Future bathroom: A study of user-centred design principles affecting usability, safety and satisfaction in bathrooms for people living with disabilities

CHAMBERLAIN, Paul, REED, Heath, BURTON, Maria and MOUNTAIN, Gail

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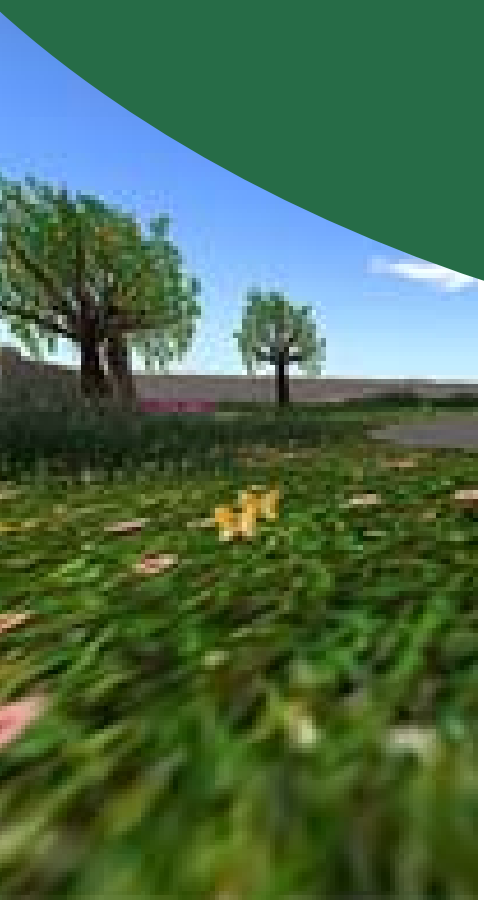
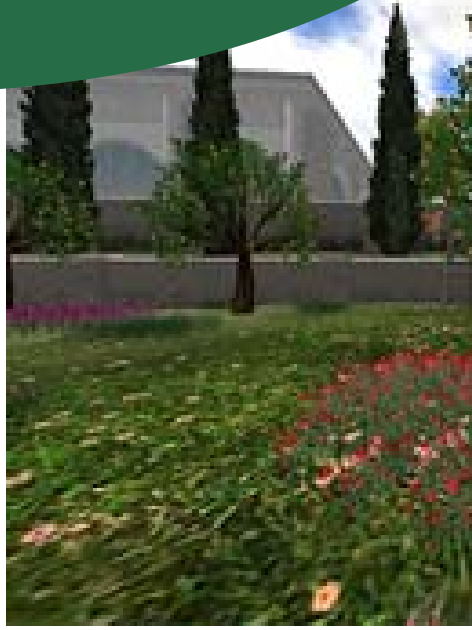
Research and development work relating to assistive technology 2010-11

Presented to Parliament pursuant to Section 22 of the Chronically Sick and Disabled Persons Act 1970





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Contents

Introduction

About this report

Section 22 of the Chronically Sick and Disabled Persons Act 1970 requires a report to be laid before Parliament each year describing the research activity the government has funded to improve equipment for disabled and older people, known as Assistive Technology.

The definition for assistive technology is as follows: “Assistive Technology is any product or service designed to enable independence for disabled and older people.” This broad definition means that a wide range of products and services are eligible for inclusion in the report, both high and low tech. Technological advances mean that the breadth of work covered is constantly expanding. The research covers not only specific products, but also systems, combinations of technologies, and interfaces to new mainstream technology, for example the internet.

The report aims to reflect research and development activity in relation to a wide range of impairments and health conditions and also to reflect the range of government funding programmes across health, social care, education, housing and employment. The report covers any aspect of research and development work in assistive technology, including service provision, research on motivation, cost or patterns of use, as well as technological development.

Who is the report for?

This report is of interest to a broad audience including:

- members of Parliament, government decision makers and research funding organisations who can assess the impact of the investment made in research and development in this area and identify areas that may require future funding;
- the research community and industry who can identify useful activity in their area of interest and who may wish to use the links to the Foundation for Assistive Technology (FAST) website to make contact with partner organisations and avoid duplication of effort;
- service providers and people who use assistive technology or support others to use assistive technology and who wish to understand how advances in technology can directly benefit disabled and older people living actively in the community.

Report format

All the research into assistive technology included in the report is being carried out in the UK during the period April 2010-March 2011 and is being funded by the UK government or is funded by the European Union (EU) with participation from a UK organisation. The feature section of the report highlights many of the projects that have concluded during the past year, have findings of interest to the sector and are illustrative of the potential benefits of investment in research and development into assistive technology.

The report includes, in Annex A, a full listing of government and EU funded research into assistive technology in the UK that have started, finished or were carried out during the year. The listing provides hyperlinks to enable readers to find further information on the FAST website, www.fastuk.org, including participant contact details and project progress. This information is freely available to the public, is regularly updated and provides the online format for this report. Further information on research and development in assistive technology funded by non-government organisations, on events, and service improvement activity can also be found on the FAST website.

Methods used for gathering information

The information provided in this report is gathered by desk research, including regular review of online information provided by research organisations, user representative and funding organisations, as well as information from sector journals, and information solicited directly from the research teams.

FAST is grateful for the support of the research and development community in providing the information included in this report. While all attempts are made to ensure that the information provided is comprehensive, there may be projects which have not been identified and we would be grateful for notification of any such projects.

Numbers of projects featured

In the year from April 2010-March 2011 FAST recorded 213 projects carrying out research and development activity in assistive technology over the year, of which 89 concluded during the year, an increase on the levels recorded last year.

The policy context

The fiscal and social challenges facing the UK mean that assistive technology service providers, along with those in other public services, face an uncertain year. Health and social care services are experiencing increased demand due to an ageing population and are anticipating that these demographic pressures will reshape services significantly over the next decade. Policy makers in the coalition government and the devolved administrations are urging service providers to respond to changing demand and budgetary restrictions with innovative ways of working in order to provide an equitable and accessible service for all.

The opportunities for assistive technology service providers to develop new services that meet the needs of the individual are substantial, but there are challenges, including previously low levels of investment in many assistive technology services, the lack of care pathway commissioning for these services and the lack of awareness of assistive technology on the part of the public. At the same time, technological advances, coupled with some forward thinking research funding programmes, make the delivery of innovative assistive technology services at scale a real possibility.

Public service reform

A key priority for the UK government is to reduce the UK budget deficit through tax rises, welfare reform and cuts in government spending. The 2010 spending review[1] set out reductions in departmental budgets and this is feeding through to spending decisions by the devolved administrations, government departments, the NHS and local authorities.

Although the NHS in England is largely protected against spending cuts, it has set itself a demanding 'quality and productivity challenge' to make £20 billion efficiency savings over the next four years,[2] at the same time as it implements radical changes in its organisation.[3] The proposed NHS reforms are based on the White Paper 'Equity and Excellence: Liberating the NHS' and are set out in the Health and Social Care Bill.

Integrated care

Policy makers wish to see much closer integration of services for older and disabled people across primary, secondary and social care. The NHS Operating Framework,[4] published in March 2011, sets out what needs to happen over the next year to take forward the reforms

1 HM Treasury website: http://www.hm-treasury.gov.uk/spend_index.htm

2 Letter to the NHS from Sir David Nicholson, NHS Chief Executive:http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleagueletters/DH_122740

3 The Health and Social Care Bill takes forward the changes to the NHS set out in the White Paper 'Equity and Excellence: Liberating the NHS' and developed in 'Legislative framework and next steps': http://healthandcare.dh.gov.uk/

4 Department of Health: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_122738

outlined in the Health White Paper.[5] The Framework sets out plans for the NHS in England including incentives to improve discharge arrangements and reduce emergency readmissions. To encourage integrated care, the funds provided to primary care trusts for 2011/12 include £648 million for joint working with social care on services such as 'telecare, community directed prevention (including falls prevention), community equipment and adaptations'.

The government published in February 2011 the final version of its local government finance settlement for 2011/12. The settlement aims to support 'the most radical shift in power to local government for a generation' with an expected result that 'councils and the NHS are being brought closer together'.[6] Certain areas of care have been highlighted as necessary for achieving longer term savings: subsequent to the announcement of the NHS Operating Framework the Department announced[7] an extra £162 million will be available in 2010/11 for joint working by health and social care to help people leaving hospital, including an emphasis on the need to 'cut the delays in getting the equipment and adaptations that people can need to enable them to live independently at home'.

While the joining up of health and social care services at a local level should result in more seamless assistive technology services, there is concern that restricted social care budgets will result in a short term reduction in the provision of assistive technology. As local authorities plan how to manage reduced budgets, they also have to consider how to help deliver the government's vision for adult social care in England, 'Capable Communities and Active Citizens', which was published in November.[8] The aim is to shift power from the state to the citizen through: personal budgets including direct cash payments to be offered to all those eligible by 2013; information and advice as a universal service to help those who pay for support as well as those who are publicly funded; preventative services to keep people independent; breaking down barriers between health and social care; a 'plural market' for social care involving individuals, communities, the voluntary sector, the NHS and council services. Telecare, re-ablement and 'home improvements and adaptations' are highlighted as preventative services with the potential to save resources as well as promote independence.

Collaborative working for rehabilitation and re-ablement

The efficient and timely delivery of assistive technology, which makes possible rehabilitation and re-ablement, is crucial to moving care from hospital to home and enabling people to live active, independent lives in a home of their choice. The 15 million people with long term

5 Department of Health. The Operating Framework for the NHS in England 2011/12: http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleagueletters/DH_122740

6 Communities and Local Government website, January 2011: http://www.communities.gov.uk/news/localgovernment/1831509

7 Department of Health, January 2011: http://nds.coi.gov.uk/content/detail.aspx?NewsAreaId=2&ReleaseID=417279&SubjectId=2

8 Department of Health. 'A vision for adult social care: Capable communities and active citizens'. November 2010: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_121508

conditions are the biggest users of the NHS and the Department of Health is predicting[9] an increase of 252% by 2050 in people aged over 65 with one or more long term conditions. Calling this a 'ticking time bomb' which could make the NHS unsustainable, it has urged the NHS to radically re-design services for people with long term conditions, based on self care, case management, and telehealth and telecare technology. Service providers are being urged to make 'greater use of 'the technology at the health service's disposal to help people stay independent for longer, receive care online or in their own homes, avoid unplanned hospital admissions or unnecessary visits to clinics. Offering different ways to communicate with health professionals means a more streamlined efficient NHS.'

Technology enabled service efficiencies

There have been significant investment programmes to support the adoption of telecare and, more recently telehealth. The Department of Health has for the past two years been running the world's largest randomised control trial of telecare and telehealth technology, the Whole System Demonstrator (WSD) programme. This programme aims to establish evidence of effectiveness and to document learning on how to implement efficient services at scale, in order to provide the impetus to accelerate the adoption of these technologies nationally. Although there is no figure for the number of telecare users at any one time, it is estimated[10] that there are around 1.7 million people using telecare in England. The current estimate for telehealth remote monitoring installations is around 6,000, based on published programmes and projects. A series of reports on the outcomes of the WSD programme will be published over the next two years, starting in late spring 2011.

A report from the NHS Confederation[11] notes some of the challenges facing policy makers, research funders and service providers as they develop strategies to support the scaling up of these services. 'Progress has been made but health services have still struggled with new technologies as a combination of top down initiatives and a lack of engagement from clinicians and patients has meant new technologies such as telemedicine and telecare have failed to truly take off. In the future, government needs to support uptake of health technology in a sustained and systematic way without resorting to an overly prescriptive, centralised plan. Despite the huge funding pressures, NHS organisations should continue to make the case for new technologies as they will form the backbone for how we access many public services in the future. The key will be to address the cultural barriers that stop the uptake of new technologies'.

In order to address these barriers to adoption, the Technology Strategy Board's (TSB's) Assistive Living Innovation Platform announced a competition in April 2010, with a focus on

9 Department of Health press release. 'Millions of patients set to benefit from a modern NHS: http://www.dh.gov.uk/en/MediaCentre/Pressreleases/DH_125042

10 This estimate comes from the baseline figure in the publication Building Telecare in England (Department of Health 2005), the additional user numbers each year, and an adjustment for losses where people stop using their service. WSD Action Network: http://www.wsdactionnetwork.org.uk/news/features/telecare_users_and.html

11 NHS Confederation. 'Remote control: The patient-practitioner relationship in a digital age'. 2011: http://www.nhsconfed.org/OurWork/latestnews/Pages/NHS-risks-falling-behind-on-technology.aspx

Economic and Business Models and Social and Behavioural Studies. This call received funding support from the Economic and Social Research Council (ESRC) and the Department of Health's National Institute for Health Research (NIHR) programme. The Economic and Business Modelling theme aims to provide improved evidence to underpin industry and social enterprise and to encourage investment in and implementation of assisted living services and technology. The Social and Behavioural Studies theme aims to better understand the factors that influence the uptake of assistive technologies and to propose ways to address cultural barriers to their use. Eight projects are due to commence in spring 2011 with a total cost of £12.3 million and grant support of £8.8 million.

These projects will support but not address directly the need to develop telecare and telehealth services at scale, to deliver services to tens of thousands of people and to bring down the relatively high cost per unit of the technology. The government therefore announced[12] in March 2011 in the Plan for Growth that it intends to work with the TSB to develop assisted living solutions through supporting an £18 million investment programme. The funding programme will require projects to implement interoperable solutions through innovative large-scale service models and to find ways to tackle low levels of awareness of services, for example amongst GP commissioners and new Local Authority Health and Well Being Boards. As part of this call, the TSB announced[13] its intention to carry out a large-scale telehealthcare demonstration programme in Scotland. The demonstrator is anticipated to involve at least 10,000 older and disabled people, and it will run over four years from April 2012. It is proposed that funding contributions, additional to the TSB contribution, will come from the Scottish government (£3.9m), Highlands & Islands Enterprise (£0.8m) and Scottish Enterprise (£0.3m).

The Scottish government has supported the development of telecare and telehealth services in Scotland since 2006. Around 19% of those aged 65 and over use community alarm systems, while 4.5% receive more sophisticated telecare and telehealth packages. Efficiencies have been secured (principally in the form of care home and hospital bed days saved) with an overall gross value of around £48 million. A recent action plan calls for the convergence of telecare and telehealth (telehealthcare) and urges local partnerships to use these services as 'a key element of fundamental service redesign'.[14] The Welsh Assembly government's plan[15] for 'citizen centred' and integrated social services in Wales also envisages telecare services as central to the future delivery of services.

Innovative assistive technologies such as telecare and telehealth are currently receiving much emphasis in policy and in related research funding programmes due to the substantial numbers of people whom it appears could benefit from their deployment. This is particularly the

12 The Plan for Growth, BIS: http://cdn.hm-treasury.gov.uk/2011budget_growth.pdf

13 Scottish government news release. 2011: http://www.scotland.gov.uk/News/Releases/2011/03/15130403

14 National telecare programme board. 'Telecare to 2012: An Action Plan for Scotland', 2012: http://www.jitscotland.org.uk/action-areas/telecare-in-scotland/

15 Welsh Assembly Government. 'Sustainable Social Services for Wales: A Framework for Action', 2011: http://wales.gov.uk/topics/health/publications/socialcare/guidance1/services/;jsessionid=DNwTN2yB48j1Wt1wn1CJ8lQp4ckp9XnRQQC0nCc6nPSNP246K7kq!1619142356?lang=en

case for groups of disabled and older people for whom the alternative is substantial, sometimes intrusive, levels of personal care, for example those people living with dementia and learning disabilities.

The dementia strategies for England and Scotland both highlight the contribution of telecare, which can help people with dementia live at home safely for longer and reassure carers.[16] [17] In January 2011 the NIHR issued a call[18] for research on dementia across areas of prevention, diagnosis, assessment, treatment, management or care. The Director General of Research and Development highlighted the need for more researchers in the field of dementia research 'to access funding so they can make a difference to the lives of the millions of people who are touched by dementia.' The call followed work by the Ministerial Advisory Group on Dementia Research (MAGDR) which was established following the 2009 Summit on Dementia Research and was tasked to improve the volume, quality and impact of dementia research.

Community access to information and communications technologies

In order to support a broader range of providers, integration between different sectors and seamless and innovative services for individual, it is essential that the NHS and local authorities make effective use of communication technologies for delivering multi-disciplinary, person-centred services.

In December 2010 the Culture Secretary outlined[19] government plans for 'the best superfast broadband network in Europe by 2015'. A 'world class communications network' is seen as fundamental for economic growth and for more efficient and accessible public services. Recognising the need to 'ensure that consumers are comfortable with technology and that those currently excluded from the digital world, for whatever reason, are able to join it and reap the benefits', the strategy refers to Martha Lane Fox's Race Online initiative[20] which aims to ensure the inclusion of disabled and older people in online communities. One initiative supported by Race Online is 'Go ON Adopt', a volunteering platform linking school age digital champions with care home residents.

Communications technologies are increasingly seen as a key mechanism to enable cross generational volunteering and transfer of knowledge. In January 2011 a £2million programme called Independence Matters, was announced, to be delivered by the TSB and the Design Council. This programme will see designers, industry, and young people working in partnership with older people to jointly develop and test new systems and services which tackle issues of mobility, healthy eating, staying fit and keeping connected to friends, family and the younger generation.

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16 Scottish Government. Scotland's National Dementia Strategy, 2010: http://www.scotland.gov.uk/Topics/Health/health/mental-health/servicespolicy/Dementia

17 Department of Health. National Dementia Strategy: http://www.dh.gov.uk/en/SocialCare/NationalDementiaStrategy/index.htm

18 Department of Health: http://www.dh.gov.uk/en/MediaCentre/Pressreleases/DH_123496

19 http://www.culture.gov.uk/news/media_releases/7619.aspx

20 Race Online: http://raceonline2012.org/

Increasing access to online services, on computer or via internet-enabled TV, is the focus of several projects that report this year. The impact of this work can be significant. According to Age UK[21], more than half a million older and disabled people have been given help to switch to digital TV by the BBC-run Switchover Help Scheme. The internet is becoming the first resort for many people for shopping, social contact, entertainment and learning. It is also becoming the main source of information for many people when managing their self care. The NHS Choices 2010 Annual Report[22] published in November shows that the website received over a 100 million visits over the year, while a separate study from Imperial College[23] found a third of those logging on to NHS Choices avoided booking a GP appointment afterwards, potentially saving the NHS £44 million a year.

Many of the projects reporting this year explore the challenges that face disabled and older people when considering getting online or the potential impact of digital services for the delivery of health and social care. There is noticeably less research reporting this year that looks at the broad range of assistive technologies that provide vital assistance with vision, hearing, maintenance of activities of daily living, housing, transport and maintaining mobility. There are also changes to the funding streams and processes by which many disabled and older people access these technologies.

Support to fund assistive technologies

As part of the drive to reduce public sector expenditure, the June 2010 emergency budget announced the government's intention to cut 20% of 'caseload and expenditure' on disability living allowance (DLA). The aim of reforming DLA was to create a 'clearer, more targeted benefit, with an objective assessment, designed to enable disabled people to participate more fully in society'. The benefit, which will continue to be non means-tested, tax-free and paid to people in and out of work, will be re-named 'Personal Independence Payment'.

It was announced[24] that the assessment process for DLA, which would include advice from an independent healthcare professional, would take greater account of the 'successful use of aids and adaptations' to ensure that 'support is appropriately targeted on those who need it most ... This might mean, for example, considering an individual's ability to get about in a wheelchair, rather than ignoring the wheelchair, as we do currently'.

The need for support to enable disabled people to secure employment is clear from findings from the Office of Disability Issues who note that disabled people are far less likely to be in

21 Age UK website: http://www.ageuk.org.uk/latest-news/archive/switchover-scheme-reaches-500000/

22 NHS Choices annual report 2010: http://www.nhs.uk/aboutNHSChoices/professionals/developments/Documents/annual-report/annual-report-2010.pdf

23 Imperial College study: http://www.nhs.uk/aboutNHSChoices/professionals/developments/Documents/annual-report/primary-care-consultation-report.pdf

24 DWP: http://www.dwp.gov.uk/newsroom/press-releases/2010/dec-2010/dwp171-10-061210.shtml

employment than the general population[25], with 56% of adults with impairments experiencing restrictions in the type or amount of paid work they did, compared with 26% adults without impairments (equipment was identified by disabled people as an enabler in employment).

However there have been calls for review of way in which new work capability assessments (WCA) have been carried out. According to official statistics published in October 2010[26], three-quarters of people applying for the new employment and support allowance (ESA) which replaces incapacity benefit (IB) are being found fit for work after undergoing the WCA, or they withdraw their claim before they complete the assessment. The Work and Pensions Minister[27] commissioned an independent review of WCA which, in November 2010, outlined a radical overhaul, finding that the assessments were 'impersonal, mechanistic and lacked empathy'. The government accepted the review's recommendations and have committed to implement them in full.

In December 2010, further plans to support disabled people into work were outlined when the government announced[28] changes to Access to Work to give disabled people 'faster and simpler support into work'. Access to Work provides financial help towards the extra costs faced by disabled people in work, including for assistive technology, where this goes beyond what would be reasonable for an employer to meet. Access to Work advisors have also been issued with new guidance to ensure consistent decisions around what equipment employers should reasonably be expected to provide to any of their workers. All employment support services for disabled people, including Access to Work, are also being reviewed during the course of 2011.

Commissioning AT services along the care pathway

The way in which publicly funded assistive technology services will be commissioned will change radically under the reforms recently announced, but the impact on the quality of services over the short and longer terms is unclear. The NHS Operating Framework notes that 2011/12 will be a year of transition: primary care trusts will group into clusters to work with GP practices and emerging GP consortia, and a new national-level NHS Commissioning Board will operate in shadow form.

Much commissioning is informed by clarity on how an intervention or treatment contributes to the care pathway as someone moves from ill-health to being well or from dependence to independence. There is concern about the lack of care pathways for many areas of assistive technology. The commissioning of specialist assistive technology services will be affected by changes to the NHS Commissioning Board. When operational, the NHS Commissioning Board will take over the commissioning of national and regional specialised services in England. This is likely to include specialist equipment services for 'adults and children with profound physical

25 Office for Disability Issues. Disability Facts and Figures: http://odi.dwp.gov.uk/disability-statistics-and-research/disability-facts-and-figures.php#gd
26 DWP: http://www.dwp.gov.uk/newsroom/press-releases/2010/oct-2010/dwp141-10-261010.shtml
27 DWP: http://www.dwp.gov.uk/newsroom/press-releases/2010/nov-2010/dwp160-10-231110.shtml
28 DWP: http://www.dwp.gov.uk/newsroom/press-releases/2010/dec-2010/dwp175-10-091210.shtml

disabilities'. Current NHS guidance[29] indicates that the following services should be commissioned regionally using the Specialised Services National Definition No. 5: prosthetics and complex orthotics, specialised wheelchair and seating, communication aids, environmental controls and specialised telecare.

In December 2010, the Department of Health launched[30] a review into the effectiveness of prosthetics services in the NHS for veterans who have lost a limb while serving their country. This will also look at: the future funding of high specification prosthetics services within the NHS; the possible contribution of personal health budgets and the inclusion of these in continuing healthcare arrangements; how regional variations in service can be minimised; and the possibility of designating centres of excellence for NHS prosthetics care. It is likely that other specialised services will also come under review as the new commissioning arrangements are developed. One of those is likely to be specialised communication aids.

The 2008 Bercow Review into services for children with speech, language and communication needs (SLCN) led to the appointment of a Communication Champion and Communication Council for England and called for improvements in augmentative and alternative communication (AAC) services. The Communication Champion Jean Gross has published a report on the effectiveness of AAC provision,[31] which recommends the development of a specialist and local, or hub and spoke, service model. The green paper on special educational needs and disability[32] confirms that the commissioning of specialised services by the new NHS Commissioning Board will include provision of high-tech communication aids for AAC.

At a local level, assistive technology provision will be directly affected by the increased use of personal budgets and the introduction of GP commissioning. Coherent delivery of assistive technology is vulnerable to fragmented provision between health, social care, education and housing and this may be addressed to some extent through individuals managing their own budgets, as long as they are supported to understand their AT options. There is, however, considerable concern about the capability of GPs to commission assistive technologies as this is not a traditional area of competence at primary care level. The Department of Health highlighted in December the key role within the commissioning process of allied health professionals. The Health Minister is quoted[33] as saying: 'I want to see allied health

29 SSNDS Definition No.5 Assessment and Provision of Equipment for People with Complex Physical Disabilities (all ages) (3rd edition) Department of Health, 2010. Available from: http://www.specialisedservices.nhs.uk/doc/assessment-provision-equipment-people-with-complex-physical-disability-all-ages

30 Improving Veteran Health Outcomes, Department of Health: http://nds.coi.gov.uk/content/detail.aspx?NewsAreaId=2&ReleaseID=417275&SubjectId=2

31 Jean Gross. Augmentative and alternative communication: a report on provision for children and young people in England. 2010: http://www.thecommunicationcouncil.org/aac/

32 Department for Education. 'Support and aspiration - a new approach to special educational needs and disability', 201:. http://www.education.gov.uk/inthenews/pressnotices/a0075344/government-proposes-biggest-reforms-to-special-educational-needs-in-30-years

33 December bulletin. Department of Health: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_123112.pdf

professionals and community nurses re-engaged with commissioning decisions to ensure that services really are commissioned right through the care pathway and across sectors such as health and social care.'

Community equipment and adaptations

Local community equipment services in the NHS and social services provide 'aids to daily living' and equipment for use in the home ranging from walking frames and raised toilet seats to hoists and minor housing adaptations. Following earlier moves to modernise and integrate services based on loan stores, the Department of Health's Transforming Community Equipment Services (TCES) programme aimed to roll out a new retail model for these services across England.[34] The model allows users or their carers to take a prescription to an accredited retailer to collect simple aids to daily living, choosing from the products available and 'topping-up' if they wish. It is for local councils and health partners to decide whether to adopt this approach and practice varies across the country.

The retail model has not been adopted outside England. Scottish Government guidance[35] to local authorities and NHS partners urges them to modernise and integrate their equipment and adaptations services by: placing the user and carer at the centre of provision; promoting a consistent approach to assessment and provision; ensuring that users and carers have information on equipment and adaptations; promoting good practice and partnership working. A similar model applies in Wales.[36]

Wheelchair services

The Care Services Minister acknowledged[37] to Parliament in December that 'current wheelchair provision is not as good as it could be. That is why the Department is currently exploring how to improve the commissioning approach so that it facilitates the provision of efficient, comprehensive and responsive wheelchair and seating services focussed on the health, social and lifestyle needs of the service user.' Two pilot sites in the South West and East of England are currently gathering information and views on the best commissioning model for wheelchair services and exploring opportunities for improved procurement and delivery in the services'.

In December the Department of Health published[38] guidance for English primary care trusts and wheelchair service managers, giving examples of best practice and innovation in

34 Transforming Community Equipment Services (TCES): http://www.csed.dh.gov.uk/TCES/

35 Scottish Government. Guidance on the provision of equipment and adaptations, 2009: http://www.scotland.gov.uk/Topics/Health/care/EandA/EandAGuidance

36 Welsh Assembly Government. Guidelines for developing and integrating community equipment services in Wales, 2008: http://wales.gov.uk/topics/health/socialcare/equipment/;jsessionid=nlvgNDzJxXWJcTj3ByNHlglzhdt3XnLQnnL1h2sMwtjXqJFCtZTh!1531853584?lang=en

37 House of Commons Hansard, 2 Dec 2010: Column 993W: http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101202/text/101202w0004.htm#10120269000268

38 Local innovations in wheelchair and seating services, Department of Health: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyandGuidance/DH_122491

commissioning and delivering wheelchair services. The Scottish government began a consultation[39] in December 2010 on 'Draft clinical standards for NHS Scotland wheelchair and seating services', which include target times for assessment and provision. The Welsh Assembly government is investing more than £2 million additional funding to reduce waiting times for wheelchair services[40].

Children's services

Changes in education policy in England through the Academies Act[41] and Education Bill which is currently going through Parliament are aimed at giving schools more autonomy and freeing some from local authority control. Under the Equality Act 2010[43] schools must not discriminate against pupils in the provision of education or access to any benefit, facility or service and they need to have arrangements in place to ensure they deal with the reasonable adjustment needs of disabled pupils.

The government set out the biggest reforms in thirty years to special educational needs in the March 2011 publication of the green paper 'Support and aspiration - a new approach to special educational needs and disability'.[42] More than one in five children and young people (around two million) in England are identified as having special educational needs (SEN), but only those with the most severe and complex needs (2.7%) have SEN statements. The green paper sets out plans to avoid parents having to battle with different agencies for the support their child needs, leading to delays in getting 'support, therapy and vital equipment'. Statements would be replaced with a combined education, health and care plan to run from birth to 25 years old and all families with these plans would be offered the option of a personal budget.

Rights and personalisation

The Equality Act 2010[43] provides a new cross-cutting legislative framework to protect individuals, including older and disabled people, against discrimination and advance equality of opportunity. The Act replaces and strengthens previous legislation such as the Disability Discrimination Acts. The Equality Duty flowing from the Act requires public bodies to pay regard to the needs of older and disabled people. They have a general duty to eliminate unlawful discrimination, harassment and victimisation, to advance equality of opportunity between different groups, and to foster good relations between different groups.

39 NHS Scotland Wheelchair Services: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyandGuidance/DH_122491

40 Welsh Assembly Government.: http://new.wales.gov.uk/newsroom/healthandsocialcare/2011/110225wheelchairs/?lang=en

41 Academies Act 2010: http://www.legislation.gov.uk/ukpga/2010/32/contents

42 Department for Education. 'Support and aspiration - a new approach to special educational needs and disability', 2011: http://www.education.gov.uk/inthenews/pressnotices/a0075344/government-proposes-biggest-reforms-to-special-educational-needs-in-30-years

43 Equality Act 2010: http://www.equalities.gov.uk/equality_bill.aspx

The UK government is a signatory to the UN Convention on the Rights of Persons with Disabilities[44] which establishes internationally recognised benchmarks for disabled people's rights in all areas of life, including independent living. The Office for Disability Issues[45] leads the UK government's vision of achieving equality for disabled people by 2025 and supporting independent living. The government is continuing with the Right to Control[46] pilots, which bring together housing, employment, Independent Living Fund and community care funding into personal budgets for disabled people, giving them the option of buying their own services or equipment. However, the Independent Living Fund (ILF), which is often used to obtain assistive technology, is due to close in 2015.

The government concluded[47] in December last year that the model of the ILF as 'an independent discretionary trust delivering social care is financially unsustainable.' The fund is closed permanently to new applications and the government is only committed to support it to administer existing awards throughout this Parliament. The latest announcement about quangos confirms that a consultation later this year will 'determine how best to support ILF customers beyond this Parliament'.

Support for self care, carers and self funders

Much of the reform of public services depends on individuals taking greater responsibility for their own health and taking a more active role in shaping the services they receive. There is also an awareness that, with funding being focused more closely on those with greater levels of need, health and social care services have to support self-funders to become informed, confident and, where necessary, critical consumers.

An analysis of the market in equipment for older and disabled people, published in November 2010 by Consumer Focus, found that a wide range of assistive technology products, including wheelchairs, scooters, stair lifts, bath aids, hoists, adjustable beds and specialist seating, were 'of vital importance for the health, safety and well-being of several million people.'[48] Many users of these products purchase them privately rather than obtaining them from public services and the report estimates the overall size of the market at more than £500 million. The sector attracts a large and increasing number of calls to Consumer Direct, the advice service managed by the Office of Fair Trading (OFT), from people complaining or asking for advice. Concerns have also been expressed in the media that the sector is not working well for consumers, leading to higher prices and less choice as well as consumers purchasing products that do not meet their needs. The problems with the market that were highlighted in the report are being investigated by OFT[49] and should conclude in mid-2011. The OFT aims to publish its market study in September 2011.

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44 UN Convention: http://www.odi.gov.uk/disabled-people-and-legislation/un-convention-on-the-rights-of-disabled-people.php

45 Office for Disability Issues: http://odi.dwp.gov.uk/

46 Right to Control: http://odi.dwp.gov.uk/odi-projects/right-to-control-trailblazers.php.

47 DWP. http://www.dwp.gov.uk/docs/wms-ilf-131210.pdf

48 Consumer Focus. Equipment for older and disabled people, 2010: http://www.consumerfocus.org.uk/publications/equipment-for-older-and-disabled-people

49 Office of Fair Trading. Mobility aids: http://oft.gov.uk/OFTwork/markets-work/current/mobility-aids/

Recognising the vital contribution made by carers the government published in November 2010 a 'refreshed' Carers Strategy[50], which highlights the contribution of equipment and telecare in helping carers and includes plans to support the development and uptake of 'assisted living technologies.' In February 2011 the care services minister Paul Burstow launched the £1.39 million Reaching Out to Carers Innovation Fund. The need for support to carers was clearly documented in a study published by Carers Scotland[51] in January 2011 which found that unpaid carers have twice the prevalence of long term illness and disability as the rest of the Scottish population.

A wide range of local and national voluntary organisations are involved in helping individuals, carers, families and frontline professionals access assistive technology by providing information and advice. Funding from the Department of Health Innovation and Excellence fund allowed a voluntary sector coalition of organisations to launch an online resource which was launched in September 2010, www.allaboutequipment,[52] to help disabled and older people navigate their way through the information maze as they seek to acquire assistive technology.

50 Recognised, valued and supported: next steps for the Carers Strategy, Department of Health: http://www.dh.gov.uk/en/SocialCare/Carers/index.htm

51 Sick, tired and caring: the impact of unpaid caring on health and long term conditions, Carers UK: http://www.carersuk.org/Newsandcampaigns/News/Sicktiredandcaring

52 All about equipment website: www.allaboutequipment.org.uk

The dementia challenge for AT research

There are currently around 820,000 people with dementia in the UK and it is estimated that dementia costs the UK around £23 billion in care costs and lost productivity.[53] With the number of people with dementia predicted to rise to over one million by 2021 and to reach 1.7million by 2050,[54] there is an urgent need to develop new and improved services.

Earlier this year the National Institute for Health Research (NIHR) issued a call for research on dementia across seven of its research programmes. Funding was available for work covering the fields of cause, cure and care, including prevention. The call follows work by the Ministerial Advisory Group on Dementia Research (MAGDR) which examined ways to improve the volume and impact of dementia research, subsequent to the development of the National Dementia Strategy in 2009.

The increase in the numbers of people affected by dementia, coupled with a reducing care workforce and restrictions on public funding, mean the potential impact of innovative assistive technology (AT) services could be substantial. AT products and services are already improving quality of life for people with dementia and their carers and helping to deliver cost-effective care. Equipment including falls alarms, pill dispensers, smoke and flood alerts, night-time lighting and memory prompts are commonly used by people with dementia, whether they are living in their own home or residential care.

More advanced options include a range of sensors and data gathering devices which together form activity monitoring systems and offer the potential to assess the health and behaviour patterns of residents. The information gathered from these systems can be used to reassure family members, provide care planning information and can be fed back into the home environment to provide the individual with support in completing daily tasks.

However, the availability of cutting edge technology is only one element required to ensure the development of effective AT services, according to **Nada Savitch, of Innovations in Dementia**, a community interest company that works nationally with people with dementia, partner organisations and professionals with the aim of developing and testing projects and services.

Savitch notes that ‘a lot of engineers and researchers tend to start by being very interested in what a particular technology can do, and then look for some way of trying it out, rather than starting with the bottom up

53 Dementia 2010 report http://www.dementia2010.org/reports/Dementia2010ExecSummary.pdf

54 Alzheimer’s Society factsheet. http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=535&pageNumber=2

research which would show them what it is people want.'

Savitch's experience in the field has led her to believe that there is reluctance on the part of many researchers to engage directly with people with dementia, caused partly by the stigma of the condition, but also by uncertainty about how to go about it, and concerns about the amount of time and cost involved in setting up a consultation process. But Savitch cautions that AT research which does not involve potential users risks delivering technology which people cannot understand, with the result that they do not use it, or which fails to accommodate any deterioration in their condition, which means it is abandoned.

In Savitch's analysis, one important issue that researchers need to appreciate is that someone with dementia may fluctuate from day to day in terms of what they are able to do, and will also undergo a progressive loss of ability. This calls for product designs which are flexible and robust enough to address changing needs.

People with dementia may also find it hard to express their views, partly because they are often not used to being consulted, so researchers need to look at creative ways of gathering information, argues Savitch. 'It's unrealistic to say that people with dementia can be asked for their views in the same way as everyone else, researchers do have to use more hands-on techniques and test by using more tactile and physical methods rather than a theoretical approach, but it can be done.'

Working directly with people with dementia in this way can produce valuable insights which challenge common expectations according to

Dr Arlene Astell from St Andrews University. She has worked on projects using touch-screen technology to support communication and provide engaging and meaningful activities for people living with dementia. 'One key consistent finding is the impact of introducing technology on care givers, who start to see the person differently, as someone who is able to do things for themselves and who still retains abilities, and that can change their relationship.'

One of Astell's projects, which involved developing a simple computer game for people with dementia, demonstrated that participants were able to grasp new ideas and did have individual strategies for learning. She argues that this kind of direct experience of working with people with dementia is crucial for informing the future development of AT services.

'A lot of technology for this group focuses on a deficit approach, that is designing products for what people can't do. Our approach for the past ten years has been to work with what people can do and to seek to maximise that, by using technology to augment cognition.' She likened the process to designing a prosthesis for someone who has lost a limb, where the aim is to extend their capabilities in the area where they have greatest difficulty. With the shift towards earlier diagnosis of dementia, maximising an individual's cognitive function is critical.

Both Savitch and Astell agree that many of the current applications of AT for people with

dementia are focused around keeping people safe, by protecting them against specific hazards such as leaving the gas on. Such developments may be driven primarily by caregivers, whose focus is on maintaining safety, rather than by people with dementia who may want to be able to retain more autonomy in their lives.

Savitch thinks that future AT dementia research will look more closely at how technology can encourage greater independence, support leisure activities and allow people to have fun, saying 'over the next five years we'll see more use of everyday equipment, like the iPad and touchscreens. This will help tackle the issues around equipment being stigmatising, and also reduce the need for people with dementia to learn how to use new pieces of equipment.'

The Bath Institute of Medical Engineering (BIME) has worked on developing a number of products for people with dementia, with the latest being inTouch, which is a video link system designed to improve the social inclusion of people with dementia by offering them a simple way to keep contact with friends and relatives through on-screen 'virtual' visits. A key element of the design is that the person with dementia should be able to operate the video link system by themselves, making use of audio and visual cues and touch screen interfaces, without the requirement to remember complex commands.

Dr Hazel Boyd, an engineer at BIME who is

working on the inTouch project, says that working closely with groups of people with dementia to develop the prototype inTouch system will be crucial to its success, and called for other AT research engineers to adopt this approach, pointing out that 'Engineers tend to be used to dealing with what is logical and predictable, and can be fearful of how they can work with people with dementia who are not like that. But if you take the time to really understand people's reactions, are patient about what they have to say and flexible in your approach, it is possible to get a lot out of user testing.'

Boyd says it is also important for researchers to be sensitive to the responses from people with dementia, who may be aware that their cognitive ability is declining and who may worry about giving a 'wrong' answer or misunderstanding what they need to do: 'We need to make clear to people that if something isn't working, that is because it is not designed right yet, not because they can't do it. It's important to offer reassurance and to be flexible in how you tackle the design problems.'

Boyd pointed out that this approach does mean that it is not always easy to develop outcome measures to assess the impact of any product or system as they can often only be measured in qualitative rather than quantitative terms, so that 'supplying an objective measure can be quite difficult, and we also need flexibility in how we look at outcomes. For some applications, they could

include less stress for carers, less use of respite, improvements in a person's mood, all of which are very important signs of success.'

Boyd concedes that working with people with dementia can seem daunting, but the key is to spend time building up relationships and developing trust between the people who volunteer for projects and the researchers. She says it is also important for the research team to maintain good relationships with the professionals who work daily with people with dementia, such as managers of day centres.

Savitch concludes that 'putting the needs and aspirations of people with dementia at the heart of technology research is important. It's worth the effort to find out what people with dementia want from technology, what they know about what's available and how they use the technology they do have. What researchers really need to focus on is finding out from people with dementia about what's important in their lives and what they are finding difficult to continue to do, and then looking at how technology can address these challenges.'

Delivering telecare and telehealth at scale

The policy drive to support older and disabled people to live independently is reflected in funding programmes that aim to move telecare and telehealth services from small scale implementation to mainstream services. Some of the challenges for service providers are that telecare and telehealth devices from different manufacturers are not yet interoperable with each other; the uptake of new technology is insufficiently supported by awareness raising programmes for the public; and the costs and benefits of these services are only recently becoming clearly understood and so commissioners have been reluctant to commit to investment.

The projects featured in the report illustrate varying approaches to the challenge of scaling up these services. Some projects focus on the infrastructure challenges in terms of developing interoperability between devices and delivering services across multiple device platforms. Others are concentrating on developing the potential of mainstream devices to deliver assistive technology services. A few projects are looking at the adoption readiness of future customer groups and their information needs.

Whole Systems Demonstrator Programme

Many telecare and telehealth commissioners will base decisions about how to scale up their procurement of services on the outcome of the Whole System Demonstrator (WSD) programme, which is believed to be the largest randomised control trial of telehealth and telecare to date anywhere in the world. The aim of this work, which has been funded by the Department of Health, was to provide the gold standard evidence on how cost-effective and clinically-effective telecare and telehealth are in supporting the management of long term conditions. The study, which has been running since May 2008, will also assess the impact of these technologies on people's well-being and independence.

Research was carried out at three sites: the London borough of Newham, Cornwall, and Kent. More than 6,000 participants were recruited to the trial, including 470 carers, from 238 GP practices. All were interviewed prior to the start of the trial. Half the participants were then offered a package of telecare or telehealth assistance, while the other half acted as the control receiving their usual care. Each participant was followed up at a three month and twelve month interval.

By September 2010 everyone on the trial intervention arm had been using telehealth or telecare for a minimum of 12 months, and evaluation of the project's impact was underway. A series of reports on the project's outcomes will be available from late spring 2011 onwards. Early indications suggest that these technology-enabled services reduce unplanned service utilisation, have no detrimental effect on well being and seem to be well liked by many users.

There are cohorts of people who respond better than others to these services and the evaluation aims to characterise those who benefit most and least.

© Photograph courtesy of Tunstall Healthcare Group

"Now if my condition changes I can speak to someone quickly and they have a record and can see what has changed - they know what to do to sort it out."

"It means that I don't have to go into a care home which I don't want to do. I want to stay in my own home as long as possible."

Technology has been identified as accounting for only a small number of the implementation issues; around 10 per cent. Most of the challenges have been around introducing new processes and coping with organisational change. The programme has highlighted the need to raise awareness of the potential uses of assistive technology with users, commissioners and clinicians; the need for continuous senior management support and engagement; the requirement for clearly defined and non-traditional roles and responsibilities amongst the implementation teams and the move to shared funding between health and social care. As part of the project, an action network of 12 non-WSD sites around the country was developed as a means of disseminating learning. There were a number of spin-off trials of applications such as mobile telehealth which were outside the remit of the main demonstrator

Researchers from seven institutions (City University, London School of Economics, University of Oxford, University of Manchester, Imperial College Business School, the Nuffield Trust and the King's Fund) are evaluating data gathered from the WSD with particular reference to the impact on service use across health and social care, quality of life improvements for individuals and carers, clinical outcomes, cost consequences and cost effectiveness. The first findings are due out in late spring 2011.

MonAMI - mainstreaming on AMbient Intelligence

The European Union funded the MonAMI project under the FP6 programme in order to demonstrate that accessible, useful services for supporting older and disabled people living at home can be delivered via mainstream systems and platforms at reasonable cost.

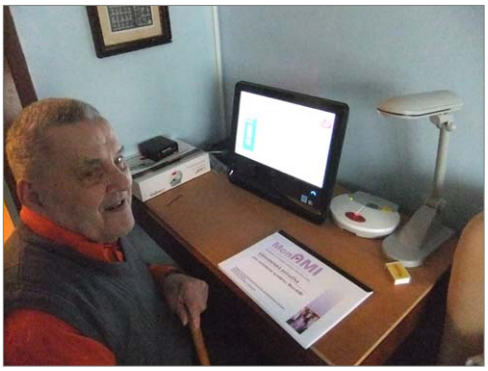
Work on the MonAMI project began in September 2006 and ended in May 2011, with 14 partners drawn from academic institutions and commercial ICT suppliers in Sweden, France, Belgium, Germany, Spain and Slovakia. The UK partners were the Personal Social Services Research Unit (PSSRU) at the LSE and OpenHub Ltd.

The project team initially tested out in six usability labs a mix of services that had been developed in previous and current ambient assisted living (AAL) projects, plus existing hardware and software. After evaluation of this approach, the focus changed to building the

MonAMI platform, which is based on developing a core set of services and the use of mainstream technology and open standards.

In the UK these MonAMI services have been tested at the BRE Innovation Park in Watford, where researchers have been looking at how to make broadcast TV and video on demand more accessible to older people with poor vision by improving the design of remote controls. They have also been testing out applications to be delivered via the TV, including the use of timed reminders to take medication, and email to help people stay in touch with friends and family.

The project has produced five publically available services. AMiSURE offers safety and security monitoring at home; AMiCASA is an environmental control service which can be used



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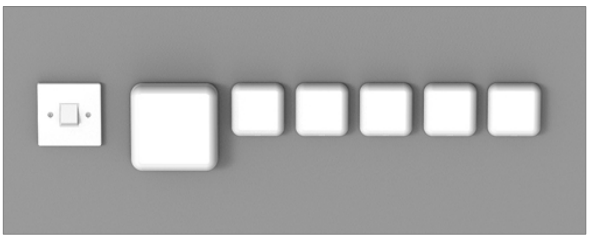
from inside the home or when away from home; AMiVUE provides status information about devices, the home environment and an individual's movements around the house; AMiPAL is a time management system which gives prompts about appointments and medication; and AMiPLAY provides accessible games to encourage physical activity and social interaction.

These services have been trialled in 70 homes in three countries, finishing in March 2011. Early project findings include the importance of understanding local context and the need to supply, maintain and support robust technologies. The project team has been instrumental in forming alliances with other AAL projects, service providers and housing providers as one of the founders of the AAL Open Association (AALOA), which was established in September 2010 with the aim of developing a shared open framework for assisted living services.

AEGIS - Assisting the Elderly and disabled Generation using a behaviour modelling Intelligent System

One approach to developing a large scale market is to develop technology-enabled telecare services that are relevant to the large numbers of older people who have a low level of needs but whose families are willing to pay for timely information on emerging care needs and possible deterioration in lifestyle. The aim of the Aegis project was to develop a low cost, cheap to run and easy to use monitoring system that could be installed and used by family members without having to involve statutory care providers.

The project was funded under the Technology Strategy Board's (TSB's) Assisted Living Innovation Platform (ALIP) and ran from April 2009 to March 2011. The project team was led by Critical Data Ltd and included researchers from the University of Newcastle and commercial partners Costain Group plc, Cortex Controllers Ltd and Eseye Ltd.



The research team produced a range of small wireless movement sensors, and light, temperature and energy-use monitors to collect lifestyle data. The sensors are housed in unobtrusive cases that hold all the electronics and the battery which should last at least three years, avoiding the need for a maintenance contract. This data is sent wirelessly to a hub designed by the project which then sends the data via a GPRS link to a server for analysis. The hubs have been designed to link with Bluetooth, WiFi or ZigBee devices as well as the system's sensors and so can support a range of devices other than Aegis sensors. The hubs are mains powered but with 24 hour battery backup to ensure continuous performance.

In addition to developing the sensor and hub hardware, the project team have developed intelligent software to analyse the data gathered in order to build up a picture of an individual's daily activity patterns. If an alert is raised as a result of the analysis, it is intended that this will be sent directly to designated family members or friends. In order to present the non-urgent information on the older person's lifestyle, a website for family members' use was developed and trialled during the project.

Supporting the adoption of assistive technology

Individual projects have demonstrated that a broad range of assistive technology can provide cost effective support for older and disabled people, but use of such products and services is not widespread. There are a number of reasons for this, including lack of knowledge amongst potential users, poor commissioning practice by local councils and design approaches which have not been guided by the needs of disabled and older customers.

For products to become mainstream, consumers require product knowledge and tools to help them choose the best solution for their needs and commissioners need to create responsive and considered procurement strategies. It is thought that control of personal budgets by disabled and older people may create more critical consumers and result in a shake up of the market that will encourage innovation and user-centred design. Some projects are already anticipating this development in the market.

i-DEAL - Intelligent Design Engine for Assisted Living

This project, which is funded by the TSB's ALIP, focuses on methods to involve users, carers and health professionals throughout the design and development cycle of different assisted living technology-based products. The project aims to map technology requirements against end user needs and develop user performance specifications for each product or concept, to ensure they are 'fit for purpose'.

Work on the three year project, which ends in August 2011, is led by Alvolution, the Assisted Living Division of MedilinkWM, and involves a consortium with the Health Design & Technology Institute (HDTI) of Coventry University, the University's Faculty of Health & Life Sciences and School of Art & Design, and a number of commercial partners including i-Cue Care Ltd, Safe Patient Systems Ltd and Health Exchange CIC.

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HDTI has designed a toolkit for small businesses to help them choose the most appropriate evaluation methods when developing products. Health Exchange, Hereward College and Ergonova have also worked with HDTI to establish a robust methodology that will capture the physical, cognitive and aspirational needs of end users. The project has helped Safe Patient Systems to improve the usability of its Safe Mobile Care product, a low cost remote monitoring telemedicine and diagnostic solution using mobile phone technology, and this device has now been adopted by South Birmingham PCT. The device was trialled with people with diabetes to record weight, blood glucose and insulin levels, sending alerts to healthcare providers if any of the measurements were out of line in the context of the individual's care plan. Usability studies

highlighted the need to make the device Bluetooth-enabled to avoid mistakes when entering data manually, and the need for a user interface which was simpler to use.

Safe Patient Systems has also developed a prototype bedside monitoring device for the care home environment, and the project evaluation has opened up new opportunities to develop the

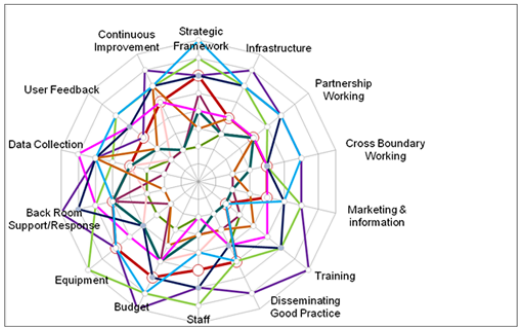
product for different markets. i-Cue Care, with expertise from Halliday James and Technik2, has defined a specification for home-based assisted living technology, developed several new products, and established a live 'Smart Kitchen' evaluation site at Hereward College where students are testing prompting devices.

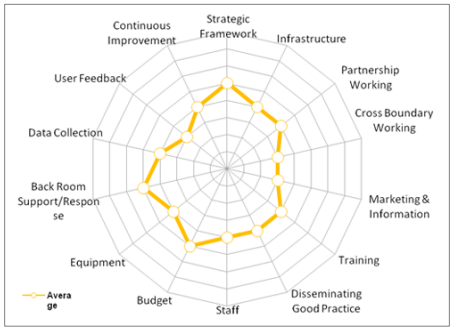
In a separate development Alvolution has developed a telecare and telehealth product comparison website, Alvolution Compare, which aims to provide independent, unbiased advice for health and social care commissioners. Registered users can search by condition, equipment area, technical area, or scenario, then compare and contrast individual products on screen.

Assistive Technology Diagnostic Tool

Local councils are being urged to commission a full range of reablement and telecare services but many feel they have insufficient knowledge to do so effectively. Social enterprise ATCare CIC secured funding from the Department of Health's Social Enterprise Investment Fund for a pilot project to develop a set of indicators specific to assistive technology which test the effective use and commissioning of assistive technology in the context of more generic government set performance indicators.

Researchers worked with 11 local authorities gathering data to provide a baseline so that each local authority could identify areas of improvement in relation to the way assistive technology is commissioned and delivered. As a result of this work, which took place between April 2010 and December 2010, researchers have developed diagnostic tools which local authorities can use





to plan and manage strategic change in implementing assistive technology strategies. The tools enable comparisons between participating authorities so that examples of best practice can be identified and disseminated. Individual feedback to the participating authorities is now underway.

Feasibility study for Assistive Technology product rating, approval or accreditation scheme

Demographic changes and pressure on public finances are leading to radical changes in statutory provision of assistive technology, with simple aids for daily living increasingly appearing in a variety of retail channels. Initiatives such as the Department of Health's recent Transforming Community Equipment Services programme have further advanced the 'mainstreaming' of such items. However, there is evidence that the public's awareness of the existence and benefits of assistive technology is low; take-up is limited by stigma and negative associations of old age and disability; and healthcare professionals are nervous about the public having responsibility for choosing equipment.

The Technology Strategy Board (TSB funded a study, undertaken by Newcastle University and Years Ahead Partnership, which looked at the feasibility of establishing a consumer-led product rating, accreditation or approval scheme which would raise awareness, improve consumer confidence, help to de-stigmatise the use of products and offer reassurance to professionals working in the field.

The feasibility investigation phase of the project ran from July 2010 to January 2011 and used a range of methods for data collection including focus groups, semi-structured interviews and a survey. Consultation on possible approaches for the proposed scheme showed that the majority of participants favoured an online rating model. There were also suggestions that having a panel or accreditation process alongside the online review facility would provide further rigour to the scheme, but options that involved approving or rating retailers and suppliers were viewed as less useful to both consumers and industry.

There was widespread support for the development of a scheme from consumers, and stakeholders undertaking the consultation also stressed the importance of having users involved to provide feedback to industry. Researchers are currently looking to secure funding and resources for the next phase of the project, which will look to design the rating scheme, scope out the web site and further engage stakeholders.

Future bathroom: A study of user-centred design principles affecting usability, safety and satisfaction in bathrooms for people living with disabilities

Perceptions of bathrooms have changed over recent years, and what was once an area reserved for functional activity is now viewed as a space for relaxation and enjoyment. For older and disabled people, however, the bathroom is the place in the house where accidents such as falls are most likely to occur. Illness, disability and frailty in older age often mean people need assistance with toileting and bathing, but many people regard personal care as an

unpleasant invasion of privacy and loss of dignity, while the poor design and quality of much assistive technology means that many people would rather manage without.

Researchers at Sheffield Hallam University worked on the Future Bathroom project to improve the quality and design of bathroom furniture with the goal of producing products which all bathroom users would find acceptable while meeting the needs of older and disabled people. The project was funded by the Engineering and Physical Sciences Research Council (EPSRC) and took place between April 2008 and March 2011. Researchers worked with an industrial partner, Ideal Standard, and the project had a strong commitment to involving older people in the design process. Participants included people with common impairments associated with age, such as arthritis, sight and hearing loss and disability after stroke.

At the start of the project ‘young’ researchers visited older people and asked them about the problems they experienced in the bathroom. Meanwhile, older Sheffield residents were recruited and trained as researchers and sent out to visit their ‘peers’ within the city and ask the same questions. In comparing the data, it was clear that older researchers were able to gather more insightful information from their peers than the younger researchers.

A prototype bathroom was provided in the 'user lab' at the Art & Design research centre at Sheffield Hallam University which included mock ups of bathroom furniture and devices that are adaptable and can be moved around the space as required. State of the art monitoring technology was used to observe and capture activities in the bathroom, such as getting in and out of a bath, procedures that often people do intuitively and find very difficult to explain verbally in detail.

The project findings indicate that choice and flexibility are key characteristics in effective design that supports dignity and independence. A range of design concepts and detailed designs have been proposed and are now being considered by Ideal Standard to influence design of mainstream products. The project has been showcased in a design centre in London and was included in the EPSRC Pioneers exhibition at Olympia, where it was praised for its innovative research methodology.

Supporting People to Choose and Use Technology for Self Care

Recent government policy has encouraged people living with long term conditions to become 'expert patients' and take greater responsibility for managing their own care, and assistive

technology has an important role to play in supporting self care approaches. However, many people are not aware of the technology available or of how they could use it to support their daily activities.

With funding from the Department of Health's Third Sector Investment Programme, the Foundation for Assistive Technology (FAST), Assist UK, Age UK and the WRVS worked on a project which started in April 2008 and ended in March 2011, to explore ways to increase disabled and older people's knowledge about AT.

The project team held focus groups with older and disabled people to gauge their level of understanding of assistive technology and to explore ways in which training could be delivered. The focus groups and user feedback showed that levels of awareness of assistive technology were lower amongst older people than disabled people, and that broad, introductory training was most useful for groups of older people. Work was undertaken to establish how to make delivery models sustainable given the limited amount of funding available for grass-roots training. The project team identified that exploiting existing networks of voluntary and community groups would be a key way of cascading the learning to large numbers of older people at minimal cost.

From this work, a half day training course was developed and trialled with different groups, including older people, volunteers and service providers. A finding from this work was that the materials had to be made relevant to the local context. The course materials were adapted to enable delivery by non-experts and made freely available online to enable wide-spread adoption. The use of centres that support online access and training was also identified as an enabling resource that could be exploited to enable older people to seek information about assistive technology for self care.

Switched on – broadening access to digital services

There has been considerable investment in research and service provision to tackle the digital divide and to ensure disabled and older people are fully included in the digital society. Deaf people who use sign language are particularly at risk of exclusion as they are not supported to be literate in written English, which is rapidly becoming the language of a worldwide internet community. A number of projects reporting this year have worked with groups of older people who traditionally have had poor access to internet services. One approach to engaging older people with new technologies has been to look at the potential for internet enabled digital TV as a medium for accessing services.

With the nationwide switch-over to digital TV, there is now the opportunity for people to access online services using a familiar device. This presents two challenges. One is to ensure new TV services are accessible for older and disabled people. The second is to investigate whether disabled and older people will adopt TV as a channel to access digital services including telecare and telehealth.

BASE - BASic English for deaf adults

For profoundly Deaf people to participate in a globalised society built on digital communications, they need competence in written language and particularly in written English which is the main language of world communication. Since the introduction of sign bilingual education, schools for the Deaf in many countries have switched to a sign bilingual method to teach reading. Deaf children are no longer taught to read by converting written words into spoken words, but by converting written phrases and sentences directly into sign language.

However, most adult Deaf learners have not been able to benefit from the sign bilingual approach to teaching reading and continue to find reading English difficult. Across the EU there are an estimated 2.5 million Deaf people, but the numbers in any one country are too low to have justified the development and teaching of such a course. The EU lifelong learning (Grundtvig) programme therefore decided to fund a project, which began in October 2008 and ended in March 2011, to address this issue. UK partners were the University of Central Lancashire and Walsall Deaf People's Centre, with other project partners in Spain and Germany.

A course has been created which uses sign language video clips to provide explanations to the learner. It teaches entry level literacy in English, purely as a written language, with no reference to phonics at all. Separate versions are available for the UK, Spain and Germany and video clips explaining the grammar and actions to taken, are in the three national sign languages.

Trials of the course were completed in January 2011. It proved to be a much bigger task than the partners initially expected, because of coping with large amounts of sign language video in three different language versions. However, users' responses have been very positive, with Deaf people saying it is a great relief to be learning in their own medium (sign language), rather than struggling to learn via an interpreter in a class designed for hearing people. Discussions are underway to ensure the product will become available in suitable formats and through appropriate channels to make the course available to Deaf people everywhere.

Get Digital

Digital Unite and NIACE used funding from the Department for Communities and Local Government and the Department for Work and Pensions to promote and support digital inclusion for older residents in sheltered housing. This group are less likely to have access to or use a PC and online services than younger age groups living in their own homes. The project team addressed the problem by offering grants, training and support to social landlords across England. The aim is to support sheltered housing schemes to develop communal IT facilities, making technology easily available to residents and also to other people in the local community. One goal of the project is to support 'intergenerational learning activities' between children and young people in local schools and older people.

The project began in February 2010 and ended in March 2011. The project worked with 196 sheltered housing schemes, including 81 schemes in rural areas providing around 7800 residents with internet access. One output of the project was a toolkit that was used to help a further 300 schemes develop their own digital inclusion projects for residents. Researchers also developed a sustainable business model which social landlords can adopt in order to continue the programme beyond the length of the original funding. As a result of the project, a number of sheltered housing schemes have set up their own websites for use in their local community, and Digital Unite has made available a range of online learning materials on its website which are free of charge and designed to be easy to download, simple to read and fun to use.[55]

[55] Get Digital website: http://getdigital.org.uk/

SEEDS: An Organic Approach to Virtual Participatory Design

Older people and disabled people still form a substantial number of those who do not use digital technology. For example, statistics show that 60% of those with a disability, and 80% of those over 75 do not use the internet.[56]

Researchers from the University of Leeds, University of Kent and University of Dundee worked on an EPSRC project which aimed to develop technology and interfaces designed to meet the needs of older people, and find new methods of engaging them with technology. In order to do this, researchers explored the use of story telling as a means of better connecting older users of digital technologies (typically aged 65+ years) with younger (typically 20 year old) student designers.

The project began in April 2009 and ended in December 2010. It resulted in a design methodology based on a repository of video recorded social stories where older adults talked about what they wanted from digital technologies and how they used such technology. Evidence that the methodology is effective came from experiments where the designers were found to draw more information and inspiration from the SEEDS videos than traditional sources, such as academic papers, general knowledge and stereotypes. Researchers believe that using the SEEDS methodology will result in faster, cheaper and better informed product development processes and activities. In addition, anecdotal evidence suggested that product designers, using the SEEDS methodology, generated designs which were regarded more favourably by older people.

Researchers have set up a virtual environment in which the collected stories, audio clips of the stories, along with profiles of individuals and photographs of key items, can be made available to a range of student-designers. The aim is that this repository will be used by students in order to design realistic solutions in response to the problems and wishes voiced by the older participants that emerged from the data collection stage.

DTV4All: Digital Television for All

People who are hard of hearing or Deaf need television programmes to be supplied with the option of subtitles or deaf signing if they are to appreciate the dialogue fully, while people who are partially sighted or blind need an audio description to supply context. As deterioration in sight and hearing is common as people age, so the demand for such access services is expected to rise significantly in the coming years.

The switch-off of analogue television in Europe by 2012 represents both a challenge and an opportunity for access services. Many people who have had no problems accessing analogue television will find digital television services harder to use. Approximately 15% of Europeans will have difficulty for reasons such as hearing impairment, dyslexia, visual impairments, the complexity of setting up a digital receiver or set-top box, or difficulty with using remote controls

[56] Oxford Internet Surveys, 2009: http://microsites.oii.ox.ac.uk/oxis/publications

or electronic programme guides. There will also be pressure to reduce the amount of access related content transmitted due to the competing demand for bandwidth from high definition programmes. This there is a requirement to transmit a larger amount of information for a high definition television programme for the same programme delivered in standard definition. So a signing service may not be made available as it may require a competing, parallel broadcast of a video showing the signer. On the other hand, digital television provides the opportunity for an improved quality of access service, for example, someone providing a signing service can be shown more clearly than on analogue television.

The aim of the DTV4All project was to facilitate the provision of access services on digital television across the European Union. The work was funded by the European Commission Competitiveness and Innovation Framework Programme (CIP) and began in July 2008, finishing in March 2011. Brunel University was the project co-ordinator and other UK participants included Roehampton University, Red Been Media Ltd, plus partners in Germany, Spain, Denmark and Italy.

The project's objectives were to offer and evaluate subtitling, audio description, audio subtitling and signing services in a minimum of four broadcast territories within the European Union for at least 12 months. The project also sought to identify improvements to existing access services and ways of addressing technical, organisational and legal obstacles to the sustainable take-up throughout Europe of such services in the timeframe 2008-2010.

Work in the UK by Roehampton University focused on the use and quality of live subtitles and researchers ran a series of trials, some of which used eye tracking technology, to gather data on how participants read live subtitles and to investigate how much they understand from live subtitles. It was found that viewers spend 90% of their time reading the subtitles and only 10% of their time on the image, a finding which was reported on the BBC ‘See Hear’ programme.

The findings from the eye-tracking study of people watching news programmes demonstrated that the delay between the newsreader speaking and the subtitles appearing, which is anywhere between 3-5 seconds in the UK, can destroy any potential synergies of listening, watching and reading among those trying to follow the programme. In addition, the presentation of subtitles one or two words at a time significantly reduces the efficiency of reading for both good and weak readers.

Brunel co-ordinated a workshop at the European Parliament on barrier-free television and another joint workshop on accessibility to broadcasting with the International Telecommunications Union (ITU) and the European Broadcast Union (EBU).The main outcome of the second workshop was a recommendation for the creation by the ITU of a focus group to study the issue of accessibility for audio-visual (AV) media, and the workshop highlighted the need for guidelines on the implementation of the UN Convention on the Rights of Persons with Disabilities for digital AV media delivery.

T-Seniority: expanding the benefits of information society to older people through digital TV channels

The EU's ICT Policy Support Programme provided funding for the T-Seniority project to look at ways in which digital TV could be used to implement telehealth and telecare in people's homes. The project consortium, which included partners from Spain, Italy, Greece, Cyprus, France and Finland, also explored the use of technology to provide a virtual community of carers and others, in order to reduce feelings of isolation amongst those who live alone. Work in the UK was carried out by Kirklees Council - Looking Local (formerly DigiTV).

The goal of the project, which began in July 2008 and ended in December 2010, was to find out if older people could remain independent in the community for longer through having access to applications designed to encourage social inclusion delivered via a familiar technology, the TV. However, the internet-enabled set top box which is required to provide the bridge between the simplicity of TV and the underlying technology that can deliver such applications has been slow to materialise, and Nintendo Wii consoles and PC-based TV technology have been used as alternatives.

The UK version of the T-Seniority style platform has been deployed in care schemes with at least 100 residents based in locations around Liverpool and Kent. Users were given a

demonstration of how the service worked before trialling a range of public and personal services including real time transport information, health related information, public webcams, news and weather, doctor's appointments, repeat prescription ordering, events calendars and photo sharing.

Formal carers were also shown how the service works and were asked to encourage other users (who were not initially involved in the T-Seniority pilot) to test the public aspects of the

service and provide feedback. The project team has provided training to care staff in the housing schemes, who then support the residents to use the service.

The recent emergence of smartphones and tablets as a vehicle to deliver these types of services was not predicted at the start of the project. The research team believe that these devices can combine the simplicity of TV interfaces with access to online services, without the complexity of a PC operating system. Combined with the ability to provide location information and so enable geographically personalised services, the project team believe that these devices offer a more advanced platform with greater potential for exploitation than the TV.

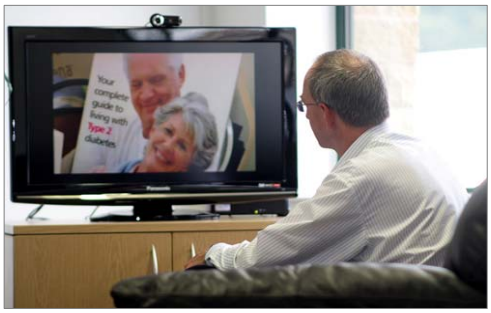
Extending telehealth for active communities

Several projects this year highlight the way in which researchers and designers are extending the application of telehealth through the use of new technologies and communication platforms. Video-conferencing, mobile sensor networks and smartphones are being used to deliver health and social care support to people in remote communities and those who wish to live active lives without the frustration of routine hospital appointments or the restriction of home monitoring. These services also connect individuals to family and social networks, a potential which the projects exploit to support and inform the extended care network and to motivate the individual to engage with unfamiliar technologies.

TV-based Video Telephony Platform for Assisted Living and Tele-Health

Airedale NHS Foundation Trust in West Yorkshire is a pioneer in telemedicine, delivering a nationally available service offering remote, online hospital consultations for prisoners. Through a project funded by the Technology Strategy Board's Assisted Living Innovation Platform, local technology firm Advanced Digital Institute (ADI) Ltd introduced the Trust to Red Embedded Design Ltd, a company developing video telephony products. The project aimed to develop technology for delivering remote consultations into people's homes.

The project started in July 2008 and has developed a videoconferencing system that offers a low-cost way for clinicians and health professionals to speak with and see people with chronic illness living in the community, or people who have recently been discharged from hospital.




Virtual consultations and health education videos are both delivered through the individual's television. By using a set top box and simple, handheld remote control unit the system integrates with the TV. This removes the need for people to have any IT experience or technological understanding of how the service operates. Currently 35 people are connected to the service, with plans in place to significantly increase this number through 2011.

The system uses state of the art video compression techniques to maximise the quality of pictures that can be transmitted over a home broadband connection. Significant work has been undertaken to integrate the online consultation service into the clinical workflow. By optimising both the clinician and patient experience, researchers have found that acceptance of the service has been high.

Results from the project showed that the video consultations lowered costs for the hospital and released people from the need to travel for non-urgent, outpatient visits. The potential for clinicians to intervene earlier during exacerbations of long-term illness meant that the severity of episodes of illness diminished and some hospital admissions could be avoided. The video tutorials were also found to contribute to improved care, by encouraging people to manage their health more actively. The system has reduced the cost of care delivery in both rural and urban settings and proved popular with people. There is the potential to use this technology across health and social care to offer different services to support people at home, from consulting and education to counselling and social inclusion.

MyHealth@Age

Health service providers, information and communication technology (ICT) companies and universities in Sweden, Norway and Northern Ireland have collaborated on a project to develop new mobile-phone based products and services that will support older people to live more active and healthy lives both in their homes and in the community.

The three year MyHealth@Age project ended in December 2010 and has received EU funding through the Northern Periphery Programme. In Northern Ireland, the project team comprised health staff at the Southern Health and Social Care Trust, researchers from the University of Ulster and commercial companies supplying Global Positioning Satellite (GPS) people tracking technology and a social networking service.

The project ran a number of trials in Sweden, Norway and Northern Ireland. This followed an extensive user centred design process during which older users were able to inform the requirements and design of the services to be produced. Using a standard, commercially available, mobile handset, the team has developed specialist services that older people can access via their smartphones. For example, the phone can connect to a fall sensor designed by the project team, that sends an alert to a monitoring centre if the user has a fall. Help can then be dispatched using GPS tracking technology within the smartphone to identify the user's location.

Older people are also able to engage socially using the project's mobile social networking service. This can help them to stay in touch while at home and also to arrange social events

within the community. The smartphone services include applications to help older people who need to carry out self care tasks, such as monitoring their own blood pressure or blood glucose levels at home. This is particularly useful for people who may be house bound, or live in remote rural areas.

Some of the service solutions have already been taken further by some of the project partners in a new European Commission funded project RENEWING HEALTH (REgioNs of Europe WorkINg together for HEALTH), which is aiming to implement large-scale real-life test beds which will evaluate innovative telemedicine services using a patient-centred approach and a common rigorous assessment methodology. Furthermore, the MyHealth@Age partners along with new consortium partners are looking to test the large-scale deployment of the mobile prescribed healthcare service solution developed during the project, along with other connected health service solutions, as part of a new proposal to the Northern Periphery funding programme and are awaiting a funding decision in June 2011.

PERFORM - A sophisticated multi-parametric system for the continuous-effective assessment and monitoring of motor status in Parkinson's disease and other neurodegenerative diseases

People who have neurodegenerative diseases or movement disorders, such as Parkinson's, often need to be monitored by clinicians in order to track changes in the progress of the condition and also to monitor the effects of any medication. Visiting an outpatient clinic in order to undertake such monitoring is time-consuming. Additionally, people's symptoms may vary during the day, which means they may not necessarily exhibit symptoms during their appointment. Remote monitoring reduces the need for hospital visits, and opens the way for continuous assessment of someone's state of health.

The Perform project, funded under the EU FP7 programme, built a system which used a range of wearable micro-sensors to monitor someone who had Parkinson’s throughout the day in their own home. Special software was developed so that the movements could be analysed and then classified according to the Unified Parkinson's Disease Rating Scale (UPDRS) rating scale used by doctors to note the progression of the disease.

The system used lightweight accelerometers which could be worn on the wrist, on the belt and on each leg by the ankle. These sensors recorded details of a person’s movements and balance as they went about their daily activities. This data was passed to a wireless computer in the home which compressed the amount of information so it could be sent via the internet to a server in a local hospital for clinicians to review. The specially written software was able to analyse whether the movement patterns recorded indicated that the person’s tremor had got worse, or if they had fallen when walking.

The work began in February 2008 and ended in January 2011. The project consortium included researchers from the University of Westminster, Oxford Computer Consultants and Kingston Computer Consultancy, who worked with partners in Spain, Poland, Greece,

Slovakia, Italy Cyprus and the Czech Republic. The UK partners were primarily concerned with work on the integration of the system between the home and hospital and with information security issues.

The project has had an extension and will be producing a final report in July 2011. There have been four rounds of trials in Greece and Spain, where participants were monitored using the system for a day, and over the coming months some people will trial the system over a period of several weeks. Researchers are working on software which will support the gathering of long term data about movement patterns, so that clinicians can review the likely progression for their patients. Findings so far suggest that by using a monitoring system in this way, clinicians are able to gain a more objective view of a patient's abilities rather than relying purely on their observations and patients' descriptions during a short clinic visit. There may also be applications for this technology with pharmaceutical companies, who could use it during drug trials to test the effect of targeted treatments for movement disorders, by tracking someone's performance before and after taking part.

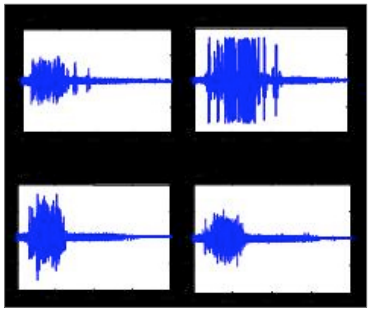
Providing access through cutting edge technologies

The development of cutting edge technologies can enable people with significant levels of disability to live active lives and has the potential to support large numbers of people to receive vital support with everyday tasks. However the support that is made available through the use of switches and robotic devices is often perceived as unattractive or unusable by disabled people. Individuals balance the frustration inherent in using these technologies against the autonomy they can provide. Researchers are now reviewing the use of these switching and robotic technologies that enable a disabled person to control their world in order to make them more acceptable and useable.

A Tongue Movement Command and Control System Based on Aural Flow Monitoring

Nearly all the mechanisms that people use to control equipment and appliances, such as a computer or a car, require physical movements. This obviously presents problems for anyone with limited control of their body and limbs. A range of ways to access switches have been developed and one range, commonly used, depends on the individual using switches in their mouth, either employing their tongue to activate a switch, or 'sip and puff' tubes which respond to concentrated inhaling and exhaling. However, such options can be difficult to operate; they may irritate the mouth or impair verbal communication, and can present hygiene issues.

Researchers from the department of mechanical engineering at the University of Bristol and the School of Health Sciences at the University of Southampton have been working on an EPSRC-funded project which aims to surmount these issues through the development of a system which monitors tongue-movements by picking up sound signals in the ear. These signals are then used to control common household devices or assistive equipment.



A lightweight microphone, fitted in the ear, picks up low-frequency sounds made by four types of tongue click. These types of tongue click have been chosen because each has a distinct acoustic signal that the system cannot easily confuse with other sounds. The sounds, in the form of signals, are sent from the microphone to a signal processor that uses this information to send commands to receivers on the device which the individual wishes to move.

The project took place between October 2007 and March 2011. Researchers who tested the system have successfully used it to navigate a virtual wheelchair through a computer-

generated maze. The project team is now seeking funding to develop the system further so that it can be used to control objects in the real world.

SERA - Social Engagement with Robots and Agents

There is growing interest in using robots and virtual, online agents to support older and disabled people to live independently. Assistive robots and online personas or agents who are to become true companions, have to be versatile in terms of their functionality and perceived personality, depending on the service they are required to deliver. Some will act as information assistants, some will have a reactive role as social mediators, and others will behave proactively as coaches, for example to prompt health-related behaviour.

Getting people to engage initially with robotic and virtual agents or personas is usually easy, because of the novelty of the concept, but keeping them engaged over time is hard, since robots and agents lack the appearance of sociability. Sociability involves perceptiveness of and responsiveness to individuals' and groups' needs, moods, habits, situations, cultural background, social norms and conventions.

A research project funded under the EU FP7 programme aimed to address this issue of sociability in a range of ways, by advancing knowledge about what sociability in robots and agents entails; by developing methods to analyse and evaluate sociability; and by making the learning and tools developed by the project available to the research community.

The work took place between January 2009 and December 2010 and involved partners in Austria, Netherlands and Germany, as well as a team from the University of Sheffield. Researchers undertook field studies of the ways in which people engage with robotic devices. The project team then developed pilot service applications for a robotic device and the resulting interactions between the participants and the robotic devices were videoed.

A robotic Nabaztag rabbit was placed on a pedestal containing a small computer, a connection to the internet, sensors to gather information about the user's proximity to the system, a microphone and a video camera to collect the data. For the first iteration of the project, the user could interact with the rabbit using 'yes' and 'no' buttons. For the second and third iterations, a set of cards with keywords and symbols were attached with Radio Frequency Identification (RFID) tags which the robot could read and respond to using speech output. The application was designed to help the user monitor their own exercise levels and reflect on the amount of exercise they were doing by allowing them to input the amount of exercise completed, which was then fed back to them at various times. The

application would also provide a weather forecast, information about the system and messages from either the researchers or from the robot. These conversations could be initiated by the rabbit itself, via information from the sensors about whether the user was nearby, or whether the user took their keys off a switch on the front of the stand to indicate that they were leaving the house, or could be initiated by the individual ‘waking up’ the robot to start a conversation.

Six participants, over 50 years of age, took part in trials and the project built up a collection of more than 300 short videos of them interacting with the robot technology in their own homes. The data is continuing to be used to study the evolving relationship between the participant and the robot with the aim of determining the factors influencing sociability in robots and the ways in which this can be implemented.

Technology to support emotional well-being

As activity monitoring telecare systems are developed to gather lifestyle data which can be analysed to derive information about a person's general state of health or well-being, the potential for using the same data to gain an insight into a person's mental health and emotional well-being has become apparent. Researchers are looking at ways to use this technology to provide timely alerts to the individual's care network when it looks as if their emotional and physical state may be deteriorating.

Buddy - post-digital social care service

People currently receiving therapy for mental health problems may need help in understanding how their condition affects their day-to-day life, and how they can take better ownership of their recovery. Sidekick Studios was funded by NHS London and the National Endowment for Science, Technology and the Arts (NESTA) for a project, which ran from April 2010 and March 2011, which looked at how digital services can support the recovery process for people accessing mental health services. The work was carried out in partnership with South London and Maudsley NHS Trust.

The project's goal was to develop Buddy, an online service to support the recovery of people with mental health conditions by helping them better understand the relationship between the things they do in their daily lives and their mental state. The service is aimed primarily at people with common mood disorders like anxiety and depression (although it has applications for people with other long term conditions) who have an active interest in recovery and self management.


© Sidekick Studios

In the first stage of the project, the research team developed a radio designed to allow people to broadcast their mood to a network of friends, carers and healthcare professionals. The individual simply turned a dial to a setting that best expressed their current state, and a message was transmitted to a range of social media platforms including email, text, Facebook, Instant Messenger and Twitter.

The Buddy service was co-designed with service users and professionals, using a range of approaches including ethnography, user journey mapping, collaborative workshops, prototyping and agile web development. The co-design method is seen by the project team as crucial to the development of Buddy. Through a ten-week trial with four service users in November 2010, insights into the initial concept were gathered and the service was adjusted in line with this feedback, which suggested that users were more interested in how the

technology could give them insights into their state of mind, rather than the ability to send information to other caregivers or healthcare professionals.

Later work has focused on a SMS service that allows users to record their daily moods and their daily activities, and a web service which enables them to reflect on the relationship between the two. Planning tools, prompts, reminders, data visualisations and a social calendar further supports the user on their road to recovery.

The project team is currently working with partners in South London and Maudsley, to trial the service with ten service users over a ten-week period to understand how Buddy can improve patient experience and reduce dependency on external support.

Enabling health, independence and wellbeing for psychiatric patients through Personalised Ambient Monitoring (PAM)

One in ten of the UK population will experience a disabling anxiety disorder at some stage in their life, whilst 91 million working days are lost per year due to mental health problems. In addition, there are personal costs to individuals, their family and friends. Government policy aims to help people with long-term conditions, including mental health problems, to stay independent and take control of their illness by providing information as well as a programme of medication.

A research team from the Universities of Southampton, Nottingham, Stirling and Warwick had funding from EPSRC to develop a system called PAM (personalised ambient monitoring) which will allow people to select off-the-shelf technology that will monitor their ‘activity signatures’. These are measurements of behavioural patterns, such as how often they prepare food or leave the house, which can indicate people's mental health state. Work took place between October 2007 and December 2010.

PAM uses a set of sensors discretely located in a person's home, plus devices such as mobile phones, which are linked to a computer system programmed to detect changes in activity signatures. These can then be used to issue automatic alerts to the patient, their family, or their doctor. The aim of a technical trial, which took place during 2010, was to see if it was possible for people to live with this technology on a daily basis and to test the technical feasibility of the technology that had been developed. The outcome of these trials was encouraging; whilst some technical problems were experienced, it was shown that it is possible to detect so-called activity signatures in individuals using the PAM system. Furthermore, the system could show when deviations from ‘normal’ activity signatures took place.

The PAM team are now looking for continuing funding to trial the revised PAM kit and are also considering working with an industry partner so that the final PAM system can be made available as a commercial product.

Managing cognitive disability and dementia

Over the past ten years there have been a number of research projects that look at the potential of technology to support people with planning and memory problems. In response to feedback from disabled and older people to the technology-enabled services that have been made available, researchers now recognise that providing prompts to encourage the completion of tasks is insufficient and a more flexible, personalised method for delivering cues and timely reminders is required.

The widespread occurrence of dementia is prompting a range of research activity to support individuals and their care networks to actively manage the condition by raising their awareness of the technology and services on offer. Another approach has been to tackle the symptoms common among older people of poor sleeping patterns, reduced sleep and repeated night-time waking which are caused by and exacerbate memory problems.

AIM - Automated Intention Monitoring project: a randomised controlled trial of a new technique for improving organisational abilities in people with acquired brain injury

Acquired brain injury refers to non-progressive damage to the brain from an accident or illness. People who have experienced such an injury commonly have problems with planning and organising, making decisions, paying attention and remembering what they need to do. Such difficulties can lead to loss of work, reduced social and leisure activities and increased strain on family relationships.

Researchers at the Oliver Zangwill Centre at the Princess of Wales Hospital, the Medical Research Council Cognition and Brain Sciences Unit and the School of Medicine at the University of Glasgow are part of a team investigating methods for helping people with acquired brain injury cope with the demands of their day-to-day lives. The Automated Intention Monitoring (AIM) project, which ran between April 2008 and March 2011, was funded by the NIHR Research for Patient Benefit (RfPB) Programme. The research team had previously developed a service called 'Neuropage' which sends a timed alert to an individual via a pager device. Such alerts remind the person of specific tasks, for example, 'take medication' at 6pm. This research led to the formation of the nationally available Neuropage service that continues to provide support to individuals around the UK.[57]

However, not every task can be scheduled in this way and when asked to provide feedback on the service, individuals and their carers said they would value having more flexibility and spontaneity in their lives. The goal of AIM is to offer individuals 'content free' cues (for example

[57] Neuropage website: http://www.neuropage.nhs.uk

'stop and think') which do not contain specific instructions but are designed to improve their ability to complete tasks.

Sixty people have taken part in a trial of the new alert system. Researchers have collected feedback from 30 of the participants about the intervention and their experiences of the study. In general the feedback was positive but participants noted that they often felt both helped and a bit irritated by the alerts. The project team is currently analysing the feedback to explore service developments. Although final results are still in preparation, researchers have learnt about the delivery of goal management training and how any interventions should be designed. Three members of the study team are currently working with service users and former study participants to consider how to improve services and how the AIM approach might be adapted if it was delivered as part of a clinical service.

SomnIA: Optimising quality of sleep among older people in the community and care homes: an Integrated Approach

The establishment of good sleep patterns as people age has been found to reduce the risk of falls and depression, maintain activity levels, and reduce the challenging behaviour sometimes encountered in people with dementia. Increasing age is associated with progressive deterioration of sleep, and older people are the most likely recipients of sleep inducing (hypnotic) drugs. However, hypnotic drugs may make worse the symptoms of frailty and cognitive impairment. Researchers are now starting to investigate ways in which different technologies could be used to help older people get a good night's sleep.

The New Dynamics of Ageing (NDA) programme funded a collaborative research project specifically to address practice and policy issues arising from the nature, impact and management of the sleep-wake balance in later life. The aim of this work, which started in December 2006 and ended in December 2010, was to 'join up' and extend several areas of sleep research relevant to improving the quality of later life. SomnIA was a multi-disciplinary project, bringing together research teams from the University of Surrey and Bath Institute of Mechanical Engineering (BIME), along with partners who included Healthtalkonline (formerly DIPEx), Help the Aged and Age UK, Nottinghamshire HealthCare NHS Trust, Philips Lighting and the Relatives & Residents Association.

User-led design work by BIME resulted in three prototype products: a night time tray to organise bedside items with ambient lighting to reduce anxiety about finding possessions; 'comfy sound' which provides music in a pillow to help people settle and reduce the time it takes to fall asleep; and versatile lighting which can automatically detect movement and provide discreet ambient

lighting to assist with getting up, moving around and returning to bed. The project produced a website documenting older people's experiences of 'sleep problems in later life' which includes tips and advice on technology choices.

MPVS: Mobile Phone-based Video Streaming system in providing home-support for patients with early Alzheimer's disease

For people with dementia, and their families, remaining living safely and independently at home as long as possible may be personally, socially and economically beneficial. Assistive technologies may reduce the isolation many people with dementia experience and may help to improve their ability to cope with everyday life. In a project funded by Northern Ireland Health and Personal Social Services (NIHPSS R&D) researchers from the Faculty of Computing and Engineering at the University of Ulster, looked at developing a mobile phone-based system which could provide a wide range of cues as a way of helping with the memory problems which are the most common cognitive problems for people with Alzheimer's disease.

A key objective of the research, which took place between December 2007 and November 2010, was to provide an opportunity for a 'virtual carer' to be a regular presence in the home. The research team developed a prototype system based on an easy-to-use mobile phone to use video streaming to provide automatic, individualised messages about everyday issues (e.g. reminders about medications, directions for getting meals ready and prompts about tasks to accomplish). The person receiving care was trained to use a modified keypad to acknowledge each video message, and the signal was sent to a central unit for monitoring. A trial of the system ran for periods of between four and six weeks, and analysis of the impact of using the technology showed improvements in the trial participants' quality of life.

Getting Equipped to Tackle Forgetfulness

Dementia has been recognised as a major challenge in the decade ahead, and the National Dementia Strategy includes AT as one of the elements in the government's response to the need for greater support so that people with dementia can continue to enjoy a good quality of life. However, people with dementia and their carers may not be familiar with what is available or know how to find out about the AT options on offer.

The Foundation for Assistive Technology worked with Innovations in Dementia and Trent Dementia Services Development Centre on a project to develop a guide to AT choices for people with dementia and their families. The work was funded by the Department of Health's Reaching Out to Carers Innovation Fund. Between January 2011 and March 2011 the project team engaged people with dementia and their family and carers and used their experiences to illustrate some of the benefits of AT. 'Getting Equipped for Forgetfulness' was launched in March 2011 as an online resource and has been disseminated widely to third sector organisations and others who work with carers and people with dementia.

Rehabilitation and re-ablement

Demographic changes mean the proportion of older people in the population is set to rise, which is likely to produce an increase in the number of people living with a disability or long term health condition. Recent government policy announcements have stressed the importance of re-ablement services in helping people regain their independence after an episode of ill health or period of treatment. In response, researchers are looking at ways to use technology to provide therapy and rehabilitation at home.

Home-based training for patients with visual field deficits

More than 20,000 people a year have a stroke leading to visual field defects (VFD). People with VFD have partial sight loss which can make everyday tasks difficult, and may mean they need help with activities such as dressing, cooking, or travelling by public transport. However, many studies have shown that people with VFD can overcome these difficulties by learning to move their eyes more effectively. Training people to make scanning movements in the direction of their blind field takes only three weeks, but this therapy must be supervised by a therapist and is costly, labour-intensive and requires long hospital stays or regular trips to specialist clinics. Currently such training is available to less than 1% of affected people.

Researchers from the University of Durham received funding from the NIHR Research for Patient Benefit programme to develop a training programme for VFD which aimed to be effective, low-cost, and made available to everyone who needs it. The goal was to use computer-based training tasks which could adapt to each person's performance, and provide regular and easy-to-understand feedback so the tasks could be carried out in the person's own home.

In the first phase of work, carried out between November 2008 and April 2011, researchers produced the computer-based training modules using components which have already been developed. They then made modifications to ensure people could self-administer the training and receive useful feedback. In the second stage of the project, the project team has recruited 58 patients with visual field deficits (29 for the experimental group and 29 for the control group). Forty of those patients have completed a five-week course of training. A preliminary analysis suggests that only patients in the experimental group show significant improvements in terms of their ability to use their eyes more effectively.

Dynamic orthosis with virtual electrodes for the lower limb

Functional Electrical Stimulation (FES) has been used for several decades as a rehabilitation treatment, particularly for people with ‘foot drop’ resulting from stroke, multiple sclerosis or partial spinal cord injury. People who experience foot drop are either unable or have difficulty in moving their ankle and toes upward and so have an abnormal walking pattern. There is ample evidence that FES is an effective approach, and a NICE Guideline[58] issued in 2009 supports

[58] NICE website: http://www.nice.org.uk/Guidance/IPG278

its use, but clinical uptake of the technique is limited, partly because of the time and expertise required for the patient to correctly put on the system each day. Accurate location of electrodes on the affected leg is critical to achieving a good outcome, but some people who use FES for foot drop report that they have problems with finding suitable electrode locations when putting on their system.

A research project, being undertaken by the University of Salford, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield Hallam University and DM Orthotics Ltd, has been looking at ways to address this problem. The project was funded under the NIHR Health Technology Devices (HTD) programme and ran from May 2008 to March 2011.

Researchers developed a new stimulator system that avoids the need for the patient to find the correct electrode locations. In the new device, instead of the conventional pair of large electrodes, the project team used an array of small electrodes, a subset of which are activated. A software programme within the stimulator determines the most effective subset of electrodes to activate. The choice is based on data gathered by the stimulator on the response of the foot to varying patterns of stimulation. The stimulator developed within the project has recently received its CE safety certification.

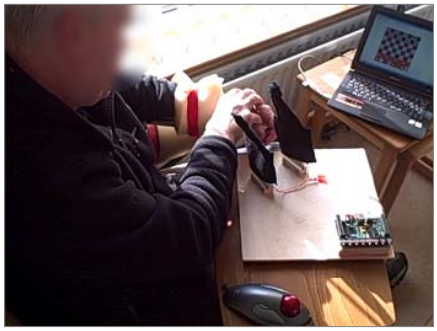
In previous work, custom-made lower limb orthotic garments have also been used as rehabilitation for foot drop. The project team has now developed an orthotic sock which provides appropriate correcting forces for each user and is straight-forward to put on and take off. In a clinical trial scheduled to start in spring 2011, researchers will be investigating the effectiveness of the new stimulator both as a standalone device and in combination with the new orthotic sock. Should the FES system alone, the orthotic sock, or the devices in combination show benefits over current alternatives, researchers plan to move to full commercialisation.

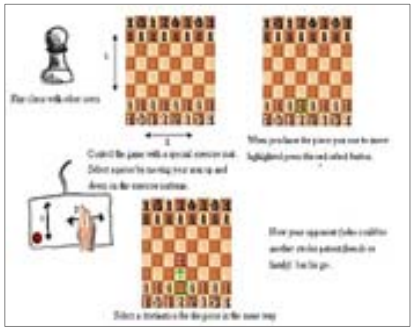
Motivating Mobility

The Motivating Mobility project was funded by the EPSRC and carried out by researchers at the University of Nottingham, University of Oxford, University of Southampton, University of Sussex, University of Dundee and Sheffield Hallam University.

The project took place between July 2007 and June 2010 and aimed to find ways to encourage people with stroke to undertake a home-based rehabilitation programme. Many people fail to finish rehabilitation programmes because undertaking repetitive exercises can be boring. By

adapting different technologies for each individual the project aimed to put the individual in control of their own rehabilitation and so maximise the chances of them completing the programme.





Researchers used user-centred design techniques to develop bespoke rehabilitation systems with people with stroke and their carers from two centres in Sheffield and Southampton. The technologies developed included a sensor system for controlling a computer-based chess game, which was used by a man who had lost the use of hand function. Analysis of his hand function before and after undertaking the intervention showed improvements in his ability to open his hand and to grasp objects. The team also developed a ball funnel device, which enabled a mother who had had a stroke to practice rehabilitation whilst playing with her young child.

Design and Human Evaluation of Haptic Devices for Hand Rehabilitation from Sensory Deficits due to Neurological Impairment

Sensory feedback is critical to recovery from nerve damage, such as that caused by a stroke. Current rehabilitation robots use online programmes, such as virtual reality games, to increase patient motivation during therapy. However these systems do not give the tactile feedback someone would normally experience when grasping or interacting with a real object.

Researchers at the University of Southampton perceived that there was a need to design a tactile feedback system that could support recovery of the ability to reach and grasp for people who had had a stroke. The aim was to develop a system which would be compatible with a range of rehabilitation robots, would be low-cost and could translate between hospital and home use. The project team used funding from the university's Adventure in Research grants scheme and the project ran from May 2010 to December 2010.

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The research team tested a range of devices that could provide a tactile sensation to a person's fingertip to establish which provided the most realistic and usable sensations and which also satisfied aesthetic, comfort, reliability and calibration requirements. They investigated and designed three different tactile technologies: vibration devices, shape memory alloys (switches which can 'remember' shapes), and a motor-driven 'squeezer'. Each device was evaluated by cycles of testing with two groups, one of unimpaired participants, the other of people who had had nerve damage following a stroke. The project also investigated the possibility of developing a wearable system for providing tactile feedback that could be

integrated with an existing rehabilitation robot. Researchers have won follow-on funding to continue evaluation of patient benefits.

Objective-based Iterative Learning Control for Robotics and Rehabilitation

People who have had a stroke need to re-learn skills such as how to use their arms. This is often difficult, because such learning requires not only practice but also feedback on how the person is performing, which is not possible when someone cannot move their arm at all. Functional electrical stimulation (FES) offers a way of overcoming this difficulty by producing electrical impulses which travel from the muscles along the nerves and can stimulate movement. If the stimulation is carefully controlled and varied according to the person's own abilities, it is possible to make useful movements, a process which is known as 'Iterative Learning'.

Researchers at the University of Southampton had funding from the EPSRC to enhance the use of FES as a way of helping people who have had a stroke to regain arm function. Previous work with this technology required people to track a spot of light, so was of limited practical benefit for those taking part. The aim of this project, which took place between April 2009 and March 2011, was to maximise the therapeutic use of FES during treatment, using a robot to support the weight of the participants' arms. The gaol was to develop an inexpensive system that can be used in the individual's home to help them perform more natural movements such as picking up a bottle and pouring from it, pressing a series of buttons, and turning a handle. Since these sorts of tasks are important for day to day living, it is thought that the technology will then help people to re-learn the tasks that are most useful to them.

The researchers also aimed to develop the way in which the system adapts the rehabilitation programme in response to the individual's performance. One aim is that the 'iterative learning' software will be able to incorporate the wishes of the physiotherapist who supervises the treatment. If they decide that the movement the subject is trying to do is not ideal, they will have the freedom to change the way in which the stimulation helps the subject perform the movement. Researchers have finished evaluating the approach with people who have had a stroke and are currently evaluating the results.

Exercise and mobility

Undertaking exercise is vital for health and well-being but disabled children and adults can find undertaking an appropriate exercise programme particularly difficult. Older people can find that it is unexpectedly challenging just to maintain their normal level of mobility, with consequent falls resulting in significant impacts on health. Researchers continue to explore how technology can provide novel solutions to these problems for both age groups.

The use of technology to support the body as it undertakes exercise is in itself problematic as the point at which skin meets technology is always going to be susceptible to irritation and inflammation. Along with the rest of the population older people are increasingly electing to undertake exercise using online games, for example those accessed through Wii, and researchers are exploring the potential for such programmes to support continued mobility.

Effectiveness and feasibility of intensive short-term graded exercise programmes, using either treadmill or static exercise bicycle, for non-ambulant children and young people with cerebral palsy

Children and young people with severe cerebral palsy are unable to walk independently and are particularly prone to muscle weakness, which contributes to pain, deformity and inability to carry out daily tasks. Studies of children and young people with mild or moderate cerebral palsy have shown that strength-training programmes can be beneficial in improving functional abilities, but only one pilot study has looked at whether children and young people with severe cerebral palsy could also see benefits from such a programme.

Thirty five children and young people, aged between 9-17 years old, with severe cerebral palsy were recruited to a randomised, controlled trial by researchers at Chailey Heritage Foundation. The participants were allocated to receive 6 weeks of standard care, a 6 week exercise bicycle programme (using an adapted static bicycle), or a 6 week treadmill programme (using supported walking). The work, which was funded by the NIHR RfPB programme, aimed to analyse whether such exercise programmes are better at improving muscle strength than standard care. The study also used focus groups of children, parents and physiotherapists to identify their perception of the benefits and problems of such exercises as part of a broader physiotherapy programme.

Researchers found that after the intervention participants using both the static bike and treadmill improved significantly in terms of speed and duration of exercise they could tolerate. There were also significant improvements in the standing ability of participants in the static bike group and the treadmill group. However, the improvements observed immediately post intervention were not retained at follow up assessments, suggesting the need for a regular programme of exercise.

SMILING - Self Mobility Improvement in the eLderly by counteractING falls

Every third person aged over 65 years is at risk of falling or has had a fall. These falls cause physical injury, emotional trauma and often result in reduced mobility. The most effective way to counteract falls is to help people make improvements in the way in which they walk. This may be achieved by training and rehabilitation programmes which focus on real life activities (such as walking on rough grounds, standing up, or climbing stairs), and which encourage a problem solving approach.

The EU FP7 programme funded the SMILING project which began in January 2008 and concluded in December 2010 to address this problem. The project consortium included partners from Italy, Switzerland, the Netherlands, Israel and Slovakia. The UK partner University of Strathclyde co-ordinated the technical development work. The project's rationale is based on the idea that people at risk of falling have involuntary and stereotyped patterns of movement which can be changed in later years through the application of new training and re-learning programmes.

The research team developed a system comprising motorised shoes which alter with every step taken by the user. Each shoe has four actuators, two in the forefoot and two in the heel, which change height to alter both the shoes' height and inclination to the ground in an unpredictable manner. Movement of the actuators is accomplished very quickly during the time the foot is off the ground during the swing phase of walking. The changes cannot be



anticipated and they challenge the walker to respond actively to the changing situation. By encouraging people to respond flexibly to changes in this way, the system helps them develop motor learning skills which can then be transferred to real life environments.

The system is made up of motorised shoes which are controlled by a unit which fits to participants' belts and allows the individual to manage their own training programme; a wireless module for communication between the controller and the shoes; and also sensors which allow for detection of walking patterns. A complete software package has been developed for data analysis.

Four prototype systems were made and used in trials with around 100 older people in four locations, in Slovakia, Italy, Switzerland and Israel. Results for all participants showed significant increases in the distances walked, and improvements in gait and balance. Users reported high levels of satisfaction with the technology and said they had acquired greater

confidence and greater awareness of their walking pattern as a result of using the system. Researchers are now seeking funding for further work which will involve reducing the weight of the shoes.

Bug-free prostheses: Reducing infection risk and improving reliability

In the UK there are approximately 62,000 amputees and conservative estimates suggest that there are more than 10 million people in the world who live with limb loss. The development of effective, comfortable, cheap and safe prosthetic limbs would have social and economic benefits across the world.

A major cause of prostheses failure is bacterial infection in the socket, which occurs in up to 50% of prosthesis users in the developed world. A prosthetic socket has to envelop the residual limb snugly in order to work properly, but this creates a closed environment with ideal conditions for bacterial growth. Bacteria not only cause unpleasant odour but also lead to infection and ultimately a breakdown of the whole prosthetic system.

Even if an individual keeps a prosthetic socket meticulously clean, it is inevitable that over the lifetime of a prosthetic socket (maximum three years) bacteria will settle. Funding by the EPSRC is enabling researchers at the University of Strathclyde to study this problem with the first feasibility phase beginning in November 2009 and concluding in April 2011.

As part of the feasibility study, prosthetic liners were provided by a small number of prosthetics users These liners were imaged, using Environmental Scanning Electron Microsopy, to investigate the structure and composition of biofilms found on and within the lining material. Samples were also collected from the users' skin, where it contacts the surface of the prosthetic liner, and used to characterise the resident microbial population. Molecular techniques were then used to determine the species present and to perform detailed analysis so that the bacteria genes most commonly found could be catalogued. Researchers are currently evaluating the data, with a view to designing new lining materials and prosthetic interface systems.

Second Lives for the Third Age

Researchers at Sheffield Hallam University had funding from the university's Engineering for Life programme to explore the possibilities of using virtual worlds (such as 'Second Life') to encourage older people to exercise. The project ran between April 2010 and August 2010. Virtual worlds which are available online are a popular form of entertainment, offering users the chance to participate in social interactions, games and other activities. The virtual person that represents the user in the virtual world is called their 'avatar'.

Researchers surveyed older people to capture their expectations for virtual worlds and learn about the sort of environments which interested them. The survey response included a wide variety of possible scenarios. Common themes included contemporary and historical travel; leisure activities such as dancing, gardening, fishing and interacting with pets; socialisation with friends and grandchildren. The survey highlighted that some of the participants still considered that their role would be passive in these interactions (e.g. watching their grandchildren play sport or music) rather than actively participating in the virtual activity.

To enable people to interact with the virtual environment by intuitive physical movement, the researchers also developed a gesture-based interface (based on 3D motion tracking technology). Examples included walking on the spot to move around, flapping arms to 'fly', and moving the body to dance. Researchers then evaluated the system with a group of older people, comparing their experiences of the gesture-based interface with those of using a conventional computer interface.

The gesture based interface was mastered by the participants, but they had some issues with the speed of response, as when their avatar was rotating it would often overshoot the desired direction. This was less of an issue when controlling the avatar using the keyboard as it was easier to stop rotation taking place. Further work has since been done to simplify the gesture controls required for turning.

Where the physical movement mapped well onto the avatar movement (clapping, waving, punching, flying) the gesture-based interface was preferred, but overall (predominantly due to the issues with rotation) the conventional interface was preferred. The system was evaluated on a single day. Long-term usage data has not been collected at this stage and such a project will be the focus of future funding proposals.

Evaluation programmes and projects

The NHS Purchasing and Supply Agency (NHS PASA) Centre for Evidence Based Purchasing (CEP) was decommissioned on 31st of March 2010 having published around 160 separate reports and interactive tools to assist the NHS in better understanding how innovative technologies could bring improvements to both care for the individual and service delivery. Responsibility for non-clinical goods and service transferred to the Department of Health, Buying Solutions and NHS Supply Chain.

One HTA evaluation which has ended and is due to publish its findings in mid 2011 is Assessing the effectiveness of Communication Therapy in the North West (the ACT NoW study), the first properly randomised trial of communication therapy for stroke survivors. A research team from the University of Manchester has been working with NHS therapy services to assess people who have had a stroke in Manchester, Salford, Warrington and Burnley. Half of the people who agreed to take part in the study received early speech and language therapy. The other half also received a visit, but from someone who was not undertaking therapy. The aim of the study is to determine whether improved communication is due to the specialist skills of a therapist or the time spent with the individual. The study will also include a health economic evaluation. Results are due to be published in mid 2011.

The HTA programme has also funded an evaluation of The clinical and cost-effectiveness of bone anchored hearing aids (BAHAs) for people who are bilaterally deaf, which was carried out by the University of Southampton and ended in April 2010. The final report is due in spring 2011 and will assess the benefits and costs of bone anchored hearing aids in one or both ears for people who have hearing loss in both ears.

HTA has opened a call for a randomised controlled trial to evaluate the clinical and cost effectiveness of speech therapy on communication effectiveness and intelligibility in people with Parkinson's and will be announcing details of proposals in summer 2011. The HTA programme is also inviting dementia evaluation research proposals as part of the NIHR wide call for research announced in March 2011.

Maximising the impact from research

Assistive technology research projects may employ a diverse range of technologies, but many are designed to tackle the same challenges which face every country in Europe, as the population ages and the numbers of people living with long term conditions increases. This year has seen a focus on ensuring that the results from individual projects are pulled together into a strategic framework in order to maximise the impact from each project.

The CAPSIL international support of a Common Awareness and knowledge Platform for Studying and enabling Independent Living project brought together a coalition of university and industrial partners in the EU, US and Japan to develop a detailed roadmap for EU research to achieve effective and sustainable solutions for independent living, based on analysis of the clinical requirements and the technology which was already available or under development.

All the partners of CAPSIL were members of regional and national centres on ageing engaged in the process of helping to establish public policy and international standards. UK representatives were drawn from University College Dublin, Queen's University Belfast and Imperial College London. The work was funded by the EU FP7 programme and took place between April 2008 and April 2011. The project held four workshops, encouraging dialogue with representatives of the EU, the US and Japanese governments, key players from non-governmental organisations, academic researchers and representatives from the ageing oriented manufacturing and service industries. Researchers also attended and presented at numerous academic conferences, networking events and policy consultations.

The result is a road map document and a companion internet resource, the CAPSIL Wiki, which outlines the six categories which formed the basis for the investigations: background and clinical requirements; intervention systems; home and mobile monitoring; wireless body sensor networks and software. A final strategy chapter outlines promising directions for future research and international cooperation.

Recent EU policy has emphasised the importance of e-accessibility to encourage wider participation and support for EU citizens as they go about their daily activities. The aim of SMART: Study internal MARket for inclusive and assistive ICT, targeted market analysis and legislative aspects was to provide information about the market for AT products and services in Europe, including market mechanisms. The report was commissioned by the European Commission, Directorate General for Information Society and Media, and the research was carried out by Abilitynet in the UK, and by Deloitte Consulting in Belgium between January 2010 and April 2011.

Researchers analysed the barriers and opportunities for the use of AT for users, the AT industry and others, and proposed recommendations for improvement.

The EU FP7 programme funded a project MEDIATE: Methodology for describing the accessibility of transport in Europe which ran from December 2008 to November 2010. The UK participants were Transport for London and Transport and Travel Research Ltd, who joined a consortium with members from Norway, Belgium, and Portugal.

The project identified a set of common European indicators for describing accessibility. The findings were presented at a two day final conference held at the British Library in London in November 2010. An output of Mediate is the Good Practice Guide on accessibility of urban public transport systems. Good practice examples have been collected and analysed, with contributions from a range of cities and transport authorities/operators across Europe. They show how to apply a strategic approach to developing, implementing and reviewing accessibility solutions. Another output is a self assessment tool which draws on the concept of total quality management. A key feature of the self assessment is the active involvement of local stakeholders: political executives, policy officers, transport operators and end user groups. Both of these outputs, plus information on specific cities, country legislation and other material is available via a new website, the 'Accessible Public Transport In Europe' or APTIE.[59]

To support disabled and older people to play a greater role in the economy and in their local communities, Ofcom's Advisory Committee on Older and Disabled People funded a project called Next generation services for older and disabled people to identify the internet-enabled services that may play a role. The report highlights those services that can be delivered currently by broadband connections at commonly available speeds and those that could only be delivered by next generation networks. The research took place between November 2009 and May 2010 and was carried out by i2 Media Research, the commercial arm of Goldsmiths College London. The final report identified a broad range of potential benefits to older and disabled people from next generation services in all areas of life including health and wellbeing, work and education, leisure, and other day-to-day activities. Amongst the challenges identified were issues around cost, logistics and impact on the way in which services are delivered.

The project EFORTT - Ethical frameworks FOR Telecare Technologies looked at the ethical, social and gender implications of the introduction of remote care technologies for use in the homes of older and disabled people. Funded by the EU FP7 programme, the aim was to open up debate about the consequences of these developments, for individuals and for the way in which health care systems in European operate. The research was carried out by a consortium which included the University of Lancashire, plus partners in Norway, the Netherlands and Spain. Researchers conducted ethnographic research using observations, interviews and citizens panels in all four countries. Each partner convened a local advisory group which included representatives of older peoples' organisations; health and social care providers and practitioners and representatives from industry. The UK partner worked with Age UK, Lancashire County Council, Chubb Ltd, and Just Checking Ltd. The project began in March 2008 and ended in February 2011. The team will submit a final report in mid 2011.

[59] APTIE website: http://www.aptie.eu/site/

Research and development work relating to assistive technology

2010-11 – Annex A

Presented to Parliament pursuant to section 22 of the Chronically Sick and Disabled Persons Act 1970

Annex A: Complete listing of AT research and development activity 2010-11

Project listing in alphabetical order by project title.

Glossary of acronyms for funding organisations:

AAL	Ambient Assisted Living Joint Programme
CSO	Chief Scientist Office
D4D HTC	Devices for Dignity Healthcare Technology Cooperative
DCLG	Department for Communities and Local Government
DCSF	Department for Children, Schools and Families (2007-2010, now Department for Education)
DELNI	Department for Employment and Learning in Northern Ireland
Department of Health SEIF	Social Enterprise Investment Fund
DWP	Department for Work and Pensions
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
European Commission CIP	Competitiveness and Innovation Framework Programme
European Commission FP6	Framework Programme 6
European Commission FP7	Framework Programme 7
European Commission ISMD	Information Society and Media Directorate
European Commission LLP	European Commission's Lifelong Learning Programme
European Commission ICT PSP	ICT Policy Support Programme
IEWM	Improvement and Efficiency West Midlands
INTERREG IVC	Innovation and environment regions of Europe sharing solutions – financed by European Regional Development Fund
JISC	Joint Information Systems Committee
LLHW	Lifelong Health and Wellbeing. A collaboration between Arts and Humanities Research Council (AHRC), Biotechnology and Biological Sciences Research Council (BBSRC), Engineering and Physical Sciences Research Council (EPSRC), Economic and Social Research Council (ESRC), Medical Research Council (MRC). UK Health Department partners are: Chief Scientist Office of the Scottish Government Health Directorates, Department of Health/ National Institute for Health Research England, Health and Social Care Research & Development Office, Northern Ireland, Wales Office of Research and Development for Health and Social Care, Welsh Assembly Government.
NDA	New Dynamics of Ageing programme. A collaboration between 5 UK Research Councils: ESRC, EPSRC, BBSRC (Biotechnology and Biological Sciences Research Council), MRC (Medical Research Council) and AHRC (Arts and Humanities Research Council)
NESTA	National Endowment for Science, Technology and the Arts

NIHPSS R&D	Northern Ireland Health and Personal Social Services
NIHR	National Institute for Health Research
NIHR CLAHRC	Collaboration for Leadership in Applied Health Research and Care
NIHR EME	Efficacy and Mechanism Evaluation programme
NIHR HTA	Health Technology Assessment programme
NIHR HTD	Health Technology Devices programme
NIHR i4i	Invention for Innovation programme
NIHR PGAR	Programme Grants for Applied Research
NIHR RfPB	Research for Patient Benefit
Ofcom ACOD	Office of Communications Advisory Committee on Older and Disabled People
SFC	Scottish Funding Council
TLRP	Teaching and Learning Research Programme
Transport iNet	East Midlands Innovation, part financed by European Regional Development Fund
TSB	Technology Strategy Board
TSB ALIP	Assisted Living Innovation Platform
UKIERI	UK-India Education and Research Initiative
WORD	Wales Office for Research and Development

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
A cluster randomised controlled trial of an occupational therapy intervention for residents with stroke living in UK care-homes **Research team:** Primary Care Clinical Sciences, University of Birmingham **Contact:** 0121 414 6764 **Other partners:** Solent Healthcare PCT (Portsmouth), University of Bangor, University of Central Lancashire, University of Nottingham **Funder:** NIHR HTA **Amount:** £1,930,486	The study is evaluating the effects of a targeted course of occupational therapy, including the provision of assistive technology, for people with stroke living in care homes. To date 195 participants have been recruited at five sites and a sixth site has been approved for research. Link to more information on FAST website	01/09/2009 30/08/2014
A Tongue Movement Command and Control System Based on Aural Flow Monitoring **Research team:** Department of Mechanical Engineering, University of Bristol **Contact:** 0117 928 7741 **Other partners:** University of Southampton **Funder:** EPSRC **Amount:** £269,165	Researchers have developed an in-ear device which picks up sounds made by the tongue and converts these into control instructions to enable people with severely limited or painful arm movements to control household devices and other equipment. The interface has been tested with seven participants who have used it to navigate a virtual wheelchair through a maze, and there are plans to try it out with a real wheelchair. Link to more information on FAST website	01/10/2007 31/03/2011
A Universal PAN Architecture for Monitoring Multiple Chronic Conditions **Research team:** College of Engineering, Swansea University **Contact:** 01792 295514 **Funder:** EPSRC **Amount:** £179,286	This project is researching a system architecture which can support both Bluetooth and ZigBee technologies for wireless transmission of health data from monitoring systems. The aim is to develop software which is reusable and upgradeable regardless of the hardware component in order to reduce development costs. Link to more information on FAST website	01/04/2008 30/04/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Accessible Receptive Language Assessment **Research team:** Assistive Technology Team, Medical Physics Department , Barnsley Hospital NHS Foundation Trust **Contact:** 01226 432159 **Funder:** D4D HTC **Amount:** £7,000	Most current language comprehension assessments cannot be adapted to be made suitable for for children with physical disabilities. Researchers investigated assessment use, limitations and the feasibility of using a computer based assessment before designing an assessment and pre-assessment access test. Link to more information on FAST website	01/01/2010 30/09/2010
Accessible Resources Pilot Project **Research team:** Dolphin Computer Access **Contact:** 01905 754 577 **Other partners:** University of Southampton, RPM Associates, Inclusive Technology Ltd **Funder:** DCSF **Amount:** Not disclosed	The project team worked with 40 print-disabled students in nine schools to investigate the technology and training needed to make curriculum materials accessible. The team produced recommendations for specialist producers, teachers, parents and children on how to create and deliver better and more efficient alternative formats. Link to more information on FAST website	01/09/2009 31/12/2010
ACT NoW study - Assessing the effectiveness of Communication Therapy in the North West **Research team:** Human Communication and Deafness, University of Manchester **Contact:** 0161 275 3363/3401 **Funder:** NIHR HTA, Stroke Association **Amount:** £1,487,545	The project tested the effectiveness and cost effectiveness of an early therapy intervention, delivered by NHS therapists, for people with aphasia or dysarthria following stroke.There were 170 participants across twelve sites who were randomised to receive either speech therapy of up to three sessions per week for a maximum duration of 16 weeks or visits for the same length of time but without active therapy. Link to more information on FAST website	01/10/2004 31/10/2010
Adaptive Technologies for Enhancing the Accessibility of Digital TV **Research team:** School of Computing, University of Dundee **Contact:** 01382 385597 **Funder:** EPSRC, BBC Research **Amount:** £85,052	Researchers are assessing a range of assistive technologies such as speech synthesis to turn on-screen text into speech, speech recognition to allow users to control the TV through speech commands, gesture recognition to allow control through hand, eye or head gestures and software agents that will find and recommend interesting content for the viewer. Link to more information on FAST website	01/06/2009 31/12/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
AEGIS - Assisting the Elderly and disabled Generation using a behaviour modelling Intelligent System **Research team:** Critical Data Ltd **Contact:** 01223 871434 **Other partners:** University of Newcastle University, Cortex Controllers Ltd, Eseye Ltd **Funder:** TSB ALIP **Amount:** £1,053,646	This project is developing an automated solution to monitor the wellbeing of older people in a non-invasive manner by using data such as energy use and movement between rooms to build up a picture of an individual's health status. A trial with 10 families has been completed. Link to more information on FAST website	01/04/2009 31/03/2011
AEGIS - open Accessibility Everywhere: Groundwork, Infrastructure, Standards **Research team:** ACE Centre **Contact:** 01865 759800 **Other partners:** RNIB, Cambridge University, plus 20 partners from 10 countries in Europe and Canada **Funder:** European Commission FP7 **Amount:** €8,220,000	The project is developing open source accessible interfaces and accessibility toolkits for developers, along with accessible applications and assistive technologies for people with visual, hearing, mobility, speech and cognitive impairments. Two new products have been developed which can quickly translate electronic documents into an accessible alternative format to help educational institutions comply with the UK's Equality Act 2010. Link to more information on FAST website	01/09/2008 29/02/2012
AHEAD-EU - Advancing Higher Education Access for Disabled students in Europe **Research team:** International School for Communities, Rights & Inclusion, University of Central Lancashire **Contact:** 01772 892780 **Other partners:** Partners in Germany and Sweden **Funder:** European Commission Erasmus Mundus programme **Amount:** €242,988	The project team is building a series of electronic tools for disabled students and university administration to provide information and case studies on specific barriers to inclusion and on current activities and actions across Europe. Link to more information on FAST website	06/06/2009 01/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
AIM - Automated Intention Monitoring project: a randomised controlled trial of a new technique for improving organisational abilities in people with acquired brain injury **Research team:** Oliver Zangwill Centre, The Princess of Wales Hospital, **Contact:** 01353 652165 **Other partners:** Medical Research Council Cognition and Brain Sciences Unit, University of Glasgow **Funder:** NIHR RfPB **Amount:** £250,000	Researchers are investigating methods for helping people with acquired brain injury cope with the demands of their day-to-day lives by providing alerts delivered via mobile phone text. The target sample (60 participants) has been achieved, data collection and data entry are complete and data analysis is underway Link to more information on FAST website	01/04/2008 31/03/2011
ALADDIN - A technology pLatform for the Assisted living of Dementia elDerly INdividuals and their carers **Research team:** Institute of Neurology, University College London **Contact:** 020 7837 3611 **Other partners:** Partners in Greece, Germany, Italy, Spain **Funder:** AAL **Amount:** €1,400,000	Researchers are developing an integrated platform so that people with dementia, and their carers, can be monitored remotely. The system will provide early warning of any deterioration in symptoms and provide a means for self-management of chronic conditions. Link to more information on FAST website	01/10/2009 31/12/2011
AMPERE - Additional Modules for PAMELA to Enhance Research Efficiency **Research team:** Accessibility Research Group, University College London **Contact:** 020 7679 7009 **Funder:** EPSRC **Amount:** £2,140,430	The PAMELA facility provides controlled conditions in which interactions between pedestrians and the pedestrian environment can be studied. The new modules will significantly reduce the time taken for major adjustments and reconfigurations, resulting in an increase in availability for research, and will allow more comprehensive experimental setups. Link to more information on FAST website	01/10/2008 30/09/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
An advanced FES rehabilitation tool for upper limb therapy after stroke **Research team:** School of Computing, Science and Engineering, University of Salford, **Contact:** 0161 295 5986 **Other partners:** National Clinical FES Centre, University of Leeds, University of Aberystwyth **Funder:** NIHR i4i **Amount:** £470,553	The project team, based on extensive user consultation, has developed a prototype version of a tool to guide users in the setting up of upper limb functional electrical stimulation system controllers. The team has also made good progress on developing the new stimulator hardware and is planning integration with an existing robotic rehabilitation system. The first pilot trials will commence in early in 2011. Link to more information on FAST website	01/09/2009 30/08/2012
Analogue Evolutionary Brain Computer Interfaces **Research team:** School of Computer Science and Electronic Engineering, University of Essex **Contact:** 01206 872770 **Funder:** EPSRC **Amount:** £370,346	This project aims to use a novel approach to developing a brain computer interface (BCI) which allows brain waves to directly control the computer via simple analogue transformations, rather than using a system which analyses electroencephalography (EEG) signals. Researchers have been able to develop a prototype BCI computer mouse capable of full 2D motion control, which can be used by anyone without prior training. Link to more information on FAST website	01/06/2008 31/05/2011
ASPIS - A Secure Platform for IPTV Systems **Research team:** Global Security Intelligence Limited **Contact:** 0207 993 4431 **Other partners:** Partners in Greece, Cyprus **Funder:** EUREKA's Eurostars Programme **Amount:** €1,006,604	The project is looking at ways in which older people can access internet services via their TV. Technical development of the project has advanced significantly, progressing to the testing stage which will include a broad range of users in pilot test and focus groups in Cyprus and the UK. Link to more information on FAST website	01/07/2009 30/06/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Assisted Living Technologies for Older People at Home: creating a knowledge base for businesses and commissioners about falls and dementia patients **Research team:** Centre for International Research on Care, Labour and Equalities, University of Leeds **Contact:** 0113 343 4418 **Other partners:** University of Oxford, Tunstall, Inventya **Funder:** TSB ALIP **Amount:** £1,039,611	This project will investigate the uptake of assisted living technologies (ALTs) by older people diagnosed with dementia and/or as being at risk of falling. The study will explore the potential for this technology to improve quality of life and sustain independence for both older people and their family caregivers with 8000 users in north and south England. Researchers will observe how older people and their carers interact with ALTS in their home environment and investigate any barriers which prevent them from making best use of the technologies. Link to more information on FAST website	01/03/2011 28/02/2014
Assistive Technologies for Healthy living in Elders: Needs assessment by Ethnography **Research team:** Centre for Health Sciences, Barts and The London School of Medicine and Dentistry **Contact:** 0207 882 3377 **Other partners:** University of Manchester, Newham University NHS Trust **Funder:** TSB ALIP **Amount:** £574,571	This project will address cultural and age related isues associated with the uptake of assisted living technologies (ALTs) for older people from all ethnic groups and will design a methodology framework to promote uptake of ALTs in hard-to-reach and underserved groups. Link to more information on FAST website	01/04/2011 31/03/2013
Assistive Technology Diagnostic Tool **Research team:** ATcare CIC **Contact:** 0333 230 0415 **Funder:** Department of Health SEIF **Amount:** £99,000	Researchers worked with 12 local authorities gathering data to develop tools so each local authority could identify areas of improvement in relation to the way AT is commissioned and used which have a direct impact on their ability to address policy changes. Individual feedback to all participating authorities is now underway. A report summarising the overall findings of the project will be published in early 2011 and dissemination activities are planned. Link to more information on FAST website	01/04/2010 31/12/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Assistive Technology Innovations Broker **Research team:** Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust **Contact:** 01226 432159 **Funder:** D4D HTC, Barnsley Hospital NHS Trust **Amount:** £21,000	The project created an online resource to allow AT innovators, manufacturers and users to share and comment on ideas so that more and better innovative AT devices become available in the market place. The work showed that the controlled exchange of information where intellectual property rights may be an issue is complicated and produced some challenges in developing the software. Further funding is being sought to take the design of the innovations website further. Link to more information on FAST website	01/05/2008 01/05/2010
ASTERICS - ASsistive TEchnology Rapid Integration and Construction Set **Research team:** Sensory Software **Contact: 732 9015 5490** **Other partners:** Partners in Poland, Czech Republic, Austria, Spain, France, Cyprus **Funder:** European Commission FP7 **Amount:** €3,380,000	This project is building a flexible and affordable approach which allows disabled people to interact with standard IT systems, embedded systems and their environment using emerging sensor techniques like brain-computer interfaces and computer vision. All technical partners have agreed on the system architecture, the hardware specification and the software specification and user recruitment is complete. Link to more information on FAST website	01/01/2010 31/12/2012
AT Information Network for the Future **Research team:** Disabled Living Foundation **Contact:** 0845 130 9177 **Other partners:** Foundation for Assistive Technology, RICAbility, Assist UK **Funder:** Department of Health Third Sector Investment Programme **Amount:** £225,000	The partners have shared knowledge and ideas to create a one-stop-shop source of reliable information for users about assistive technology equipment, which is a website called 'All About Equipment'. The project has also produced a report on information needs and gaps for AT users and investigated ways to provide additional information. Link to more information on FAST website	01/04/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
ATRAS - Assistive Technologies for Rehabilitation of the Arm following Stroke **Research team:** National Clinical FES Centre **Contact:** 01722 425138 **Other partners:** Keele University, University of Southampton, Bournemouth University, University of Nottingham, University of Newcastle , Robert Jones & Agnes Hunt Hospital, Peacocks Medical Group, Royal Bournemouth and Christchurch Hospital NHS Foundation Trust, Salisbury NHS Foundation Trust, Stoke on Trent NHS Primary Care Trust, University of Twente (Netherlands) **Funder:** NIHR PGAR **Amount:** £803,231	This programme of research is investigating the effectiveness of different types of ATaimed at supporting the rehabilitation of hand and arm function following a stroke. The goal is to develop a Care Pathway for use in stroke units throughout England. Researchers have developed a national survey of stroke clinicians, focus groups have been held with people with stroke, carers and healthcare professionals, a literature review is underway and researchers are assessing techniques for comparing combinations of seven technology approaches. Link to more information on FAST website	15/03/2009 15/03/2014
BASE - BASic English for deaf adults **Research team:** Division of Deaf Studies, School of Education and Social Science, University of Central Lancashire **Contact:** 01922 614794 **Other partners:** Walsall Deaf People's Centre (WDPC), other partners in Spain, Germany **Funder:** EU Lifelong learning (Grundtvig) Programme **Amount:** €244,659	This project has created an online sign language-based course to enable profoundly Deaf people to learn to read. Trials of the course are underway in UK, Spain and Germany and, following feedback, the course will be made available either commercially or through Deaf organisations to Deaf people all over Europe. Link to more information on FAST website	01/10/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Biomechanical and sensory constraints of step and stair negotiation in old age **Research team:** Institute for Biomedical Research into Human Movement and Health, Manchester Metropolitan University **Contact:** 0161 247 5593/5581 **Other partners**: Building Research Establishment Group **Funder:** NDA **Amount:** £376,000	The aim of this research is to understand how musculoskeletal and sensory functions affect the ability to take steps safely, and how they deteriorate with age. Fifty older participants (65 years and above), including individuals with a history of falls, and fifty younger participants (under 40 years) are undergoing tests on a staircase with adjustable step-going and step-rise. Link to more information on FAST website	01/09/2009 30/08/2011
BioMed Healthcare Technology Co-operative (HTC) **Research team:** BioMed Healthcare Technology Co-operative **Contact:** 0117 959 5690 **Other partners:** Project has around 50 contracted partners, collaborators, funders and industry clients **Funder:** NIHR HTD **Amount:** £2,400,000	Researchers have collaborated on the development of six new devices for continence; an odour detector, a leakage detector, a novel suprapubic bladder drainage system, a novel female urinal, a rapid diagnostic for urinary tract infection and an early warning catheter blockage sensor, and have evaluated around 20 new continence products. Link to more information on FAST website	01/04/2005 31/12/2010
BRAID - Bridging Research in Ageing and ICT Development **Research team:** Netwell Centre, Dundalk Institute of Technology, **Contact:** 042 937 0497 **Other partners:** Queen's University Belfast, Global Security Intelligence Limited, Trilateral Research & Consulting plus partners in Portugal, Australia, Italy, Germany and the Netherlands **Funder:** European Commission FP7 **Amount:** €1,200,000	The aim of this project is to develop a comprehensive roadmap for active ageing by consolidating existing roadmaps and by describing and launching a means of encouraging stakeholders to come together for consultations. Link to more information on FAST website	01/03/2010 01/03/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
BRAIN - BCIs with Rapid Automated Interfaces for Nonexperts **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Other partners:** The Cedar Foundation, other partners in the Netherlands, Spain, Poland **Funder:** European Commission FP7 **Amount:** €4,000,000	The aim of this project is to improve the reliability, flexibility and accessibility of brain-computer interfaces (BCIs), and to reduce a person's dependence on outside help when using them. Research has identified key parameters that can dramatically affect BCI performance and researchers have developed a friendly, straightforward wizard to guide people to the best option. They have also designed easy to apply (and remove) electrodes for use in assessments. Link to more information on FAST website	01/09/2008 31/08/2011
BRAINABLE : Autonomy and social inclusion through mixed reality Brain-Computer Interfaces: Connecting the disabled to their physical and social world **Research team:** AbilityNet **Contact:** 0870 240 4455 **Other partners:** Other partners in Spain, Austria, Portugal **Funder:** European Commission FP7 **Amount:** €2,980,000	The project's goal is to develop an intelligent virtual reality-based user interface with avatars and scenarios that will help disabled people to move around, interact with all sort of devices, express themselves and communicate online and offline with other people. Outputs to date include a brain computer interface adapted for controlling Twitter. Link to more information on FAST website	01/01/2010 31/12/2012
Bravehealth: Patient centric approach for an integrated, adaptive, context aware remote diagnosis and management of cardiovascular diseases **Research team:** School of Electronics and Computer Science, University of Southampton **Contact:** 023 8059 5000 **Other partners:** University of Birmingham, University of Hull and 17 other partners in Italy, Finland, Belgium, Poland, Portugal, the Netherlands and China **Funder:** European Commission FP7 **Amount:** €10,400,000	Researchers are developing a wearable unit, which can monitor vital signs such as pulse readings to make sure someone with cardiovascular disease remains healthy. The system will also contact users in real time if abnormal readings are detected and make suggestions such as a change of drug or activity. Link to more information on FAST website	01/03/2010 28/02/2014

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
BRIDGE - Building Relationships with the 'Invisible' in the Digital (Global) Economy **Research team:** University of Edinburgh Business School **Contact:** 0131 651 3198 **Other partners:** Middlesex University, University of Leeds **Funder:** EPSRC **Amount:** £767,623	This project aims to build a 'bridge' from the needs of technologically excluded users to the capabilities of suppliers of products and services. Researchers are developing a model to predict how inclusive various digitial interfaces are and to evalute new designs. Link to more information on FAST website	01/05/2009 31/10/2011
Buddy - post-digital social care service **Research team:** Sidekick Studios **Contact:** 0207 407 6623 **Other partners:** South London and Maudsley NHS Trust **Funder:** NHS London, NESTA **Amount:** £72,000	This project began by developing a radio which allows people with long term conditions to broadcast their mood to a network of friends, carers and healthcare professionals via a range of social media platforms. Early findings suggest the key benefit to users is the ability to create a diary of their moods and researchers are responding to these findings by developing new designs. Link to more information on FAST website	01/04/2010 31/03/2011
Bug-free prostheses: Reducing infection risk and improving reliability **Research team:** Department of Civil Engineering, University of Strathclyde **Contact:** 0141 548 3277 **Funder:** EPSRC **Amount:** £202,308	Researchers are developing models of the interface between a prosthetic and the user's limb in order to produce new lining materials and prosthetic interface systems which are more comfortable for the user. Link to more information on FAST website	01/11/2009 30/04/2011
CAPSIL international support of a Common Awareness and knowledge Platform for Studying and enabling Independent Living **Research team:** School of Computer Science & Informatics, University College Dublin, **Contact:** 353 1 716 2483 **Other partners:** Queen's University Belfast, Imperial College London, other partners in Italy, Ireland, USA and Japan **Funder:** European Commission FP7 **Amount:** €786,618	The project brought together a coalition of university and industrial partners in the EU, US and Japan to develop a detailed roadmap for EU research to achieve effective and sustainable solutions for independent living, based on analysis of the clinical requirements and the technology which was already available or under development. The result is a road map document and a companion internet resource, the CAPSIL Wiki. Link to more information on FAST website	01/04/2008 01/04/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
CARDIAC: Coordination action in R&D in accessible and assistive ICT **Research team:** Central Remedial Clinic **Contact:** 01 805 7400 **Other partners:** John Gill Technology Ltd, other partners in Switzerland, Cyprus, Spain, Italy, Germany, the Netherlands, Norway, Israel, Greece, Spain, Portugal and Australia **Funder:** European Commission FP7 **Amount:** €562,449	Researchers aim to identify the state of the art in different areas of accessible AT, identify the gaps in current research and pinpoint the barriers to such research work. They will then develop suggestions for how the barriers can be overcome and produce a roadmap to help the European Commission focus on future ways to direct funding. Link to more information on FAST website	01/03/2010 28/02/2013
CCE - Connected Care for Elderly persons suffering from dementia **Research team:** Building Research Establishment Group **Contact:** 01923 664000 **Other partners:** Hereward College, Centrihealth, Peverell, other partners in the Netherlands, Germany, Hungary **Funder:** AAL **Amount:** €2,200,000	The project is building on initiatives at the national level and, taking account of different funding mechanisms in EU member states, to develop and assess business models to support the mainstream provision of assistive solutions. The focus will be on people with dementia, but the platform will offer the potential to be extended to other chronic conditions. Link to more information on FAST website	01/01/2009 31/12/2011
CHIRON - Cyclic and person-centric Health management: Integrated appRoach for hOme, mobile and clinical eNvironments **Research team:** Cardionetics Ltd **Contact:** 01344 392773 **Other partners:** Southampton University Hospitals NHS Trust, University of Southampton, 26 other partners in Spain, Greece, Italy, Hungary, the Netherlands, Slovenia **Funder:** Artemis Joint Undertaking, TSB **Amount:** €18,000,000	The project is investigating ways in which ICT can be used to create an overall, integrated system architecture providing a 'continuum of care' where the patient is at the centre of the whole approach The Southampton University team is developing advanced, ultra low-power, signal processing algorithms and circuits embedded within the sensors to create intelligent medical sensors with decision-making capability. Link to more information on FAST website	01/03/2010 01/02/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Combining transcranial direct current stimulation (tDCS) with robotic hand training for the severely impaired hand after stroke **Research team:** School of Health Sciences, University of Southampton **Contact:** 023 8059 7979 **Funder:** Wessex Medical Trust **Amount:** £19,223	The aim of this project is to assess whether a combination of two technologies can help people who have had a stroke recover better hand movements. Link to more information on FAST website	01/05/2010 30/04/2012
CommonWell: Common platform services for ageing Well in Europe **Research team:** Tunstall Group Ltd **Contact:** 01977 661234 **Other partners:** Empirica, Work Research Centre Ltd, Milton Keynes Council, plus other partners in the Netherlands, Germany, Spain **Funder:** European Commission CIP **Amount:** €2,680,000	The aim of this telecare project is to support independent living and improve quality of life for older people and those living with long-term conditions through better integration of health and social care. The systems developed in the project are currently being used in a live environment with real users at four sites including older people with Chronic Obstructive Pulmonary Disease (COPD) in Milton Keynes. Link to more information on FAST website	01/10/2008 01/10/2011
CompanionAble - Integrated Cognitive Assistive & Domotic Companion Robotic Systems for Ability & Security **Research team:** School of Systems Engineering, Reading University **Contact:** 0118 378 8617 **Other partners:** Other partners in Germany, France, Spain, Austria, Belgium, the Netherlands **Funder:** European Commission FP7 **Amount:** €7,800,000	This project aims to combine robotics with ambient intelligent technologies to deliver a mobile robotic companion which will work collaboratively within a smart home environment. Researchers have demonstrated one such device, called Hector, helping an older person find things around the house and set up video-conferencing and cognitive stimulation sessions. Link to more information on FAST website	01/01/2008 31/12/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Companions: persistent multi-modal interfaces to the Internet **Research team:** Department of Computer Science, University of Sheffield, **Contact:** 0114 22 21800 **Other partners:** University of Oxford, University of Teeside, Napier University, other partners in Czech Republic, Sweden, Finland, USA, France, Italy, Spain **Funder:** European Commission FP6 **Amount:** €12,880,000	This project aims to combine advanced technologies to create personal 'agents' or 'companions' which communicate and develop a relationship with users, primarily by understanding and using speech. The project has developed two trial demonstrators. The Senior Companion engages the user in conversations relating to a set of photographs, tells jokes and reads the news. The Health and Fitness Companion promotes exercise and a healthy diet. Link to more information on FAST website	01/11/2006 31/10/2010
Consumer Models for Assisted Living - CO-MODAL **Research team:** Health Design & Technology Institute, Coventry University **Contact:** 024 7615 8000 **Other partners:** Age UK, Grandparents PLUS **Funder:** TSB ALIP **Amount:** £742,399	This project aims to support the development of a consumer market for assisted living technologies (ALTs) for 'younger' older people, that is those who are approaching retirement and older age. The goal is to create a new business model which supports private purchase of ALTs; a toolset to help industry develop a consumer market; and a guide to provide more information to potential users, family and advisors about ALTs. Link to more information on FAST website	01/01/2011 31/12/2013
COSPATIAL - COmmunication and Social PArticipation: collaborative Technologies for Interaction And Learning **Research team:** Human Factors Research Group, University of Nottingham, **Contact:** 0115 9514040 **Other partners:** University of Nottingham, University of Birmingham, other partners in Italy, Israel **Funder:** European Commission FP7 **Amount:** €,650,000	The aim of this project is to develop collaborative technologies designed to promote the learning of 'social competence' by children with autistic spectrum disorders (ASD). Researchers are looking at two types of technology: virtual environments, which are 3D simulations of everyday situations accessed via a PC, and active surfaces, which are shared co-located systems. Link to more information on FAST website	01/02/2009 31/01/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Creating artificial sensation by tactile sensing and innervations through nerve endings **Research team:** School of Design, Engineering and Computing, Bournemouth University, **Contact:** 01202 524111 **Other partners:** Inspire, Royal Bournemouth NHS Foundation Trust, Poole Hospital NHS Foundation Trust, Salisbury NHS Foundation Trust **Funder:** Royal Bournemouth NHS Foundation Trust, Bournemouth University **Amount:** £40,200	People who have peripheral neuropathy as a result of disease such as diabetes or after chemotherapy for cancer have reduced sensations in their fingers and limbs. Researchers are developing tactile gloves and socks which can sense and transmit touch and force information to areas of skin with normal sensation, and use this as augmented feedback to allow people to learn to compensate for the areas of sensory loss. The signal from the sensor to the area of 'normal' skin will be used to help people to learn to reinterpret this as coming from their affected hand or foot. Link to more information on FAST website	01/10/2009 30/09/2012
Crucible Centre **Research team:** Accessibility Research Group, University College London **Contact:** 020 7679 7009 **Funder:** LLHW **Amount:** £3,000,000	This is one of three new 'lifelong health and wellbeing' research centres which will carry out research on healthy ageing, targeting the major determinants of health and wellbeing over the whole life course and reducing dependency in later life. Funded projects include work on developing robots to support social inclusion and ways to evaluate the transport environment for people with visual impairment. Link to more information on FAST website	01/10/2009 30/09/2014
Customisation of cosmetic covers for artificial limbs **Research team:** Design, Manufacture and Engineering Management Department, University of Strathclyde, **Contact:** 0141 548 2091 **Other partners:** Chas A Blatchford & Sons Ltd, PACE Rehabilitation **Funder:** EPSRC **Amount:** £189,616	Researchers aim to provide end-users (both prosthetists and prosthesis users) with a method of influencing shape, appearance, function and behaviour of foam cosmoses (cosmetic covers) for orthopaedic applications. Link to more information on FAST website	20/09/2010 19/09/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
DAP Connect - Toolkits for Assisted Living **Research team:** Healthcare over Internet Protocol CIC **Contact:** **Other partners**: Microsoft, Carers UK, University of Westminster LSE Enterprise, Advanced Digital Institute, BRE, Telecare Services Association, Docobo, Foundation for Assistive Technology **Funder:** TSB ALIP **Amount:** £1,752,098	The aim of this project is to create a 'toolbox' of assited living services which can be downloaded from an online store and used by a range of service organisations to provide support for older people, people living with long term conditions and their carers. Through an empirical validation of 4000-5000 informal carers, and simulation of between 50,000 and 100,000, the project will test the concept of deploying assisted living service models in real life at scale. Link to more information on FAST website	01/03/2011 31/12/2012
Design and Human Evaluation of Haptic Devices for Hand Rehabilitation from Sensory Deficits due to Neurological Impairment **Research team:** School of Electronics and Computer Science, University of Southampton **Contact:** 023 8059 5000 **Funder:** Adventure in Research Grants Scheme, University of Southampton **Amount:** £37,070	Researchers investigated and designed three different tactile technologies: vibration, shape memory alloys, and a motor-driven 'squeezer' which could be used in rehabilitation of the hand. These were iteratively developed with three rounds of user feedback, and a further round of evaluation with people recovering from stroke. Link to more information on FAST website	01/05/2010 31/12/2010
Design evaluation of older people's extra care housing: development and testing of an assessment tool **Research team:** School of Architecture, University of Sheffield, **Contact:** 0114 222 0399 **Other partners:** Personal Social Services Research Unit, University of Kent **Funder:** EPSRC **Amount:** £553,906	Researchers have designed and made available a tool EVOLVE (EValuation of Older people's LiVing Environments) which describes the range of extra care housing, quantifies the experience of the people living and working there, and identifies those environmental features that are associated with higher quality of life. The tool is appropriate for use across the range of purpose-built older people's housing and care settings, from sheltered housing to residential care homes, and can be used at all stages in the life-cycle of a building, from inception, through design and design evaluation to post-occupancy evaluation. Link to more information on FAST website	01/10/2007 30/09/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Design for Ageing Well: Improving the quality of life for the ageing population using a technology enabled garment system **Research team:** Smart Clothes and Wearable Technology Research Group, University of Wales **Contact:** 01633 432432 **Other partners:** University of Ulster, University of the Arts London University of Salford, University of Westminster **Funder:** NDA **Amount:** £767,264	The aim of this project is to investigate the application of smart textiles in a clothing system which promotes self-monitoring of well-being amongst older people. Researchers are currently identifying end user needs, and are integrating wearable technologies which send data about a person's well-being via a customised smart phone interface. Link to more information on FAST website	01/01/2009 31/12/2011
Designing scaleable assistive technologies and services for independent healthy living and sustainable market development in the mixed digital economy **Research team:** Newcastle University Business School **Contact:** 0191 243 0770 **Other partners:** Years Ahead, RTC North Ltd, Critical Data Ltd, Cybermoor Services Ltd, Docobo Ltd, Age UK, ADL Smartcare Ltd, Manus Neurodynamica, Limbs Alive Ltd, Intrahealth Ltd **Funder:** TSB ALIP, ESRC **Amount:** £1,969,962	The main objectives of the project are to design new business models for scalable assistive technologies and services, and to undertand the factors that promote or inhibit people living in the community from making use of such technologies. Link to more information on FAST website	01/03/2011 31/03/2014
Developing educational software to assess if autistic children can benefit from access to open learner models and emotional feedback on learning **Research team:** Department of Psychology, University of Bath **Contact:** 01225 383843 **Funder:** EPSRC **Amount:** £491,413	Researchers are assessing whether offering structured information about learning to children with autism via a computer system which records their progress improves their learning experience and achievements. They will also look at whether having an avator on the computer screen displaying emotions whilst providing feedback is helpful for this group of learners. Link to more information on FAST website	01/07/2009 30/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Development of a Home Based Visual Exploration Training for patient with Hemianopia **Research team:** Cognitive Neuroscience Research Unit, University of Durham **Contact:** 0191 334 0013 **Funder:** NIHR RfPB **Amount:** £201,932	The aim of this project is to develop a low-cost, computerised training package which people can use in their own home to help improve loss of eye function on either their left or right side following a stroke or brain injury. To date 47 people have been recruited and evaluation of their performance before and after the assessment is on-going. Link to more information on FAST website	01/05/2009 31/10/2011
Development of a new reusable absorbent incontinence garment (Pantegral) for women **Research team:** Department of Medical Physics and Bioengineering, University College London **Contact:** 020 7679 0200 **Funder:** NIHR HTD **Amount:** £266,884	This project aims to develop a new type of Pantegral (reusable/washable pant with integral absorbent pad) for lightly incontinent women, with significantly improved leakage performance. Clinical evaluation of advanced prototype products have confirmed that performance close to target had been achieved, and efforts are now underway to commercialise the design. Link to more information on FAST website	01/06/2007 30/09/2010
Development of a saliva-based point of care biosensor for chronic obstructive airways disease **Research team:** Institute for Science and Technology in Medicine, Keele University **Contact:** 01782 553024 **Funder:** NIHR i4i **Amount:** £99,768	The aim of this research is to develop a non-invasive way of monitoring the health status of someone with chronic obstructive pulmonary disease (COPD) by measuring key markers in saliva and using this information to provide early warning of potential flare-ups. Link to more information on FAST website	01/10/2009 31/03/2011
DICTA-SIGN: Sign language recognition, generation and modelling with application in deaf communication **Research team:** School of Computing Sciences, University of East Anglia, **Contact:** 01603 592847 **Other partners:** University of Surrey, other partners in Greece, Germany, France **Funder:** European Commission FP7 **Amount:** €3,920,000	The goal of this project is to make web-based interactions in sign language possible. Users' signs are converted by the system into an internal representation of sign language and disseminated by animated avatars. Work is underway to locate, track and determine the pose of a signer, and to enhance timing and synchronisation features. Link to more information on FAST website	01/02/2009 31/03/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Does home telemonitoring reduce healthcare use in recurrent hospital attenders with chronic obstructive pulmonary disease (COPD)? A pilot randomised trial **Research team:** School of Medicine, University of Swansea **Contact:** 01792 513400 **Other partners**: Hywel Dda Health Board, Llandough Hospital, Vale Health **Funder:** Welsh Assembly **Amount:** £120,000	Researchers plan to identify 240 people who have had more than two admissions to hospital in the last two years for healthcare issues associated with their COPD. Half the sample will be randomised to receive telemonitors for one year, while the other half will receive standard care. After a year, the telemonitors will be swapped in a crossover trial for a further year of monitoring. So far 600 people have been screened and 110 enrolled by Hywel Dda Health Board and Cardiff and Vale University Health Board. Link to more information on FAST website	04/01/2010 03/01/2012
DTV4All: Digital Television for All **Research team:** School of Engineering and Design, Brunel University **Contact:** 01895 265814 **Other partners:** Red Been Media Ltd, other partners in Germany, Spain, Italy **Funder:** European Commission CIP **Amount:** €2,930,000	The aim of this project is to establish ways in which digital television can be made accessible in all EU member countries in the near future. Work in the UK has focused on the use and quality of sub-titles and researchers have run a series of user tests, some of which incorporated eye tracking technology. The results suggest that there is much room for improvement in the deployment of sub-titles, as users were found to spend 90% of their time looking at subtitles and only 10% of time on the image. Average delays of between 3-5 seconds in uploading subtitles also made it hard for people to follow a programme Link to more information on FAST website	01/07/2008 01/01/2011
Dynamic orthosis with virtual electrodes for the lower limb **Research team:** School of Health, Sport & Rehabilitation Sciences, University of Salford, **Contact:** 0161 295 2275 **Other partners:** Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield Hallam University, DM Orthotics Ltd **Funder:** NIHR HTD **Amount:** £852,000	The project team has successfully developed, and demonstrated a prototype for a self-calibrating, wearable functional electrical stimulator in a lab-based study with people who have foot drop following stroke. In addition, a dynamic orthosis has been designed and and evaluated. The final trial of both the stimulator as a stand-alone device and in combination with the dynamic orthosis is due to start in early 2011. Link to more information on FAST website	01/05/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
EAR: Eye-based Activity Recognition **Research team:** Computing Department, Lancaster University **Contact:** 01524 510311 **Funder:** EPSRC **Amount:** £147,233	Researchers are looking at how longitudinal analysis of eye movement could be used in health and lifestyle monitoring. Researchers believe that patterns of eye movement could provide an indication of an individual's activities or underlying cognitive processes, for example, levels of attention. Variations from the normal pattern could indicate changing health status, and the project team is building a demonstrator which will try out this approach. Link to more information on FAST website	29/03/2009 28/09/2011
eCAALYX - enhanced Complete Ambient Assisted Living Experiment **Research team:** Faculty of Health and Social Work, University of Plymouth **Contact:** 01752 233842 **Other partners:** University of Limerick, TeleMedic Systems, other partners in Spain, Germany, Portugal, Ireland **Funder:** AAL **Amount:** €4,000,000	The project is extending earlier work on developing assisted living systems designed to monitor the health of older people for use by people living with chronic condition, both at home and on the move. Current work is developing standards-based interfaces and examining interoperability issues between the monitoring devices, which include wearable sensors. Link to more information on FAST website	01/06/2009 01/05/2012
ECHOES II: Improving Children's Social Interaction through Exploratory Learning in a Multimodal Environment **Research team:** Human Communication Research Centre, University of Edinburgh **Contact:** 0131 650 466 **Other partners:** University of Sussex, University of Birmingham, University of Wales Institute, University of Strathclyde, University of Dundee **Funder:** TLRP **Amount:** £1,500,000	Researchers aim to develop an adventurous technology-enhanced-learning (TEL) environment in which both typically developing children and children with Asperger Syndrome can explore and improve social interaction and collaboration skills. The first working prototype has been completed, integrating multi-touch, gaze estimation, and learning activities. The prototype has been trialled in a special school in Scotland with encouraging results. A full evaluation is planned for 2011. Link to more information on FAST website	17/11/2008 16/11/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Effectiveness and feasibility of intensive short-term graded exercise programmes, using either treadmill or static exercise bicycle, for non-ambulant children and young people with cerebral palsy. **Research team:** Chailey Heritage Clinical Services **Contact:** 01825 722112 **Funder:** NIHR RfPB **Amount:** £64,258	This study has demonstrated that a relatively short exercise intervention on a static bicycle or treadmill can lead to valuable improvements in standing ability in young people with severe levels of cerebral palsy. It is a simple, feasible and effective training programme that can be incorporated into clinical practice for this population group for whom there are few other exercise opportunities. Link to more information on FAST website	01/08/2008 31/08/2010
Effects of reverberation on conversation in rooms **Research team:** School of Psychology, Cardiff University, **Contact:** 029 20874523 **Other partners:** University of Reading, Arup Acoustics, Ecophon, Square One Research **Funder:** EPSRC **Amount:** £349,691	This project developed innovative sound-mapping software based on human hearing to help architects design out unwanted noise in public spaces. The software generates audibility maps of proposed room designs. The research will also help in the future development of hearing aids and cochlear implants. Link to more information on FAST website	01/02/2006 30/06/2010
EFORTT - Ethical frameworks FOR Telecare Technologies **Research team:** Department of Sociology, Lancaster University **Contact:** 01524 593148 **Other partners:** Age Concern, Lancashire County Council, Chubb, Just Checking, other partners in Norway, the Netherlands, Spain **Funder:** European Commission FP7 **Amount:** €1,020,000	Researchers have conducted observations, interviews and citizens' panels in four countries with technology developers and manufacturers, providers and installers of telecare devices in domestic settings, professionals and volunteers working with telecare users, telecare users and their families, and retired people who may be considering options for their own independence or care. Link to more information on FAST website	01/03/2008 28/02/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
ENABLE - A wearable system supporting services to *enable* elderly people to live well, independently and at ease **Research team:** School of Systems Engineering, Reading University **Contact:** 0118 378 8617 **Other partners:** Docobo Ltd, Cardionetics Ltd, other partners 10 organisations from Austria, Estonia, Czech Republic, Spain, Greece, Belgium **Funder:** European Commission FP6 **Amount:** €2,800,000	Researchers have developed a wrist unit for older people to use inside and outside the home Prototype units offer a range of services including falls prevention and detection, long term condition monitoring, environmental control, emergency call, medication prompting, life style and quality of life assessment. The device has a simple five button operation and the colours of the symbols on the user interface have been chosen to make it easy to use. It accepts voice commands in a choice of languages. The design has been registered with the European Product Design centre. Link to more information on FAST website	01/01/2007 01/06/2010
Enabling health, independence and wellbeing for psychiatric patients through Personalised Ambient Monitoring (PAM) **Research team:** Institute of Sound & Vibration Research, University of Southampton, **Contact:** 023 8059 2294 **Other partners:** University of Nottingham, University of Stirling **Funder:** EPSRC **Amount:** £380,000	The project has trialled the use of a set of sensors located in a person's home, plus devices such as mobile phones, to collect data on the activity patterns of people living with mental health conditions. This information is sent to a computer system programmed to detect changes in typical activity patterns which could indicate the person's mood is deteriorating. Researchers are now looking for a commercial partner to take this forward. Link to more information on FAST website	01/10/2007 30/09/2010
ENACT: Exploiting social Networks to Augment Cognitive behavioural Therapy **Research team:** University of Lincoln Social Computing Research Centre, **Contact:** 01522 882000 **Other partners:** University of Sussex, University of Loughborough, Ultrasis UK Ltd **Funder:** EPSRC **Amount:** £463,840	This project is investigating the hypothesis that computerised cognitive behavioural therapy (CCBT) programmes which replicate the interactive structure of online social media will be more effective at encouraging user uptake and engagement than CCBT programmes that replicate the structure of traditional one-to-one therapy sessions. Link to more information on FAST website	01/10/2010 31/01/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Engineering for Life Research Network **Research team:** Material and Engineering Research Institute - Sheffield Hallam University, Art and Design Research Centre - Sheffield Hallam University, C3RI - Cultural, Communication and Computing Research Institute - Sheffield Hallam University, Biomedical Research Centre **Contact:** 0114 225 3500 **Funder:** EPSRC **Amount:** £701,561	This network is designed to increase interdisciplinary research which addresses problems related to the three themes of rehabilitation and assisted living, sport, physical activity and medicine, and sustainability. It has funded work on exploring the potential for online virtual environments to encourage older people to remain active. Link to more information on FAST website	02/09/2009 01/09/2012
EU4ALL **Research team:** Human-Computer Interaction Research Group, University of York **Contact:** 01904 432722 **Other partners:** Open University, other partners in Spain, Greece, Italy, the Netherlands, Germany **Funder:** European Commission FP6 **Amount:** €7,400,000	This project aims to find ways in which technology can be used to bring support services to disabled learners. There have been a number of seminars across Europe and the University of York team has sought responses to an online questionnaire looking at learning issues for students with disabilities. Link to more information on FAST website	01/10/2006 30/09/2010
Evaluation of the Whole System Demonstrator (WSD) programme **Research team:** School of Life & Medical Science, University College London **Contact:** 020 7955 6840 **Other partners:** City University, University of Oxford, University of Manchester, Imperial College Business School, Nuffield Trust, Kings Fund **Funder:** Department of Health **Amount:** £3,700,000	This is a formal evaluation of the Whole Systems Demonstrator project looking at the impact on service use and associated costs for the NHS and social services (ie return on investment), the reported and clinical outcomes for participants and their carers, the costs and cost effectiveness of this approach, the experiences of participants, carers, healthcare professionals, service users and informal carers, and the organisational factors which facilitate or inhibit the successful introduction of remote care services. Note this is awaiting update. Link to more information on FAST website	01/05/2008 31/05/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Exploring Human Hand Capabilities into Multifingered Robot Manipulation **Research team:** School of Creative Technologies, University of Portsmouth **Contact:** 023 9284 5461 **Other partners:** Bristol Robotics Laboratory, Shanghai Jiao Tong University, Tokyo Metropolitan University **Funder:** EPSRC **Amount:** £295,150	This project is investigating artificial intelligence (AI) methodologies and practical solutions which will allow robotic hands to adapt automatically to human environments. The project will consider whether this will enable them to perform useful manipulation tasks involved in daily living, with potential for health care and rehabilitation applications. Link to more information on FAST website	28/08/2009 27/08/2012
Facilitating Wider Uptake of Inclusive Design **Research team:** School of Engineering and Design, Brunel University, **Contact:** 01895 265814 **Other partners:** Alloy Total Product Design, Rood Industrial Design Ltd, Easy Living Home, Wright Design, University of Cambridge, Pearson Matthews Design Partnership, Ricability, Granta Design Ltd, Factory Design, Sprout Design **Funder:** EPSRC **Amount:** £242,839	The project has developed ErgoCES, a result-oriented database for designers which provides anthropometric information, age categories, design scenarios and case studies. Researchers have completed evaluations with 78 design students and professional designers and have disseminated their findings via 15 issues of a newsletter and at a number of conferences. A second tool concept, called MHIRROR, is still under development. Link to more information on FAST website	01/09/2008 31/08/2011
Fall Detectors - What do users want? **Research team:** Faculty of Health and Life Sciences, Coventry University, **Contact:** 024 7679 5959 **Other partners:** HDTI (Health Design & Technology Institute) Coventry University **Funder:** NHS West Midlands Innovation Fund **Amount:** Not disclosed	Researchers are evaluating the experience of 20 older people issued with fall detectors as part of their existing care package. They will also conduct a literature review and market appraisal of existing fall detector technology and create a demographic profile of their use across the region. The project will conclude with a workshop to summarise the findings and agree priority areas for action. Link to more information on FAST website	01/01/2011 31/12/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Feasibility study for Assistive Technology product rating, approval or accreditation scheme **Research team:** Years Ahead **Contact:** 0844 561 7073 **Other partners:** Newcastle University **Funder:** TSB **Amount:** Not disclosed	Consultations including focus groups, semi-structured interviews and a survey showed that the majority of participants favoured an online rating model as the best approach to raise awareness, improve consumer confidence, and help to de-stigmatise the use of AT products. Further research is underway to develop a website. Link to more information on FAST website	01/07/2010 31/01/2011
Feasibility study into use of the Powerwheel for rehabilitation within the NHS **Research team:** Royal National Orthopaedic Hospital **Contact:** 020 8954 2300 **Other partners:** University College London, Frazer Nash Consultancy, University of Alberta **Funder:** NIHR i4i **Amount:** £99,800	This study is exploring the potential use of a novel device, developed for training UK Paralympic athletes, to allow researchers to evaluate a wheelchair user's needs and develop customised rehabilitation and training. The device is fitted to the wheelchair rims and provides remote access to information. Link to more information on FAST website	01/05/2010 30/04/2011
Future bathroom: A study of user-centred design principles affecting usability, safety and satisfaction in bathrooms for people living with disabilities **Research team:** Art and Design Research Centre, Sheffield Hallam University, **Contact:** 0114 225 2686 **Other partners:** Ideal Standard **Funder:** EPSRC **Amount:** £409,952	The project developed a number of 'mock ups' of bathroom furniture and devices which were tested with older people. The results indicate that choice and flexibility are key factors in supporting dignity and independence and a range of design concepts and detailed designs have been proposed through development with end users and are now being considered by Ideal Standard to include in mainstream designs. Link to more information on FAST website	01/04/2008 31/03/2011
Gait Trainer **Research team:** European Technology for Business Ltd **Contact:** 01438 822822 **Other partners:** Bath Institute of Medical Engineering Ltd, The London Knee Clinic **Funder:** TSB ALIP **Amount:** £426,741	This project developed an innovative gait system for people with abnormal gait which has been trialled in three different clinical environments: older people at risk of falling, knee surgery, and prosthesis. The system showed that it could provide the kind of data that would enable a judgement about the likelihood of a fall, and that it could be done quickly in a small space such as a GP surgery, allowing for a referral for preventative physiotherapy. Link to more information on FAST website	01/09/2008 01/08/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Get Digital **Research team:** Digital Unite, **Contact:** 0870 241 5091 **Other partners:** National Institute of Adult Continuing Education **Funder:** DWP, DCLG **Amount:** £2,900,000	This project aims to promote and support digital inclusion for older residents in sheltered housing by offering grants, training and support to social landlords across England. The programme has over 100 projects in active delivery and every sheltered housing scheme is indicating high attendance levels throughout the learning programme. Link to more information on FAST website	25/02/2010 31/03/2011
Getting Equipped to Tackle Forgetfulness **Research team:** Foundation for Assistive Technology **Contact:** 0300 330 1430 **Other partners:** Innovations in Dementia CIC, Trent Dementia Services Development Centre **Funder:** Department of Health Reaching Out to Carers Innovation fund **Amount:** £17,000	The project team engaged people with dementia and their family and carers and used their experiences to inform the development of a guide to AT choices. 'Getting Equipped for Forgetfulness' was launched in March 2011 as an online resource and has been disseminated widely to third sector organisations and others who work with carers and people with dementia. Link to more information on FAST website	01/01/2011 03/31/2011
GREAT: Gesture REcognition in Aphasia Therapy **Research team:** Centre for Human-Computer Interaction Design, City University, **Contact:** 020 7040 8427 **Funder:** EPSRC **Amount:** £297,280	People with aphasia (a language disorder often resulting from stroke) have difficulty with speaking and writing, and therapists often recommend they try using gestures to communicate. Researchers are working with users to explore whether commercially available gesture-based technology, such as the Nintendo Wii, can be adapted to provide support for this. Link to more information on FAST website	01/08/2010 31/03/2012
GUIDE - a randomised trial **Research team:** Department of Psychology, University of Stirling, **Contact:** 01786 467640 **Other partners:** Brain Injury Rehabilitation Trust **Funder:** CSO **Amount:** Not disclosed	This work is extending an existing Guide system developed to support people in carrying out everyday tasks. The goal is to provide help for people to complete their morning routines, including dressing, before going on to do their own laundry. This is achieved using a speech recognition system to simulate the verbal prompts provided by carers. Link to more information on FAST website	01/10/2010 31/10/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
GUIDE: Gentle User Interfaces for Disabled and Elderly citizens **Research team:** Department of Engineering, University of Cambridge **Contact:** 01223 332600 **Other partners:** Other partners in Germany, France, Portugal **Funder:** European Union FP7 **Amount:** €4,890,000	Many older people have mild visual, auditory, speech or motor impairments which can make it hard for them to use digital TV systems. However, the TV is fast becoming a means of accessing a range of other applications in the area of healthcare and monitoring, education and leisure, and home automation. The aim of this project is to develop a toolbox of adaptive user interfaces which meet the requirements of older users when using TV set-top boxes. Link to more information on FAST website	01/02/2010 31/01/2013
Hand opening to grasp 'virtual' objects during reaching tasks in a rehabilitation robot: a proof of concept study **Research team:** School of Health Sciences, University of Southampton **Contact:** 023 8059 7979 **Funder:** Wessex Medical Trust **Amount:** £19,783	The aim of this research is to look at whether electrical stimulation of the wrist and finger muscles can help people to open their paralysed hand in order to grasp 'virtual' objects which are presented to them on a computer screen as a way of mimicking the actions they would normally carry out in real life. Link to more information on FAST website	01/05/2010 30/04/2012
HANDS - Helping Autism diagnosed young people Navigate and Develop Socially **Research team:** Department of Education, London South Bank University **Contact:** 020 7815 5740 **Other partners:** Helen Allison School, plus partners in Hungary, Romania, Denmark, Sweden **Funder:** European Commission FP7 **Amount:** €2,580,000	This project aims to use findings about persuasive technology to help young people with an autism diagnosis to improve social as well as other practical skills. The UK research team is testing the prototype software toolkit, which is designed to provide support for daily situations such as shopping or travelling, at a special school in Hertfordshire. Link to more information on FAST website	01/06/2008 01/05/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
HAPPY AGEING - a Home Based APProach to the Years of AGEING **Research team:** Global Security Intelligence Limited **Contact:** 0207 993 4431 **Other partners:** Other partners in Italy, Spain, Hungary, the Netherlands **Funder:** AAL, TSB **Amount:** €1,674,695	The aim of this project is to develop a user friendly device which can support older people and those living with chronic conditions in performing some of their daily activities. Researchers are integrating sensors and commercially available technologies with a smart system based on RFID. The device has three modules: a lifestyle monitor, a navigation assistant, and a personal assistant. Prototype systems have been developed and are entering testing stage with focus groups made up of older users in Hungary. Link to more information on FAST website	01/04/2009 30/03/2011
HAPTIMAP - Haptic, Audio and Visual Interfaces for Maps and Location Based Services **Research team:** School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, **Contact:** 028 9097 4669 **Other partners:** University of Glasgow, BMT Group, other partners in Sweden, Spain, Germany, France, Finland, the Netherlands **Funder:** European Commission FP7 **Amount:** €7,800,000	The aim of this project is to make geographic information and location based services more accessible for all users by including touch and hearing as methods of accessing information. Researchers have carried out initial user studies, started design work, started building the toolkit architecture, and published the Hapti Map user study guidelines. Link to more information on FAST website	01/09/2008 30/08/2012
Health hub: user-centred design, development and integration with the built environment **Research team:** BRE - Building Research Establishment Group **Contact:** 01923 664000 **Other partners:** FAST, Hereward College, Microsoft; Alvolution; Willmott Dixon Construction Ltd; Cisco Systems; Sasie Ltd; Royal Institute of British Architects; Tunstall; Centihealth; Bournemouth Council; Telemedic Systems. **Funder:** TSB ALIP **Amount:** £1,646,127	The aim of this project is to develop a framework to advance the provision of assisting living facilities within the UK to the point where barriers of scale have been removed, and where user-centred design, legacy planning and future building needs have all been identified. The project has produced a DVD with actors to demonstrate user requirements in different scenarios; prepared a design guide for new buildings; supported the development of new build extra care housing for people with dementia designed to include assisted living technologies; and worked on the development of national standards for assisted living solutions. Link to more information on FAST website	01/09/2008 07/07/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Hearing dummy **Research team:** Department of Psychology, University of Essex **Contact:** 01206 873802 **Funder:** EPSRC **Amount:** £357,790	This project has developed software which can produce an individualised model of each person's level of hearing impairment. The model (or 'hearing dummy') can then be used to evaluate objectively the potential benefit of different hearing aid designs and to indicate a 'best-buy' prescription. Link to more information on FAST website	17/09/2007 16/09/2010
HEARTCYCLE - Compliance and effectiveness in HF and CHD closed-loop management **Research team:** Postgraduate Medical Institute, University of Hull **Contact:** 01482 346311 **Other partners:** One of the largest biomedical and healthcare research projects in the EU with project partners from across Europe and China in research, academia, medicine and industry **Funder:** European Commission FP7 **Amount:** €2,199,000	The HeartCycle consortium is working to improve the quality of care available for peole with a heart condition by developing systems for monitoring them at home and involving them in the daily management of their disease. Researchers have developed decision support algorithms and clinical pathways which are now being implemented in a sensor-based system that should be deployed in 2011. Link to more information on FAST website	01/03/2008 29/02/2012
HERMES - Cognitive Care and Guidance for Active Ageing **Research team:** Digital Media & Systems Research Institute, University of Bradford, **Contact:** 01274 23369 **Other partners:** Other partners in Austria, Spain, Italy, Israel, Greece **Funder:** European Commission FP7 **Amount:** €2,800,000	The aim of this project was to develop an integrated system providing cognitive support and training for older people. Thirty two trial participants have evaluated a series of prototypes including touch screen applications which allow for the retrieving of recordings of past events and the planning of future events on a calendar, plus cognitive games. The result is an integrated prototype, called MyPast, which allows for the retrieval of audio and video of specific events in order to refresh the memory. Link to more information on FAST website	01/01/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Home-based training for patients with visual field deficits **Research team:** Cognitive Neuroscience Research Unit, University of Durham **Contact:** 0191 334 0013 **Funder:** NIHR RfPB **Amount:** £194,659	The project team has recruited 58 patients with visual field deficits (29 for the experimental group and 29 for the control group). Forty of those patients have completed a five-week course of training. A preliminary analysis suggests that only patients in the experimental group show significant improvements in terms of their ability to use their eyes more effectively. Link to more information on FAST website	01/11/2008 30/04/2011
How was School Today...? in the Wild **Research team:** Department of Computing Science, University of Abderdeen, **Contact:** 01224 272295 **Other partners:** University of Dundee, Capability Scotland, Openstorytellers, Dynavox Systems Limited, Fairview School, Communication Matters **Funder:** EPSRC **Amount:** £286,256	The project has developed Augmentative and Alternative Communication (AAC) tools that support story-telling and social dialogue by using sensors to track activities and then using this data to generate a draft story. Researchers are about to enter the evaluation phase 'in the wild' at a special school. The project was shortlisted for the 2010 British Computer Society UK Industry Awards for Community Project of the Year. Link to more information on FAST website	01/01/2010 30/06/2011
I~design 3: extending active living through more effective inclusive design **Research team:** Department of Engineering, University of Cambridge, **Contact:** 01223 336965 **Other partners:** Helen Hamlyn Research Centre, Loughborough University **Funder:** EPSRC **Amount:** £280,332	Researchers have developed impairment simulation tools and a software audit toolkit which assesses the inclusivity of a product or service. Research at Cambridge focused on developing indicators for use in assessing the capabilities of a representative group of people in a national survey. Loughborough University's focus is on determining the effect of variations in everyday lighting and temperature conditions on people's ability to see and handle objects and to what extent these might impact on the way they were able to use some products Link to more information on FAST website	01/10/2006 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
i2Web **Research team:** Human-Computer Interaction Research Group, University of York, **Contact:** 01904 432722 **Other partners:** Foundation for Assistive Technology, Public-i Group Ltd, National Council for the Blind of Ireland, other partners in Italy, Slovenia, Germany **Funder:** European Commission FP7 **Amount:** €2,700,000	The aim of this project is to provide both industry and the public sector with tools and frameworks that support seamless accessibility integration in distributed development environments. The goal is to create authoring, delivery and compliance tools for developing and evaluating web applications which reflect and integrate the needs of disabled and older users. Link to more information on FAST website	01/11/2010 30/04/2013
i-Care: distributed integrated care services and systems **Research team:** Mechatronics Research Centre, De Montfort University **Contact:** 0116 207 8463 **Other partners:** Airetrak, Co-operative Estates, Intamac, Sure Technologies, Leicester City Council, Orange PCS, Telecare Services Association **Funder:** TSB ALIP **Amount:** £800,000	The aim of this project is to develop an open software framework for integration and interoperability between telecare systems, in order to support the remote delivery of care services where and whenever they are needed. Researchers have held user groups to discuss requirements and have begun work on a mobile telecare device. Link to more information on FAST website	01/10/2009 01/03/2012
i-DEAL - Intelligent Design Engine for Assisted Living **Research team:** Faculty of Health and Life Sciences, Coventry University, **Contact:** 024 7679 5959 **Other partners:** University of Ulster, Avolution, Icue Care, Safe Patient Systems Ltd, Health Exchange CIC Ltd., Hereward College, Technik 2 **Funder:** TSB ALIP, EPSRC **Amount:** £1,500,000	The project has focused on the evaluation of electronic assistive technologies and ways to support industry partners in the design and development of 'fit for purpose' products. These include a low cost remote monitoring solution for people with long term conditions which uses mobile phone technology, a prototype bedside monitoring device, a 'smart' kitchen which includes prompting devices to support users and a tablet-based prompting and environmental control device. The project has also produced an online resource for commissioners and others looking for AT products. Link to more information on FAST website	01/10/2008 30/09/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
I'DGO TOO - Inclusive Design for Getting Outdoors 2 **Research team:** OPENspace, Edinburgh College of Art **Contact:** 0131 221 6000 **Other partners:** University of Salford, University of Warwick **Funder:** EPSRC **Amount:** £900,000	This project is focused on identifying the most effective ways of shaping outdoor environments inclusively to support the needs and preferences of older people and disabled people. Particular areas of research include looking at the issues around the use of tactile paving and shared space approaches, which can present difficulties for some groups of people. Link to more information on FAST website	01/02/2007 01/10/2011
ImPaCT in Europe - Improving Person Centred Technology in Europe **Research team:** Home Farm Trust Ltd, **Contact:** 0117 9302600 **Other partners:** Learning Disability Wales , Nottingham Community Housing Association, other partners in Belgium, Italy, Portugal, Finland **Funder:** European Commission LLP **Amount:** Not disclosed	The aim of this project is to create a network to facilitate the exchange of ideas and learning between education and training providers in the health and social care sector regarding the development and exploitation of person centred technology for the benefit of staff and end users. The project team has organised stakeholder events around specific themes and further events focused on training and employment are scheduled in 2011. Link to more information on FAST website	01/01/2009 31/12/2011
inCASA: integrated network for Completely Assisted Senior citizen's Autonomy **Research team:** Department of Information Systems and Computing, Brunel University **Contact:** 01895 203397 **Other partners:** Chorleywood Health Centre, other partners in Italy, Denmark, France, Greece, Germany, Spain, Sweden **Funder:** European Commission CIP **Amount:** €2140000	This project is investigating whether it is possible to take data from existing monitoring and environmental control systems which are operating in isolation and combine the information in order to profile user habits and implement customised intelligent alerts when the system senses unusual patterns of activity. The business model of the project will be based on strong public/ private partnership co-operation. Link to more information on FAST website	01/04/2010 30/09/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
INCLUDIS - designing INCLUsive proDucts with Image Schemas **Research team:** Department of Engineering,University of Cambridge **Contact:** 01223 332600 **Funder:** European Commission FP7 **Amount:** €86,784	The aim of this project was to investigate a methodology to help with designing user interfaces that are robust against cognitive decline and that cater for heterogeneous user groups. This methodology was derived from 'image schema' theory, a form of knowledge representation that encodes very basic and repeated sensorimotor experiences. The approach was tested in designing a ticket machine and a central heating control and was shown to result in more inclusive user interface designs. Link to more information on FAST website	01/07/2009 30/06/2010
INDEPENDENT: Coordinated eCare **Research team:** Tunstall Group **Contact:** 01977 661234 **Other partners:** Work Research Centre Ltd, Milton Keynes Council, University of Hull, Hull City Council **Funder:** European Commission CIP **Amount:** €2,630,000	This project is defining, delivering and piloting a digital infrastructure which will support co-ordinated cross sector delivery of support to help older people live independently. Pilots of the systems are taking place at six sites across locations in Europe, including at Milton Keynes and Hull. Link to more information on FAST website	01/01/2010 31/12/2012
Innovating rehabilitation using Wii technology and telerehabilitation: exploring and evaluating the experience **Research team:** School of Engineering and Design, Brunel University **Contact:** 01895 265814 **Funder:** NHS Innovations London, Brunel University, NHS Barnet Community Services **Amount:** £75,000	This project is examining the use of Wii consoles by therapists and individuals undertaking physical rehabilitation programmes in hospital and community settings. The aim is to develop a Wii system customised to the needs of therapists that encourages people undergoing individualised rehabilitation to complete the programme of exercises . Link to more information on FAST website	01/10/2010 31/12/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Innovations in Intelligent Assistive Robotics **Research team:** School of Computing and Intelligent Systems, University of Ulster, **Contact:** 028 9036 6305 **Other partners:** Indian Institute of Technology Kanpur (IITK) **Funder:** UKIERI **Amount:** £145,000	The aim of the project is to develop intelligent robotic devices that could help people with complex disabilities achieve greater independence. These include a brain-computer interface for controlling a smart wheelchair and a robotic arm. Link to more information on FAST website	01/04/2008 31/03/2011
Integrating mobility vehicles and devices with smart homes **Research team:** Faculty of Health and Life Sciences, De Montfort University, **Contact:** 0116 207 8968 **Other partners:** University of Lincoln **Funder:** Transport iNet **Amount:** £40,000	The project is developing an electronic device that fits into a standard mobility scooter, and which can monitor the user's location and well-being both outside the home using mobile phone technology and inside using the home telecare network. Link to more information on FAST website	01/12/2009 31/12/2012
Intelligent Pre- and Post-Processing Algorithms for Autonomous Multiclass Brain-Computer Interfaces **Research team:** School of Computing and Intelligent Systems, University of Ulster **Contact:** 028 9036 6305 **Funder:** EPSRC **Amount:** £101,963	Brain-computer interface (BCI)-based assistive technology for alternative communication, control and mobility is currently being trialled through a strategic partnership with the National Rehabilitation Hospital of Ireland. The clinical trials are required to validate and emphasise the importance of the research undertaken to date and to develop innovative tools and products for BCI related applications. Link to more information on FAST website	01/10/2009 30/09/2011
inTouch: A video link system to improve social inclusion for people with dementia **Research team:** Bath Institute of Medical Engineering Ltd **Contact:** 01225 824103 **Other partners:** University of Bath, Research Institute for the Care of Older People, Peggy Dodd Centre **Funder:** EPSRC **Amount:** £190,044	Researchers have developed and trialled a prototype video link system designed to enable people with dementia to interact with relatives during virtual 'visits'. A key requirement is that the person with dementia is able to operate the system themselves, by using appropriately designed audio and visual cues and touch screen interfaces. Link to more information on FAST website	01/01/2011 30/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Investigating strategies for environmental learning in typical and atypical development **Research team:** Institute of Education, University of London **Contact:** 020 7612 6000 **Funder:** ESRC, Williams Syndrome Foundation **Amount:** £423,770	Researchers are creating virtual environments that replicate towns in order to identify the specific difficulties experienced by people with Down syndrome and Williams syndrome in navigating their way in the real world and to find ways to overcome them. Link to more information on FAST website	01/04/2010 30/09/2013
Investigation to improve lower-limb amputee prosthesis fit through the design of an intelligent socket **Research team:** School of Design, Engineering and Computing, Bournemouth University, **Contact:** 01202 524111 **Other partners:** Chas. A. Blatchford and Sons Ltd **Funder:** EPSRC, Chas. A. Blatchford and Sons Ltd **Amount:** £86,000	Researchers are using artificial intelligence and experimental methods to create a 'smart' prosthetic socket. This system measures individual interactions between the socket and the limb in real time so that the prothesis can be adjusted to take account of changes in terrain and load. This should reduce the time it takes to fit each individual socket, and also means any required adjustments can be done very quickly. Longer term this approach could potentially extend the life of sockets considerably. Link to more information on FAST website	01/10/2010 31/03/2014
iStretch: Intelligent STroke Rehabilitation Exercise TeCHnology **Research team:** School of Computing, University of Dundee **Contact:** 01382 385597 **Other partners:** Other partners in Mexico, Canada **Funder:** European Union-Mexico Science and Technology Science International Cooperation Fund, Canadian Institutes of Health Research **Amount:** €282,880	The project is working on an intelligent haptic robotic system designed to support the early stages of physiotherapy for people who have upper-limb impairment following a stroke . The device simulates the traditional 'reaching task' therapy. It is able to autonomously adjust to meet the abilities of different people, and increase the difficulty of the exercise as the individual's performance improves. Link to more information on FAST website	01/01/2009 31/12/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
KT-EQUAL: Putting ageing and disability research into practice **Research team:** Centre for Health and Social Care Research, Sheffield Hallam University, **Contact:** 0114 225 5854 **Other partners:** University of Cambridge, University of Bath, Edinburgh College of Art, University of Salford, University of Loughborough, Reading University **Funder:** EPSRC **Amount:** £1,873,016	The focus of the KT-Equal consortium is to develop the evidence to inform solutions that will enable older people to maintain their independence, continue to be active in the workplace for as long as they choose, and benefit from emerging technologies. The project brings together experts in engineering, construction, architecture, participatory and inclusive design, rehabilitation, psychology, change management and public engagement to work collaboratively with each other and with older people. Link to more information on FAST website	01/06/2009 31/01/2013
Landscapes of Cross-Generational Engagement **Research team:** Art and Design Research Centre, Sheffield Hallam University **Contact:** 0114 225 2686 **Other contacts:** Goldsmith's College, University of York **Funder:** ESRC, NDA **Amount:** £403,662	This project sought to enhance people's experiences of growing older using interactive technologies. The project team has worked with the staff of a residential care home and the cloistered nuns in a Roman Catholic Abbey on different technological interventions. Link to more information on FAST website.	01/01/2008 30/06/2010
LIREC - LIving with Robots and intErative Companions **Research team:** Department of Computer Science, Queen Mary University of London, **Contact:** 020 7882 5200 **Other partners:** University of Hertfordshire, Heriot-Watt University and other partners in Germany, Hungary, Poland, Sweden, Belgium, Portugal **Funder:** European Commission FP7 **Amount:** €8,200,000	The aim of this project is develop a new generation of interactive, emotionally intelligent, companion technology which can connect with humans for extended periods of time. Work at the Robot House laboratory at the University of Hertfordshire has demonstrated the effective use of prototype robot companions in assisted living scenarios. Link to more information on FAST website	01/03/2008 31/08/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Living rooms 2: Cross cultural investigation of how design can support independence in later life **Research team:** Art and Design Research Centre, Sheffield Hallam University **Contact:** 0114 225 2686 **Other partners:** Chang Gung University, Taiwan **Funder:** British Council **Amount:** £32,000	Researchers in Taiwan and the UK worked on design ideas which would increase older people's independence by supporting changing healthcare needs but which also reflected differing tastes and lifestyles. Several were showcased in the 'Engagingaging' exhibition in Taiwan in October 2010. Link to more information on FAST website	01/06/2008 01/06/2010
LLM - Long Lasting Memories **Research team:** Global Security Intelligence Limited **Contact:** 0207 993 4431 **Other partners:** Milton Keynes Council, other partners in Germany, Austria, Greece, Spain, France **Funder:** European Commission ICT PSP, TSB **Amount:** €4,720,000	The aim of this project is to combine environment and health monitoring systems, state-of-the-art cognitive exercises and physical activity systems in an integrated technology platform. Pilots have begun in five EU countries and will continue through three iterations over the next 12 months. Link to more information on FAST website	01/06/2009 30/11/2011
Maavis Knowledge Transfer project **Research team:** Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust, **Contact:** 01226 432159 **Other partners:** Full Measure, Barnsley Adult Education Services **Funder:** University of Sheffield Knowledge Transfer Projects Fund, D4D **Amount:** £10,000	This project extended the use of software originally designed to enable people with limited dexerity or mobility to use a computer beyond the original target group of older people to people with learning difficulties and disabilities. Link to more information on FAST website	01/02/2010 31/07/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Maavis@school **Research team:** Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust, **Contact:** 01226 432159 **Other partners:** Full Measure **Funder:** Barnsley Health and Social Care Research & Development Alliance **Amount:** £7,000	The project's goal was to develop software to allow children with complex physical disabilities, with or without a learning disability, to make choices in the way they use IT by adding a switch scanning facility The package has been trialled in three special schools. Link to more information on FAST website	01/06/2009 30/08/2010
MAPP-MAL: Multidisciplinary Approach to a Prototype for Prevention of MALnutrition in older people: products, places, people and procedures **Research team:** Institute for Ageing and Health, Newcastle University, **Contact:** 0191 248 1300 **Other partners:** Glasgow School of Art, University of Reading, Loughborough University, University of Reading, plus stakeholders from range of professional bodies and third sector organisations **Funder:** NDA **Amount:** £1,086,000	The aim of this project is to exploit new and existing technologies to rethink and test new ways that food can be produced and delivered to older people. Research includes modifications to the eating environment (furniture, eating implements, ambient environment) to facilitate the physical ability to eat and to enhance appetite. Link to more information on FAST website	01/10/2008 30/09/2011
MATCH - Renewal of IMRC Award **Research team:** Department of Information Systems and Computing, Brunel University, **Contact:** 01895 203397 **Other partners:** University of Birmingham, University of Ulster, University of Nottingham **Funder:** EPSRC **Amount:** £6,941,929	MATCH (Multidisciplinary Assessment of Technology Centre for Healthcare) is targeted at developing methods for assessing medical devices. This is the second stage of the project and will carry on the same themes, but with particular emphasis on economic evaluation and its impact in decision-making by companies, governments and procurement agencies. MATCH has already shown that the consortium can provide useful tools for, and attract significant levels of funding from industry, and this work will continue. Link to more information on FAST website	03/11/2008 02/11/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
MATCH - Mobilising Advanced Technologies for Care at Home **Research team:** Department of Computing Science and Mathematics, University of Stirling, **Contact:** 01786 467423 **Other partners:** University of Dundee, University of Glasgow, University of Edinburgh, British Telecom, Dementia Services Development Centre, Falkirk Council, Hanover Housing Association Scotland, ITI Techmedia, NHS Forth Valley, Scottish Enterprise Forth Valley, Sensorium Commercial, Tunstall Group and West Lothian Council **Funder:** SFC **Amount:** £1,274,324	The goal of MATCH is to develop a research base for advanced technologies in support of social and health care at home for people living with a long term condition or physical or mental impairment. The aim is to create a Scottish centre of excellence, establish partner networks and provide specialist training and guides. Link to more information on FAST website	01/11/2005 31/10/2012
MATCH-Plus **Research team:** Department of Information Systems and Computing, Brunel University **Contact:** 01895 203397 **Other partners:** University of Birmingham, University of Ulster, University of Nottingham **Funder:** EPSRC NIHR i4i **Amount:** £1,764,282	This project will focus effort on methods to address user needs, and will also train the academic, and other bid communities, in the use of economic assessment and other evaluation techniques in relation to medical devices. Link to more information on FAST website	03/11/2008 02/11/2013
MEDIATE: Methodology for describing the accessibility of transport in Europe **Research team:** Transport for London, **Contact:** Transport & Travel Research Ltd **Other partners:** Other partners in Norway, Belgium, Portugal **Funder:** European Commission FP7 **Amount**: €1,097,805	This project established a common European methodology for measuring accessibility to urban public transport. A major output is the Good Practice Guide, with contributions from a range of cities and transport authorities/ operators across Europe. The Guide demonstrates how to apply a strategic approach to developing, implementing and reviewing accessibility solutions. Link to more information on FAST website	01/12/2008 30/11/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
MOBISERV: An Integrated Intelligent Home Environment for the Provision of Health, Nutrition and Mobility Services to the Elderly **Research team:** Bristol Technology Institute, University of West of England **Contact:** 0117 965 6261 **Other partners:** Other partners in Greece, France, the Netherlands, Finland, Italy, Switzerland **Funder:** European Commission FP7 **Amount:** €3,600,742	The aim of the project is to develop an intelligent system consisting of a robot and smart sensors that can support independent living for older people. This will include a wearable health status monitor, a secure telecare and health reporting system and a nutrition support system. The UK team is working on understanding user requirements and field testing early prototypes. Link to more information on FAST website	01/12/2009 31/12/2012
MonAMI - mainstreaming on AMbient Intelligence **Research team:** Personal Social Services Research Unit, London School of Economics **Contact:** 020 7405 7686 **Other partners:** OpenHub Limited, other partners in Sweden, France, Belgium, Germany, Spain, Slovakia **Funder:** European Commission FP6 **Amount:** €8,699,478	This project looked at using mainstream systems and platforms to deliver accessible, useful technology-based services for older and disabled people living at home. It developed applications it four areas: remote control of the home environment, personal safety, prompting with reminders, and accessible games. Link to more information on FAST website	01/09/2006 01/05/2011
Monitoring/analysis of patients with motion disorders **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Other partners:** Charles University, Czech Republic **Funder:** European Commission Marie Curie Programmes **Amount:** €40,000	This project developed a novel hybrid system for monitoring and interpreting bodily movements in people with a range of neurological disorders, such as Parkinson's Disease. The system is based on visual and mechanical motion sensing, using a network of wireless cameras positioned within the home and accelerometers attached to the individual. Link to more information on FAST website	01/01/2007 01/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
MOST: Model for Optimising Scaleable Telehealthcare **Research team:** Tunstall Group Ltd **Contact:** 01977 661234 **Other partners:** Ernst & Young, NHS North Yorkshire & York, Nuffield Trust **Funder:** TSB ALIP **Amount:** £940,375	The aim of this project is to construct and validate a 'toolkit' of guidelines, models and technology to support care pathway and service re-design and technology integration. Link to more information on FAST website	01/03/2011 01/04/2013
Motivating Mobility: Interactive Systems to promote Physical Activity and Leisure for people with limited mobility **Research team:** School of Computer Science and Information Technology,University of Nottingham, **Contact:** 0115 951 4254 **Other partners:** University of Southampton, University of Dundee, Sheffield Hallam University, University of Sussex, University of Oxford **Funder:** EPSRC **Amount:** £493,359	This was a multi-disciplinary project that focused on finding ways to encourage people to undertake rehabilitation exercises. One of the problems with some therapy is that it can be hard to encourage people to undertake repetitive exercises. The project tackled this by adapting different technologies for each individual in order to put them in control of their own rehabilitation. Link to more information on FAST website	01/07/2007 30/06/2010
Motorised walking frame for stroke rehabilitation **Research team:** School of Health, Sport & Rehabilitation Sciences, University of Salford **Contact:** 0161 295 2275 **Other partners:** Butters Innovation, Medilink North West, PDS Engineering **Funder:** NIHR HTD **Amount:** £331,000	Researchers are developing a motorised walking frame which will support the legs of people who have had a stroke and enable them to learn to walk again in a more dignified and comfortable approach, compared to conventional rehabilitation which can involved up to three physiotherapists holding a patient. It is based on a concept developed by a user. Link to more information on FAST website	01/04/2009 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
MPVS: Mobile Phone-based Video Streaming system in providing home-support for patients with early Alzheimer\'s Disease **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Funder:** NIHPSS R&D **Amount:** £422,858	This project addressed the memory problems which are the most common symptom of Alzheimer's disease by developing an easy-to-use mobile phone which provides personalised messages about everyday issues (e.g., reminders about medications, directions for getting prepared meals ready and prompts about tasks to accomplish). Link to more information on FAST website	01/12/2007 30/11/2010
MultiMemoHome: Multimodal Reminders Within the Home **Research team:** Department of Computing Science, University of Glasgow, **Contact:** 0141 330 8430 **Other partners:** University of Edinburgh, Queen Margaret University **Funder:** EPSRC **Amount:** £775,085	Users of home care systems are far more likely to have one or more sensory impairments, such as sight or hearing loss and this project is looking at making reminders accessible via different methods. So, for example, standard auditory alarms could be reinforced by olfactory alarms for users who have hearing impairments. Link to more information on FAST website	01/09/2009 28/02/2013
Multi-Role Shadow Robotic System for Independent Living **Research team:** Manufacturing Engineering Centre, Cardiff University **Contact:** 029 2087 4641 **Other partners:** University of Bedfordshire, other partners in Spain, Austria, Italy, Germany, Bulgaria **Funder:** European Commission FP7 **Amount:** €3,300,000	This project is prototyping a robot which can shadow its controller (explain) and provide care at home by helping with domestic tasks. Researchers aim to develop a new robotic self-learning mechanism so that the robots learn from their experience. Link to more information on FAST website	01/02/2010 31/01/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
MUSICC - Multi-sensory information on climate change **Research team:** Royal National College for the Blind **Contact:** 01432 265725 **Other partners:** Other partners in Romania, Italy, Turkey, Bulgaria **Funder:** European Commission Leonardo da Vinci Programme **Amount:** €370,966	The project gave people with a visual, hearing or cognitive impairment access to scientific information so they could participate in the debates on global warming and climate change. They did this by creating a range of information material which used audio haptic (tactile) technology to make the information accessible. Link to more information on FAST website	01/11/2008 01/10/2010
MyHealth@Age **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Other partners:** Arctic Group, Blue Tree Services, IntelliWork AB, McElwaine SMART Technologies, Swarmteams, TeliaSonera and TietoEnator and other partners in Sweden and Norway **Funder:** European Commission Northern Periphery Programme **Amount:** €1,098,296	Using a standard, commercially available, mobile phone, the team has developed a range of services that older people can access via their smartphones, including alarm systems, location finders and support at home. Link to more information on FAST website	01/01/2008 01/12/2010
MyUI Vision: mainstreaming accessibility through synergistic user modelling and adaptability **Research team:** Human Factors Research Group, University of Nottingham, **Contact:** 0115 9514040 **Other partners:** Clevercherry.com, Birminghambition, other partners in Germany, the Netherlands, Hungary, Spain **Funder:** European Commission FP7 **Amount:** €2,400,000	The aim of this project is to mainstream the provision of accessible and highly personalised ICT products for disabled and older people by creating adaptive interfaces. Researchers will build a system which collects user and context information in real-time during use and which then shares this data with other applications so that the interface is automatically adapted to the user's requirements.. Link to more information on FAST website	01/02/2010 31/07/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
NANA - Novel Assessment of Nutrition and Ageing **Research team:** School of Psychology, University of St Andrews, **Contact:** 01334 462152 **Other partners:** Bath Institute of Medical Engineering Ltd, University of Reading, University of Sheffield, Sanctuary Care Ltd, University of Toronto **Funder:** NDA **Amount:** £847,016	The project is using technology to collect information about the dietary intake of older people .So far it has developed a home dietary intake assessment system, and is looking at ways to combine this with information about a person's health status, ability to carry out everyday activities and mental state in order to monitor when interventions might be required to improve nutritional intake. Link to more information on FAST website	01/01/2009 31/12/2011
Neural and biomechanical correlates of response to the use of an ankle-foot cast provided to improve walking recovery early after stroke. **Research team:** School of Allied Health Professions, University of East Anglia **Contact:** 01603 456161 **Funder:** NIHR EME **Amount:** £926,967	The aim of this study is to investigate whether a splint designed to maintain the correct position of the foot in relation to the leg will enable people to participate in more walking re-training and thus have a better outcome after a stroke. Link to more information on FAST website	18/10/2010 17/10/2013
New approaches to banking for the older old **Research team:** Newcastle University Business School **Contact:** 0191 243 0770 **Other partners:** Centre for Usable Home Technology, AgeUK, Barclays Bank **Funder:** EPSRC **Amount:** £240,023	The project is seeking to find ways to make digital banking more appealing and accessible to the 'older old' who may be unfamiliar with some of the concepts behind online financial transactions. Link to more information on FAST website	01/05/2010 31/10/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Next generation services for older and disabled people **Research team:** i2 Media Research **Contact:** 020 7919 7884 **Funder:** Ofcom ACOD **Amount:** Not disclosed	The project produced a report identifying a broad range of potential benefits to older and disabled people from next generation broadband services in all areas of life including health and wellbeing, work and education, leisure, and other day-to-day activities. These included improved access to products and services, improved wellbeing through products and services designed to encourage compliance with medical regimes, easier ways for professionals to provide care services for end-users, and an improved sense of security and safety. Link to more information on FAST website	01/11/2009 31/05/2010
No speech but lots to say! **Research team:** ACE Centre North **Contact:** 0161 684 2333 **Funder:** Department of Health **Amount:** £40,526	Researchers worked with adults with neurological conditions who are unable to speak, together with their families/ carers and voluntary sector staff to plan, trial and evaluate different systems and strategies to promote the meaningful involvement of people with little or no speech in planning and developing their local services. Link to more information on FAST website	01/08/2007 01/08/2010
NOCTURNAL - Night Optimised Care Technology for UserRs Needing Assisted Lifestyles **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Funder:** EPSRC, TSB ALIP **Amount:** £112,721	The project is investigating new technological offerings to offer night time guidance and support to people with dementia. Researchers are trying out a 'bedside assistant' which is a PC-based system which can provide support such as guiding people to the toilet by managing the lighting in the room, or providing soft interventions such as music or images of familiar people in order to encourage people with dementia back to sleep. Link to more information on FAST website	01/09/2008 31/08/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
OASIS - Open architecture for Accessible Services Integration and Standardisation **Research team:** School of Civil Engineering and Geosciences, University of Newcastle, **Contact:** 0191 222 6323 **Other partners:** Consortium composed of 33 partners from 11 countries and includes large industrial corporations, SMEs, universities, research centres, non-profit organisations, public organisations and healthcare centre**s** **Funder:** European Commission FP7 **Amount:** €12,410,000	OASIS aims to use ICT and other key technologies in order to provide holistic services to older people to support their physical and psychological independence, stimulate their social or psychological engagement and foster their emotional well being.The research team at Newcastle University has been developing the user centred design and evaluation frameworks for the project, as well as working on aspects of the applications to support older people's social networks and mobility. Link to more information on FAST website	01/01/2008 31/12/2011
Objective-based Iterative Learning Control for Robotics and Rehabilitation **Research team:** School of Electronics and Computer Science, University of Southampton **Contact:** 023 8059 5000 **Funder:** EPSRC **Amount:** £237,845	Intensive therapy is important for people who have paralysis of the upper limb following stroke. This project combined a functional electrical stimulation (FES) based rehabilitation system with a robotic device for supporting the arm and a series of virtual reality scenarios shown on a PC screen. Users were required to move their arm in order to complete tasks shown on the screen and in doing so took part in rehabilitation exercises Link to more information on FAST website	01/04/2009 31/03/2011
Oldes: Older People's e-services at home **Research team:** Centre for Knowledge,Innovation, Technology and Enterprise, Newcastle University **Contact:** 0191 243 0800 **Other partners:** Other partners in Italy, Belgium, Czech Republic, Canada, Germany **Funder:** European Commission FP6 **Amount:** €250,000	The aim of the project is to plan and implement an innovative technological platform which is both low cost and easy use, and which can provide a wide range of services to older people in their own homes, including entertainment and healthcare facilities. UK researchers are focusing on user-centred design requirements. Link to more information on FAST website	01/01/2007 31/08/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
OPT-in - Older People and Technological innovations **Research team:** Faculty of Health & Social Care, Open University **Contact:** 01908 653420 **Other partners:** University of Stirling, other partners in Slovenia, Germany, the Netherlands **Funder:** European Commission LLP **Amount:** €25,000	This study is testing new and emerging technologies with older people in order to see how options such as smartphones and tablet PCs can be used to produce practical and socially inclusive tools for everyday activities for everyone. Researchers have created 'technology playrooms' where older people can experiment with the technology and exchange ideas. Link to more information on FAST website	01/08/2009 31/07/2011
Overcoming barriers to mainstreaming Assisted Living Technologies (ALTs) **Research team:** School of Health and Related Research, University of Sheffield, **Contact:** 0114 222 5454 **Other partners:** Leeds University Business School, NIHR CLAHRC for South Yorkshire, NHIR CLAHRC Leeds, York & Bradford, Yorkshire Health Innovation & Education Cluster (HEIC), Yorkshire & Humber Strategic Health Authority, Bosch, Tunstall, Philips, Microsoft, GE, Intel and Docobo **Funder:** TSB ALIP **Amount:** £1,710,000	The aim of this project is to bring together a range of partners, including health and care providers and commissioners, users, industry suppliers and researchers in order to look at the service redesigns and changes to supply models which will encourage wider use of assistive technologies. The work will focus initially on telehealth systems for people with chronic heart failure and chronic obstructive pulmonary disease, but will subsequently move on to other assisted living technologies. Link to more information on FAST website	01/03/2011 31/03/2014
Pain rehabilitation: E/Motion-based automated coaching **Research team:** University College London Interaction Centre **Contact:** 020 7679 0686 **Other partners:** University of Leicester, Imperial College London **Funder:** EPSRC **Amount:** £1,504,100	The aim of this project is to design and develop an intelligent system which will monitor and assess how people's moods and movements are being affected by pain. Initially the monitoring will be undertaken in a clinical environment, but longer term could be extended to home or community settings. Link to more information on FAST website	01/05/2010 30/04/2014

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
PAL: Personal and sociAL communication services for health and lifestyle monitoring **Research team:** School of Computer Science and Electronic Engineering, University of Essex, **Contact:** 01206 872770 **Other partners:** University of Cambridge, HW Communications MAC Ltd, Thales **Funder:** EPSRC, TSB ALIP **Amount:** £804,252	Current assistive living scenarios mostly work only in certain limited environments and are not able to provide a continuous support to users. The aim of this project is to create solutions that support people anytime and anywhere by employing appropriate types of interface and interactions, regardless of the underlying networking and software technologies. Researchers are working with a number of health-related organisations and end users to gain a better understanding of user requirements as well as to test some of the proposed solutions. Link to more information on FAST website	01/07/2009 30/06/2012
PEACE - PErsonAl Care Environments delivering support for vulnerable people **Research team:** Docobo UK Ltd **Contact:** 01372 459866 **Other partners:** Southampton City PCT, HW Communications Ltd, Age UK, Hywel Dda Local Health Board, Carmarthenshire Division, Chubb Electronic Security Systems Ltd **Funder:** TSB ALIP **Amount:** £1,740,335	The project aims to provide a more seamless experience for customer, clinician and social care professionals alike when moving between the telehealth and telecare domains which, in England in particular, are separated administratively. Researchers have developed a colour screen 'health hub' which acts as a community portal providing patient management, video communications and social networking. Link to more information on FAST website	01/10/2008 01/10/2011
PEACEanywhere - PErsonAl Care Environments anywhere at anytime **Research team:** Docobo UK Ltd **Contact:** 01372 459866 **Other partners:** Southampton City PCT, HW Communications Ltd, AGEUK, Hywel Dda Local Health Board, Carmarthenshire Division, Guidance Monitoring Ltd, Glenside Manor Healthcare Services Limited **Funder:** TSB ALIP **Amount:** £2,428,909	The project will further develop the PEACE vision of integrated health and social care, This will be achieved by the development and integration of innovative 'in-house' and 'out of house' technologies for seamless service provision, location detection and monitoring and communication with those who can provide assistance if required. Link to more information on FAST website	01/10/2009 30/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
PERFORM - A sophisticated multi-parametric system for the continuous-effective assessment and monitoring of motor status in Parkinson's disease and other neurodegenerative diseases **Research team:** Oxford Computer Consultants **Contact:** 01865 305200 **Other partners:** University of Westminster, Kingston Computer Consultancy, other partners in Spain, Poland, Greece, Slovakia, Cyprus, Czech Republic **Funder:** European Commission FP7 **Amount:** €7,000,000	The project has researched and developed an innovative, intelligent system for monitoring neurodegenerative disease evolution through the employment of a wide range of wearable microsensors. The sensors are attached to everyday personal gadgets and used to 'sense' the user's behaviour and movement pattern and store the recorded data in a handheld computer for further monitoring and evaluation. Link to more information on FAST website	01/02/2008 31/01/2011
Project Hydra **Research team:** Onzo **Contact:** 020 3051 3270 **Other partners:** Brunel University, Chorleywood Health Centre, Innova Partnerships, Atmel Smart Cards, Oracle, Acute Technology, Philips Applied Technologies, Scottish and Southern Energy, Silver Spring Networks, Echelon Europe **Funder:** TSB ALIP, EPSRC **Amount:** £2,300,000	Researchers have developed hardware and software that is moving health data (weight and blood pressure) from people's homes, through a standard smart meter infrastructure, to a web application viewable by healthcare professionals. Link to more information on FAST website	01/09/2009 01/12/2011
Promoting physical independence by involving users in rehabilitation through dynamic visualisations of movement data **Research team:** Health Qwest, University of Strathclyde, **Contact:** 0141 548 3032 **Other partners:** Glasgow Caledonian University, Glasgow School of Art **Funder:** LLHW **Amount:** £1,300,000	The aim of this project is to help to optimise rehabilitation through an innovative method of visualising biomechanical data so that people can learn to perform their rehabilitation exercises to the best of their ability. Data will be gathered using a spectrum of technologies from full motion biomechanics laboratory set-ups to wearable miniaturised technologies for use in the community. The team is developing a portable system which will be trialled with the NHS in the West of Scotland Link to more information on FAST website	05/01/2010 04/07/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Proposal to invest in Portable Assistive Technology to Facilitate better Social Care Assessment Processes **Research team:** Cumbria County Council **Contact:** 01228 606060 **Funder:** Cumbria County Council **Amount:** £11,000	The aim of this project is to assess how to develop an infrastructure for recommendation, purchase, recycling and feedback from potential consumers of the Just Checking service in Cumbria. Assessments have been done via Cumbria County Council teams for Older Adults and Learning Disability and the results are being collated. Link to more information on FAST website	01/01/2010 30/06/2011
Randomised controlled trial of continuous positive airway pressure treatment in older people with obstructive sleep apnoea hypopnoea syndrome **Research team:** Faculty of Medicine, Imperial College **Contact:** 0207 589 5111 **Funder:** NIHR HTA **Amount:** £1,507,799	This study will measure the effect and cost effectiveness of using ventilation technology to treat daytime sleep problems in people over 65 years. To date 11 Health Care Trusts throughout the UK are participating in this trial. Link to more information on FAST website	01/08/2009 30/09/2013
REACH112 - REsponding to All Citizens needing Help **Research team:** Centre for Deaf Studies, University of Bristol, **Contact:** 01275 371700 **Other partners:** Royal National Institute for Deaf people, AuPix, plus 22 partners from all over Europe, including user organisations and major global telecommunications companies **Funder:** European Commission ICT PSP **Amount:** €4,400,000	The aim of this project is to deploy a new text, voice and video communication solution to allow disabled people direct access to emergency services. This solution, called 'Total Conversation', will allow for simultaneous combination of these communication modes, along with lip reading and sign language. The project has involved the Fire Brigade and Police to explore the barriers to implementation. Link to more information on FAST website	01/07/2009 01/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
REACTION: REmote ACcessibility to diabetes management and Therapy In Operational healthcare Networks **Research team:** Department of Information Systems and Computing, Brunel University **Other partners:** Chorleywood Health Centre plus a consortium of 16 organisations from ten EU countries **Contact:** 01895 203397 **Funder:** European Commission FP7 **Amount:** €11,000,000	This project aims to research and develop an intelligent service platform that can provide professional, remote monitoring and therapy management to people with diabetes being treated in different healthcare regimes across Europe. People with diabetes will be given electronic plasters ('e-patches') which will monitor their glucose levels and data will be sent via a wireless area network to a central store where it can be interrogated by healthcare professionals. Link to more information on FAST website	01/03/2010 28/02/2014
REALISE: REfining And Learning from online tools for Internet Shared Enterprise **Research team:** School of Electronics and Computer Science, University of Southampton, **Contact:** 023 8059 5000 **Other partners:** Devices for Dignity Healthcare Technology Co-operative, OSS Watch, Full Measure **Funder:** JISC plus university partners **Amount:** £176,315	The aim of this project is to identify routes to sustainable innovative solutions through engaging key researchers, businesses, developers and users in exploring open innovation by means of an online community. Link to more information on FAST website	28/06/2010 27/06/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Recent developments in lower-limb prostheses: To gain full advantage of improved mechanical function are sensorimotor control features necessary? **Research team:** School of Engineering, Design and Technology, University of Bradford, **Contact:** 01274 233721 **Other partners:** University Hospital of South Manchester, Chas A Blatchford and Sons Ltd **Funder:** EPSRC **Amount:** £102,238	This research aims to improve the design of prosthetic limbs by examining the extent to which control of the prosthetic limb/ foot is reliant on vision versus the sense of 'feel' from the prosthetic limb. Link to more information on FAST website	01/02/2010 31/01/2012
REEACT - the Randomised Evaluation of the Effectiveness and Acceptability of Computerised Therapy trial **Research team:** Department of Health Sciences, University of York **Contact:** 01904 321344 **Funder:** NIHR HTA **Amount:** £1,621,924	The purpose of this study is to compare two computerised cognitive behaviour therapy (CBT) packages (one free-to-use and one commercial) to see if there are any benefits of offering this treatment additional to the care that people already receive from their GP. Link to more information on FAST website	01/05/2009 01/01/2015
Regional Telemedicine Forum **Research team:** The Scottish Centre for Telehealth **Contact:** 01224 285680 **Other partners:** NHS 24 plus other partners in Spain, Denmark, France, Norway, Sweden, Estonia, Poland **Funder:** INTERREG IVC **Amount:** €1,977,831	The aim of this partnership of nine European Regions is to encourage wider implementation and deployment of telemedicine services at regional level. Over three years the partners will organise seven workshops, four study visits and virtual meetings to focus on telemedicine services related to three major chronic diseases: diabetes, smokers lung disease, and cardiovascular disease. Link to more information on FAST website	01/01/2010 31/12/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
REPAIRS: Realistic Environments for Personalised And Interactive Rehabilitation Systems **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Funder:** DELNI **Amount:** Not disclosed	The project investigated the effectiveness of using game design theory to optimise engagement during upper limb motor rehabilitation. Games for improving gross motor function have been developed which use standard, low-cost webcams to track a glove or mitt on the player's hand, which the player then uses to interact with virtual elements on the screen. Results of trials with people who have had a stroke were positive. Link to more information on FAST website	01/10/2007 30/09/2010
Restoration of Reach and Grasp in Stroke Patients using Electrical Stimulation and Haptic Feedback **Research team:** School of Electronics and Computer Science, University of Southampton, **Contact:** 023 8059 5000 **Funder:** EPSRC **Amount:** £464,231	This project is continuing earlier research which showed that electrical stimulation could be used to help people re-learn movements after stroke. It will make rehabilitation tasks more 'real' by by using 3D computer displays and a virtual reality computer game which provides sensory stimulus when participants successfully grasp a virtual object. Link to more information on FAST website	01/03/2011 28/03/2014
Second Lives for the Third Age **Research team:** Centre for Sports Engineering Research, Sheffield Hallam University **Contact:** 0114 225 2255 **Funder:** Engineering for Life Network **Amount:** £10,000	The aim of this project was to explore the possibilities of using virtual worlds (such as 'Second Life') to encourage older people to exercise. Participants were able to control an online avatar using gesture technology, similar to the Wii, to encourage movement. Some found the speed of response of the avatar was too fast, while others preferred to remain as spectators, watching someone else play the game. Link to more information on FAST website	01/04/2010 31/08/2010
SEEDS: An Organic Approach to Virtual Participatory Design **Research team:** School of Mechanical Engineering, University of Leeds, **Contact:** 0113 3432155 **Other partners:** University of Kent, University of Dundee **Funder:** EPSRC **Amount:** £361,378	This project aimed to develop technology and interfaces which are sensitive to the needs of older people, and find new methods of engaging them with technology. It resulted in a design methodology based on a repository of video recorded social stories where older adults talked about what they wanted from digital technologies and how they used such technology. There is now an online repository of information which can be made available to student-designers. Link to more information on FAST website	01/04/2009 31/12/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Sensor Distribution Optimisation for Smart Homes **Research team:** Faculty of Computing and Engineering, University of Ulster **Contact:** 028 9036 6305 **Funder:** DELNI **Amount:** Not disclosed	The project developed a model to determine the type, amount and location of any sensing devices required in a 'smart home', taking account of factors such as furniture placement, energy consumption, cost and scalability, along with the individual requirements of the person in their own home. Link to more information on FAST website	01/03/2007 01/07/2010
SERA - Social Engagement with Robots and Agents **Research team:** School of Health and Related Research,University of Sheffield **Contact:** 0114 222 5454 **Other partners:** Other partners in Austria, the Netherlands, Germany **Funder:** European Commission FP7 **Amount:** €1,150,000	Getting people to engage initially with robotic and virtual agents or personas is usually easy, because of the novelty of the concept, but keeping them engaged over time is hard, since robots and agents lack sociability. In this project six participants, over 50 years of age, took part in trials using robot technology and researchers built up a collection of more than 300 short videos of the interactions. The data is continuing to be used to study how people responded to the robotic device over the trial period, and to study the evolving relationship between the participant and the robot. Link to more information on FAST website	01/01/2009 31/12/2010
ShareIT **Research team:** Computing Department, Open University **Contact:** 01908 858642 **Other partners:** University of Sussex **Funder:** EPSRC **Amount:** £1,000,000	This project used a range of new technologies, such as gesture-based wall displays, multi-touch tabletops and interactive objects, to improve social skills in children with autism. Link to more information on FAST website	01/10/2008 30/09/2010
SHIELD - Support at Home Interventions to Enhance Life in Dementia: home treatment programme **Research team:** Research Department of Mental Health Sciences, University College London, **Contact:** 020 7679 2000 **Other partners:** University of Hull **Funder:** NIHR PGAR **Amount:** £1,981,951	This is research project focuses on three interventions to improve quality of life for people with dementia: cognitive stimulation therapy, a carer support package, and an intensive home treatment package (HTP) which includes provision of AT and adaptations to help people with dementia continue to live at home. Ethical approval for the HTP study was given in May 2010 and participants are currently being recruited. Link to more information on FAST website	01/08/2008 31/07/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
SiDE - Social inclusion through the Digital Economy **Research team:** School of Computing Science, Newcastle University **Contact:** 0191 2228232 **Other partners:** University of Dundee **Funder:** EPSRC **Amount:** £12,632,447	This project is examining how new technologies can be used to enhance quality of life. A panel of 3000 users, including older and disabled people, are helping design a wide range of new assistive technologies such as an indoor navigation system for people with low vision and mobility needs, digital jewellery, and a system designed to improve swallowing in people with Parkinson's by providing them with an unobtrusive prompt. Link to more information on FAST website	01/10/2009 30/09/2014
SMART 2: Self Management supported by Assistive, Rehabilitation and Telecare Technologies **Research team:** Faculty of Computing and Engineering, University of Ulster, **Contact:** 028 9036 6305 **Other partners:** University of Bath, Sheffield Hallam University, Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust, BT Laboratories, Philips Research Laboratories, Teler Ltd **Funder:** EPSRC **Amount:** £2,300,000	The project team has developed a prototype of the SMART Personalised Self-Management System (PSMS) to support three conditions (stroke, CHF and chronic pain) which will be trialled at three sites from March 2011.The ultimate aim is to produce a 'toolkit' of software and sensors to help people assess how best to manage their condition in conjunction with input from therapists. Link to more information on FAST website	01/01/2008 31/12/2011
Smart Distress Monitors **Research team:** Faculty of Health, Psychology & Social Care, Manchester Metropolitan University, **Contact:** 0161 247 2569 **Other partners:** InfraRed Integrated Systems Ltd **Funder:** TSB **Amount:** £203,893	The project developed a reliable inactivity/ fall sensor, based on existing infrared technology, which offers an affordable, accessible and user centred automatic monitoring and alarm system to detect and locate vulnerable people when in need of assistance, in real time and without the need for positive action on their part. Link to more information on FAST website	01/10/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
SMART: Study internal MARket for inclusive and assistive ICT, targeted market analysis and legislative aspects **Research team:** AbilityNet **Contact:** 0870 240 4455 **Other partners:** Deloitte Consulting CVBA (Belgium) **Funder:** European Commission ISMD **Amount:** €250,000	Researchers analysed the barriers and opportunities for the use of AT for users, the AT industry and others, and proposed recommendations for improvement. Link to more information on FAST website	01/01/2010 01/04/2011
SMILING - Self Mobility Improvement in the eLderly by counteractING falls **Research team:** Department of Mechanical Engineering, University of Strathclyde **Contact:** 0141 548 4851 **Other partners:** Other partners in Italy, Ireland, Switzerland, Slovakia, the Netherlands **Funder:** European Commission FP7 **Amount:** €2870000	This project developed a wearable computer-controlled motorised shoe system designed to mimic the shifts in movement which happen naturally when people walk over different surfaces, and which could be used to train older people to change their gait patterns in order to reduce the risk of falls. Link to more information on FAST website	01/01/2008 30/06/2010
SomnIA: Optimising quality of sleep among older people in the community and care homes: an Integrated Approach **Research team:** Centre for Research on Ageing and Gender, University of Surrey **Contact:** 01483 683964 **Other partners:** Bath Institute of Medical Engineering (BIME) Ltd, King's College London, Healthtalkonline, Age UK, Nottinghamshire HealthCare NHS Trust, Philips Lighting, Relatives & Residents Association **Funder:** NDA **Amount:** £2,400,000	User-led design work by BIME has resulted in three prototype products: a night time tray to organise bedside items with ambient lighting to reduce anxiety about finding possessions; 'comfy sound' which provides music in a pillow to help people settle and reduce sleep onset time; and versatile lighting which can automatically detect movement and provide discreet ambient lighting to assist with getting up and moving around. Link to more information on FAST website	01/12/2006 01/12/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
SOPRANO - Service Oriented Programmable Smart Environments for Older Europeans **Research team:** Tunstall Group Ltd **Contact:** 01977 661234 **Other partners:** Consortium of 20 partners drawn from seven European countries, including academic researchers, local authorities and equipment suppliers. **Funder:** European Commission FP6 **Amount:** €7,000,000	The project developed a fully networked home support environment which was trialled in demonstration homes in Newham, San Sebastian and Eindhoven with over 150 older people. Results from the trials will be published in spring 2011. Link to more information on FAST website	01/01/2007 30/04/2010
SSHOES - Special SHOES Movement **Research team:** School of Health, Sport & Rehabilitation Sciences, University of Salford **Contact:** 0161 295 2275 **Other partners:** Soletec Systems Ltd, other partners in Italy, Spain, Germany **Funder:** European Commission FP7 **Amount:** €4,874,025	This project aims to devise methodologies and manufacturing systems for the production of orthotic footwear and insoles which are adapted to the requirements of individual customers. The team has spent the past year gaining ethical approval, devising experimental protocols and recruiting participants. Data collection is now beginning. Link to more information on FAST website	01/07/2009 30/06/2012
Supporting People to Choose and Use Technology for Self Care **Research team:** Foundation for Assistive Technology **Contact:** 020 7264 8955 **Other partners:** Assist UK **Funder:** Department of Health Third Sector Investment Programme **Amount:** £130,100	This project explored ways to increase disabled and older people's knowledge about AT. The project team held focus groups with older and disabled people to gauge their level of understanding of AT and to investigate ways in which training could be delivered. From this work, a half day training course was developed and trialled with different stakeholder groups: potential users of AT, voluntary sector groups who provide advice and support to older people, and suppliers of housing services. The course materials were adapted to enable delivery by non-experts and were made available as free online resources and to facilitate future collaboration and shared learning. Link to more information on FAST website	01/04/2008 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Supporting Safe Walking for People with Dementia **Research team:** Halliday James Ltd **Contact:** 0121 661 6806 **Funder:** NIHR i4i **Amount:** £64,003	The goal of this research is to develop a proof-of-concept for a GPS location device for use by people with dementia. Focus groups to capture user requirements have taken place and feasibility work has begun on the systems to be developed. Link to more information on FAST website	01/05/2010 30/04/2011
SUS-IT: SUStaining IT use by older people to promote autonomy and independence **Research team:** Department of Information Science, Loughborough University **Contact:** 01509 223052 **Other partners:** Nottingham Trent University, University of Dundee, University of Lincoln, Anglia Ruskin University, University of Surrey **Funder:** NDA **Amount:** £1,106,342	This project is investigating the actual and potential barriers to sustained and effective use of ICTs by older people and exploring a range of potential social and technical solutions. Link to more information on FAST website	01/01/2009 31/03/2012
Tackling Barriers to Adoption of Assisted Living Technology for Older Adults **Research team:** School of Psychology, University of St Andrews **Contact:** 01334 462152 **Other partners:** University of Sheffield, University of Reading, Age UK **Funder:** TSB ALIP **Amount:** £510,005	Technology has the potential to support people to live well and age well, but there is a gap between technology developments and uptake. In this project older people and care professionals will work as experts alongside researchers to identify the barriers to technology adoption and possible approaches to address them. Link to more information on FAST website	01/04/2011 31/03/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
TACT3: Tackling Ageing Continence through Theory Tools and Technology **Research team:** Institute of Bioengineering, Brunel University, **Contact:** 01895 274000 **Other partners:** SISA - Sheffield Institute for Studies on Ageing, BioMed Healthcare Technology Co-operative, University of West of England, University of Manchester, Helen Hamlyn Research Centre **Funder:** NDA **Amount:** £1,295,586	This is a wide-ranging inter-disciplinary project which is providing assistive devices for older people with continence disabilities, such as smart underwear to detect leaks and a discreet device to check for odour. Both devices are currently undergoing user trials. Link to more information on FAST website	01/11/2008 30/04/2012
TCares: Technology Cares **Research team:** South East Health Technologies Alliance **Contact:** 0845 130 8179 **Other partners:** University of Portsmouth, other partners in the Netherlands, Spain, Poland, Romania **Funder** INTERREG IVC **Amount:** €412,060	This pan-European project is engaging with a range of stakeholders including owners of care homes, domiciliary care services, hospitals, users and telecare businesses. The aim is understand better the needs of service users and purchasers of telecare systems; create basic training packages for carers; develop the business case for telecare; share best practices across countries; and work towards the creation of common standards. Link to more information on FAST website	01/06/2010 01/08/2011
Telemetric supported self-monitoring of long-term conditions **Research team:** Division of Community Health Sciences, University of Edinburgh **Contact:** 0131 650 3200 **Other partners:** Napier University **Funder:** CSO **Amount:** £1,400,000	The aim of the project is to investigate whether or not home monitoring is a safe and effective way for people with a range of long term conditions, including high blood pressure and diabetes, to manage their condition. Link to more information on FAST website	01/04/2008 08/04/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
TeleSCoPE - Telehealth Services Code of Practice for Europe **Research team:** Health Design & Technology Institute, Coventry University, **Contact:** 024 7615 8000 **Other partners:** Telecare Services Association, other partners in Belgium, Bulgaria, Hungary, Italy, Ireland, Slovenia **Funder:** European Commission **Amount:** €961,518	The aim of this project is to develop a European Code of Practice for telehealth service providers. Link to more information on FAST website	01/07/2010 01/05/2013
The changing healthcare paradigm and assistive technology: what aspects do wheelchair users want to be involved in when choosing their wheelchair? **Research team:** Division of Health and Social Care Research, King's College London **Contact:** 020 7848 6649 **Funder:** King's College London **Amount:** £60,000	This research is asking people who have been assessed for a new manual wheelchair about their satisfaction with the equipment and their involvement in its choice. Link to more information on FAST website	01/01/2009 30/09/2011
The clinical and cost-effectiveness of bone anchored hearing aids (BAHAs) for people who are bilaterally deaf **Research team:** Southampton Health Technology Assessment Centre **Contact:** 023 8059 5591 **Funder:** NIHR HTA **Amount:** £178,793	This research developed an economic model for the use of bone anchored hearing aids in one and both ears. The final report is due for publication in March 2011. Link to more information on FAST website	01/05/2009 30/04/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
The Telling Stories Project - how does the construction of narrative occur between teacher (natural speaker) and pupil (aided speaker)? **Research team:** School of Allied Health Professions, University of East Anglia **Contact:** 01603 456161 **Funder:** University of East Anglia studentship **Amount:** £39,000	The aim of this project is to analyse the use of narrative language between children using communication aids and their teaching staff. Data collection has been completed and the analysis phase has now been started. Initial findings have been presented at Communication Matters National Symposium 2010. Link to more i.nformation on FAST website	01/10/2009 01/12/2011
The use of commercial gaming devices for upper limb rehabilitation following stroke **Research team:** School of Community Health Sciences, University of Nottingham **Contact:** 0115 823 0208 **Funder:** NIHR CLAHRC Nottinghamshire, Derbyshire and Lincolnshire **Amount:** Not disclosed	The aim of this project is to evaluate the feasibility of two commercially available virtual reality platforms in the home to assist in the rehabilitation of stroke. In collaboration with a local user group, games have been produced for both systems and researchers will evaluate how effective they are in encouraging the accurate movements required for upper limb rehabilitation. Link to more information on FAST website	01/09/2009 01/03/2013
TiKL - Transitions in Kitchen Living **Research team:** Faculty of Health & Social Care, Open University **Contact:** 01908 653420 **Other partners:** Loughborough University, London Metropolitan University **Funder:** NDA **Amount:** £296,607	The project is investigating the experience of the kitchen for older people living in a variety of 'ordinary' and 'supportive' housing in urban and rural locations in England. Fieldwork with 48 participants is beginning to reveal a number of themes, including issues around height of surfaces, access to cupboard spaces, lighting, and floor gradient. Link to more information on FAST website	01/09/2009 31/08/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
TOBI - Tools for brain-computer interaction **Research team:** Multimodal Interaction Group, University of Glasgow **Contact:** 0141 330 4256 **Other partners:** Other partners in France, Germany, Austria, Italy, Switzerland **Funder:** European Commission FP7 **Amount:** €12,000,000	Researchers have developed six prototypes which allow users to control software and physical devices for communication (text entry and web browser) and an assistive robot by using their spontaneous brain activity. Link to more information on FAST website	01/11/2008 31/10/2012
TOTALCARE:a digital health-care framework integrating secure personal monitoring with P2P medical condition community support focused on ageing & obese **Research team:** Centre for Vision and Robotics Research, University of Lincoln **Contact:** 01522 882000 **Other partners:** Imperial College London **Funder:** TSB/ALIP, EPSRC **Amount:** £678,956	The project is delivering a demonstrator of a new type of digital healthcare service and monitoring framework, based on an integrated in-home sensor system capable of detecting human presence and communicating with an external database for decision making. A prototype sensor which combines both video and motion sensors has been developed. Link to more information on FAST website	01/09/2009 28/02/2011
TrAHVIIT - Transfer of audio-haptics for visually impaired information technology **Research team:** Royal National College for the Blind **Contact:** 01432 265725 **Other partners:** Other partners in Romania, Austria, Turkey, Malta, Bulgaria **Funder:** European Commission Leonardo da Vinci Programme **Amount:** €299,825	This project is extending earlier work on using talking tactile technology to support distance learning for people with visual impairment. The aim is to expand the range of resources available and to overcome the some of the problems of teaching with audio haptics information technology. The UK team is looking at ways of teaching economic theory for sensory impaired learners. Link to more information on FAST website	01/10/2009 01/10/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
T-Seniority: expanding the benefits of information society to older people through digital TV channels **Research team:** DigiTV **Contact:** 01484 221000 **Other partners:** Other partners in Spain, Italy, Cyprus, Greece, Finland, France **Funder:** European Commission ICT PSP **Amount:** €2,670,000	The project used the Nintendo Wii as the way of accessing a range of health and social care services for older people. The UK version of the technology platform has been deployed with 100 residents in care schemes based in locations around Liverpool and Kent. Link to more information on FAST website	01/07/2008 01/07/2010
TV-based Video Telephony Platform for Assisted Living and Tele-Health **Research team:** Advanced Digital Institute **Contact:** 01274 535220 **Other partners:** Red Embedded Design Ltd, BTL Group Ltd, Airedale NHS Trust **Funder:** TSB ALIP **Amount:** £1,500,000	The aim of this project is to provide affordable two-way video technology in people's homes which can be used to provide support, consultations with health professionals and to supply health information. The team developed a set top box and handheld remote control unit which is now available for purchase under the Department of Health Buying Solutions Framework. Link to more information on FAST website	01/07/2008 31/12/2010
UK-Japan Neural Interfaces N+N Workshop **Research team:** Institute of Neuroscience, University of Newcastle **Contact:** 0191 222 6648/5731 **Funder:** EPSRC **Amount:** £7957	This project organised a two-day workshop where ten leading UK researchers and ten Japanese counterparts presented reports on research in areas such as brain-machine interfaces for controlling equipment, with the aim of promoting international collaboration. Link to more information on FAST website	15/01/2010 14/06/2010
UMSIC - Usability of Music for Social Inclusion of Children **Research team:** Institute of Education, University of London **Contact:** 020 7612 6000 **Other partners:** University of Central Lancashire, other partners in Finland, Switzerland, Greece **Funder:** European Commission FP7 **Amount:** €2,130,000	The aim of this project is to develop and use a music-oriented product for children who are at risk of social exclusion, including those with learning disabilities. A pilot study with 130 children in the UK and Finland showed that regular engagement with the software facilitated group collaboration, pair work and communication skills as well as enhancing feelings of well-being and self confidence and increasing motivation. Link to more information on FAST website	01/09/2008 01/08/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
User centred independent living: the freedom to roam **Research team:** School of Life Sciences, University of Northumbria **Contact:** 0191 227 3571 **Funder:** TSB ALIP, EPSRC **Amount:** £293,116	This project aims to develop a user-centred and personalised independent living solution that is commercially viable and affordable for the mass market. Link to more information on FAST website	01/10/2009 30/09/2012
Utilising communications technologies for anytime and anywhere assisted living **Research team:** Advanced Digital Institute **Contact:** 01274 535220 **Other partners:** HoIP, Innovatech, Microsoft, Socitim, Telemedic, Willmott Dixon, 3DReed, Sasie Ltd, Digital Access Provision (DAP) Forum **Funder:** TSB ALIP **Amount:** £1,292,191	This project aims to define the requirements of mobile health devices to enable roaming technology and developing communications technology to support anytime, anywhere assisted living services, incorporating cloud computing and using Microsoft's HealthVault and Azure Platform. Link to more information on FAST website	01/10/2009 30/12/2011
Utilising multi-modal bio-digital technologies to assess the cognitive abilities of children with severe physical and neurological impairment **Research team:** School of Computer Science, University of Hertfordshire **Contact:** 01707 284000 **Other partners:** BioDigitalHeath Ltd **Funder:** EPSRC, Electronics Knowledge Transfer Network iCASE award **Amount:** £85,000	Children with severe physical and neurological impairments have very restricted motor movement and no speech, which prevents them from being assessed by conventional tests of ability. Researchers are investigating the use of two bio-digital input methods, electroencephalography (EEG) and eye tracking, to provide an accurate indicator of the on-screen stimulus the child is selecting when doing computerised tests. Link to more information on FAST website	01/10/2010 31/03/2014

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
VenUS IV (Venous leg Ulcer Study IV): A randomised controlled trial of compression hosiery versus compression bandaging in the treatment of venous leg ulcers **Research team:** Department of Health Sciences, University of York **Contact:** 01904 321344 **Funder:** NIHR HTA **Amount:** £1,012,624	The project will focus on a randomised controlled trial comparing 4 layer compression bandaging with compression hosiery. The study aims to recruit 489 participants and is ongoing, with 162 participants recruited so far from 21 local sites. Link to more information on FAST website	01/05/2009 01/05/2013
VERITAS: Virtual and augmented Environments and Realistic user Interactions To achieve embedded Accessibility designS **Research team:** Department of Information Systems and Computing, Brunel University **Contact:** 01895 203397 **Other partners:** University of Newcastle plus 34 partners from 11 countries and includes large industries, SMEs, universities, research centres, non-profit organisations, public organisations and healthcare centres **Funder:** European Commission FP7 **Amount:** €8,000,000	The goal of VERITAS is to introduce simulation-based and virtual reality testing, using virtual device users, at all stages of assistive technologies product design and development. Researchers will look at a range of application areas: automotive, smart living spaces, buildings and construction, workplace, e-health and infotainment. Link to more information on FAST website	01/01/2010 31/12/2013
VET4VIP - Vocational English training for visually impaired people **Research team:** Royal National College for the Blind **Contact:** 01432 265725 **Other partners:** Totnes School of English plus other partners in Germany, the Netherlands, Ireland, Italy **Funder:** European Commission Leonardo da Vinci Programme **Amount:** €529,779	The project is developing a train-the-trainer course for language teachers to support them to teach people with visual impairment. The project will also support teachers to use and create teaching materials for this target group using suitable assistive technologies, along with providing adaptable computer-based training modules to teach business English to students. Link to more information on FAST website	01/12/2009 01/06/2012

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
VICON : Virtual User Concept for Supporting Inclusive Design of Consumer Products and User Interfaces **Research team:** Royal National Institute for Deaf people **Contact:** 0808 808 0123 **Other partners:** Other partners in Germany, Turkey, Sweden **Funder:** European Commission FP7 **Amount:** €3,136,608	The aim of this project is to develop a library of virtual assistive technology users, who have varying degrees of impairment in vision, hearing and manual dexterity, which can be used to facilitate the testing of product designs for accessibility and usability issues at an early stage of the design process. Researchers have completed the scientific and technical foundation and are now starting the virtual user model development and implementation. Link to more information on FAST website	01/01/2010 30/06/2012
VirtEx **Research team:** Tunstall Group Ltd **Contact:** 01977 661234 **Other partners:** Fold Housing Association, Housing 21, Kirklees Council – Looking Local , University of Sheffield **Funder:** TSB ALIP **Amount:** £2,003,128	The aim of this project is to create a 'virtual community' of connected carers, older people and people living with long-term conditions. Around 570 extra care residents have completed a postal survey and there have been several focus groups evaluating technology options. Only a third found either an electronic calendar or online games useful, whereas 70% liked the ability to access local news online and 75% saw self management of care important. Link to more information on FAST website	01/10/2008 01/10/2011
Vital Mind - VM **Research team:** School of Computing, University of Dundee **Contact:** 01382 385597 **Other partners:** i2 Media Research plus other partners in Czech Republic, Italy, the Netherlands **Funder:** European Commission FP7 **Amount:** €2,750,000	The project tested whether cognitive training delivered via the television had a beneficial effect for older adults. The project investigated innovative developments in the detection of hand movements and non-vocal responses for their potential to control the TV, as well as developing an easy to use remote control which allowed users to participate in a cognitive training programme. Link to more information on FAST website	01/01/2008 30/06/2010

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
VIVOCA2 **Research team:** School of Health and Related Research, University of Sheffield **Contact:** 0114 222 545 **Other partners:** Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust, ELPedium Technologies Ltd, Toby Churchill Ltd, Medipex - NHS Innovation Hub for the Yorkshire and Humber region **Funder:** NIHR HTD **Amount:** £753,000	The aim of this project is to produce a device which will assist spoken communication for people with severe speech impairment (dysarthria). It will recognise speech and `translate' it into clear synthesised output speech which can be understood by the listener. Link to more information on FAST website	01/03/2010 01/10/2012
West Midlands Automated Pill Dispenser Pilot **Research team:** Charter & Plan Ltd **Contact:** 017815 073611 **Other partners:** Dudley Metropolitan Borough Council , Boots UK, Pivo Tell, NHS West Midlands, Staffordshire North PCT, Staffordshire County Council, Wolverhampton Metropolitan Borough Council: Telford and Wrekin Metropolitan Borough Council, Worcestershire County Council, Coventry City Council **Funder:** IEWM, NHS Innovations West Midlands **Amount:** £140,000	This project looked at using an automated pill dispenser for people who were at high risk of failing to take medicine correctly. There are six pilot sites across the West Midlands region and early results show a measurable decrease in GP visits, ambulance call-outs, in-patient stays due to medication errors, domiciliary care packages and respite care. Individual user responses point to clear improvements in quality of life. Link to more information on FAST website	01/07/2009 31/03/2011

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
What are the views of people with Spinal Cord Injury (SCI), healthcare professionals and researchers about the current and future use of FES? **Research team:** School of Health Sciences, University of Southampton **Contact:** 0 23 8059 7979 **Funder:** Inspire (Integrated SPInal Rehabilitation) Salisbury District Hospital **Amount:** £29,602	The aim of this research is to use a qualitative approach with a small group of people living with SCI in order to identify some of the issues and barriers involved in the use of functional electrical stimulation for rehabilitation. The findings will then be tested in an international study with a much larger sample. Researchers have launched a recruitment website. Link to more information on FAST website	21/09/2009 01/10/2012
What do users really want from communication aids? **Research team:** Assistive Technology Team, Medical Physics Department, Barnsley Hospital NHS Foundation Trust, **Contact:** 01226 432159 **Other partners:** Sheffield Speech & Language Therapy Service **Funder:** D4D HTC **Amount:** £10,000	This project found that many users of communication aids view them as unreliable and complex, and identified a knowledge gap between users and professionals. Research suggested users want to be more involved in the design of communication aids, and the team went on to work with users to design an iPhone application. Link to more information on FAST website	01/01/2008 01/01/2011
WheelSAS - Wheelchair Stability Assessment System **Research team:** Faculty of Engineering and Computing, Coventry University **Contact:** 024 7688 8673 **Other partners:** West Midlands Rehabilitation Centre, Kings College Hospital NHS Foundation Trust, Betsi Cadwaladr University Health Board **Funder:** NIHR i4i **Amount:** £600,000	The aim of this project is to develop a system for measuring and improving wheelchair performance. The research involves prescribers, suppliers, wheelchair users, the Medicine and Healthcare Products Regulatory Agency (MHRA) and leading wheelchair manufacturers. Link to more information on FAST website	01/05/2010 30/04/2013

Project title Organisation(s) Contacts Funding	Project summary	Start and finish dates
Whole System Demonstrator (WSD) for telecare and telehealth **Research team:** Department of Health **Contact:** 01977 661234 **Other partners:** t+ Medical, Tunstall Ltd, London Borough of Newham, Kent County Council, Cornwall County Council **Funder:** Department of Health Long Term Conditions Team **Amount:** £31,000,000	The Whole System Demonstrator (WSD) trial is believed to be the largest randomised control trial of telehealth and telecare to date anywhere in the world with over 6000 participants,all of whom have had a telecare or telehealth package installed and reviewed during a minimum period of 12 months. Final results of the project will be released over the next two years, but early findings suggest that technology issues are much less of a challenge than the requirement to develop new organisational processes. Link to more information on FAST website	05/01/2008 31/05/2011
WIDE - Widgets for Inclusive Distributed Environments **Research team:** Accessibility Research Centre, Teesside University **Contact:** 01642 342656 **Funder:** JISC **Amount:** £30,000	The aim of this project is to produce up to 50 high quality widgets, similar to iPhone applications, which will support disabled students through their learning journey. Each widget will include descriptions of the user scenario on which it is based, together with a summary of its use in practice. Link to more information on FAST website	01/07/2010 31/12/2010
Working Late : Strategies to Enhance Productive and Healthy Environments for the Older Workforce - collaborative research project **Research team:** Department of Human Sciences, Loughborough University **Contact:** 01509 223036 **Other partners:** Institute of Occupational Medicine, Edinburgh, Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA), The Age and Employment Network (TAEN), COPE Occupational Health Services, Engineering Employers Federation, Major Contractors Group, E.on, PPG, and I-Smart **Funder:** NDA **Amount:** £1,500,000	The project is developing an online resource Organiser for Working Late (OWL) which is a suite of web-based design tools designed to encourage employers and designers to understand and respond to the older workforce. This is currently being piloted with four companies. A survey on possible transport barriers to work is being analysed, and researchers have also worked on devices called SKIns (Sensory and Kinesthetic Interactive Simulations) to enable construction workers to gain insight into the medical conditions they risk developing without good self care. Link to more information on FAST website	01/11/2008 01/11/2012

Full information available from the Foundation for Assistive Technology (FAST) Assistive Technology research and development database.

Report produced by:

Ms Pat Sweet and Ms Keren Down
FAST – The Foundation for Assistive Technology
302 Tower Bridge Business Centre
46-48 East Smithfield
London E1W 1AW

tel: 0300 330 1430
email: info@fastuk.org
web: www.fastuk.org