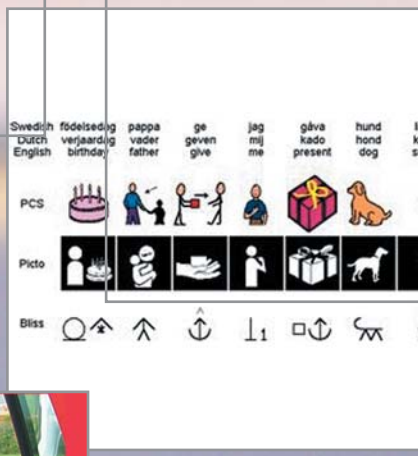
rapid

research and development in assistive technology 2003-2004

Foundation for Assistive Technology - FAST



Reporting on assistive technology in a rapidly changing world

April 2004

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rapid - 2004

Welcome to Rapid, an annual report on the development of assistive technology in a rapidly changing world. This year's report outlines UK research and development activity in assistive technology with contributions from the researchers themselves. It features recently developed prototypes, new products and information resources.

We hope you will use the website links provided in the report to view demonstrations or try out new tools. These links were active when going to print. Visit FAST's online database featuring over 500 assistive technology research projects for the latest information.

http://www.fastuk.org

Picture by Frederic Camallonga, 2004

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the report

Assistive Technology (previously known as disability equipment) means any product or service designed to enable independence for disabled or older people.

This year's Rapid report starts with a summary of Government legislation and the healthcare initiatives that are directly affecting funding levels for assistive technology. Current initiatives address the need to bring cohesion to delivery of assistive technologies; the need for clear standards and guidelines; and to address the need for investment in particular areas within the assistive technology sector.

Our overview gives a flavour of the research and development currently being funded and, where possible, we will draw links to related healthcare policies and funding initiatives. An aim in this year's report is to increase awareness of projects with concrete outcomes of benefit to end users.

We finish with a summary of the funding available to researchers, inventors, manufacturers and service providers in the field of assistive technology. While providing links to comprehensive information on the funders' websites, we are attempting this year to give an overview of priorities, funding levels and accessibility of information on outcomes.

Your support

The Foundation for Assistive Technology (FAST) works collaboratively with people across the assistive technology sector and is particularly dependent upon researchers and developers contributing their time and information about their work. We feel it is vital that publicly funded research is accountable to disabled and older people. At the same time we recognise that many researchers are over-worked and under-resourced and are grateful for their help in disseminating information to end users and to the assistive technology community as a whole.

Forms which allow researchers to inform and update FAST about their work are available on the FAST website at www.fastuk.org.

FAST

FAST was established in 1997 to help bring cohesion to the development of assistive technology for disabled and older people. A key aim of the organisation is to influence the development of assistive technology to ensure that it is led by the needs and wishes of users.

FAST works with academic, manufacturing and voluntary sector partners to bring together information on current research and development in assistive technology. This mapping exercise is made available through an online database of research and development and through this Rapid report. Hosted on our website, the database includes details of over 1200 organisations, about 500 hundred projects and 200 events.

'..umbrella organisations such as the Foundation for Assistive Technology will have a key role in keeping communications flowing between the many organisations with an interest in [AT] developments..'

Dr Stephen Ladyman MP
ICES Conference, March 2004

policy and the law

Over the last eighteen months there have been a range of initiatives with the potential to impact on the provision of assistive technology. This is a rapidly developing area and we give links to sites that provide further information.

Keeping up to date

Two sources of information which may be useful if you wish to keep up to date with these issues are: the Department of Health website at www.dh.gov.uk and a monthly email bulletin provided by the recently established Assistive Technology (AT) Forum.

FAST currently acts as the secretariat for the AT forum. For free subscription to the email bulletin go to the FAST website at:

www.fastuk.org

Problems addressed

There appear to be three main problems tackled by recent legislative and policy developments. These are:

1. A lack of cohesion in the delivery of assistive technologies between health and social services;
2. A lack of clear standards, guidelines and legislation regarding assistive technology;
3. A need for investment in particular areas of assistive technology and in the UK manufacturing sector.

1. A lack of cohesion in the delivery of assistive technologies between health and social services

Integrating Community Equipment Services (ICES)

The Guide to Integrating Community Equipment Services (March 2001, Department of Health) set out the milestones towards the April 2004 target to meet the NHS Plan to modernise community equipment services. Over the last decade health and social services have run parallel equipment services leading to organisational barriers and disputes over funding. Now NHS organisations and local councils can use the Health Act 1999 flexibilities to remove the barriers by pooling budgets and integrating services. ICES was established to help local organisations achieve this change. As an incentive, in 2003 ring-fenced funding of £7.6 million was made available for community equipment provided within pooled budgets.
http://www.icesdoh.org.uk/

Integrated Care Network

Recognising how difficult it is to achieve joined up working between health, social care and housing providers, an Integrated Care Network has been set up by the Department of Health and is sponsored by

..cohesion and standards ..

a range of government departments and representative bodies. The network brings together frontline NHS and local government organisations to encourage service planning and delivery to join up and so improve the experience of users.
www.integratedcarenetwork.gov.uk/

Health and Social Care Change Agent Team (CAT)

The Health & Social Care Change Agent Team (CAT) was established by the Department of Health in January 2002 to tackle delays in the discharge of patients from hospital. CAT works across health, social care, housing and the independent sector to reduce these delays. CAT looks at the role of assistive technology in maximising independence in healthcare settings and at home. CAT is currently working with ICES on a telecare project.
www.dh.gov.uk/

NHS Purchasing and Supply Agency (PASA)

PASA is increasingly focused on areas of strategic importance to the NHS. In rehabilitation services these include: audiology, community equipment, electronic assistive technology, orthotics, prosthetics and wheelchairs. The rehabilitation services section influences in excess of £220 million of NHS spend per annum.

Recent collaborations include work with:

- the ICES team to develop a specification for community equipment services
- the British Healthcare Trade Association (BHTA), service companies and centre managers to develop a patient-centred contract for prosthetics services:
- the Modernisation Agency on a joint 'pathfinder project' covering six orthotics services.

www.pasa.doh.gov.uk/rehabilitation/

2. A lack of clear standards, guidelines and legislation regarding assistive technology

National Service Framework for Long Term Conditions

Consultation work has been underway on the National Service Framework for Long

Term Health Conditions which was announced in February 2001. This NSF will have a particular focus on the needs of people with neurological disease and brain and spinal injury.

Current plans are to publish the NSF in 2004 with a 10-year implementation period from 2005. The nature of the conditions covered by the Service Framework means that assistive technology is likely to be a key focus of the report.
www.dh.gov.uk/

Developments in Wheelchair Services

The National Wheelchair Managers' Forum, the British Society of Rehabilitation Medicine, EmPOWER, the National Forum of Wheelchair User Groups, the NHS Purchasing and Supply Agency, the Posture and Mobility Group, and Whizz-Kidz are currently developing National Standards for Wheelchair Services.

The Forum participated in a conference in October 2003 on the on-going Wheelchair Services Collaborative, which is a joint Department of Health and NHS Modernisation Agency project to support improvements in 45 services and to develop longer-term networks.
http://www.wheelchairmanagers.nhs.uk/

Housing – Policy Guidance on Telecare

The contribution of telecare in supporting people at home has been increasingly recognised at policy level. For example the latest housing policy guidance. "Quality and Choice for Older People's Housing: A Strategic Framework" published by the government in 2001 endorsed the use of telecare and smart home technologies to help older people live safely at home and widen the housing options open to them.
http://www.odpm.gov.uk/stellent/groups/odpm_housing/documents/page/odpm_house_601723-15.hcsp

Housing – Policy Guidance on Access

On 5 November 2003, the Office of the Deputy Prime Minister published new guidance to ensure that new buildings are accessible. This includes level entrances, automatic doors, audio alerts and clearer signs. The proposals also affect existing buildings when they are altered. The proposals relate to Part M of the Building Regulations 2000 (Access and Facilities for Disabled People) and bring the regulations into line with a new and comprehensive British Standard code of practice on access for disabled people.
http://www.odpm.gov.uk/stellent/groups/odpm_buildreg/documents/page/odpm_breg_025494.hcsp

Disability Rights Commission Audit and Guidance on Web Accessibility

Previous FAST overview reports have featured significant research effort relating to the accessibility of the World Wide Web. The Disability Discrimination Act 1995 gave disabled people rights in the areas of employment and access to goods, facilities and services, including websites.

..investment..

In March 2003 the Disability Rights Commission (DRC) launched the first formal investigation into the accessibility of websites in the UK. A key aim of the investigation will be to identify recurrent barriers to web access and to help site owners and developers recognise and avoid them. This project reported in April 2004.
http://www.drc-gb.org/

Medicines and Healthcare products Regulatory Agency (MHRA)

The Medical Devices Agency) and the Medicines Control Agency (MCA) have been merged to form the Medicines and Healthcare products Regulatory Agency (MHRA). This recognises that the boundaries between medicine and assistive technology are increasingly blurred. MHRA provides expert advice on assistive technology issues such as safety, quality and performance, adverse incidents, CE marking and standards.
http://www.mhra.gov.uk/

For some years the Department of Health has funded the evaluation of assistive technology under the Disability Equipment Evaluation programme (DEEP) managed by MHRA. This has been renamed the Assistive Technology Evaluation Programme (ATEP). MHRA intend to develop the ATEP programme to ensure it is more closely aligned with government policies and initiatives related to assistive technology.

3. A need for investment in particular areas of assistive technology and in the UK manufacturing sector

The Communication Aids Project (CAP) for Pupils with Communication Needs

Communication aids are widely regarded as an area of under-investment and this has particularly been the case for children with a communication impairment. The Special Educational Needs and Disability Act 2001 amended the Disability Discrimination Act 1995 to end the exemption of education from its provisions. The new Act places a duty on education providers to make reasonable adjustments to ensure that a disabled person is not prevented by their disability from enjoying the same educational experience as other students.

The two year, £10 million Communication Aids Project (CAP) managed by the British Educational Communications and Technology Agency (Becta) commenced in April 2002. Funding has been made available to augment local education authority and school funding and adopts an integrated approach to the long-term needs of young people with a communication impairment.
http://www.becta.org.uk/cap

Investing in Services for Hearing and Visually Impaired People

The Department of Health's Modernising NHS Hearing Aids Services project managed by the RNID is trialing leading edge digital hearing aids for NHS patients, coupled with an evaluation of associated service delivery changes. £20 million was invested in 2002/03 to extend the project to a further 57 sites.

RNIB and RNID have launched a joint "Sensory Solutions" service to help community equipment services improve their provision of equipment for people with a sensory loss. This offers them a one-stop shop by providing training, assessment and a full range of equipment.

The voluntary sector consortium, Improving Lives, has been awarded a grant to implement standards by empowering users to audit local services. http://www.mhas.info/

On October 2003 the Dept of Health announced a new National Framework Agreement with the private sector to provide NHS digital hearing aids on the high street. The Dept. of Health worked with RNID, the NHS Purchasing and Supply Agency, and the MRC Institute for Hearing Research to develop this agreement.

Healthcare Industries Task Force (HITF)

The establishment of a Healthcare Industries Task Force (HITF) was announced by the Department of Health in October 2003. The HITF is a year long initiative leading to the publication of a report and recommendations in autumn 2004. The task force brings together government and industry leaders to identify steps to stimulate growth in the UK healthcare industry and maximise benefit to users from healthcare products. http://www.dh.gov.uk/

The initiatives noted above address barriers to improving provision of assistive technology and directly influence research funding. This is reflected in research that is commissioned and which is outlined in the following section.

the projects

Various factors influence the 'hot' topics for research into assistive technology each year. Historically some areas have received less funding than others, for reasons which are not immediately apparent. There has been little strategic review of need across the wide range of assistive technology use. Accountability to disabled and older people for research priorities and spend is not a strong emphasis for many funders although some are making strenuous attempts to involve users both in individual projects and at a strategic level.

Some of the push factors which result in new technologies and research projects emerging include the ongoing activity around a 'hub' of specialised knowledge, for example a rehab centre, academic department or innovative manufacturer. Technologies which develop in a related field can result in a flurry of projects seeking to establish the most fruitful application for disabled and older people, as is the case with mobile phone and digital sound technology.

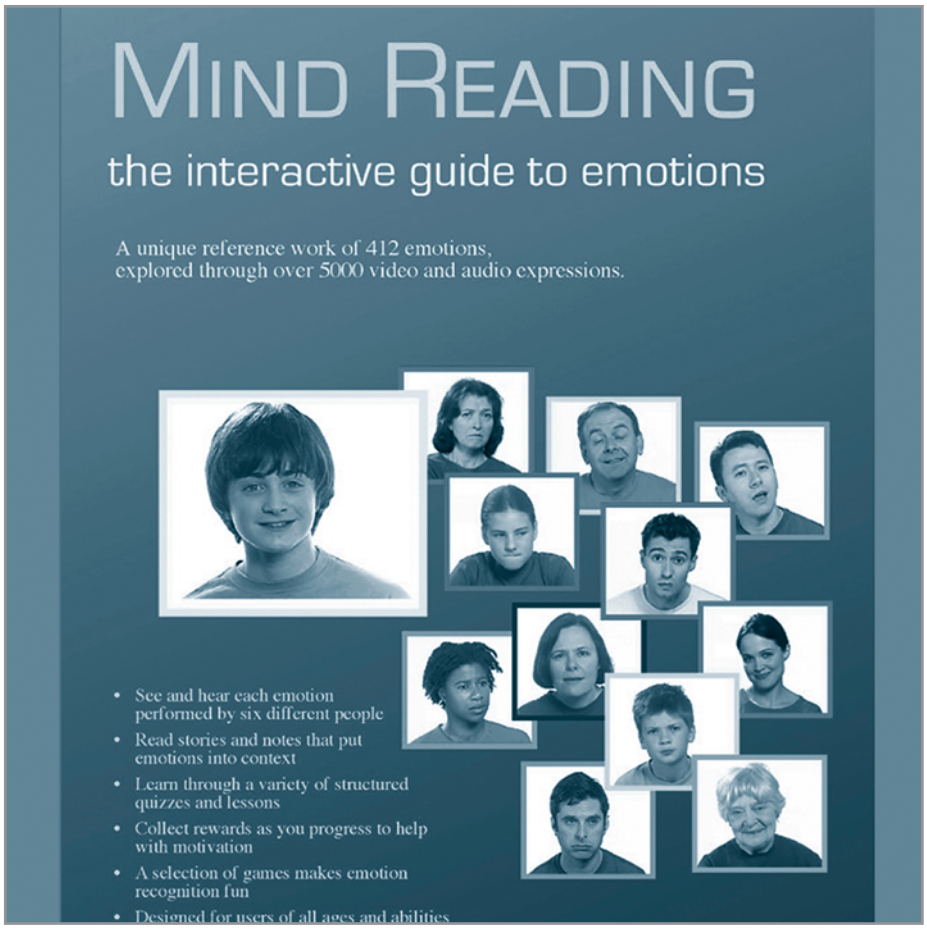
Research projects can also result from the 'pull' factors based on end-user requirements. This can be in response to rehabilitation research arising from individual case management or to campaigning (and funding) from voluntary sector groups representing particular impairment conditions. Many of the projects we feature in this section are the result of collaborations with voluntary sector organisations representing disabled and older people.

Greater numbers of manufacturers are recognising the stronger market position of products which are appropriate for a wide range of consumers. Inclusive design as a concept and marketing approach is resulting in an increased choice of assistive products and systems. Research on the social and political impact of an ageing and disabled population is identifying unmet need and influencing the research priorities of many of the major funders in this area.

FAST welcome information on research projects in any area of assistive technology. To find out if a project is already on the FAST online database, go to http://www.fastuk.org.

User testing and consultation strengthen a product's market position.

Enhancing Social Interaction for People with Autism



Policy: Autism and related syndromes such as Asperger's Syndrome affect people's ability to communicate and to interact socially. In March 2003 the National Autism Plan for Children was published by the National Autistic Society in collaboration with the Royal Colleges of Psychiatrists and of Paediatrics and Child Health, with the backing of the All Party Parliamentary Group on Autism.

This report will contribute guidelines for assessment and support for people with autism to the forthcoming National Service Framework for Children.

Research: The Shirley Foundation was established in 1996 by Dame Stephanie Shirley to provide funds for pioneering work in autism and IT. It funded Mind Reading: The Interactive Guide to Emotions, an educational tool which teaches people about emotional expression and is available as a CD/DVD. The work was produced by the Autism Research Centre, University of Cambridge who researched the English language to find over 1000 words used to describe emotion which were then translated into 412 separate expressions.

All the emotions have been developmentally validated on a typical primary and secondary school population. Actors were used to show each emotion using their face and voice and the resource includes mini stories to give context.

The guide is published by Jessica Kingsley Ltd (London). Profits go to autism research. http://www.jkp/com/mindreading

The DVD is currently being evaluated in a treatment trial research design. http://www.human-emotions.com/mindreading/default.asp

..social interaction...

Since 1998, the Aurora project has investigated the use of robots in playful, social environments for the benefit of children with autism. The robots act as a teaching device with simple interaction skills such as turn-taking games or imitating the arm movements of a child. Trials at several schools were encouraging but researchers feel that more work is needed to firmly demonstrate the therapeutic and assessment value of the robots. Funding from the EPSRC has ended but work continues in the Adaptive Systems Research Group at the University of Hertfordshire.
http://www.aurora-project.com/

At the University of Nottingham the Virtual Reality Applications Research Team has used Virtual Reality Technology to help young people with Asperger's Syndrome. The AS Interactive Project is funded by the Shirley Foundation in collaboration with the National Autistic Society. A social skills package, AS Interactive Demonstration and support tools are now available via their website. The University of Nottingham has also obtained an ESRC Post-Doctoral Fellowship to examine computer-mediated communication in autism which will continue into June 2004.
http://www.virart.nott.ac.uk/asi/demosve.htm

Multisensory environments enable physical movement to be translated into sensory feedback such as sound, vision and vibration. The European Community is funding the MEDIATE project (pictured below) to create a multisensory portable system for children with autism. They will be able to interact with the environment through touch, sound and sight. A prototype has been trialled in the Netherlands and the installation is now on public display. Trials are being organised by the Institute of Psychiatry, Kings College London and results are expected to be available during late summer 2004. The project is led by the University of Portsmouth.
http://www.port.ac.uk/mediate

Picture by Frederic Camallonga, 2004

Communication aids

Communication through speech and writing is a complex process which can involve memory, word finding, comprehension, language knowledge and skills, hearing, word forming and projection and upper limb motor skills.

Augmentative and Alternative Communication (AAC) is the term for methods of communication which can be used to supplement speech and writing when these are impaired. Impairment can be due to many conditions and the AAC tools required will vary accordingly.

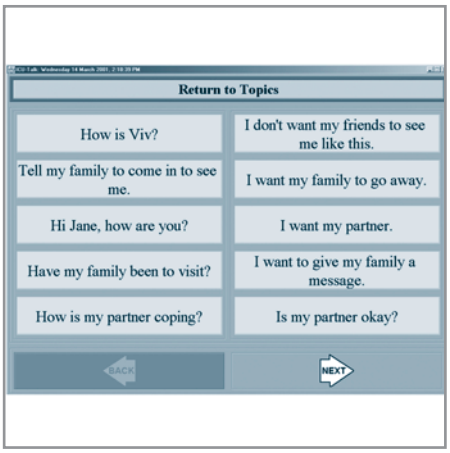
Faster Social Conversation

AAC that relies on word-by-word generation is very slow, so a phrase-based system is potentially more useful, provided it does not limit what can be talked about. Two systems are attempting to use knowledge of how conversation works in practice to overcome the difficulties inherent in phrase-based systems. These are 'Frametalker' and 'TALK'. 'Frametalker' uses phrases to help users communicate in task-oriented everyday situations such as eating out. 'TALK' also uses pre-stored phrases, but concentrates on social chat rather than specific tasks. A project funded by the EPSRC and headed by the Dept of Psychology, University of Dundee, together with a parallel project in the USA, has combined these two systems to create a flexible communication tool. Enkidu Research, a software company in the USA, has developed an integrated prototype called 'Contact' based on this research.

AAC users trialed the system in real life office situations. Enkidu Research has recently merged with DynaVox and it is anticipated that a commercial product based on the prototype will be forthcoming. http://www.dundee.ac.uk/psychology/jtodman/welcome.html

AAC in Intensive Care

An AAC system was developed at the University of Dundee to help people in intensive care units (ICU)



communicate with relatives and friends. It won a British Computer Society Award medal at the end of 2002.

The system stores phrases which can be tailored to an individual's life and medical diagnosis to allow social interaction and discussion with medical staff. ICU-Talk (pictured above) involves Dundee Speech and Language Therapy, Ninewell's Intensive Care Unit and the University of Dundee's Division of Applied Computing and School of Nursing.

The original software developer is continuing this work and it is hoped that more funding will allow multicentre user trials across the United Kingdom. http://www.computing.dundee.ac.uk/projects/icutalk/demo.htm

..communicating..

Symbol users and the Web

People who use symbols to communicate in addition to, or instead of, text need the World Wide Web to be more accessible. World-Wide Augmentative and Alternative Communication Project (WWAAC) (pictured above) is a European Union project which will provide tools and services to develop web browsers and email systems which can translate symbols into multi-lingual text or another symbol language, all with speech output via a Concept Coding Framework (CCF) and Writing Support Framework (WSF). Such tools and web-based services will enable people who use one particular symbol language to communicate with others who use a different symbol language.

The design is based on a detailed user requirements consultation, conducted by the ACE Centre with young people and adults who use AAC and older people with dysphasia. In addition to software produced for AAC users, web authors will be offered authoring tools to build sites for symbol users. It is also hoped that findings from the project will feed in to web guidelines (WC3 - WAI). http://www.wwaac.org

Low tech AAC

Joan Murphy at the AAC Research Unit in the Dept. of Psychology at the University of Stirling devised a picture based AAC framework called Talking Mats (pictured right) during a research project funded by the Gannochy Trust.

Ten training packages, which include booklets and videos based on research findings, are available from the University's AAC Unit. The three most recent packages are: 'Talking Mats and Learning Disability' based on research funded by Chief Scientist Office at the Scottish Executive Health Departmen; 'Talking Mats and Frail Older People' based on research funded by ESRC; and 'Talking Together' based on research funded by Scottish MND Association and the Community Fund.

The AAC Unit also provides training on Talking Mats to a range of organisations. A new one-year project funded by the Chief Scientist Office of the Scottish Executive will determine priority issues for communication disability in primary care. The study will use four focus groups with general practitioners, two groups of people with learning disability and two groups of people with aphasia. It is hoped that findings from the study will enable people with communication disabilities to access health services more easily. The work done at the AAC Research Unit is also supported by Forth Valley NHS Board.
www.aacscotland.com

Communication and dementia

The Universities of Dundee and St Andrews have created a Computer Interactive Reminiscence and Conversation Aid (CIRCA) to enable and support communication between people with dementia and their carers. Collaborating on the project are Alzeimer Scotland- Action on Dementia and Dundee Social Work Department. The aim is to support communication by building on long term memory, which tends to be relatively unaffected by dementia.

The first prototype taken into the field has shown that such a system can facilitate conversation and also give people with dementia more equality of control over the direction of conversation. Interest has been expressed in producing a commercial version of the system. The research team hope to continue their work in this area by developing an interactive system that could supply stimulation and entertainment for people with dementia, which they could use unaided.
http://www.computing.dundee.ac.uk/projects/circa/

Communication and Aphasia

Aphasia is usually caused by stroke or head injury and it can make everyday activities and communication difficult. People with aphasia can have difficulties word finding, speaking, listening, writing and using numbers. Aphasia and Dysphasia are terms often used interchangeably.

The Economic and Social Research Council (ESRC) funded a project called Inclusive Internet technologies for people with communication impairment as part of its Innovative Health Technologies Programme. It was a joint initiative between the charity Connect, the Dept of Language and Communication Science at City University and the Community Information Systems Centre, University of the West of England, Bristol. One outcome is an aphasia support website www.aphasiahelp.org which was co-authored by people with aphasia. The participants found that one of the main barriers to using the internet was the "tone of voice" of a site - for instance they felt unwelcome and excluded by sites which claimed to be about aphasia but which focussed on medical or fund raising issues. Their design guidelines also highlight the fact

that people wanted to use the Internet as an interactive, not as a passive medium, wishing to publish as well as consume. The team began to study how new media can best assist people to build communities and remove the isolation which can be created by aphasia. Further funding is being sought to continue this work and also to maintain the web site.

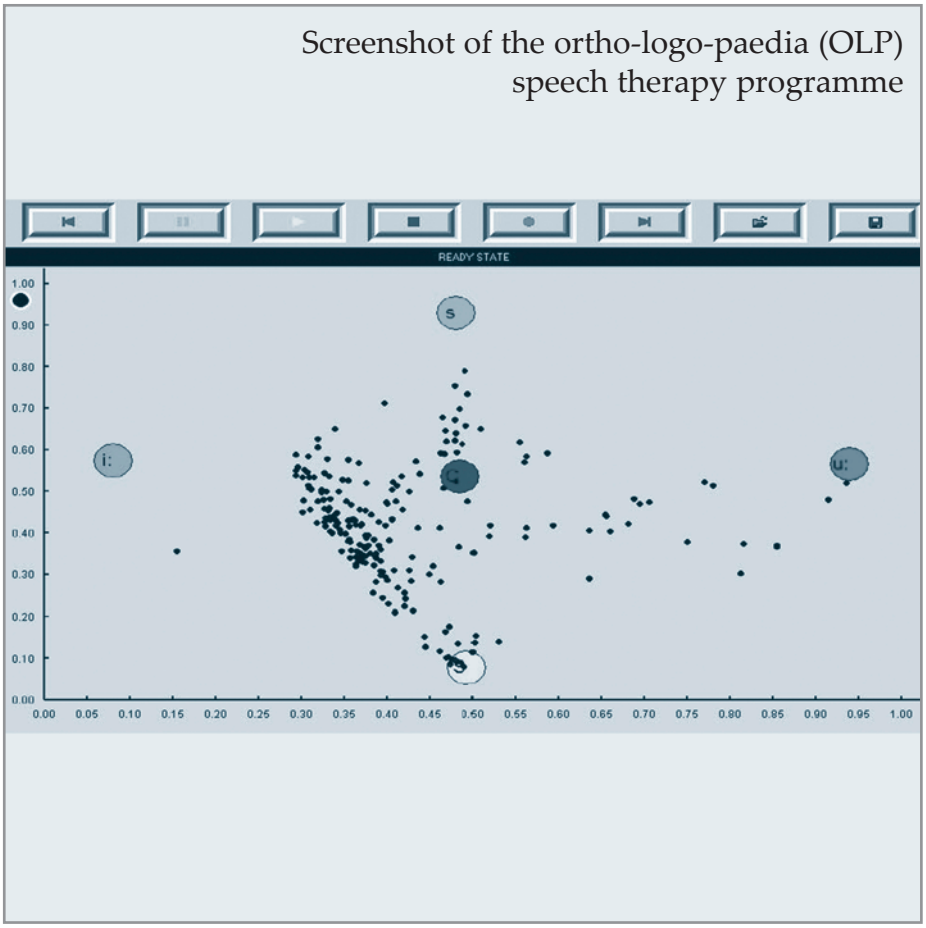
The Stroke Association is funding a project looking at the Use of Speech Recognition Software By People with Aphasia (Dragon Dictate and Dragon NaturallySpeaking) to see how useful it might be for people with aphasia. Working with the Aphasia Computer Team at Bristol , participants dictated to a computer rather than using a keyboard and performance was measured before and after training. Interim findings were that, although the software could not

..listening...

recognise the spoken words with total accuracy, people thought the tool was potentially useful and felt there was a benefit in not having to use a keyboard. Further trials were conducted at the end of 2003. http://www.bas.org.uk/bic2003talks.htm

Communication and Dysarthria

Dysarthria is caused by weakness or loss of coordination of the muscles of the face and throat that are used to make and project speech. The voice of a person with dysarthria can sound slurred and they may only be able to whisper. Various conditions can result in dysarthria, including stroke. Funded by Action Medical Research, a tool 'Dysarthria and Computers' was built by the Bristol Aphasia Computer Team to help clients practice speech exercises with the aid of a computer. It has features which encourage people to concentrate on their practice strategy to improve intelligibility. There is a high level of visual feedback in response to speaking rate exercises and phrasing exercises. Users are given visual goals to aim for and clear indicators of success. Trials are ongoing during 2004.



Screenshot of the ortho-logo-paedia (OLP) speech therapy programme

Communication and Hearing Impairment

The European Union Ortho-logo-paedia (OLP) project is based at the School of Health and Related Research at the University of Sheffield. It aims to provide a computer-based speech therapy programme to improve articulation using a visual presentation of speech production. Researchers began by collecting data from non-hearing impaired people pronouncing certain letters. These sounds were plotted on a graph and shown as a coloured circle displayed graphically on a PC (pictured above). Hard of hearing children were asked to repeat the same letters and their sounds were shown as a black dot on the screen so they could see how close to the coloured circle their sounds were. This technique is considered to be a potential training tool to improve speech production. Work continues until 2005. http://www.xanthi.ilsp.gr/olp/demos.htm

Hearing Aids and Cochlear Implants

Increased investment in this area of assistive technology has resulted from the technological revolution of moving from analogue to digital technology. Analogue hearing aids amplify all sounds which can make it difficult to distinguish "target" sounds from background noise. Digital hearing aids incorporate ways of reducing background sound which means that users can more easily hear speech in noisy settings. In addition, digital aids are more flexibile than analogue aids and can be adjusted more precisely to suit the individual.

In February 2003 the Government announced an investment of £94 million over the next two years to modernise hearing aid services across England. It is expected that by April 2005 all audiology departments in England will be routinely fitting digital hearing aids.

Bluetooth is a technology enabling the wireless connection of equipment. Assistive listening devices such as hearing aids and induction loops may incorporate bluetooth technology in the future. The European Union is supporting a project to build an assistive listening device called BlueEar which involves creating a Personal Area Network whereby a person with a hearing aid can use a special control unit to switch between receiving signals from, for example, a radio, television or mobile phone. A workshop in the UK evaluated 30 BlueEar prototypes. The next phase will be field trials in the UK, Sweden and the Netherlands.
http://www.blueear.org/

BlueEar control unit

Most hearing-impaired people can only hear comfortably over a limited range of sound levels. This range depends upon the degree of hearing loss at each frequency. To make sounds audible without the sounds being uncomfortably loud, modern hearing aids split the sound into several frequency bands, and apply automatic adjustment of volume in each band; this is called "multi-band compression" (MBC). At the Dept. of Experimental Psychology,

..hearing..

University of Cambridge, a computer program called Camfit was developed by the Auditory Perception Group, with support from the MRC. This program gives recommended initial settings for MBC based on the audiogram of the patient. The program can be used with hearing aids from many manufacturers and trials show that the recommended settings do help to speed up the fitting process.

A second project being conducted by this group, funded by the MRC with additional support from Defeating Deafness and the RNID is concerned with the development and evaluation of procedures for fine-tuning the settings in a hearing aid to suit individual preferences. A third project has resulted in development of a test for diagnosing areas in the cochlea where there are no functioning inner ear hair cells and/or neurones. It is hoped that the results of this test willl help to define what frequencies to amplify within a hearing aid so as to optimise the intelligibility of speech.
http://hearing.psychol.cam.ac.uk/Demos/camfit.html
CD for diagnosing dead regions in the cochlea at:
http://hearing.psychol.cam.ac.uk/dead/dead.html

Cochlear implants are given to people who do not get much benefit from traditional hearing aids. They work by translating the sounds of speech into electrical signals and achieve this by using electrodes in the cochlear implant to directly stimulate the hearing nerve. One of the drawbacks can be that the implants do not transfer the intonation of a speaker's words to the listener. Intonation is important in conversations, for example, for conveying moods and distinguishing between questions and statements.

Funded by the RNID, the Dept. of Phonetics at UCL is working to improve the way that voice intonation is picked up by the electrodes so that people get more richness from speech. This was done by defining the patterns of electrical signals which best represent changes in voice pitch. These were modelled into a prototype implant which was trialled until the end of last year.
http://www.ihr.mrc.ac.uk/research/prostheses/index.php

Computer Access for Vision Disabled People

The European Union and the Gatsby Charitable Foundation supported an initiative to increase computer literacy among blind and partially sighted people aged over 35. They identified user needs, designed a training programme, a good practice guide and a website. The partnership involved organisations from five European Union countries. The Equal Access to Technology Training (EATT) project is complete and a final report is available. http://www.eatt.org/en/index.php

RNIB, City University and partners across the European Union have completed a project called MultiReader. EBooks, which can combine visual images, sound and text, are read by means of a PC or handheld computer such as a Personal Digital Assistant (PDA) but are inaccessible to many disabled people. The project aimed to redesign multimedia versions of three books for use by people with visual impairments, hearing impairments or dyslexia. For 'Hamlet' by Shakespeare, video and audio clips of different actors doing the same speech were included alongside the text and people could also create their own index of famous quotes. The eBook 'Painting from a New Perspective' was based on a book produced by the RNIB while the 'London Tourist Guide' was written specifically for the project. Throughout the project, the prototype was designed with the help of feedback from users and aimed to maximise usability of the eBooks. Specific accessibility options included real people signing the audio for deaf users, audio descriptions of pictures for blind users and text highlighting for dyslexic users. Although MultiReader itself has now finished, RNIB will use the results to extend its work on DAISY, the new digital talking book system. http://www.multireader.org/WorkPlan.htm

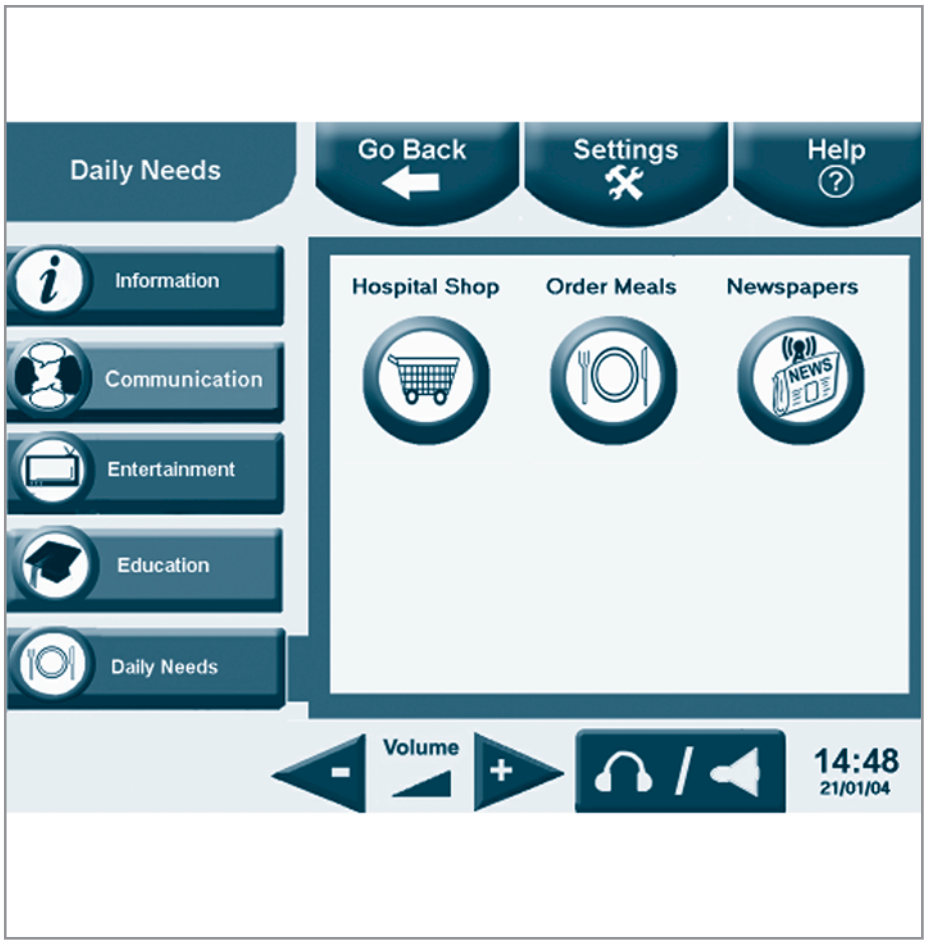
..using computers..

The Engineering and Physical Sciences Research Council (EPSRC) funded Multimodal Visualisation for Blind and Visually Impaired People (MultiVis) which is a collaboration between the Department of Computing Science and the Department of Psychology at the University of Glasgow, Scotland.

The aim is to help blind people read graphs, tables, charts etc. For example, a graph can be expressed by the sound of musical notes going up and down.

Different graphs can be compared using a 3D sound space with the sound from one graph coming from the front, a second from the right, and a third from the left.

A raised graph can be printed on a piece of paper so that data can be communicated by touch. Sound can also be added to these tactile diagrams. Sensors attached to the fingertips are connected to a computer which registers where the graph is being touched. The PC produces musical notes of different length and pitch to describe the slope and distance between two points. The research also included using a special 'haptic' device for 'touching' onscreen information. When using the device, touch feedback gives the impression of feeling the slope of the graph on screen.
http://www.multivis.org



A two year project, Hospital Portal, is developing a touch-screen computer that incorporates a range of information, communication and entertainment facilities that can be delivered directly to the hospital bedside (pictured above). The project, funded by the EPSRC under the EQUAL initiative, is a collaboration between the Research Group for Inclusive Environments and Department of Computer Science at The University of Reading.

Ending in March 2004, the second round of testing with visually impaired people and deaf people is underway.
http://www.cs.reading.ac.uk/hospital-portal/

E-Learning for people with learning disabilities

Policy: In March 2001 the Government published the first White Paper on learning disability for 30 years, 'Valuing People: a new strategy for learning disability for the 21st century'.

The White Paper highlights the role of new technology in meeting the communication needs of people with severe learning disabilities.
Government White Paper
http://www.archive.official-documents.co.uk/document/cm50/5086/5086.htm

Making Change Happen: the Government's Annual Report on Learning Disability 2003:
http://www.valuingpeople.org.uk/makingchangehappen/

Software, Access, Guidelines: The RIX Centre was set up at the University of East London to promote awareness of learning disabilities and to ensure multimedia is developed with this in mind. The Big Tree portal aims to create a virtual community where people can share ideas and build research projects. The site, relaunched in March 2004, has three levels of accessibility where users are directed to the content in which they are particularly interested.

Satellite projects around this 'big tree' focus on accessibility, e-learning and inclusive multimedia production. Access and Participation for eLearning and the World Wide Web (PACCIT APPLE) will be the first 'root' on the tree with its own website. Its aim is to enable people with learning difficulties to make the most of multimedia for eLearning by consulting them to create new products and services. Other partners are the University of East Anglia, City University, XOR and Macromedia. Website development is ongoing with Trans-Active, the Home Farm Trust and Inclusion International.

Trans-Active is a project which aims to enable young people to make a 'transition passport'. This passport

communicates their life experiences and wishes for the future as they approach adulthood. The project uses multimedia tools such as digital photography, video, scanning and the internet. Trans-active was developed by Mencap in collaboration with staff at the University of East London including the Big Tree team.

The pilot phase, which has now ended, was funded by the Diana Fund. The project now has support from the Department for Education and Skills Small Grants Fund and Nokia. The Trans-active Pack is a teaching resource pack including lesson plans, a video and CD Rom of resources and is now available for schools and other venues to buy along with training.
http://www.uel.ac.uk/thebigtree/
http://www.trans-active.org.uk/teenz/index.htm

..e-learning..

Researchers working in partnership with people with learning disabilities have created evidence based guidance, Information for All, on making information easier for people with learning disabilities. It is aimed at information providers new to producing accessible information and is based on a systematic review of research evidence and on interviews with information providers.

The guidance covers a range of topics, including information for people with learning disabilities and visual impairments, information for people from Black and Minority Ethnic backgrounds who are learning disabled, computer based information and video and audio formats. Easy summaries are included to help organisations use the guidance jointly with people with learning disabilities.

Funds are being sought to send out a paper and audio pack for those who do not have internet access and for an interactive CD ROM to help people with a variety of communication needs to engage with the material.

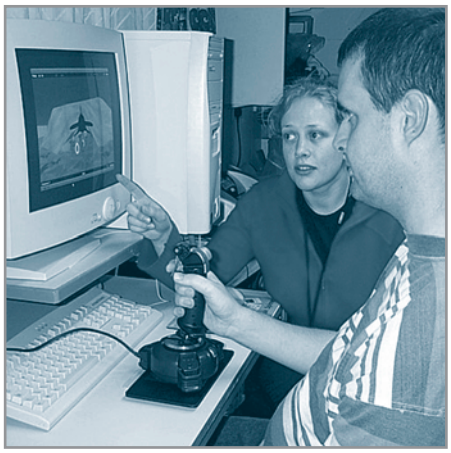
Hardware/ input devices:

With such exciting developments in eLearning software, accompanying research into hardware such as joysticks and mice is needed to ensure accessibility. Nottingham University and Nottingham Trent University worked on the Design of Input Devices for People with Learning Difficulties project with the help of 40 people with learning difficulties.

The aim was to inform the design of input devices for navigating around virtual environments on a PC. Funded through the EPSRC EQUAL initiative, a key objective was to remove barriers that users experience when using input devices for computers.

One finding has been that people with cognitive problems were able to get the most out of using the PC where they could easily see how the screen environment changed in response to their actions and when the software made it easy for them to see what to do next.

For people with motor difficulties the design of the input device was crucial and the team at Nottingham designed two potential solutions, a modified standard



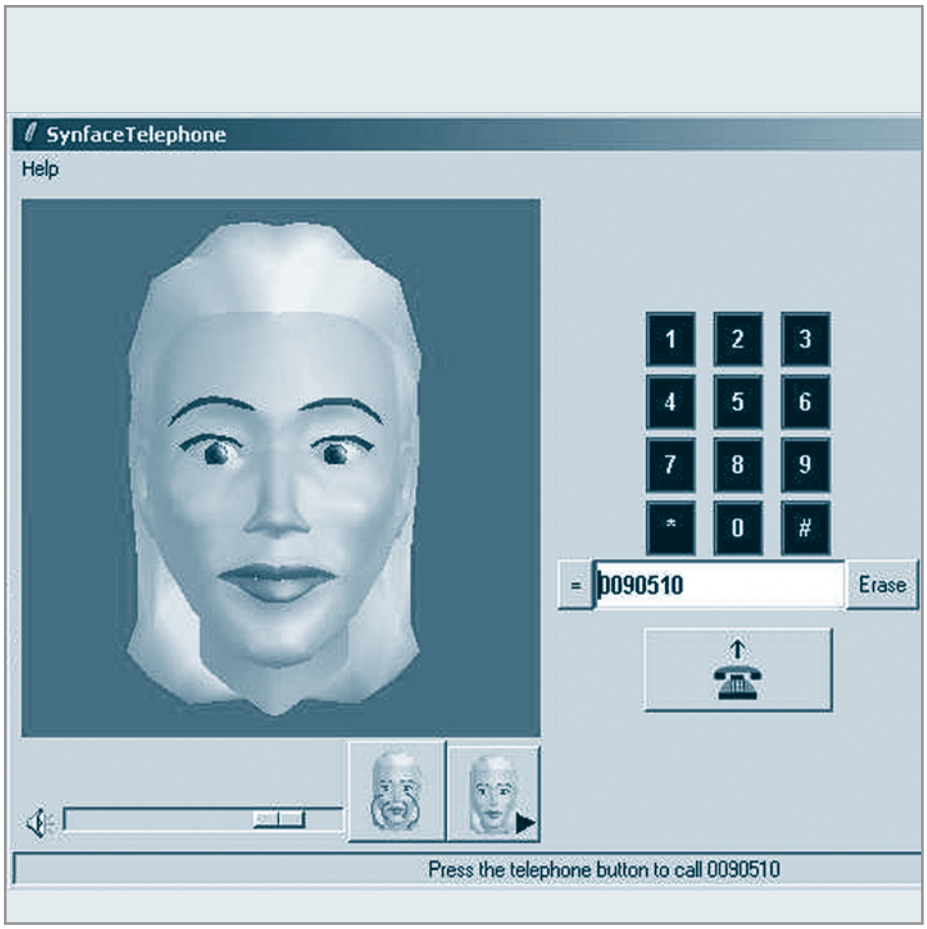
joystick and a two-handed device.
http://www.fp.rdg.ac.uk/equal/Launch_Posters/Notts.htm

The Portland Partnership works to provide software and hardware for people with learning disabilities. It is funded by the European Social Fund's Equal Initiative until 2005. Building upon the EPSRC work, the teams continue to develop an input device which will help people get the most out of educational multimedia. The end product will be wireless with different physical attachments (such as joysticks or mice) and could be used as an assessment tool. Other partners are Penny & Giles (Traxsys) and the British Computer Society Disability Group.

Televisions and Telephones

Against a context of enabling access for disabled and older people to transport, buildings, the internet and the work environment, there is an increasing awareness that leisure and communication technologies can also exclude. Over the past couple of years there have been several research projects funded to look at widening access to the television and telephone technologies that most of us already enjoy in our homes.

Television in Words (TIWO) is based at the School of Electronics and Physical Sciences, University of Surrey. Funded by the EPSRC, TIWO aims to improve text and audio descriptions provided by trained professionals to enhance the appreciation of television programmes for visually impaired people. As part of this project, the AuDesc system is being developed to assist in the preparation of audio description, and to customize audio description for different audiences. The project is also investigating ways in which further value can be gained from audio description by its use with video retrieval and browsing systems.



A European Union funded project SYNthesised talking FACE (SYNFACE) aims to make telephones easier to use by people with a hearing impairment. The project is headed by the Dept. of Phonetics at the University of London and supported by the RNID.

Synface works by connecting a PC to the phone and calls are received and made via an onscreen display. The words spoken by someone on the other end of the phone will be changed into lip movements made by a 'virtual person' on the PC. The RNID has evaluated the look of the face and telephone keys on the PC screen. The project examines how face and lip movements are interpreted by lip readers in order to create a realistic impression of what is being said. It uses speech recognition technology to translate the acoustic signals coming from the telephone with as little delay as possible.

..telecommunicating..

Prototypes in three languages are being tested in the UK, Sweden and the Netherlands during 2004. This work has the potential to be applied to all 'virtual people' needing realistic lip movements. For example, it could be used for information kiosks in noisy environments at airports or train stations. http://www.speech.kth.se/synface/

(the Swedish version can be played from the website. It is recommended that the other clips are downloaded to the desktop before playing.)

In the Dept of Computing, Dundee University the study of television for older people is being funded by the Independent Television Council. The research relates to the 1991 Broadcasting Act and aims to improve accessibility to digital television services for older people and others with similarly impaired abilities. This work has fed into usableiTV, the publication of the Interactive TV Design Network. This is an EPSRC funded project to share information between those involved in the research, design and development of usable and effective interactive TV applications.

Wireless Information Services for Deaf people On the Move (WISDOM) is a European Commission-funded project involving 10 European partners working interactively to deliver access to signed information and communication, including mobile (WLAN/3G) capability. Wireless information services, person to person visual communication, video relay interpreting, and sign language recognition development are some of the results of WISDOM. An outcome of the Wisdom project, www.deafstation.org (pictured left), was launched in October 2003. The site provides a sign language video information service which offers, amongst other items, daily signed news. It's free to use and accessible to anyone with access to the Internet. There are plans to continue www.deafstation.org after project funding finishes. http://www.deafstudiestrust.org.uk/research-projects /wisdom.htm

Telecare and Telemedicine

Policy: Telecare and telemedicine are increasingly viewed as key components in government policy to help disabled and older people live independently at home. An overview of current developments in telecare can be found in the report 'Telecare: Using Information and Communication Technology to Support Independent Living by Older, Disabled and Vulnerable People'. http://www.icesdoh.org

The fact that telecare and telemedicine systems are only just beginning to become established services means that the focus is currently on implementation. Pilot projects are undergoing evaluation and much research is seeking to answer questions relating to service delivery.

Research: Amongst other projects, the Innovation Studies Centre at Imperial College, London recently completed the Telecare Planning and Implementation (TCPI) project which sought to demonstrate to industry, government and users which approaches to telecare are potentially the most effective. The project was part of the Engineering and Physical Sciences Research Council (EPSRC) Integrated Healthcare Technologies programme and evaluated an intermediate care and telecare scheme implemented by Surrey Social Services and Northwest Surrey Primary Care Trust. Conclusions included the importance of the quality of interaction between stakeholders and the way housing provision is increasingly including people's technology requirements.

South and East Belfast Trust is involved in a range of projects in this area. The ATTRACT project investigated the use of low cost video-conferencing equipment in users' homes to provide therapy services and intensive home care support. The CONFIDENT project aims to develop an information environment to support independent living of people with severe physical disabilities.

Alarms and Alerters for People with Dementia

The NHS R&D Health Technology Assessment Programme is commissioning a systematic review of the effectiveness and cost-effectiveness of methods to detect and manage wandering in dementia. It is intended that the review will consider the acceptability of the technologies, the ethical issues raised by their use, and the implications of these factors for future research.

The Bath Insitute of Medical Engineering has a particular interest in intent-to-wander amongst people with dementia. They are working on a new device which has a verbal reminder programmed by a carer e.g. 'Don't go outside, it's night time.' The reminder can be activated by the opening of a door, walking on a pressure mat or turning the light on. In home trials, most people used an infra red signal to detect movement in the same way as a house alarm. They are now considering how best to make it more widely available.

Research at BIME is considering the psychological nature of prompting and will examine the

..independence..

most effective method of communication with people with dementia. A new suite of devices is being set up in a networked house in Deptford. This will allow BIME to study various voice messaging systems such as television, radio, signs etc, as well as conducting experimental studies in a controlled laboratory environment.

The European Union Project SILC aims at the development of an innovative and intelligent alarm system to increase safety and independence of elderly and disabled citizens. In contrast to existing alarm phones SILC will be equipped with a range of biometric sensors which can be programmed individually to trigger an alarm call automatically when a critical situation is detected. Final user tests will take place in Spring 2004. Cloudworld is a commercial partner in the UK with Knowsley Metropolitan Borough Council Social Services.

NeuroPage(r) is available as a memory aid from the Oliver Zangwill Centre for Neuropsychological Rehabilitation in Ely. It enables the sending of one-way reminder messages such as 'Time to take my medication' to electronic pagers worn by the client that have audio and vibration alarms. Several studies have shown that people with brain injury and other clients with memory or planning problems can benefit from using NeuroPage. In a randomised control trial of 143 people, more than 80% of them were more successful in carrying out everyday tasks when they had the pager, compared to when they didn't.

Another project looking at the use of mobile phone technology and SMS messages as reminders is underway that will have important implications for people who are unable to read written text. It is hoped that, if found to be effective, NeuroText will be offered as a clinical service alongside NeuroPage.

NeuroPage enables the sending of one-way messages, but what if the user could respond to confirm they had taken the appropriate action, such as taking medication? What if the system could alert a carer in the event of not getting a reply to such a critical reminder? Funded by The Health Foundation, MemoJog is another research project involving the Oliver Zangwill Centre. Co-ordinated by Applied Computing at the University of Dundee, it differs from NeuroPage in that it allows two-way communication. The memory aid uses a Personal

NeuroPager

Digital Assistant (PDA) which is a small, handheld PC. A PDA can send and receive information wirelessly by using mobile phone networks. Reminders can be set on the PDA by a user or carer or they can be set via the WWW and sent to the PDA from a remote location. The technology could be used in care homes so that one care assistant could set up reminders for a group of people each with their own PDA. A remote computer records whether the user has responded to the message, which can be re-sent if necessary. A further research project at the Oliver Zangwill Centre, VoicePage, is examining the effectiveness of using text-to-voice technology to send reminder messages to people with a reading or visual impairment.

http://www.computing.dundee.ac.uk/projects/MemoJog/
http://www.NEUROPage.NHS.uk/

Housing design as assistive technology

Introducing Assistive Technology into Older People's Homes is a collaborative project between Age Concern Institute of Gerontology, the Centre of Rehabilitation Engineering King's College London and the Research Group for Inclusive Environments at the University of Reading. The research examines feasibility, acceptability, costs and outcomes of introducing a wide range of assistive technology (AT) into existing housing occupied by older people.

The research began in October 2000 and was completed in July 2003. It focused specifically on social rented housing in the UK, and considered the adaptability of a range of properties and the acceptability of adaptions and assistive technologies to older people. It looked at whether adaptations and AT could substitute for paid care in terms of cost and enhanced quality of life. Findings from the research were that, given careful selection of adaptations and AT, these can enhance quality of life and do so in a cost effective way.

The analyses suggest that the provision of adaptations and AT can be funded through savings in formal care provision and in some cases there will still be overall savings. Although theoretical, the approach used to generate user profiles, the specification of paid care requirements, adaptations and AT, and the costing of these, were based on information and experiences which were recognisable and acceptable to professionals in the health care, social services and housing sectors.
http://www.fp.rdg.ac.uk/equal/AT/

DIRC and EQUATOR are looking at different perspectives on assistive technology while focusing on leading edge radio frequency devices.

Currently, the DIRC project at Lancaster is working with Barrow Age Concern, Dundee Social Work, Aberdeen Social Work and MHA (Methodist Housing Association) Penrith, designing appropriate homes for older people and learning disabled adults. The project is concerned with the dependability of the technology and considers that a key feature of this dependability is the acceptability and appropriateness of the technology installations.

The Equator project, based in Carlisle, looks at designing AT devices to assist learning disabled people. It is installing


Gloucester Smart Home

AT and smart home technology in 60 homes in Aberdeen as well as up to 15 homes in Penrith. Findings from the projects will influence adaptations and augmentations to housing in Barrow in Furness and Dundee in the near future.
http://www.gdewsbury.ukideas.com/

In an Engineering and Physical Sciences Research Council (EPSRC) funded project, BIME is collaborating with Dementia Voice and the care home business Housing 21 to create a fully equipped demonstrator home, Gloucester Smart House. It is hoped this will enable care professionals to see the potential of technologies to support people with dementia. The Smart House uses an integrated communications system that controls and monitors the different devices. New funding will support the project for another three years.

..housing..


bath level monitors

At the beginning of 2004, a 'cooker minder' was installed in the Gloucester Smart House. It tells people if they accidentally leave the cooker on. It has a wireless connection to a gas and smoke sensor and links to a safety valve on the cooker. If it detects smoke a carer's pre-recorded message will remind the user to turn off the cooker. If the problem doesn't go away the cooker will be turned off automatically using the safety valve. http://www.dementia-voice.org.uk/Projects/Projects_GloucesterProject.htm

Gwent Healthcare NHS Trust is supporting research until 2005 into assistive technologies to support people with dementia to live independently. The project will focus on six clients and their carers using call centre technology. The project calculates that if admission to a long term nursing placement is delayed for only two patients for three months, thousands of pounds will be saved as well as providing improved quality of life for patients. The first model Assist Project House for South East Wales was set up in Tredegar to illustrate the capabilities of sensory technology for those living with dementia.

The property, opened in September 2003, has been fitted with a full range of sensors and detectors, the majority of which were developed by Tunstall Telecom Ltd.

The ENABLE project funded by the European Commission is developing and trialling technology products to find and promote those that best support people with dementia.

The Bath Institute of Medical Engineering (BIME) has developed several new devices in the project, including a locator for lost objects, a bath water level temperature monitor and controller, a cooker usage monitor, and an automatic bedroom light. Meetings with carers' groups, voluntary organisations, social services and community mental health teams in the UK have been used to generate interest and recruit participants. The final conference will take place in June 2004. http://www.enableproject..org

Design for Dementia: An Evidence Based Approach to Standards in Caring Environments is an EPSRC EQUAL project renamed Design in Caring Environments to reflect a wider perspective. The Universities of Loughborough and Sheffield carried out a quality of life assessment of over 400 residents of care homes and questioned over 700 staff.

They created a tool for assessing the quality of the environment called the Sheffield Care Environment Assessment Matrix (SCEAM). Scores for the care homes using this matrix were associated with the quality of life of the people interviewed. Choice and control over the environment appear to associate with psychological wellbeing. This can mean providing people with their own kitchen area or access to a garden. Similarly, engagement with the community was found to relate to increased levels of activity among residents.

A sister project, Configuration and Design in Caring Environments, used data from the care homes to study key aspects of building layout which enhance way-finding and quality of life. Reports from both projects are soon to be published.

..design solutions do potentially exist which would enable older people with dementia to continue to negotiate and use their local neighbourhoods.

http://www.fp.rdg.ac.uk/equal/ciob_workshop/dice%20CIOB%20JMT%20newrevd.pdf

EPSRC has recently awarded over £550,000 for a three-year collaborative project that will investigate enabling domestic environments for people with dementia. Starting in October 2003, the project is called Investigating Enabling Domestic Environments for People with Dementia (INDEPENDENT). It brings together three universities, the University of the Third Age, two companies, Northamptonshire County Council and Dementia Voice, and will involve users at all stages. The potential of technologies to support the quality of life of older people with dementia will be assessed and design and technology solutions outlined. It is hoped that new assistive technologies, as well as service and business models for their implementation, will be developed.

Although the majority of people with dementia live in the community, guidance does not exist in relation to the design of the outdoor environment. The EPSRC has supported a project to identify aspects of design that should be considered in making the outside world dementia-friendly.

The project demonstrates that design solutions do potentially exist which would enable older people with dementia to continue to negotiate and use their local neighbourhoods. Familiarity, legibility, distinctiveness, accessibility, comfort and safety all appear to have a major influence.

Small street blocks with direct, connected routes and good visual access, varied urban form and architectural features, and distinctive, unambiguous environmental cues could enhance successful orientation and way-finding.

Services and facilities within walking distance with adequate seating, lighting, shelter and well-maintained, smooth, level, plain paving would be beneficial for people who are physically frail. The project team, including the Oxford Dementia Centre and the Oxford Centre for Sustainable Development, is now empirically testing these initial findings.

..getting around..

Accessible Transport and Navigation Aids

Around 50 research and development projects in this area are funded by the Future Integrated Transport (FIT) initiative. FIT is funded by the Engineering and Physical Sciences Research Council (EPSRC) and the Department for Transport and is part of the government's LINK programme which provides support to academics and commercial organisations who collaborate on innovative projects.

South Bank and Reading University studied Inclusive Transport Environments: Colour Design, Lighting and Visual Impairment. The project examines how well people were able to cope with the colours, signs, directions and lighting found at common transport locations such as airports and train stations. People described how much this affected their ability to get around. The project was extended and final design recommendations were presented to EPSRC at the end of 2003. The effect of conspicuous and legible emergency escape route signs is being studied in the same way. http://www.rdg.ac.uk/ie/research/fit/fit.htm

Dynamic Assistive Information Systems (DAISY) will build software to help people with learning difficulties to find their location and navigate through a journey. This FIT project is co-ordinated by the Accessibility Research Group. The team are assessing different technologies for their suitability.

Accessible Public Transport in Rural Areas (APTRA) were able to provide an accessible bus to a rural area (pictured right)thanks to the Accessibility Research Group at the Centre for Transport Studies, University College London. Building on this success, APTRA developed the Elixir project, Evaluation of Direct and Cross Sector Benefits from Intensive Public Transport in Rural Areas.

Working with social services and health care professionals they assessed the best use of the accessible bus service would be to bring clients in from rural areas to see care services professionals and vice versa. The project was funded by the EPSRC and the Countryside Agency. The bus service continues running and is maintained by the Upper

Eden Plus Bus Company who are looking for more funding.

EPSRC has awarded £2 million to the Accessibility Research Group for Pedestrian Accessibility and Movement Environment Laboratory (PAMELA) which involves the construction of a laboratory to analyse how people react to the pedestrian environment under controlled experimental conditions. The laboratory will include a variety of floor surfaces, lighting and sound conditions, obstacles and other challenges which people deal with when moving around. The PAMELA project will work on a model for the evaluation of accessibility in relation to a pedestrian environment. http://www.cts.ucl.ac.uk/arg/index.asp

At the Centre for Transport and Society, University of the West of England, The EPSRC funded FIT feasibility study, Virtual Mobility, pointed out the link between personal travel, Internet use and social participation.

The key findings described how poor transport provision could impact on all areas of life but that people are increasingly using the Internet as a substitute for travel. Researchers felt that so called 'Virtual Mobility' could improve access to services for people but cautioned that this might be achieved at a cost of increased social isolation.

Three years extra funding allows further study of The Internet: Investigating new technology's evolving role, nature and effects for transport. Up to 100 people are taking part in a diary study recording their online and offline activities at six monthly intervals.
http://www.transport.uwe.ac.uk/

The Location Based Services (LBS4ALL) project is a collaboration between City University, Kings College London, Ordnance Survey and the RNIB and funded by the Economic and Social Research Council (ESRC), EPSRC and the Department for Trade and Industry.

In its initial stage, it aims to provide navigational help for people who have difficulty getting around and need to know the most accessible routes.

A Global Position System (GPS) and smartphone technology will give people visual and text information about, for example, entry points in public buildings, crossings on roads and the 'walkability' of routes.

GPS uses satellites to pinpoint location and will be combined with the Ordnance Survey Mastermap, a digital product showing roads and routes. The Mastermap includes an 'Integrated Transport Network' which is being developed to include information on paths and advice on pedestrian routes.

The wearable smartphone will have a web browser which will connect to the Integrated Transport Network. This project aims to ensure that people who have difficulty walking are adequately catered for in the design of national location-based services.
http://www.lbs4all.com/

Supported by the Scottish Higher Education Funding Council, Usable Technologies for Older People: Inclusive and Appropriate (UTOPIA) developed new methods to include older people in the development of IT-related products. The consortium runs workshops for industry and user feedback will inform product design.

In June 2003 they held a workshop on navigation and travel to help design a new navigation aid. The aid uses photographs of the proposed route accompanied by text and audio instructions.

The project team subsequently tested the device on people under 40 to see what effect age has on navigation.
http://www.computing.dundee.ac.uk/projects/utopia/

..moving..

Mobility

Hoist users often face problems with room size, bed height and dealing with cumbersome equipment. Going on holiday can be much easier with a new lightweight, mobile hoist called the Huntleigh HighLite which began as a project funded by a SMART award. The unit is lightweight at 23kg, is enclosed in an integral tough plastic transport case and will fit in the boot of most cars. It can be set up in about two minutes and has no need for ceiling support.

The unit unfolds over the bed to form a strong lightweight beam and telescopic legs are locked open at the required height. A battery operated lifting cassette is attached to the rolling trolley which runs inside the beam.
http://www.huntleigh-healthcare.com/

In September 2002, a Didcot based innovator won a SMART award to develop a new wheelchair. XMI Engineering Services Ltd have a design which allows people to adjust the height of the seat to work behind a desk or talk at eye level to a standing person. Trials were ongoing during 2003.
http://www.xmieng.freeserve.co.uk/

Independence Technology, LLC, a Johnson & Johnson Company was set up in 1995 and the iBOT mobility system is the result of consultation with wheelchair users. Powered by a rechargeable battery, it uses sensors, gyroscopes and electronics for balance. It enables the user to remain balanced when using the wheelchair on different surfaces and elevations, for example, to climb stairs, travel over rough ground and move around at eye level.

User trials run by ASPIRE Centre for Disability Services (ACDS) will aim to establish whether the wheelchair improves access and reduces the need for home adaptions.
http://www.acds.ucl.ac.uk/

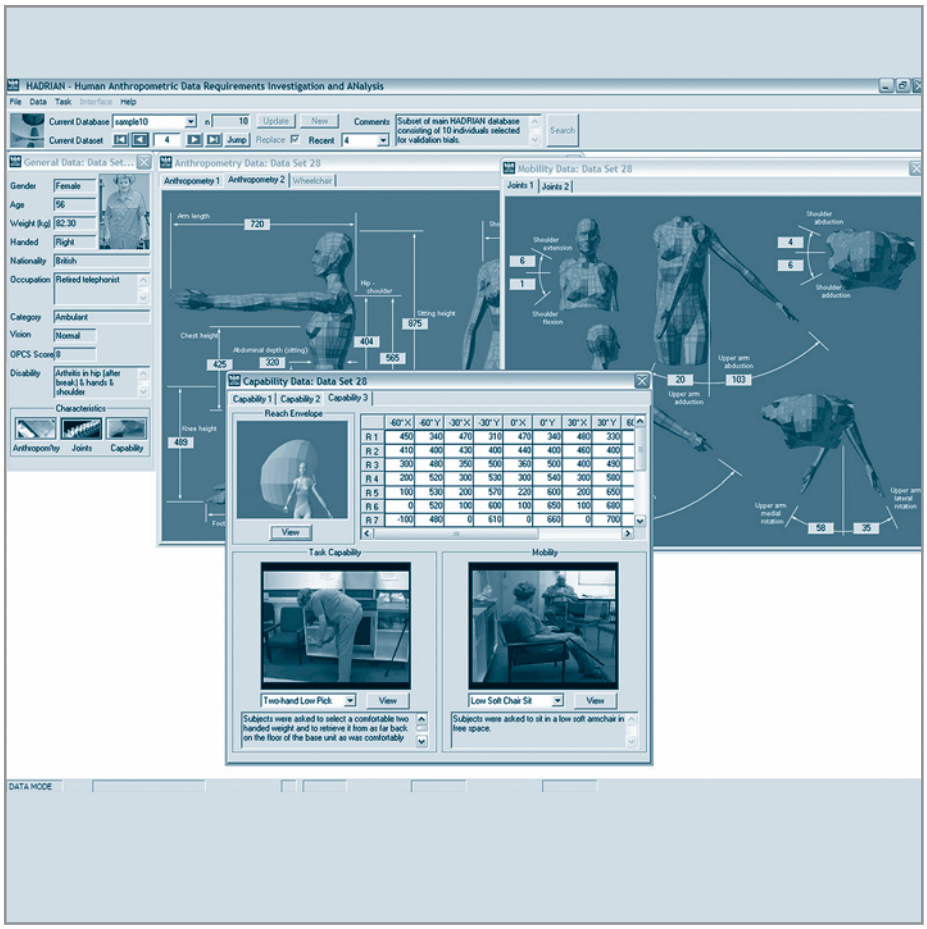
E-Bug is a powered wheelchair for infants and toddlers. Its purpose is to give young disabled children independent mobility in formative years. Mobility and the ability to interact independently with objects and people help define spatial awareness, social skills and knowledge of the world.

Second generation prototype e-bugs (funded by the Toy Trust) are currently in production and field testing will begin in April 2004. Chailey Heritage will supervise trials of two of the buggies, one will go to a local child at home and a fourth will be destructively tested for CE marking. A batch of ten more buggies has been funded by The Percy Bilton Trust. The project team are currently exploring avenues for the manufacture and distribution of e-bugs starting later in 2004.

The Merulite is a support system designed at MERU to provide safe seating which is adaptable to as many of the commercially available school chairs as possible. As well as improving the aesthetic appearance of the existing Merulite design, it is hoped that the improved system will assist the integration of disabled children into mainstream schools.
http://www.meru.org.uk/

At Northwick Park Rehabilitation Unit, a prototype wheelchair arm support for people with paralysis or weakness on one side of the body (hemiplegia) was built in conjunction with London Metropolitan University. The project identified strengths and weaknesses of available supports and consulted 40 end users. Funding is required for more design improvements and to fund user trials.
http://www.users.globalnet.co.uk/%7Erru/index.htm

Research to improve design and selection of assistive technologies



Designers and human factors specialists use scientific data on human physical abilities to inform the build of a new product. Anthropometrics are used to describe the "user" or "target" population for a product. Data is given in terms of the range of body dimensions, such as height, arm length, hand grip and span, which exist in that population so that a designer can specify what range of people a design should fit. Biomechanics considers the operation of the muscles and limbs and the forces upon them. Work in both of these areas is being used to support inclusive design and accessibility. This information also enables users and their advisors to select the most appropriate assistive technologies.

Design: An Engineering and Physical Sciences Research Council (EPSRC) project completed at Loughborough University on the topic of design for all, produced a software tool to inform product developers of the extent to which a product accommodates the requirements of older and disabled people. Interviews were used to understand what is important to people in terms of daily living and data was collected from 100 people. This included anthropometry and a range of data from the people performing kitchen based tasks, such as putting items on shelves and opening doors.

The result was a database and task analysis tool called HADRIAN - a 'virtual community' of 100 people - which stores task data on each person with a picture and some background about them. A designer feeds his or her computer based design into the HADRIAN system, selects which 'virtual people' should test the design, and creates a task for them to perform. The task is defined in terms of reach and vision e.g. look at door handle, turn handle to right. HADRIAN, together with the existing human modelling system SAMMIE, can then get all 100 people to

..choosing AT..

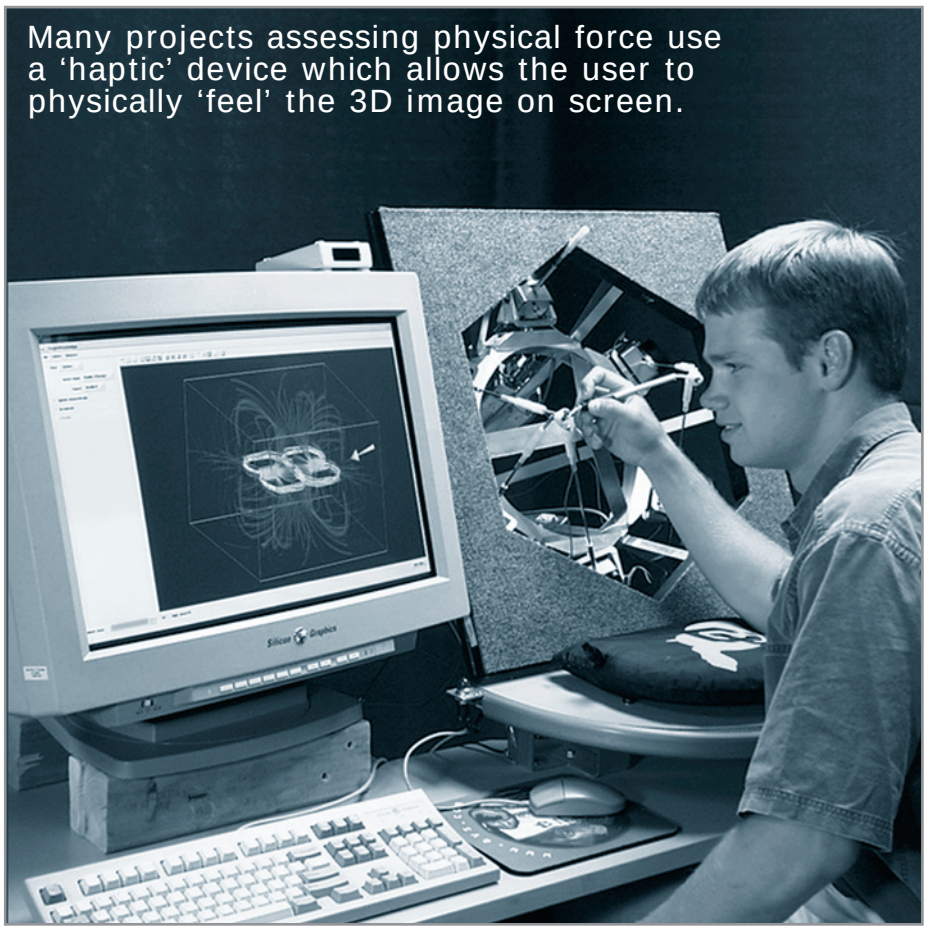
perform the task and will let the designer know what percentage of these people were successful in achieving the task. The designer can then find out why some people could not do the task and can refine the design accordingly.
http://www.lboro.ac.uk/departments/cd/docs_dandt/research/ergonomics/sammie/samgal.htm#4

Led by the University of Strathclyde Bioengineering Unit an EPSRC project is building the Integration of biomechanical and psychological parameters of functional performance of older adults into a new computer-aided design (CAD) package for Inclusive Design. The CAD package will sit alongside a database containing data for cognitive function, limb motion, strength and endurance to allow designers to check whether their products are suitable for use by older adults.
http://www.strath.ac.uk/bioeng/research/

Selection: Following a small pilot study into wheelchair propulsion biomechanics, ASPIRE and the Centre of Research and Innovation (CDRI) have been awarded a two-year £200,000 research grant from the National Lottery Charities Board, Community Fund. They aim to demonstrate that wheelchair selection should be determined by measures of energy use and movement rather than by financial constraints. They are taking inspiration from Motion Analysis Laboratories and hope that their biomechanics protocol for assessment will become common practice.
http://www.aspire.org.uk/

I-Match is a project which includes virtual reality simulations of assistive technologies which can be controlled using different input devices plugged into the PC. The project is funded by the European Union and co-ordinated by CREST at Newcastle University.

The aim is to measure the abilities of the client and use this data to select possible input devices from a database. It is hoped that this will help a client find the device which best suits them.
http://www.ncl.ac.uk/crest/



Many projects assessing physical force use a 'haptic' device which allows the user to physically 'feel' the 3D image on screen.

Inclusive Design – setting standards

While many of the projects in this report touch on inclusive design, there are initiatives which specifically look to promote awareness and set standards for the design of assistive technologies to ensure they as inclusive as possible.

The European Commission document 'eEurope 2005: An information society for all' sets out an action plan which includes promoting design for all, e-inclusion and assistive technologies. The European Design for All e-Accessibility Network (EDeAN) was set up in 2002 to work in this area. There are over 100 organisations in the network and National Contact Centres in 15 countries.
http://www.e-accessibility.org/

The Design-for-all and Assistive Technology Standardization Co-ordination Group is a sub-group of the ICT Standards Board which forms part of the eEurope initiative. Its role is to make proposals and co-ordinate work across different standards bodies to ensure there is no overlap.
http://www.ictsb.org/

EDeAN is collaborating with two other European Union funded projects IDCNet and D4ALLNet. D4ALLnet is providing the platform HERMES for a virtual community for EDeAN. IDCnet is running workshops to create a common curriculum for inclusive design in education and research across Europe.
http://www.edean.org/

The World Wide Web Consortium (W3C) began in 1994 with the goal of universal access to the web via different technologies. Activities include the Web Accessibility Initiative which produced draft Web Content Accessibility Guidelines (2.0). The EuroAccessibility Consortium was set up in 2003 to develop evaluation, certification and best practice techniques based on the Content Accessibility Guidelines. A proposal was submitted to the European Union to produce an e-Accessibility Quality Mark. This aims to ensure that guidelines are applied in the same way across Europe.
http://www.w3.org/WAI/

The European Commission project Dissemination Activites Supporting Design For All (DASDA) encouraged organisations to build emphasis on inclusive design by providing an information resource about the subject. The project finished in June 2003 but the site and database will remain online until 2005.

Inclusive design for the whole population (INCLUDE) is providing mechanisms for assessing market size to include the whole population and is providing guidelines for product design. The book 'Inclusive Design: design for the whole population' is a key outcome of this EPSRC-funded project led by the Helen Hamlyn Research Centre.
http://www.hhrc.rca.ac.uk/events/include2003/
http://www.etsi.org/cce/proceedings/ppt/6%5F2%20nordby%20visualsupport.ppt

..handling goods..

Aids for Handling Products and Goods

Packaging is a clear example of design which can exclude, deliberately or by bad design, various groups within the community. Packaging's role includes: to identify the product and carry appropriate information; keep goods fresh and undamaged; allow safe access or exclude access on grounds of safety; and to be easily and safely disposed.

Many older and disabled people cannot access goods solely due to poorly designed packaging. This is partly due to the need to restrict access to some contained goods (for example, keeping dangerous chemicals or drugs inaccessible to young children). It is also due to an historic emphasis on marketing and not on inclusive-design.

The DTI recently published findings indicating the NHS spends approximately £12 million each year on injuries related to opening packaging.

As part of the Engineering and Physical Sciences (EPSRC) Partnerships for Public Awareness Awards Scheme, the University of Sheffield Mechanical Engineering Dept researched the circumstances in which the elderly tend to have accidents with packaging in the project PPA: Raising Awareness of Domestic Packaging Accidents and Injuries in the Elderly.

http://www.shef.ac.uk/packaging/

http://www.shef.ac.uk/~ibberson/

The EU PACKAGE project is concerned with improving the ease with which disabled and older people can open packages and access the information on their labels.

The Mechanical Engineering Dept. at the University of Strathclyde developed a product range to open packaging and to translate packaging information into spoken words via barcode technology.

The products, with the provisional names of Tele-Eye, Power Hand and Magic Hand, were built with collaboration from commercial company I-Label Ltd. The project has been extended to allow time for further user evaluation and market analysis.

The project Talking Barcodes is also integrating existing text-to-speech and bar code reading technology into a handheld device. This project differs from the EU PACKAGE project in that it uses a different type of barcode.

EU PACKAGE uses the standard barcodes already found on products and links them to a database to find the correct information, whereas Talking Barcodes uses a 2D barcode with the text already embedded in the barcode.

The project is funded by the European Union and includes the Technology Innovation Centre at the University of Central England.

..the NHS spends approximately £12 million each year on injuries relating to opening packaging..

Funded by a SMART award, Talking Tins, a magnetic cap for food containers allows people to record speech. Talking Products Ltd sell this product to enable visually impaired people to identify the contents of their food containers.

The cap is not limited to tins. Using special adapters the cap can be attached to many other objects such as bottles, household sprays, and storage containers.
http://www.talkingproducts.co.uk/talking_tins.php

The Faraday Packaging Partnership has funded the Packaging Research Group at Sheffield University and the consultancy firm Factory Designs Ltd to build child resistant closures.

The idea is to make opening a package cognitively rather than physically complex. For example, a person with arthritis might not have the physical strength to open some child-proof pill cases. New concepts were created at a design event with user consultation. The 'Poke' button (shown above right) sits in a tube which is too long for a child's finger to reach into.

The 'Tri' concept does not obviously look like a pill carrier and three buttons must be pressed in the right order to open it. The project created six concepts in total and the group is looking for commercial partners.
http://www.faradaypackaging.com/

..robot assistance..

Robotic Aids

The Department of Health reports that every year there are over 250 new referrals of upper limb amputees to prosthetics service centres in the UK. Recreating hand and arm functionality presents immense scientific and technological challenges and UK researchers are actively developing new and improved prostheses, including robotics, to address amputees' needs.

Robotics work is very much state of the art. In order to bring together the work of experts and allow knowledge to be applied across all relevant fields, the Engineering and Physical Sciences Research Council (EPSRC), which has funded over 70 projects in the area, supports the Biologically Inspired Robotics Network (BIRO-NET). http://biro-net.aber.ac.uk/

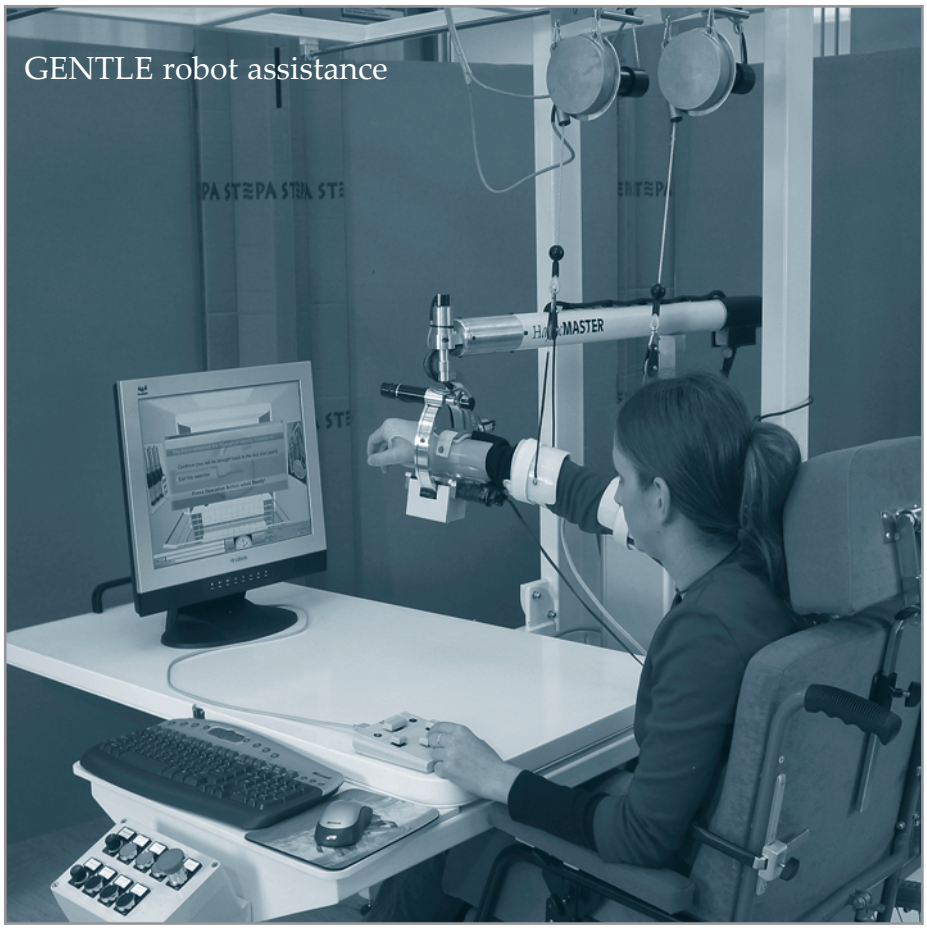
The British Council reports on robotics work in the UK http://www.britishcouncil.org/science/robotics/index.htm

Developed at the Department of Electronics and Computer Science, the Southampton University artificial hand (pictured left) has been in existence for several decades. People using artificial, prosthetic hands such as these have no sense of control over how tightly they are holding an object, or whether an object is too hot because they do not get any feedback from the hand. The EPSRC has recently contributed funding for three years to create a mechanism with grip and temperature feedback which can be controlled without the intervention of the user. The idea is that when the hand closes round an object, two sets of sensors register contact.

As the hand closes, the first set of sensors continually monitors the amount of force being exerted. This is used to automatically decide when to stop closing the hand. A second set of sensors will detect any friction from slippage of the object and will send a signal to the drive motors of the hand to grip more tightly. The two sets of sensors work together so that the grip is controlled automatically. A prototype is under development and a similar mechanism will be put in place for temperature control.
http://research.ecs.soton.ac.uk/projects/SH.html

Touch EMAS Ltd used a SMART Award to enable further development of the world's first fully modular prosthetic arm for patients with full or partial upper limb absence (Edinburgh Modular Arm System - EMAS). The Award is enabling the company to commercialise the pioneering work of the Rehabilitation Engineering Services, based in Edinburgh's Eastern General Hospital.
http://www.show.scot.NHS.uk/smart/r&d.html

The European Union funded GENTLE robot assistance project was set up to help people who cannot use their arm, including those who have had a stroke or brain injury. The GENTLE/S robot provides physical therapy for upper limbs that is tailored to the individual's needs. This is achieved by manipulation of the person's arm which is held in a cuff attached to the robot arm. Using a simple 'reach and touch' technique, the user manipulates objects on a computer screen in a virtual reality setting. The robot teaches the user a correct movement pattern using a video clip of the user in action. This shows the user how the task should be performed and what errors should be avoided.

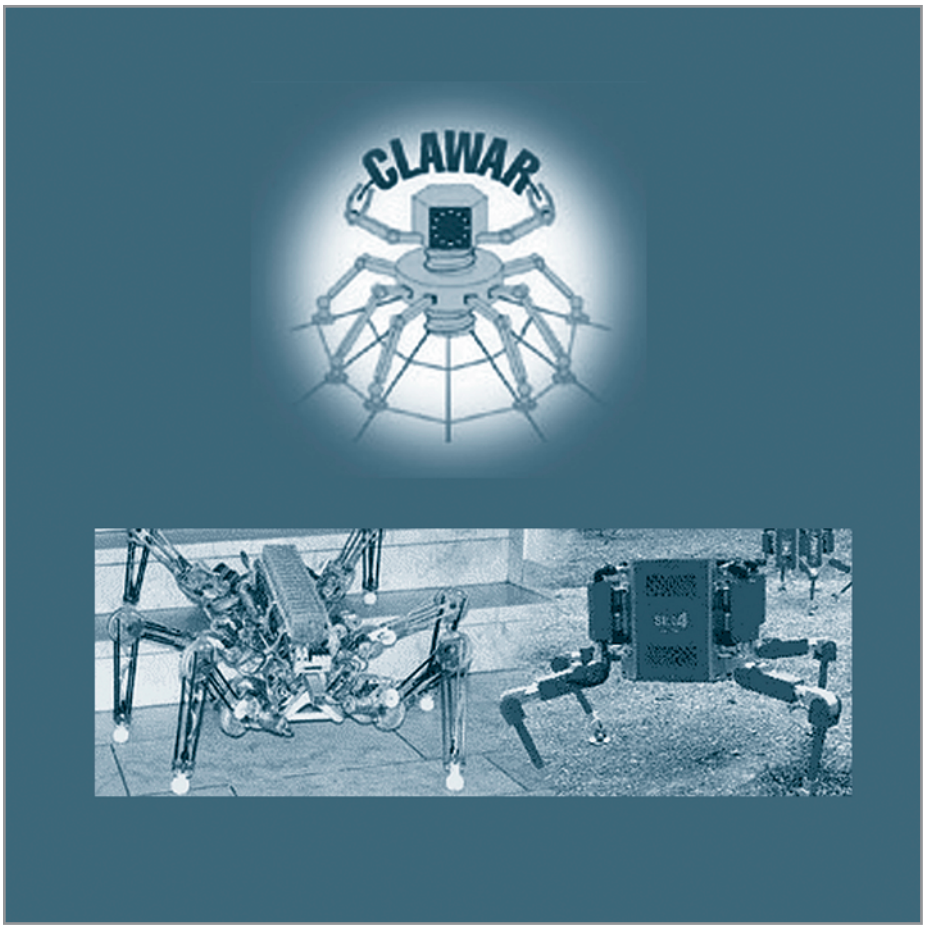

GENTLE robot assistance

The patient's physiotherapist customises the exercise and selects the appropriate level of assistance required. For the virtual tasks, different computer 'wizards' can be set up for the user that take into account gender, age, culture and the person's background.
http://www.gentle.rdg.ac.uk/

The EPSRC-funded Bio-Robotic Walking Orthosis study has been carried out to assess whether industrialised robotics technologies are mature enough to be used in developing assistive devices for the benefit of disabled people with lower limb impairment.

The research has built upon the activities of the European Union network on climbing and walking robots (CLAWAR - www.clawar.net) and includes sensing

..stimulating..



and powering requirements, as well as the mechanical aspects needed to provide an easy-to-use user/device interface.

A survey was conducted amongst disabled users to specify their needs and prototype bio-robotic walking aids were developed and tested by able-bodied people. The project has involved collaboration between the universities of Leeds, Sheffield and Southampton, together with Salisbury District Hospital and the charities Spinal Injuries Association and the INSPIRE Foundation.

It is the intention to build on the recent work with a second phase, which will focus on detailed requirements and how these can be realised to produce bio-robotic devices for persons with spinal cord injuries. http://www.mech-eng.leeds.ac.uk/is/projects/walkingorthosis.htm

In Autumn 2002, the Shadow Robot Company, a robotics R&D company based in North London, received a NESTA (the National Endowment for Science, Technology and the Arts) Invention and Innovation award of £75,000. The NESTA Award followed a SMART feasibility study to examine the benefits of bringing robot assistants into the daily lives of disabled people.

This will take the form of a robot with hands similar to the hands of a human, with the potential of performing a range of tasks in the household. Technology which the company had already developed was used to obtain the full functionality of the human hand.

The robot assistants can be guided via remote control and camera systems to carry out simple tasks in the home. The outcome of this project will be a demonstrator for research purposes. The hope is that future funding with academic partners will allow for this technology to be fully exploited in the AT market. http://www.shadow.org.uk/index.shtml

Functional Electrical Stimulation

Functional Electrical Stimulation (FES) is a technique for applying movement to paralysed muscles using low levels of pulsed electrical current. Electrodes can be applied to the skin or can be implanted.

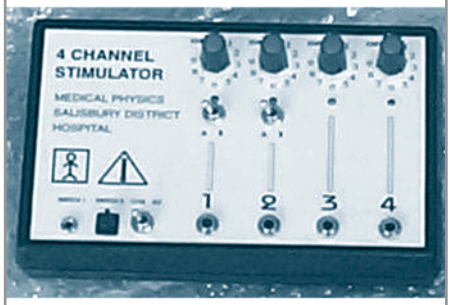
Neuroprosthetics refers to the use of electrical stimulation to supplement or to replace activity in the nervous system for therapeutic or rehabilitation purposes. Applications include cochlear prostheses, bladder and bowel control, deep brain stimulation and restoration of function to muscles controlling mobility and respiration.

The Engineering and Physical Science Research Council (EPSRC) funds FESnet, a network which brings together FES experts and users across the UK. http://fesnet.eng.gla.ac.uk/

The Odstock Foot Stimulator (ODFS) was introduced in 1988 as a muscle stimulator to help those with dropped foot who have trouble raising their foot off the ground. The device consists of one electrode placed on the front of the knee where the peroneal nerve is located, and another electrode placed on the outside of the lower leg. A current runs between them enabling the person to improve their mobility by controlling a foot switch in the shoe. A hand held control box allows the user to change the strength of the current.

Many other applications are being developed at Salisbury District Hospital where the original stimulator was created. These include an application which assists stroke patients to open their hand where they were previously unable to do so. This is done by stimulating the nerves which control the wrist, fingers and thumb.

This new application requires a redesign of the external components of the Odstock Foot Stimulator and minor changes to its electrodes. An external device has been created and for testing purposes it also drives an external stimulator. Electrical tests are in progress and it is expected that clinical trials with the external device will begin with patients in the near future. Funded by the EPSRC until March 2004, the aim is to produce an implantable device.
http://www.salisburyfes.com/



In April 2003 the Rehabilitation Engineering Service team based at Lothian Primary Care Trust began looking at FES as an alternative to orthotics or surgery for children with cerebral palsy who walk with a toe gait.

The project will assess the effect of electrical stimulation to the anterior tibial muscle on the way the children walk. The project is funded by the James and Grace Anderson Trust; results will be used to inform a larger multi centre trial.
http://www.show.scot.nhs.uk/dhi/smart/intro.html

..cycling..

At the University of Glasgow, electrical stimulation is being used with the aim of helping restore some muscle function to paralysed people. A research team is developing control systems which allow for unsupported standing amongst paraplegic people for up to seven minutes and enables muscles to be exercised. Other partners involved are the University College London, the Royal National Orthopaedic Hospital Trust (RNOHT) at Stanmore, and volunteers from Stanmore's Spinal Injuries Unit. EPSRC is continuing to fund this work until 2005.
http://fesnet.eng.gla.ac.uk/CRE/

The third FESnet Workshop: FES-Cycling for Exercise and Health was held in April 2003. The workshop described a system based around a commercially-available recumbent tricycle which was adapted for FES-induced paraplegic cycling. This type of system was developed by Tim Perkins and Nick Donaldson at University College London and was used for several years in coordinated pilot studies in Glasgow and London. Researchers propose that participation in a regular programme of FES cycling exercise may lead to a range of medical and health benefits including improvements in cardiopulmonary fitness, tissue condition (soft tissue and muscle), and bone integrity. These issues are the focus of a new EPSRC multi-centre study of high-intensity FES-cycle training which is being carried out in Glasgow (University and Spinal Unit), London (UCL and GKT Hospitals) and Nottwil (Swiss Paraplegic Center) until the end of 2005.

An integrated electric motor was tested on the tricycle and it could benefit people by allowing them to cycle for longer and deal with fatigue or changes in terrain.

As part of European Union funded research, Liverpool University is involved in the Use of Electrical Stimulation to Restore Standing in Paraplegics with Longterm Denervated Degenerated Muscles (RISE). Due to end in 2005, it aims to help restore people's muscle fibre and assist with standing therapy. While other projects such as FES-Cycling aim to

affect muscles with no nerve communication with the brain, this project focuses on denervated or flaccid muscles where an individual's muscles waste away but nerve communication to the brain remains.

Improving muscle tone has implications from a medical and psychological point of view and increasing muscle bulk increases blood flow, improves skin quality and may reduce the incidence of pressure sores. For the past year, ten patients have been busy training almost daily for at least an hour at a university in Vienna. Participants also agree to biopsies to examine how electrical stimulation improves muscle mass.

Successful trials will aim for a change in European Union legislation to allow the equipment to be used in

a clinical setting. This will be based on development of a safe training environment which can be designed to fit in with people's everyday lives.

NeuralPRO is a European Union network project whose participants include the Department Of Human Anatomy and Cell Biology at the University of Liverpool and the Dept of Medical Physics & Bioengineering at University College London. Systems under development include a sphincter constructed from a muscle graft for patients with colostomy or ileostomy, an implantable drop-foot stimulator, and improved techniques for stimulating bladder, bowel and lower limb muscles via electrodes placed on the spinal nerve system.
http://www.utwente.nl/bmti/neuralpro/

The Institute of Urology and Nephrology at UCL host a European Union project which examines the Restoration of Bladder Function by Neuroprosthetics (REBEC).

Working with the Spinal Research Centre at the Royal National Orthopaedic Hospital, the aim is to improve the Finetech-Brindley bladder stimulator.

The stimulator includes an external control box and implanted stimulator-receiver, electrodes and leads. It is used to improve bladder control especially for people with spinal cord injury but implantation currently requires some nerves to be cut which has an impact on other bodily functions. The research team want to find a method of implanting the stimulator which avoids cutting nerves and also want the new device to be able to detect the unwanted bladder contractions which lead to incontinence.

The new device will suppress these contractions to let the bladder fill to a higher capacity; the current Finetech-Brindley system will allow the user to empty the bladder. The team have implanted devices into some patients and they are now concentrating on electrical feedback signals which will indicate when the bladder is full.
http://www.rebec-europe.org/

..staying dry..

Non-Invasive Continence Products

Incontinence is a hidden disability, both physically and socially, affecting both the incontinent person and carers for people with incontinence. Occasional incontinence is a major quality of life issue for many older people. Much of the work reviewed for this year's Rapid report consists of assessment and evaluation of existing products.

Research: Research, development and demonstration of a novel Non-Invasive Continence Management System (NICMS), a European Union project, involves three academic institutions in the UK; Brunel, University College London and Loughborough University. The aim is to produce a product for people who have limited mobility. It consists of a small urinal for women and a small body worn pad which takes the urine away from the body into a container. This project began in 2003 and follows on from two earlier projects at Brunel University funded by Action Medical Research. In these earlier projects, the Active Urine Collection Device (AUCD) was constructed and prototypes were tested.

Evaluations: Officially launched on the 5th December 2003, the Medicines and Healthcare Products Regulatory Agency (MHRA) (previously the Medical Devices Agency) published two reports on continence products in 2003. These were:

- 'Reusable absorbent body worn products for moderate/heavy urinary incontinence: a pilot study evaluation'
- 'Continence product use in residential settings: a survey'

http://www.mhra.gov.uk/

The Continence Technology Group at University College London work on behalf of MHRA. A multi-centre evaluation of disposable nappies and pull-up pads for children was finished at the end of 2003. The aim was to find the most suitable products for children with learning and/or physical disabilities and 61 participants were involved. A second study currently underway is comparing four product designs for men with dribble incontinence. 80 people will take part and data collection began in October 2003.

The Continence Technology Group obtained funding in April 2003 to examine absorbent products for urinary/faecal incontinence as part of the Health Technology Assessment Programme. The group reports that there is a need for a comparative analysis of the different products available and the materials from which they are made. A database is being compiled with the following objectives:

- to compare the performance and cost-effectiveness of the key absorbent product categories,
- to develop an instrument to measure quality of life for people using absorbent products.

Other programmes of research within the group are:

- the development of a new predictive mathematical model for designing improved reuseable incontinence bed pads (funded by the EPSRC).
- studies into urinary incontinence and skin health providing recommendations for products which reduce the risk of pressure sores (funded by the Smith & Nephew Post-doctoral Nursing Research Fellowship).

http://www.medphys.ucl.ac.uk/research- groups/incont/incont.htm

Award Winners

Each year assistive technology products win awards for outstanding design, innovation and for their contribution to improving people's lives.

Here is a selection of recent successes:

Mangar International's Handy Slider was a winner of the Independent Living Design Awards at the annual award ceremony at the Park Lane Hotel in November 2003.

The Mangar Handy Slider is an inexpensive transfer solution for those who have difficulty getting in and out of the car. So many people of all ages have this problem and Mangar's Handy Slider resolves it comfortably and neatly.
http://www.mangar.co.uk/

Gerald Simonds Healthcare won an Independent Living Design Award with their Maxgrepp Ergo Handrims which can be used by people with impaired hand use to control manual wheelchairs.

The original handrim has been around for years but the new design provides maximum contact area, particularly for the thumb. There is a textured upper rim for easy grip and a smooth underside for braking. The annual event is co-sponsored by the British Healthcare Trades Association and the charity Phab (Physically Disabled/Able Bodied).
http://www.gerald-simonds.co.uk/

An avatar is a 3D online image of a person. Avatar technology is being used to help deaf or visually impaired people by creating a 'virtual assistant' who can speak or use sign language. Virtual Human Interface for a Set-Top box Agent (VISTA) is a voice controlled assistant to assist people who are visually impaired choose a digital TV channel. VISTA won a Royal Television Society Technical Innovation Award in 2003.

The technology includes speech recognition, speech synthesis and channel search. The software runs on a computer but improvements in hardware technology will make it possible to use this with a digital box.

The project is co-ordinated by the Independent Television Commission and includes BSkyB Ltd, City University, Sensory Inc, Televirtual Ltd, the University of East Anglia and The Victoria University of Manchester. It is funded by the DTI, ESRC and EPSRC under the PACCIT initiative (People at the Centre of Communications and Information Technology).

..winners..

The 2003 Design Business Association (DBA) Inclusive Design Award was split between two projects. Seymourpowell's inclusive mobile phone and Factory Design Ltd's redesign of a simple saucepan.

Seymourpowell: 'ello' mobile phone

Mobile phones can be a powerful assistive technology, yet many people find the complexity of technical facilities which phones now offer, intimidating and inaccessible. Emphasis on making technologies smaller has excluded people who need larger buttons, menu interfaces which assume a knowledge of computer menus exclude people without computer experience. Symourpowell consulted users on the key reasons they used a phone and designed a stripped down, minimal phone they named

the 'ello' phone which would be accessible to this group of current non-users.
http://www.seymourpowell.com/

Factory Design: saucepan

The Factory Design team consulted people with arthritis on their use of saucepans. Users described how the narrow base, handle shape, weight and drainage can make saucepans difficult and dangerous to use. The design team came up with a light-weight multipurpose pan prototype with two handles, a colander for draining and an easy to lift lid.

The next stage is to enable this award winning design to become a mainstream product with backing from manufacturers who appreciate the market potential of reaching a wider group within the population. The current solutions will now undergo a process of evaluation and evolution to refine the concept. Factory are looking to build commercial relationships with interested manufacturers or brand owners to bring this product to market.
http://www.factorydesign.co.uk/docs/

Bath Insitute of Medical Engineering (BIME) is a charity which designs products for telecare and every day living. Dr Chris Gibbs, the Head of Electronics at the BIME won the JA Lodge Award given by the Institute of Electrical Engineers in November 2003. He won the award for his work developing assistive technology for people with dementia and his involvement with the Gloucester Smart House, a networked house to support the needs of people with dementia and their carers.
http://www.bath.ac.uk/bime/

..funders..

In response to requests from researchers, this year's overview of funding has changed. We continue to provide links to the websites of funding organisations but this year we are attempting to give an overview of where assistive technology (AT) sits within funders' priorities.

On the basis that these websites are the main point of information for researchers, innovators and users of AT, we sent out our roving reporter, Aidan, to search the net on your behalf. His mission was to disguise himself as an 'average' researcher and report how easy it was to find information on getting projects funded.

It isn't just researchers who look at funding information. Many disabled and older users of AT recognise that a great deal of money is spent on research. One outcome users look for is that new assistive technology gets onto the market. Aidan reports how easy it is to find out where the money is being spent, how to get hold of the new AT and he reports how funders are working with disabled and older users of AT.

We will continue to respond to requests for information from researchers and users of AT in future Rapid reports. We hope that this approach will give funding organisations a reflection of how useful their websites are to the 'average' user. As with any user investigation, these findings may not reflect all the information provided on an organisation's website. Our aim is that these comments are useful and will assist funding organisations improve their service to researchers and to users of AT.

Aiden, our roving reporter, searched the net and reflects here on how easy it was to find information about funding, where the money's being spent and if products are getting into the shops as a result.

The funding organisations reviewed are a selection and further information can be found on FAST's online database at:
http://www.fastuk.org

Basic scientific research - Research Councils 46

NHS Research and Development funding 48

Health Research and Development Policy programme 50

Health departments in Scotland and Wales 51

Higher education funding 52

Technology transfer and cross-sector partnership funding 53

Business support and funding for individuals 54

Research funding in Europe 55

Voluntary sector funding 57

Basic scientific research - Research Councils

Engineering and Physical Sciences Research Council - EPSRC			
http://www.epsrc.ac.uk			Rating
Aims and approach	A funding agency for research and training in engineering and the physical sciences. Aiming to improve health, well-being and lifestyle. EPSRC promotes public awareness of science and engineering.		
End date	Ongoing		
Grant type	Most projects funded under 'responsive mode'. Strategic priorities within responsive mode are identified each year and proposals may be submitted at any time. The main criterion is engineering or scientific quality, as determined by peer review.		
Eligibility	Primarily to academic organisations, or collaborations which include an academic partner.		
Funds	EPSRC invests more than £460 million a year in research for future economic development in the UK		
AT related?	EPSRC funds more AT research than any other research council. Specifically relevant is the EQUAL initiative (see below). Approximately £10 million is AT related (source: FAST database)		4/5
Site searchability	Site search and Grants search facility available. The site is difficult to navigate - the Grants Search page was hard to find and wasn't stable when we used it. The site is searchable by free text which provides clear results about projects. http://194.66.183.26/WEBSITE/GOW/Freetext.aspx		2/5 4/5
Help for applicants	Difficult to follow unless potential applicants know exactly what research area their project may fall under. Seventeen different FAQ sections. A Funding Guide has now been published.		4/5
Calls for proposals	http://www.epsrc.ac.uk/website/commonpages/listcontent.aspx?ZoneID=1&LozID=8&SearchID=2		
Project outcomes	Dissemination is mainly the responsibility of those who have been funded.		
Commercialisation	The EPSRC is involved in a Follow-on Fund to help demonstrate the commercial potential of ideas arising from Research Council funded research.		
User involvement:	In individual projects	Aim: To build and sustain a better knowledge and understanding of user requirements within EPSRC	
	In review of proposals	Proposals peer reviewed by experts in the field.	
	In setting research strategy	Aim: To increase involvement of key users in EPSRC's longer-term strategic planning	

EPSRC Initiative - EQUAL			
http://www.fp.rdg.ac.uk/equal/			Rating
Aims and approach	A research network and an EPSRC funded initiative. Focused on research with an engineering, design or physical science perspective aimed at improving the quality of life of older people, people with disabilities, and society in general.		
End date	Autumn 2004		
Grant type	As EPSRC		
Eligibility	Open to all those interested in inter-disciplinary, user-focused research, those interested in implementing ageing-related and disability-related research, those who are directly involved with older people and disabled people and intermediaries of all types.		
Funds	The EQUAL Initiative is not a funder in itself.		
AT related?	The site is very AT focused. Over £7m of funding for AT related projects is through the EPSRC EQUAL initiative (source: FAST database).		4/5
Site searchability	There isn't a general Search Engine, but projects can be accessed through 'EQUAL Projects' on menu bar. The project listing gives abstracts and presentations.		3/5
Help for applicants	No FAQ page, but useful information is available via menu buttons.		3/5
Calls for proposals	N/a		
Project outcomes	The project listing gives abstracts and presentations which summarise some outcomes.		3/5
Commercialisation	The emphasis is on research and networking expertise rather than commercialisation.		1/5
User involvement:	In individual projects	Users are participants in projects.	
	In review of proposals	As EPSRC	
	In setting research strategy	As EPSRC	

Economic and Social Sciences Research Council - ESRC			
http://www.esrc.ac.uk/			Rating
Aims and approach	To provide high quality research for business, the public sector and government including economic competitiveness, the effectiveness of public services and policy, and quality of life.		
End date	Ongoing		
Grant type	Funding for academic, Master's, PhD and small or large research projects.		
Eligibility	Projects relating to thematic priorities but also projects proposed by researchers.		
Funds	£63 million per year.		
AT related?	Focus is on sociological, psychological research. Funding for AT related projects is difficult to establish - 12 projects listed on the FAST database.		2/5
Site searchability	Funding information is clearly signposted. Information about projects can be found via 'Our Research' on the Home Page, or via the ESRC 'REGARD' research service, http://www.regard.ac.uk/regard/home/index_html.		3/5
Help for applicants	No FAQ page, but clear menu bar leading to different areas. Alternatively use 'Want to Apply?' option.		3/5
Calls for proposals	n/a. Eligible proposals considered throughout the year.		
Project outcomes	Available through REGARD.		
Commercialisation	Emphasis on research		1/5
User involvement:	In individual projects	Users are involved as participants.	
	In review of proposals	n/k	
	In setting research strategy	n/k	

NHS Research and Development

The Department of Health spent approximately £540m in 2002-2003 through the policy research programme and NHS R&D programme. The Advisory Group on research and development priorities for people with Physical and Complex Disabilities (PCD) was established in November 1992. There are three main programmes established as part of the NHS R&D policy: NEAT, HTA and SDO.

Health Technology Assessment (HTA)			
http://www.hta.nhsweb.nhs.uk/			Rating
Aims and approach	The HTA programme commissions research on topics identified as gaps in evidence needed by the NHS. Suggestions come from Royal Colleges and Societies, individuals working in the NHS, the public and consumer groups and are considered by independent experts, including consumers, who recommend research priorities. The HTA programme commissions research teams to undertake the work. This ranges from reviews of existing research or clinical trials providing new evidence.		
End date	Ongoing		
Grant type	Research can last between a few months or several years. Project costs range from £50,000 to over £1million.		
Eligibility	Anyone who can carry out high-quality health related research.		
Funds	n/k		
AT related?	The database can be searched by intervention of which one heading is 'Aids and Appliances' for which there are 3 projects. Funding of £481,473 was granted for evaluation of incontinence products, £676,823 for ulcer dressings and contract payments for assessing insulin-pump therapy. Funds are available for "Prevention of Wandering in Dementia" and "Speech and language therapy for speech problems due to stroke". Priorities are defined by the International Classification of Diseases and tend to focus on medical research - assessment, medical treatment and prevention, rehabilitation processes and therapy.		2/5
Site searchability	Good for project search. The site has a database searchable by 'Key Area', 'International Classification of Diseases' or by 'Intervention'. It references the National Research Register where project details are also stored. Possible to search the rest of site through 'Search page' but results are not always useful.		4/5 1/5
Help for applicants	The Funding Support sections are thorough and useful.		4/5
Calls for proposals	Can be accessed through Home Page menu. A new Call is made every five months based on NHS needs/ priorities. It is not possible to see previous Calls.		
Project outcomes	Possible to download outcome reports through the database. Research results are published in the HTA monograph series		
Commercialisation	Focuses on the needs of the NHS purchaser/ user. HTA consider cost, effectiveness and commercial alternatives.		
User involvement:	In individual projects	All NHS researchers are encouraged to liaise with INVOLVE (previously Consumers in NHS research) http://www.invo.org.uk/who.htm	4/5
	In review of proposals	Peer review, may not include users	3/5
	In setting research strategy	Yes	3/5

Aims and approach	NEAT is funded from the NHS R&D budget to support work which applies recent advances in fundamental knowledge and technology to the development of new products and interventions for improved health and social care or for disease prevention and treatment.		
End date	Ongoing		
Grant type	No prescribed funding limits for applications. Duration of funding 1-3 years. Funding over £250,000 may require additional review by the NEAT Advisory Committee.		
Eligibility	Academic and NHS research communities.		
Funds	Total annual budget of £1.2 million.		
AT related?	Funding on AT related projects estimated at £192,000 (6 out of 33 projects).		3/5
Site searchability	Keyword search available from the Home page, e.g 'Commissioned Projects'		3/5
Help for applicants	There doesn't appear to be an FAQ for potential applicants, but the site has a document database containing funding application packs and a section on programme and entry criteria. Application is through the Health Technology Portal (HTD)		3/5
Calls for proposals	http://www.neatprogramme.org.uk/proposals.asp		
Project outcomes	See ReFeR Database (www.dh.gov.uk). One NEAT project currently listed.		1/5
Commercialisation	Projects should have an impact on the future health of patients		
User involvement:	In individual projects	Projects should have awareness of the needs of patients and carers	
	In review of proposals	n/k	
	In setting research strategy	n/k	

NHS Service Delivery and Organisation - SDO

http://www.sdo.lshtm.ac.uk/			Rating
Aims and approach	To consolidate and develop the evidence base on the organisation, management and delivery of health care services. To manage the implementation of findings from R&D.		
End date	Ongoing		
Grant type	The site focuses on the needs and requirements of delivering healthcare services and does not offer grants for other types of projects.		
Eligibility	Anyone who can carry out high-quality health related research.		
Funds	Unspecified		
AT related?	Service rather than product oriented. There are two e-health policy projects totalling approximately £150,000. £52,000 was provided to look at barriers to access to healthcare which references telecare services.		
Site searchability	A search engine is available, but only offers a search of the whole site. The results tend not to be related to Funding or Assistive Technology.		1/5
Help for applicants	The 'Calls for proposals' section is very useful and includes a very good FAQ section.		4/5
Calls for proposals	http://www.sdo.lshtm.ac.uk/calls.htm		
Project outcomes	Accessed through 'Commissioned Projects' and they have a Communications Strategy placing a high priority on dissemination.		4/5
Commercialisation	Aims to improve the delivery of healthcare services		
User involvement:	In individual projects	Project dependent	
	In review of proposals	n/k	
	In setting research strategy	A scoping exercise was commissioned in 2000 to provide guidelines on eliciting users views within service research.	

Health R&D policy
Health in Scotland and Wales

Policy Research Programme			
http://www.dh.gov.uk/ (PolicyAndGuidance//ResearchAndDevelopment/PolicyResearchProgramme/)			Rating
Aims and approach	To provide a knowledge base for health services policy, social services policy and central policies directed at the health of the whole population		
End date	Ongoing		
Grant type	n/a		
Eligibility	The Programme is a directed one. It does not commission research in response to spontaneous proposals. All work is commissioned to meet Dept of Health research needs identified in the course of policy work.		
Funds	Unspecified		
AT related?	Funding is broken down into initiatives. Approximately £3.5 million for ICT (tele-health/telemedicine/digital television), £10,819 for the Telemedicine database under "Complex and Physical disability", £129,735 for FAST, £0.5 Million to Medlink projects for a walking frame, FES and incontinence and £40,000 on a study of the transfer of patients from ambulances under "Technology Assessment."		2/5
Site searchability	Using free text search, it is only possible to search the Department of Health Website as a whole. There is a project database for this programme but it is difficult to find. http://www.info.doh.gov.uk/doh/rd2policy.nsf/pages/home?open		3/5
Help for applicants	Documents are available which outline the process and background.		3/5
Calls for proposals	All calls for proposals for NHS research are listed at http://www.dh.gov.uk/(research/callsforproposals)		4/5
Project outcomes	Listed on the DOH Research Findings Register http://www.info.doh.gov.uk/doh/refr_web.nsf/Home?OpenForm		2/5
Commercialisation	Focuses on the NHS need for research and provides funding to meet those needs.		
User involvement:	In individual projects	Researchers encouraged to contact INVOLVE.	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Scottish Executive Health Department, Chief Scientist Office			
http://www.show.scot.nhs.uk/cso			Rating
Aims and approach	To support and promote research aimed at improving the services offered by NHS Scotland and the health of the people of Scotland.		
End date	Ongoing		
Grant type	Small Research Grants, Research Training Fellowships, Postgraduate Studentships.		
Eligibility	Individuals from Scottish Institutions Applicants from any discipline or profession may apply for project/small grants. Grants may be awarded for research in Universities, colleges and health institutions. Grants are not usually awarded to voluntary organisations but may be co-applicants.		
Funds	Invests over £44 million per annum in NHS related research.		
AT related?	Focus is on medical research. Funded a centre of excellence in hearing research.		
Site searchability	Difficult to find useful information with the Site Search Engine. Search tends to produce policy documents, little related to Projects or Funding. No Project Database.		1/5
Help for applicants	None available.		0/5
Calls for proposals	No, contact appropriate research manager to discuss proposal. Look at 'Applying for Funding' for more information.		0/5
Project outcomes	None that could be easily found. Unfortunately, the site is hard to follow and rather fragmented.		0/5
Commercialisation	n/k		0/5
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Wales Office of Research and Development for health and social care - WORD			
http://www.word.wales.gov.uk			Rating
Aims and approach	To develop policy and priorities in R&D for health and social care in Wales and to commission and manage high quality research projects from inception to dissemina-		
End date	Ongoing		
Grant type	n/k		
Eligibility	n/k		
Funds	£13.8 million was allocated to R&D in 2001 compared to £448 million in England and £41 million in Scotland according to their strategic framework document http://www.word.wales.gov.uk/content/r&dstrategy/strategic-framework-e.pdf		
AT related?	12% of funds in 2001 was spent on older people, 2% on promoting independence, Tend to focus on medical, sociological and psychological research. A list of projects funded for the European Year of Disabled People can be found at http://www.wales.gov.uk/themesdisabled/success-project-e.htm#top but these are service related. Though funding AT projects in the past, 0 out of 140 currently seem to be AT related.		
Site searchability	It is only possible to search the whole of the Welsh Assembly Website but free text search was not functional at time of going to print. There is a project database which describes funded grants http://www.word.wales.gov.uk/content/funding/funded-e.htm		
Help for applicants	None		1/5
Calls for proposals	n/k		0/5
Project outcomes	http://www.word.wales.gov.uk/content/spotlight/spotlight-e.htm. Only one report since 2002 produced on project outcomes.		0/5
Commercialisation	n/k		1/5
User involvement:	In individual projects	n/k	0/5
	In review of proposals	n/k	
	In setting research strategy	n/k	

Higher education
Technology transfer

Higher Education Funding Council for England- HEFCE **See also:** **Scottish Higher Education Funding Council** **Higher Education Funding Council for Wales** **Department of Higher and Further Education Training and Employment for Northern Ireland**			
http://www.hefce.ac.uk/			Rating
Aims and approach	To promote and fund teaching and research in universities and colleges. The Department of Health and HEFCE have established a strategic alliance to formalise working links and support discussion and consideration of Department of Health/NHS and HEFCE R&D strategic objectives, priorities and activities to ensure the best use of public funds in supporting health and social care research.		
End date	Ongoing		
Grant type	Grants distributed primarily according to the quality and amount of research work - assessed through periodic Research Assessment Exercise.		
Eligibility	Higher Education Institutions in England.		
Funds	In 2003-04 HEFCE will distribute £1,042 million for research.		
AT related?	Funding for AT unspecified - depends on the research focus of each university/ college department.		1/5
Site searchability	Basic site search, but no information on projects.		
Help for applicants	Available using 'Questions' button from Home page.		
Calls for proposals	According to university and college research department activity. More details at: http://www.hefce.ac.uk/pubs/hefce/2003/03_35.htm		
Project outcomes	Information only accessible through individual University and College Research Institution. No project information on this website.		0/5
Commercialisation	Recommend that academic institutions should engage with other institutions and local, regional, national or international partners - assessment is made of the potential to engage with their regional businesses and communities.		1/5
User involvement:	In individual projects	Project dependent	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Health Technology Devices - HTD (Successor to MEDlink)			
http://www.healthtechnologyportal.org.uk			Rating
Aims and approach	The Health Technology Portal is the primary point of access for Dept of Health science and technology transfer sponsorship.		
End date	Jan 2008. HTD will close to new applications at end January 2008, and the programme itself is expected to close in January 2011 with completion of final proj-		
Grant type	Funding is available up to 50% of the total project costs, with the remainder being provided by the industrial partners through cash and in-kind contributions.		
Eligibility	To be eligible for funding projects must satisfy the criteria of: having a project team with at least one industrial partner and one research partner; being innovative with a suitable element of risk; being directly relevant to the NHS plan (www.dh.gov.uk/); meeting a real clinical need, to improve patient care; having a viable route to market.		
Funds	Around £15m of government funding will be available throughout the programme to support collaborative R&D projects involving industry, academia and the NHS.		
AT related?	10 projects currently funded under HTD, of which 3 appear to be specific AT devices. 51 projects were funded under its predecessor of which 20% related to AT.		
Site searchability	A list of projects is available but no details. Useful informationabout the site available.		2/5
Help for applicants	Documents to assist in an application can be downloaded when registered to the site.		3/5
Calls for proposals	http://www.healthtechnologyportal.org.uk/scripts/default.asp?sid=3		
Project outcomes	n/k, as site is not searchable. Unfortunately the site doesn't seem very up to date.		1/5
Commercialisation	Project must include industrial/commercial partners.		3/5
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Office for Science and Technology - OST: Link Collaborative Research			
http://www.ost.gov.uk/link/			Rating
Aims and approach	LINK is the Government's principal mechanism for promoting partnership in pre-commercial research between industry and the research base. The scheme offers an opportunity to tackle new scientific and technological challenges so that industry can develop innovative and commercially successful products and services.		
End date	Ongoing		
Grant type	n/a		
Eligibility	Companies of any size and research organisations throughout the UK can partici-pate in LINK projects. Multinationals can also participate provided they have a signif-icant manufacturing and research operation in the UK and the benefits of research are exploited in the UK or European Economic Area.		
Funds	Provide up to 50% of the total costs with balance from industry.		
AT related?	No AT projects are currently listed.		0/5
Site searchability	Finding the Search Engine was difficult: http://www.ost.gov.uk/link/linkprojects/ Search results are slightly confusing to use and limited details found. There is a useful list of programmes with amount of expenditure but this is out of date.		2/5
Help for applicants	None available.		0/5
Calls for proposals	There are currently 25 programmes open to new project applications.		
Project outcomes	0utcomes described via newsletter.		2/5
Commercialisation	Based on building commercial partnerships.		
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Grant for R&D (replaces Smart scheme in England)			
http://www.dti.gov.uk/r-d/			Rating
Aims and approach	To provide grants to help individuals and small and medium-sized businesses to research and develop technologically innovative products and processes.		
End date	Ongoing		
Grant type	Research projects, Development projects and Micro projects with support varying between 60% an 35% and levels of grant from £200,000 to up to £20,000.		
Eligibility	Individuals and small and medium sized businesses.		
Funds	The 2002 Annual Report indicates that about £60 million was provided to fund enterprise initiatives. http://www.sbs.gov.uk/content/docs/SBSreport2002.pdf		
AT related?	19 AT projects are listed on the FAST database.		
Site searchability	A free text search is for all of the DTI site. Difficult to find information on particular projects, although case studies and booklets are available.		0/5
Help for applicants	A useful FAQs page, guidance notes and contact information.		4/5
Calls for proposals	Eligible proposals considered throughout the year.		
Project outcomes	Some highlighted in 'Case Studies'		1/5
Commercialisation	Focus is commercial.		5/5
User involvement:	In individual projects	Project dependent	
	In review of proposals	Small Business Service regional teams review proposals - user involvement not described	
	In setting research strategy	Strategy set by DTI - user involvement not described	

National Endowment for Science, Technology and the Arts - Nesta			
http://www.nesta.org.uk/			Rating
Aims and approach	Set up by Act of Parliament in 1998, NESTA uses the interest on a National Lottery endowment to support and promote talent, innovation and creativity. They invest in a diverse range of people, including scientists, inventors, engineers, medical practitioners, educators, artists. They provide funding for new products or services.		
End date	Ongoing		
Grant type	Most projects receive between £30,000 and £85,000. Usually NESTA will include non-financial support, e.g. an independent mentor. NESTA fund any stage related to progressing an idea. There is no requirement for matching funding.		
Eligibility	Anyone can apply but NESTA normally only consider proposals from individuals or organisations based in the UK. They prefer to support individuals or small groups/teams. Applicants from Universities can apply, but NESTA are not a source of research funding. The proposal must seek to develop products and ideas that have been spun out from research and which demonstrate commercial and social potential.		
Funds	The £200 million of National Lottery money was invested and is expected to provide an income of around £10 million a year.		
AT related?	Approximately £600,000, 7 out of 311 projects identified seem to be AT related.		
Site searchability	Free text search and project database available.		4/5
Help for applicants	Yes, in 'Guidance Notes'		4/5
Calls for proposals	n/a. Eligible proposals considered throughout the year.		
Project outcomes	Details can be found via news and annual reports.		
Commercialisation	An emphasis on commercial ideas and those with social aspect.		
User involvement:	In individual projects	The projects are market and user focused.	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Business support Research in Europe

European Commission Sixth Framework Programme - FP6			
http://fp6uk.ost.gov.uk http://fp6.cordis.lu/fp6/home.cfm			Rating
Aims and approach	European Commission funding is structured into cycles or frameworks, the current (2002-2006) is the 6th. Integrating research is the largest part of FP6 and will account for 80% of the total budget. This work has been divided in 7 priority themes http://www.cordis.lu/fp6/stepbystep/ira.htm and includes two themes under which most AT projects fall: 'Information Society Technologies' (IST) 'Future and Emerging Technologies' (FET)		
End date	This framework finishes in 2006.		
Grant type	Depends on applicants' role within the consortium - three year funding is usual.		
Eligibility	Researchers can apply for funding as part of a consortium as long as their project falls within the FP6 themes. http://fp6.cordis.lu/fp6/subprop.cfm		
Funds	The total budget is in the region of 16,270 million Euros. Framework 5 'Information Society Technologies' (IST) had a budget of 3,600 million euros.		
AT related?	Over 30 AT related projects were funded under Framework 5.		
Site searchability	The site can be confusing, suffers from a weight of information available, poor navigation and search support.		0/5
Help for applicants	Each member State and associated State has a network of national contact points for the different priorities of FP6, listed at http://www.cordis.lu/fp6/ncp.htm Making an application at:http://fp6.cordis.lu/fp6/subprop.cfm		2/5
Calls for proposals	Another IST call will appear for 2004 while the FET open call (no theme specified) remains open from December 2002 and closes in December 2004. (FET is divided into two categories - defined themes and an open call). http://fp6.cordis.lu/fp6/calls.cfm		
Project outcomes	Framework 5 results can be located at http://www.cordis.lu/fp5/results.htm IST results can be found at http://istresults.cordis.lu/		2/5
Commercialisation	Collaborations between commercial and other organisations are encouraged.		1/5
User involvement:	In individual projects	Information available depends on individual projects.	
	In review of proposals	n/k	
	In setting research strategy	n/k	

European Social Fund - ESF			
http://www.esf.gov.uk/			Rating
Aims and approach	The European Social Fund (ESF) is designed to strengthen economic and social cohesion in the European Union. ESF's main purpose is to support the annual UK Employment Action Plan, which sets out how UK policies and initiatives take account of the employment guidelines established within the European Employment Strategy.		
End date	The current programmes run from 2000 to 2006.		
Grant type	Most ESF money in England is distributed to projects through the Learning and Skills Councils, Jobcentre Plus and other employment related organisations. These organisations are responsible for finding match funding. Some ESF money is available in England through alternative routes which require applicants to find 'match funding'.		
Eligibility	Depends on ability to achieve goals under the UK Employment Action Plan.		
Funds	ESF will provide about £4.5 billion in the UK (£3.5 billion in England) in this period.		
AT related?	EQUAL is an ESF funded programme which tests new ways to reduce inequality in the labour market. 50% of projects relate to accessability learning and inclusion.		4/5
Site searchability	The site is clearly laid out though it is difficult to find project information.		3/5
Help for applicants	Very good documentation and support.		5/5
Calls for proposals	The second round of the European Equal initiative has been announced http://www.equal.ecotec.co.uk/secondround/		4/5
Project outcomes	Information in newsletters.		2/5
Commercialisation	Geared towards impact on peoples lives.		2/5
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Co-operation on Science and Technology - COST			
http://cost.cordis.lu/src/home.cfm			Rating
Aims and approach	Set up in 1971, COST is a European Framework for international cooperation between nationally funded research activities. COST is based on Actions. These are networks of co-ordinated national research projects in fields, which are of interest to a minimum number of participants (at least 5) from different member states.		
End date	Ongoing		
Grant type	Expenses only are covered, research activities themselves are funded nationally.		
Eligibility	COST Actions can be initiated in any subject by individual scientists in all COST participating countries or the European Commission. Researchers themselves propose an action which makes it an attractive forum for new topics.		
Funds	There are around 200 actions underway. The budget each year is 12 million Euros.		
AT related?	Two current actions in the 'Transport' category relate to assistive technology.		
Site searchability	No free text search. COST Action database available.		3/5
Help for applicants	No FAQ available, but downloadable documents are available at: http://cost.cordis.lu/src/cost_office_documents.cfm#Actions		3/5
Calls for proposals	n/a. Eligible proposals considered throughout the year.		
Project outcomes	COST Action documents available in the 'Publications' section.		3/5
Commercialisation	The focus is not commerical, the programme concentrates on creating a network of expertise and forming standards and guidelines.		2/5
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

European and Voluntary sector funding

For further information on voluntary sector organisations who fund assistive technology research go to the FAST database and search by ‘organisations’ or ‘projects’.

Community Fund			
http://www.community-fund.org.uk/index2.htm			Rating
Aims and approach	To distribute Lottery money to support charities and voluntary groups.		
End date	Ongoing		
Grant type	Range of funding levels and application procedures: strategic grants with no financial limit, grants for large, medium sized and small projects and Awards for All (£500-5000). The Research Grants programme provides funding promoting social inclusion.		
Eligibility	Charitable or voluntary sector organisations must lead application though they can apply with partners from other sectors.		
Funds	In the 2002-2003 financial year, they awarded £285 million. This included 177 research projects with funding of £3.5 million.		
AT related?	Over £47 million was provided in 2003 to organisations which work for disabled people. As the funding is categorised by organisation rather than research projects it is not possible to quantify whether it is AT related.		
Site searchability	Search facility available. Search for projects through 'What We've Funded' and 'Past Grants' database but there is no way to filter out older projects by date, some go back to the mid-90's. Project details are rarely provided in the database.		2/5
Help for applicants	Guidance booklet available.		
Calls for proposals	n/a. Eligible proposals considered throughout the year.		
Project outcomes	Information available but difficult to filter.		
Commercialisation	Not an emphasis.		
User involvement:	In individual projects	n/k	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Voluntary sector funding

Stroke Association			
http://www.stroke.org.uk/index.htm			Rating
Aims and approach	The Stroke Association funds a wide range of research studies covering stroke prevention, diagnosis, treatment, rehabilitation and service provision.		
End date	Ongoing		
Grant type	Research Project Award: Two rounds per year with respective closing dates in July and November. Grants are limited to a maximum amount of £60,000 per annum for up to three years, (up to a maximum of £180,000).		
Eligibility	Academic or NHS institutions conducting research in Association priority areas.		
Funds	In 2001-2002 committed £1.7 million pounds		
AT related?	Currently fund 55 research projects of which one relates to assistive technology, automated speech recognition: £57,742. Estimated total AT funding since 1995: £340,000 (Source: FAST database.)		1/5
Site searchability	Free text search available. No searchable project database, information on current research projects available at: http://www.stroke.org.uk/research/Projectlist01gen.doc		3/5
Help for applicants	Funding documentation clearly signposted within the 'Research' Section. No FAQs.		
Calls for proposals	Closing date for receipt of applications is 9 July 2004 for consideration at the November 2004 Research Awards Committee meeting.		
Project outcomes	See Research page and Press Releases, but no searchable database. Researchers have the opportunity to list findings on the DOH Research Findings Register but only 1 project has done so.		1/5
Commercialisation	Not a stated priority. The automated speech recognition project mentioned above is already a commercial tool, applied for a new purpose.		1/5
User involvement:	In individual projects	As participants	
	In review of proposals	n/k	
	In setting research strategy	n/k	

Action Medical Research			
http://www.action.org.uk/			Rating
Aims and approach	To fund research into a wide range of illnesses and conditions and into therapy, rehabilitation and assistive technology. Support a broad spectrum of research to prevent disease and disability and alleviate physical disability.		
End date	Themed Call closed at time of going to print.		
Grant type	Grants are made for up to three years. The average award made is in the region of £80,000 and grants above £160,000 are unusual.		
Eligibility	Researchers in tenured positions in a university or hospital.		
Funds	Unspecified. Currently 100 projects underway.		
AT related?	8 AT related projects listed, with total funding of £702,362		2/5
Site searchability	Free text search available. Project information searchable via a database under particular project themes where the information is thorough.		4/5
Help for applicants	No FAQs page available but a lot of information available under 'Research Projects'.		3/5
Calls for proposals	http://www.action.org.uk/research_projects/guidelines_ for_project_ applicants.php		
Project outcomes	Information available through 'Research projects' and 'Project Database' menu from Home page. News gives a summary of outcomes for 2003 http://www.action.org.uk/news_media/pieces/2003_successes.php		3/5
Commercialisation	The focus is mainly on medical and charitable. The site lists some commercial successes and how they have impacted on peoples lives.		3/5
User involvement:	In individual projects	As participant	
	In review of proposals	User-advisory panels are involved in reviews.	
	In setting research strategy	n/k	

Inspire			
http://www.inspire-foundation.org.uk/			Rating
Aims and approach	The Inspire Foundation promotes research into the development of assistive technology and medical aids for people with spinal injuries.		
End date	Depends on funding each year		
Grant type	n/k		
Eligibility	Unspecified		
Funds	Unspecified		
AT related?	All projects are AT or medical aids.		
Site searchability	Simple website with no text search or project database.		2/5
Help for applicants	Applicants requested to contact the organisation for an application pack.		1/5
Calls for proposals	In 2004 the closing date for applications is 16th May 2004.		
Project outcomes	Project summaries are provided.		2/5
Commercialisation	No direct reference to commercialisation of products.		2/5
User involvement:	In individual projects	As active participants.	
	In review of proposals	People with spinal cord injury are involved in all Committees	
	In setting research strategy	INSPIRE was founded by people with spinal cord injuries.	

On 14th March 2001 a King's Fund consultation agreed a definition for 'Assistive Technology' to replace the term disability equipment. This definition is increasingly used because it more accurately reflects the wide range of equipment and services that assists older and disabled people to maximise their independence. It also acknowledges the cross over between inclusively designed, mainstream products and technology that assists disabled and older people.

The King's Fund Consultation Meeting was facilitated by FAST and followed wide consultation. Organisations taking part in the meeting to agree the definition,were:

Whiz Kidz, Stoke Mandeville Hospital, Department of Health, Disabled Living Centres Council, British Healthcare Trades Association, Sussex University, NHS Purchasing and Supplies, Centre for Disability Research and Innovation, RADAR, Southern Medical, Nuffield Orthopaedic Hospital, BES Rehab, Oak Tree Lane Rehab Centre, Centre of Rehabilitation Engineering, Engineering and Physical Sciences Research Council, Association of British Healthcare Industry, Medical Devices Agency.

'Assistive Technology is any product or service designed to enable independence for disabled and older people.'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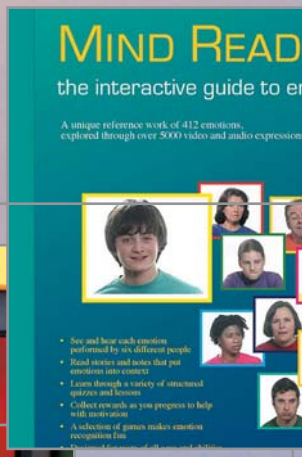
Spicy TOMATO & LENTIL SOUP
Soup
Multi Purpose Cleaner


SONY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A unique reference work of 412 emotions,
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performed by six different people
Read stories and notes that put
emotions into context
Learn through a variety of structured
quizzes and lessons
Collect rewards as you progress to help
with motivation
A selection of games makes emotion
recognition fun