBER

Yorkshire forum: People networks

Leeds 5 November 09 10am-4pm

Free to attend

Telephone Tutorial: Promoting change on disability

18 November 09 3pm-4pm

£60 (member/charity) £99 (non member)

Workshop: Supporting staff with mental ill health in the workplace

London 24 November 09 10am-4pm

£275 (member/charity) £399 (non member)

DECEMBER

Telephone Tutorial: Disclosing disability at work – more than just a tick box

2 December 09 3pm-4pm

£60 (member/charity) £99 (non member)

JANUARY

Hot topic: Encouraging disclosure of disability in your workplace

London 22 January 2010 10am-1pm

£170 (member/charity) £255 (non member)

Workshop: Maintaining accessible legacy systems

London 28 January 2010 10am-4pm

£275 (member/charity) £399 (non member)

FEBRUARY

Disability Discrimination Act Masterclass Part II (employment)

London 4 February 2010 10am-4pm

£299 (member/charity) £420 (non member)

EFD member & charity rates and non-member rates are displayed exclusive of VAT. All events include refreshments. Event delegate packs are available to purchase if you are unable to attend an event. For full details and to book, visit www.efd.org.uk/events or call 020 7403 3020

Diary of events

ACCESSIBILITY ACHIEVEMENT DAY

27 October

British Computer Society,
Southampton St, London

This event highlights the accessibility achievements associated with the BCS qualifications with presentations and awards. Two awards will be made. One to approved training centres, the other to disabled students who have done well in a BCS IT user qualifications.

Fees: None

For further information: email
qualsmarketing@hq.bcs.org.uk

THE ASSISTIVE TECHNOLOGY INDUSTRY ASSOCIATION (ATIA) CONFERENCE CHICAGO

29-31 October

Renaissance Schaumburg Hotel and Convention Center, Schaumburg, Chicago

This new conference, with 150 conference sessions and an exhibition of new products, features three educational events under one roof.

Fees: Full price is \$525 for three days

For further information:
www.atia.org

INCLUSIV-IT-Y 2009

3 November

British Computer Society,
Southampton St, London

Inclusiv-IT-y is a one day event that brings together together experts from across Europe who will share their success stories, provide information on the latest developments on accessible applications and ensure that organisations understand the latest legislation.

Fees: None

For further information: Tel +44
(0)1793 417737 or email
debbie.townsend@hq.bcs.org.uk

NADP AUTUMN CONFERENCE: THE MULTI-DISCIPLINARY TEAM

6 November

Hilton Leeds City, Neville Street,
Leeds

16 November

Holiday Inn Kensington Forum, 97
Cromwell Road, London

This two centre conference is aimed at less experienced disability officers and assessors, though those with more experience who are working with students who have very complex needs may also be interested. This conference will look at case histories for two students, each introduced by a disability officer.

Fees: Members £165,
non-members £190

For further information:
www.nadp-uk.org/events

QAC SIGHT VILLAGE LONDON

11 November

Kensington Town Hall

This London event showcases technology, support and services for people who are blind or visually impaired. Exhibitors from throughout the world take part and the show attracts many thousands of visitors.

Fees: None

For further information:
www.qac.ac.uk/sightvillage-london

RECENT ADVANCES IN ASSISTIVE TECHNOLOGY AND ENGINEERING (RAATE)

30 November – 1 December

Coventry Hilton, Coventry
RAATE 2009 is the only UK conference focused on the latest innovations and developments in assistive technology. Keynote speakers include Dr Marcia Scherer, president of the Institute for Matching Person & Technology.

Fees: £220 inc VAT.

For further information:
www.raate.org.uk

Contacts

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john.lamb@abilitymagazine.org.uk

AbilityNet

Charity advising disabled people, employers and others on assistive IT
0800 269545
www.abilitynet.org.uk

Directgov

Government site with help on employment, training, education, financial support, transport, rights and other issues for disabled people
www.direct.gov.uk/en/disabledpeople/index.htm

Employers' Forum on Disability

Claims to be the world's leading employers' organization focused on disability as it affects business, including recruitment and retention of disabled staff and serving disabled customers
www.efd.org.uk

IT Can Help

Volunteers offering disabled people free local help with computers
0800 269545
www.itcanhelp.org.uk

Remploy

Employment services for disabled people and employers, plus other business services, including IT equipment recycling
www.remploy.co.uk

Workability

Services to help employers fill vacancies and disabled people to get jobs. Part of charity Leonard Cheshire Disability
0845 671 7173
www.workability.org.uk

Top website

European initiatives can seem rather remote and bureaucratic, but we came across a website that goes a long way to dispel such stereotypes. The European Network of Legal Experts in the Non-Discrimination Field (don't be put off by the title) has hung up its brass plate at www.non-discrimination.net. The site provides useful information in a straightforward and lively fashion on the workings of anti-discrimination laws in EU member states. The European Commission set up a network of legal experts to provide independent information on the EU's equal treatment legislation.

■ If you have a favourite website in the accessible IT field share it with others through *Ability* by sending it to john.lamb@abilitymagazine.org.uk

The way of all flesh

Kevin Carey explains why the assistive technology industry needs a shake-up

As only the most observant among you will have noticed, I have changed my job designation; so instead of running my small charity, humanITY, I have gone the way of all flesh in my peer group and become a consultant.

You can rely on the editor to ensure that this column is not a commercial puff, but the change of job has made me see some old problems in new ways. The biggest shift is my move from 'high level' principles to the consideration of product development and some features are already emerging.

Mad inventors

First, and most surprising – and I am sure you didn't need to be reminded of this but I include it for the sake of coherence – there is still a huge amount of assistive technology research and development conducted by individuals and very small businesses with no connections whatsoever with potential users.

There really are 'mad inventors' out there who know what we 'ought' to want. Being numerate, I haven't lost count of the number of mobility aids that have been developed for blind people but have never enjoyed sustained production but it runs into double figures in 20 years.

User involvement in basic requirements definitions is extremely rare. There are instances of user testing but this is usually too late to make changes without significant additional cost, is conducted by technophiles rather than a properly weighted random sample, and is expected to be provided free of charge by disabled people who are often poor.

Secondly, in spite of the rhetoric of integration, almost everything connected with disability, from special computers to care homes, is dull at best and more often



Kevin Carey is head of elnclusion Consultancy at ATcare and chair of RNIB

ugly. The evidence shows that disabled people – and children and students in particular – want to be as identical with their peers as possible in every way. It's bad enough being disabled without being condemned to dull utilitarianism.

The twilight zone

Thirdly, AT operates in a twilight zone between altruism and profit. There is much talk of the 'business case' (*Ability* 65 Spring 2007), but the only real commercial case is the securing of public sector contracts by companies in near monopoly situations.

The problem with this 'cosy' syndrome is that governments seek and are supplied with conservative functionality and design. I am continually struck by how slowly AT is developing compared with, say, consumer electronics.

Finally, we seem not to have cracked the concept of modularity so that

supposedly standard technologies can be effortlessly integrated with AT. This will be an issue of vital importance as we move towards telecare. Retro engineering monitoring systems will be far too expensive. If we are to reap the benefits of reduced hospitalisation and nursing home occupation through the use of different forms of telecare, integration will be vital. To take one example, if we want to monitor the eating habits of elderly people living alone, it should be simple to plug monitoring devices into cupboards and fridges.

All in all, the AT sector needs a shake-up, with new players, more deals with young start-up companies, creative links with art and design courses and a general willingness to put a welcome smile on the face of disability.

Variety is the spice of life

I don't expect people to go on 'glad to be disabled' marches but people who have problems do not necessarily need to be treated as if all life is miserable; and it might even be that we can face our difficulties better if there is joy and variety in our lives.

Underlying these observations, I think that it is all of a piece to say that we have found it difficult culturally to escape a rather 'biblical' attitude to disability – the leper, the palsy, the dropsy – which sees it as alien and, frequently, as an outward sign of inner corruption.

As longevity increases, in spite of medical developments, the prevalence and severity of impairment is bound to increase. There will have to be a time, not far from now, when using a wheelchair isn't an anomalous nuisance; and, therefore, just because AT supplies a niche market, it need not be a segregated market. Niches need not be ghettos. ■



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