



Department
of Health

Research and development work relating to assistive technology

2016–17

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



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Any enquiries regarding this publication should be sent to us at Science, Research and Evidence Directorate, Department of Health, 39 Victoria Street, London SW1H 0EU

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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 on progress made in government-funded research relating to equipment that might increase the range of activities and independence or well-being of disabled people, known as assistive technology.

Working with stakeholders, in 2001 the Foundation for Assistive Technology developed the following definition of assistive technology:

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. As technology advances, the breadth of work covered is constantly expanding. The research covers not only specific products, but also systems, combinations of technologies, and interfaces to mainstream technology such as the internet.

For the purpose of this report, products and systems are further classified as assistive technology if their adoption and use is under some measure of control by the disabled and older end user and there is a level of meaningful interaction by the end user with the product or system. This therefore excludes telemedicine services such as videoconferencing between a general practitioner and a hospital consultant, using equipment in the hospital and GP surgery, as these technologies are primarily used by, and operated under the control of, the healthcare professionals. Neither does the report feature research on implanted technologies over which the user has no control or interaction, such as hip replacements. The report aims to reflect research relating to a wide range of impairments and conditions, and to cover research on service provision and patterns of use as well as development and evaluation of technologies.

The 2016–17 report highlights developments in priority setting and funding for assistive technology research and innovation and some particular areas of research activity. The Annex provides a listing of government-funded assistive technology research and development projects current in 2016–17.

Glossary of acronyms

AHRC	Arts and Humanities Research Council
ASD	autism spectrum disorder
BIS	Department for Business, Innovation and Skills ^a
CLAHRC	Collaboration for Leadership in Applied Health Research and Care
CPRC	Child Prosthetics Research Collaboration
D4D	Devices for Dignity
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
HCRW	Health and Care Research Wales
HEE	Health Education England
HTC	Health Technology Co-operative
MRC	Medical Research Council
NIHR	National Institute for Health Research
PHA	Public Health Agency (Northern Ireland)
PHR	Public Health Research
TITCH	Technology Innovation Transforming Child Health

^a In July 2016, BIS merged with the Department of Energy and Climate Change to form the Department for Business, Energy and Industrial Strategy.

Developments in research funding

National Institute for Health Research Biomedical Research Centres

Formed through partnerships between England's leading NHS organisations and universities, National Institute for Health Research (NIHR) Biomedical Research Centres conduct translational research to convert scientific breakthroughs into life-saving treatments for patients. In the third round of funding from April 2017 to March 2022, awards have been made to 20 centres.

The Biomedical Research Centres and Biomedical Research Units have supported a range of translational research that relates to assistive technologies. For example, the NIHR University College London Hospitals Biomedical Research Centre is involved in a European project collecting real-life data from people who use hearing aids with the aim of developing a platform for integrated decision support and holistic hearing loss management health policies.

Engineering and Physical Sciences Research Council

In February 2017, the Engineering and Physical Sciences Research Council (EPSRC) updated the research rationale, strategy and trajectory for each of its 113 research areas, including assistive technology, for the period 2017–21. The rationale was updated to reflect developments in the research landscape as well as evolving stakeholder and user needs. In particular, EPSRC aims to fund collaborative research in which clinicians and patients are active team members from the earliest stages in order to accelerate the effectiveness of research on products and practice in healthcare settings. The EPSRC also aims to encourage its researchers who are not already active in this area to use the challenges faced as the impetus for conducting innovative engineering and physical sciences research, thereby helping to bring original solutions to assistive technology users.

The EPSRC has also funded a number of national network awards, in several areas of healthcare technology, that aim to bring together engineers, mathematicians, physical scientists and information and communication technology researchers with researchers in other disciplines to form communities that can address several of the healthcare challenges currently faced in the UK. In particular, these networks will engage with interested users of research, including businesspeople, clinicians, patient groups and policy-makers, to shape future research directions.

These awards not only have funding for networking and community-building activities but also have proof-of-concept funding to undertake small-scale pilot and seed studies that can form the basis of future multidisciplinary grant applications and awards.

Several of the awards are relevant to assistive technology research, including:

- Medical Devices and Vulnerable Skin Network, University of Southampton
- GetAMoveOn Network+ – Leveraging Technology to enable mobility and transform Health, University College London
- Osteoarthritis Technology NetworkPlus (OATech+): a multidisciplinary approach to the prevention and treatment of osteoarthritis, Cardiff University
- Network-Plus on Devices for Surgery and Rehabilitation, Imperial College London.

Developments in research funding

In addition, EPSRC has launched a call in diagnostics, prosthetics and orthotics, supported through EPSRC's Global Challenges Research Fund allocation and co-sponsored by the Department of Health. The aim of this activity is to support an internationally leading programme of research, centred around innovative healthcare technologies, to address the challenges faced by developing countries. Proposals had to address one of the following two priority areas to be considered through this call:

- low-cost, rapid point-of-care imaging and diagnostic technologies
- affordable prosthetics and orthotics.

Projects will involve UK-based researchers partnering with researchers, stakeholders and users in one or more developing countries to conduct innovative research that will have a meaningful effect in the developing world. The successful projects will be announced by the end of 2017 and will begin in early 2018.

National Institute for Health Research Child Prosthetics Research Collaboration

In March 2016, the Chancellor in his Budget announced that the government would invest £1.5 million in child prosthetics, giving hundreds of children with limb deficiency access to sports prosthetics, and creating a fund to incentivise the development of new, breakthrough, innovative prosthetic products for use in the NHS. In September 2016, as part of this investment, the Department of Health announced that £750,000 of NIHR funding would go towards accelerating the development of new prosthetic technologies specifically for children.

The Devices for Dignity (D4D) Healthcare Technology Co-operative (HTC) won the bid to form the NIHR Child Prosthetics Research Collaboration (CPRC), which comprises experts from four stakeholder groups: the NHS, industry, clinical academia, and children and their families. The project is currently assessing needs by identifying gaps in the system through a survey and workshops. The survey will gather data on the perspectives of each stakeholder group, and an analysis will identify priorities according to needs, areas of excellence and barriers to implementation. To achieve a comprehensive report, D4D will work with multiple partners within the NIHR HTCs and make full use of the Technology Innovation Transforming Child Health (TITCH) network as well as making links with the main charities in the field of child prosthetic provision. The project reference group includes representatives from all major stakeholder groups as well as charities and parents of children who use a prosthetic limb.

Future National Institute for Health Research calls

NIHR's current themed call is on the topic of complex health and care needs in older people. A stakeholder workshop was held to inform the call; a number of themes were identified and some of these may attract applications that evaluate assistive technology. The NIHR Public Health Research (PHR) programme is planning a call on promoting independence among older people, people with disability and people with impairments.

Research current in 2016–17

Some particular areas of research activity are highlighted below.

Developments in robotic assistive technology to improve mobility

Section 22 of the Act makes specific reference to the need for research relating to technologies assisting indoor and outdoor mobility. This is most evident in the range of government funding provided to researchers working with robotic technology to improve, or provide, movement.

People who use prostheses need them to be comfortable and provide a range of movement to allow walking and running. At the Bristol Robotics Laboratory (University of the West of England), researchers are developing a novel bio-inspired 'smart' joint for people who require lower limb prosthetics. The research, funded by EPSRC, involves examining how the human knee works and using that knowledge to create a more natural and comfortable prosthetic, which will give users a greater range of movement and better stability. The smart joint will be tested by Paralympic gold medallist Andy Lewis to compare its efficacy and energy consumption against that of current prosthetic options.

Researchers at the University of Essex are seeking to improve the way in which myoelectric hand prostheses work to allow users more organic and intuitive movements, rather than the limited number of pre-defined actions currently possible. This could increase the quality of life of those who have lost an upper limb, most of whom are under 55 years old and are otherwise in good health. The suggested new approach would access the neural drive to the muscle directly and use advanced decoding algorithms instead of the current method of using pattern-recognition classifiers, thereby enabling users to start creating movements. The researchers, who are funded by EPSRC, believe that their algorithm will help to lead to a more naturally performing prosthesis, which will also give the user more useful (neural sensory) feedback.

Bristol-based Open Bionics has been awarded proof-of-concept funding for the development of 3D-printed robotic prostheses for children and young people who have upper limb deficiencies. The aim of the project is to provide a wider range of cheaper, more suitable prostheses for children, and that maximise their quality of life, allowing them to be independent. The company has created a much lighter and smaller bionic hand, which is far more suitable for younger children who have lost, or been born without, a hand. In addition, Open Bionics is looking to reduce the cost of prosthetics by using 3D-printing techniques, thereby making it more affordable for children to change their prosthetics as they grow. With this 6-month trial, the researchers aim to show that the product is feasible, and, if it is, they will apply for further funding to support the roll-out of the product in the NHS.

Assistive technology to help children

Robot technology is not only being used to assist with physical needs. Kaspar, a social robot developed by Hertfordshire Community NHS Trust and funded by the NIHR Research for Patient Benefit (RfPB) programme, interacts with children who have autism spectrum disorder (ASD) by playing games and helping them to communicate. Kaspar's face has simple features, making it much easier for children with ASD to interpret its expressions. The researchers want to better understand Kaspar's effectiveness in helping children with ASD develop their social skills, and so they are looking to comparing Kaspar with usual therapy.

Research current in 2016–17

Another project aiming to help children with ASD, funded by NIHR, uses LEGO-based therapy to improve social interaction skills. It can be difficult for children with ASD to use social skills in everyday life, and LEGO-based therapy provides those skills in a way that can interest children and encourage them to keep using the skills outside the research setting. Principally, the researchers aim to find out if LEGO-based therapy in schools has an effect on children's social and emotional capabilities and reduces the social isolation they may experience. The study involves children being allocated to either LEGO-based therapy or usual care as is provided in mainstream schools in Leeds, Sheffield and York.

London-based technology company Therapy Box has partnered with the University of Sheffield and Barnsley Hospital to develop VocaTempo, a voice-input app that allows children with speech difficulties to communicate. Funded by SBRI Healthcare, the app uses voice recognition software to interpret what a child is saying and then provide a clear version, enabling children with severely impaired speech to be much more easily understood. SBRI has also funded Project Andiamo's development of a spinal brace service to help children with cerebral palsy who have a spinal deformity. Using 3D-printing, a back brace service is being created to increase mobility, allow greater independence, restore function and, in general, greatly improve children's quality of life.

At North Thames Collaboration for Leadership in Applied Health Research and Care (CLAHRC) a board game has been developed for children with asthma to play; its aim is to teach them about the condition, including the medication they can take and what may trigger asthma. The researchers will develop a self-management intervention for use with children and young people in school, and will incorporate the board game in addition to workshops.

Assistive technology to increase independence and quality of life

A number of projects are concentrating on the ways in which assistive technology can help older people to live full and independent lives for as long as possible. Funded by Innovate UK and led by Designability, CHIRON is a set of robotic systems that are located in various positions around a person's home. The aim is that this kind of assistive robotics will help older people continue to live in their homes with good quality of life by providing them with assistance with daily tasks, such as getting dressed and making meals. Another device for older people in the home, and also funded by Innovate UK, is Levstone's Trusted Elderly Care app for smartphones and tablets, which lets a trusted contact (for example a relative or carer) know whether a vulnerable person is moving and active, and it can also track their location. This can reduce anxiety about an older person's well-being and allow that person to live at home alone, knowing that they are being looked after.

Assistive technology for older people can now take different forms and need not involve a device. The Tangible Memories project from the University of Bristol, and funded by the Arts and Humanities Research Council (AHRC), has created 'parlours' for older people in care settings to interact with objects, evoking memories, and contribute to the development of these spaces by providing their own thoughts and stories. This can improve older people's quality of life by providing them with the opportunity to meet others in the community within the 'parlours', such as school children and family members, thereby lessening social isolation and increasing confidence. People can use an accompanying app to record their own life histories, which means that they can take part and feel involved while in a care setting.

Assistive technology for mental health

Developments in various types of assistive technology can also help people with mental health difficulties live more independent lives; these can often involve online and behavioural approaches rather than devices. The SlowMo therapy intervention at King's College London comprises face-to-face sessions and an interactive element via a website that provides advice, games and a mobile phone app. The aim of the therapy is to help people experiencing an episode of paranoia to slow down their thoughts and minimise their distress. Researchers at King's College London are also exploring ways to help people who experience psychosis. Researchers are exploring the use of smartphone apps and activity trackers to identify disturbances in the body's natural rhythms, which are thought to indicate a relapse.

Annex. Listing of assistive technology research and development projects 2016–17

Project title, organisation, contact	Summary	Funding
<p>A 3D printing solution to solve parents' pain with orthotics services</p> <p>Project Andiamo</p> <p>http://andiamo.io/contact-us/</p>	<p>The company received a proof of concept award for an innovative approach using state-of-the-art 3D imaging and additive manufacturing with expert biomechanical analysis to design and manufacture customised orthotic devices.</p>	<p>Innovate UK</p> <p>Apr 16 – Jan 17</p> <p>£94,516</p>
<p>AAL-VUK: Active and Assisted Living – Visionless sUpporting framework</p> <p>Erlang Solutions</p> <p>www.erlang-solutions.com/contact.html</p>	<p>The company is participating with partners in Austria, Hungary and Portugal in a project aiming to provide a simple, effective and affordable door-to-door navigation and mobility assistance solution for blind or visually impaired people. Unfamiliar indoor environments will be targeted as well as outdoor navigation.</p>	<p>Innovate UK</p> <p>Mar 16 – Aug 18</p> <p>£283,542</p>
<p>AAL-WELL: ambient assistive living technologies for wellness, engagement, and long life</p> <p>University of Sheffield</p> <p>www.catch.org.uk/contact-us</p>	<p>The project aimed to harness the potential of ambient assistive technology to allow active and healthy ageing for older people with mild cognitive impairment.</p>	<p>ESRC</p> <p>Apr 13 – Jan 17</p> <p>£144,592</p>
<p>accessibility-enabled Health (aHealth)</p> <p>Dolphin Computer Access</p> <p>www.yourdolphin.com/contact</p>	<p>The researchers in the aHealth project developed an innovative technology to act as an accessibility layer or service for existing health- and well-being-related technologies so that blind or visually impaired people would be able to use them.</p>	<p>Innovate UK</p> <p>Dec 15 – Aug 16</p> <p>£100,000</p>
<p>Accessible routes from crowdsourced cloud services</p> <p>University College London</p> <p>https://www.disabilityinnovation.com/projects/arccs</p>	<p>The project used a crowdsourced approach to design an intelligent route-planning system for wheelchair users in an urban environment.</p>	<p>EPSRC</p> <p>Oct 14 – Sep 17</p> <p>£344,853</p>

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Project title, organisation, contact	Summary	Funding
<p>Acoustic signal processing and scene analysis for socially assistive robots</p> <p>Imperial College London</p> <p>www.imperial.ac.uk/people/c.evers</p>	<p>The research aims to provide socially assistive and other robots and machines with the ability to understand and adapt to the surrounding acoustic environment, which often features competing background noise.</p>	<p>EPSRC</p> <p>Jan 17 – Dec 19</p> <p>£330,105</p>
<p>ADAM: anthropomorphic design for advanced manufacture</p> <p>University of Nottingham</p> <p>www.nottingham.ac.uk/engineering/people/ian.ashcroft</p>	<p>The researchers aimed to develop an upper limb prosthesis integrated design system in which the needs of the patient, together with constraints, such as the manufacturing technologies available and requirements for device accreditation for healthcare, inform the whole design-to-manufacture process.</p>	<p>EPSRC</p> <p>Jan 16 – Jul 17</p> <p>£269,486</p>
<p>Adaptive assistive rehabilitative technology: beyond the clinic</p> <p>University of Warwick</p> <p>www.aartbc.org/index.php/contact</p>	<p>Researchers will design and develop cheap, disposable, unobtrusive bio-sensors, such as temporary tattoos and smart watches, to use with patients who use wheelchairs or prosthetics and patients requiring rehabilitation, as well as with older people.</p>	<p>EPSRC</p> <p>Apr 15 – Mar 18</p> <p>£1,862,860</p>
<p>Additive manufacture value chain to deliver bespoke orthotics within 48 hours with greatly improved health economics</p> <p>University of Salford; FDM Digital Solutions</p> <p>www.salford.ac.uk/health-sciences/health-academics/rhs067</p>	<p>The project sought to use innovative manufacturing techniques to combine foot shape with other data (e.g. pressure under the foot) to design novel foot orthotics. The orthotics are ‘printed’ rather than hand-made using traditional techniques.</p>	<p>EPSRC; Innovate UK</p> <p>Nov 13 – Jan 17</p> <p>£993,750</p>
<p>AeroPlus pressure ulcer care recliner device for plus sized users</p> <p>Medstrom</p> <p>www.medstrom.com/contact-us</p>	<p>The aim of the project was to develop a prototype recliner device to provide pressure reduction and maintain optimal skin condition for users who are obese or morbidly obese.</p>	<p>Innovate UK</p> <p>Oct 15 – Mar 17</p> <p>£87,192</p>

Project title, organisation, contact	Summary	Funding
<p>Affordable 3D-printed robotic prostheses for children and young people</p> <p>Open Bionics</p> <p>http://sbrihealthcare.co.uk/company/open-bionics</p>	<p>Open Bionics has been awarded proof-of-concept funding to support the development of 3D-printed robotic prostheses for children and young people.</p>	<p>NHS England</p> <p>2017</p> <p>£99,722</p>
<p>Assessment and treatment of patients with amblyopia using interactive binocular computer games</p> <p>Nottingham University Hospitals NHS Trust</p> <p>www.lazy-i-bit.com/</p>	<p>The researchers previously developed a treatment for amblyopia that has shown improvements in vision with only 3 hours of treatment and is fun to undertake (the I-BITTM system). The current system is hospital based and the researchers aimed to modify it for home use while including further improvements.</p>	<p>NIHR</p> <p>Sep 14 – Aug 17</p> <p>£902,919</p>
<p>ATTILA trial: assistive technology and telecare to maintain independent living at home for people with dementia</p> <p>South London & Maudsley NHS Foundation Trust</p> <p>robert.j.howard@kcl.ac.uk</p>	<p>The study aims to find out if telecare can safely extend the time people with dementia can continue to live independently in their own homes and whether or not this is cost-effective. It also aims to find out if telecare can reduce the number of acute, unplanned admissions to hospital, if it reduces stress in families and unpaid caregivers, and whether or not it can increase the quality of life of people living with dementia.</p>	<p>NIHR</p> <p>Jan 13 – Apr 19</p> <p>£1,801,834</p>
<p>Augmenting communication using environmental data to drive language prediction</p> <p>University of Dundee</p> <p>http://aac.dundee.ac.uk/ace-lp</p>	<p>The aim of the project is to improve the communication experience of non-speaking people by enabling them to tell their stories easily and at more acceptable speeds.</p>	<p>EPSRC</p> <p>Feb 16 – Jan 19</p> <p>£1,007,560</p>
<p>Autoseat project</p> <p>Autochair</p> <p>www.autochair.co.uk</p>	<p>The aim of the project was to engineer and test an electrically actuated mobility seat for vehicles.</p>	<p>Innovate UK</p> <p>May 15 – Oct 16</p> <p>£177,563</p>

Annex. Listing of assistive technology research and development projects 2016–17

Project title, organisation, contact	Summary	Funding
<p>Balance Right in Multiple Sclerosis (BRiMS): A guided self-management programme to reduce falls and improve quality of life, balance and mobility in people with Multiple Sclerosis</p> <p>Plymouth Hospitals NHS Trust</p> <p>www.plymouth.ac.uk/research/balance-right-in-multiple-sclerosis</p>	<p>Balance Right in MS is a self-management programme for people with multiple sclerosis to use in everyday life; its aim is to allow people to move more freely without worrying about falling. The researchers have spent 5 years developing the programme, which is personalised and lasts 13 weeks, and now want to conduct a feasibility study to assess outcomes and find out if a larger trial would be warranted.</p>	<p>NIHR</p> <p>May 16 – Apr 18</p> <p>£367,110</p>
<p>Bathing adaptations in the homes of older adults</p> <p>University of Nottingham</p> <p>www.sscr.nihr.ac.uk/P90</p>	<p>Housing adaptations have been identified as one of the top 10 prevention services for older adults, with improvements to bathing facilities being the most requested. However, many local authorities have lengthy waiting times that may increase costs, reduce effectiveness and reduce the preventative effect. Furthermore, there is no strong evidence of the effect of these adaptations on health, well-being and functional ability. This research will test whether or not it is feasible to conduct a randomised controlled trial of bathing adaptations for older adults and their carers.</p>	<p>NIHR</p> <p>Mar 16 – Dec 17</p>
<p>Big CACTUS: clinical and cost effectiveness of aphasia computer therapy compared with usual stimulation or attention control long term post stroke</p> <p>University of Sheffield</p> <p>www.sheffield.ac.uk/scharr/sections/dts/ctru/bigcactus</p>	<p>The aim of the study is to compare outcomes for people with persistent aphasia using computerised speech and language therapy at home with those for people receiving usual care (standard speech and language therapy provision or general daily communication activity), or attention control (daily completion of puzzle book activities).</p>	<p>NIHR</p> <p>Jan 14 – Jan 19</p> <p>£1,480,713</p>

Project title, organisation, contact	Summary	Funding
<p>Brain-computer interface for monitoring and inducing affective states</p> <p>University of Reading; Plymouth University</p> <p>s.j.nasuto@reading.ac.uk; eduardo.miranda@plymouth.ac.uk</p>	<p>The researchers studied a brain-computer interface that can monitor emotional states and, in combination with a database of music, generate sounds that can alter emotions. Such a system could be used to treat mood disorders such as depression.</p>	<p>EPSRC</p> <p>Aug 12 – Sep 17</p> <p>£876,103</p>
<p>Care Dryer</p> <p>Haystack Dryers</p> <p>www.haystack-dryers.com/contact.php</p>	<p>The aim of the project was to develop a concept design of a care dryer to be used by people of all abilities, either by themselves or aided by a carer, providing a warm, relaxing environment that not only reduces the costs to the care home/facilities, but also has a positive effect on clients' well-being and on the environment.</p>	<p>Innovate UK</p> <p>Jan 16 – Dec 16</p> <p>£95,137</p>
<p>CHIRON: Care at Home using Intelligent Robotic Omni-Functional Nodes</p> <p>Designability</p> <p>www.designability.org.uk/projects/researchproject/creating-care-robotics-offer-older-people-extra-support-home/</p>	<p>The aim of the project is to develop a set of intelligent modular robotic systems, placed in multiple locations around the home. CHIRON would enable people to stay independent longer, supporting them to undertake their own personal care tasks.</p>	<p>Innovate UK</p> <p>Mar 16 – Mar 18</p> <p>£2,155,780</p>
<p>Clasp: Digital Tactile Anxiety Management for the Health Internet of Things</p> <p>Lancaster University</p> <p>http://myclasp.org/about-clasp/contact-us</p>	<p>The aim of this project was to co-design and co-produce, with a cohort of people with autism, their friends and family, a tactile digital anxiety management and peer-support tool to assist people with autism in understanding and managing their anxiety in social engagement.</p>	<p>EPSRC</p> <p>Jan 15 – Oct 16</p> <p>£293,031</p>

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<p>Co-Designing a Creative Economy Healthcare Hub</p> <p>University of the West of England</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FP013163%2F1</p>	<p>Building on the four AHRC Creative Economy Hubs, this project aims to explore the wider applicability and adaptability of the Creative Hubs model to the healthcare sector. This pilot project will focus on the challenges around dementia care and ageing populations, but in recognition that this is a test-bed for the broader health and well-being sector. The long-term goal of the project is to design a framework for a near-term creative economy Healthcare Hub, laying down recommendations for, and routes towards, its implementation.</p>	<p>AHRC</p> <p>Feb 17 – Jan 18</p> <p>£161,238</p>
<p>ColourSpecs: a wearable colour identification system for people with impaired colour vision</p> <p>University of Dundee</p> <p>www.computing.dundee.ac.uk/about/staff/15</p>	<p>Building on earlier work, the research will define a comprehensive colour-to-visual design space using participants with impaired colour vision. The research will identify the best candidate mappings and install them on a transparent head-mounted display to develop ColourSpecs, and compare this with competing techniques.</p>	<p>EPSRC</p> <p>Feb 17 – Jul 18</p> <p>£100,861</p>
<p>CONSULT: Collaborative Mobile Decision Support for Managing Multiple Morbidities</p> <p>King's College London</p> <p>https://kclpure.kcl.ac.uk/portal/en/persons/simon-parsons(02e18128-086e-4183-af44-c2c22fb8f0b5).html</p>	<p>The research will combine wireless 'wellness' sensors with intelligent software running on mobile devices to support patient decision-making, and, thus, actively engage patients in managing their healthcare. The technology will be evaluated across multiple dimensions in a proof-of-concept study, engaging stroke patients, their carers and medical professionals.</p>	<p>EPSRC</p> <p>Mar 17 – Feb 20</p> <p>£1,381,440</p>

Project title, organisation, contact	Summary	Funding
<p>Co-producing socio-technical solutions for people living with complex multi-morbidity</p> <p>East London NHS Foundation Trust</p> <p>www.phc.ox.ac.uk/team/trish-greenhalgh</p>	<p>The research explored how to provide personalised and adaptive assisted living technologies for people with complex multi-morbidity.</p>	<p>NIHR</p> <p>Jun 15 – Nov 16</p> <p>£89,821</p>
<p>Cross-model interactive tools for inclusive learning</p> <p>University of Bristol</p> <p>www.bristol.ac.uk/engineering/people/oussama-metatla/index.html</p>	<p>The aim of this fellowship is to research and develop interactive learning tools to make mixed classrooms more inclusive of visually impaired students.</p>	<p>EPSRC</p> <p>Mar 16 – Feb 21</p> <p>£716,108</p>
<p>Decoding the neural drive for finer and more intuitive control of a myoelectric robotic hand</p> <p>University of Essex</p> <p>www.essex.ac.uk/csee/staff/profile.aspx?ID=2929</p>	<p>In this project, research will be conducted into the development of novel decoding algorithms to make the control of myoelectric hand prostheses more natural, intuitive and accurate. The approach uses recently developed high-density surface electromyographic arrays, which record from a high number of closely spaced electrodes, combined with the most advanced signal processing and neural decoding techniques.</p>	<p>EPSRC</p> <p>Nov 16 – Mar 18</p> <p>£100,951</p>
<p>Deep architectures for statistical speech synthesis</p> <p>University of Edinburgh</p> <p>www.research.ed.ac.uk/portal/en/persons/junichi-yamagishi(4d11a99a-0d04-42f4-8089-d433a57c2463).html</p>	<p>The project's aim was to create technology to allow people to communicate in their own voice when their natural speech has become hard to understand or when they can no longer speak. The team has constructed personalised communication apps for 10 people with motor neurone disease, and has received positive feedback.</p>	<p>EPSRC</p> <p>Nov 11 – Oct 16</p> <p>£741,163</p>

Annex. Listing of assistive technology research and development projects 2016–17

Project title, organisation, contact	Summary	Funding
<p>Dementia-friendly architecture: Reducing Spatial Disorientation in Dementia Care Homes</p> <p>Bournemouth University</p> <p>https://microsites.bournemouth.ac.uk/wayfinding/</p>	<p>This project will identify the features that make buildings relatively harder or easier for people with Alzheimer’s disease to navigate. The knowledge gained will allow the team to create dementia-friendly architectural guidelines for use in the design of residences for people with Alzheimer’s disease.</p>	<p>ESRC</p> <p>Dec 15 – May 18</p> <p>£215,992</p>
<p>Dementia and imagination: connecting communities and developing well-being through socially engaged visual arts practice</p> <p>Bangor University</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FK00333X%2F1</p>	<p>This project aims to address the disconnection and marginalisation of people with dementia and explore how the vision for dementia-supportive communities might benefit from creative activities. Specifically, it will use a visual art intervention as the catalyst for change for understanding community connectivity, challenging attitudes and promoting well-being. The project is working with community and policy partners including arts organisations, museums, galleries, health and social care practitioners, charities and local government.</p>	<p>AHRC</p> <p>Jun 13 – Aug 17</p> <p>£1,219,353</p>
<p>Dementia, Arts & Wellbeing Network (DAWN)</p> <p>University of Nottingham</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FN00650X%2F1</p>	<p>This project brings together artists, academic researchers and people with mild to moderate dementia to explore the use of visual and performing arts to promote well-being in dementia.</p>	<p>AHRC</p> <p>Apr 16 – Oct 17</p> <p>£24,215</p>
<p>Designing better hearing aids using physiologically inspired speech enhancement</p> <p>University of Southampton</p> <p>www.southampton.ac.uk/engineering/about/staff/bleeck.page#background</p>	<p>A conventional hearing aid amplifies both speech and background noise indiscriminately, so although the neural pathways of the brain may be unimpaired, the task of distinguishing speech from noise becomes much harder. The project aimed to develop engineering solutions to this speech-in-noise problem.</p>	<p>EPSRC</p> <p>Feb 13 – Sep 16</p> <p>£613,105</p>

Project title, organisation, contact	Summary	Funding
<p>Detecting critical events in support of independent living at home</p> <p>Buddi</p> <p>www.buddi.co.uk/contact.php</p>	<p>In this project, Buddi aimed to develop a critical event sensing detector by building on its existing personal alarm technology. People living alone who might need assistance or who are worried about falling can wear the Buddi wristband, which tracks location, and press a button if they need help.</p>	<p>Innovate UK</p> <p>Apr 15 – May 16</p> <p>£100,000</p>
<p>Detecting early signs of relapse in psychosis using remote monitoring technology</p> <p>King's College London</p> <p>https://kclpure.kcl.ac.uk/portal/nicholas.m.meyer.html</p>	<p>Patients, carers and clinicians often find that natural rhythms, such as sleep and levels of activity, become disturbed during a relapse in psychosis. The aim of this research is to study the detection of early signs in relapse using everyday technology including smartphones and activity trackers.</p>	<p>MRC</p> <p>Oct 16 – Sep 19</p> <p>£243,384</p>
<p>Developing a co-produced, digital, and living archive of learning disability history: An exploration of ethics, ownership and new connectivities</p> <p>Open University</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FK007459%2F1</p>	<p>This project explored the feasibility of a living digital archive of learning disability history through the engagement of both participants with and participants without learning disabilities.</p>	<p>AHRC</p> <p>Apr 14 – Jun 17</p> <p>£805,223</p>
<p>Developing Loc8torHC platform: Healthcare, Home Safety and Wellbeing monitoring for senior citizens</p> <p>Loc8tor</p> <p>www.loc8tor.com/uk/healthcare/contacts</p>	<p>The project aimed to develop Loc8tor HealthCare platform targeted at the retail market. The core product will comprise six core services – location, wander, fall, panic, activity and temperature – in one device.</p>	<p>Innovate UK</p> <p>Apr 15 – Apr 16</p> <p>£197,837</p>

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<p>Development, evaluation and implementation of a computer-based self-management programme for people with type 2 diabetes</p> <p>The Whittington Health NHS Trust</p> <p>http://www.ucl.ac.uk/pcph/research-groups-themes/ehealth/projects/projects/dmsmp</p>	<p>The effectiveness and cost-effectiveness of a computer-based self-management programme (HeLP Diabetes) was evaluated as part of a trial. An implementation study was determining the effect it has on health and health outcomes in routine practice, and the resources needed for successful implementation.</p>	<p>NIHR</p> <p>Mar 11 – Aug 16</p> <p>£2,015,521</p>
<p>Development of a device for the motorised rehabilitation of walking</p> <p>University of Manchester</p> <p>www.manchester.ac.uk/research/Sarah.tyson/personaldetails</p>	<p>The project aimed to develop a robot to retrain sit-to-stand and walking in people with severe disabilities.</p>	<p>NIHR</p> <p>Aug 14 – Jul 17</p> <p>£895,215</p>
<p>Diabetes Digital Coach</p> <p>West of England Academic Health Science Network</p> <p>www.weahsn.net/contact-us/</p>	<p>The Diabetes Digital Coach Test Bed will provide the infrastructure for mobile health self-management tools (wearable sensors and supporting software) to take advantage of new developments in connecting monitoring devices (Internet of Things) to enable people with type 1 or type 2 diabetes to self-manage their condition.</p>	<p>Innovate UK</p> <p>May 16 – Jul 18</p> <p>£1,653,940</p>
<p>Disability and Community: Dis/engagement, dis/enfranchisement, dis/parity and dissent – aka The D4D project</p> <p>Bath Spa</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FN004108%2F1</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FN004108%2F2</p>	<p>This project is looking into the ways that disabled people are connected to and disconnected from surrounding communities, and how they might re-situate themselves in and re-shape the communities around them. The project aims not only to improve service provision and quality of life for people with disabilities but also to support service providers, policy-makers and manufacturers and providers of technology.</p>	<p>AHRC</p> <p>Mar 16 – Mar 20</p> <p>£1,296,406</p>

Project title, organisation, contact	Summary	Funding
<p>Does Occupational Therapist led environmental assessment and modification reduce falls among high risk older people?</p> <p>University of York sarah.cockayne@york.ac.uk</p>	<p>The aim of the study is to find out if there is any reduction in falls among older people who are at increased risk of falling and have received an assessment of, and modification to, their home environment by an occupational therapist.</p>	<p>NIHR Jun 16 – Dec 18 £718,067</p>
<p>Early electrical stimulation to the wrist extensors and wrist flexors to prevent the post-stroke complications of pain and contractures in the paretic arm – a feasibility study</p> <p>Nottingham University Hospitals NHS Trust www.nottingham.ac.uk/research/groups/strokerehabilitation/projects/escaps.aspx</p>	<p>The study will evaluate the feasibility of running a definitive trial to ascertain the efficacy of using early, intensive electrical stimulation to prevent post-stroke complications in the affected arm.</p>	<p>NIHR Apr 15 – Mar 18 £234,871</p>
<p>Effectiveness of alternative listening devices to conventional hearing aids for adults with hearing loss</p> <p>University of Nottingham www.hearing.nihr.ac.uk/about-us/staff/bio/dr-david-maidment</p>	<p>The researchers are conducting a systematic review to assess whether or not alternative listening devices are an effective intervention for adults with hearing loss. These devices include hearing aids that can be customised using a smartphone, smartphone-based 'hearing aid' apps, personal sound amplification products and wireless hearing products. The review protocol was published in October 2016: http://bmjopen.bmj.com/content/6/10/e011683</p>	<p>NIHR Oct 15 – Mar 18</p>

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<p>The Effectiveness of peroneal nerve functional electrical stimulation (FES) for improving mobility in Parkinson's disease</p> <p>Salisbury NHS Foundation Trust</p> <p>www.salisburyfes.com/</p>	<p>Observational studies have investigated the use of functional electrical stimulation in people who have difficulty walking as a result of Parkinson's disease, and these studies have shown clinically meaningful improvements in walking speed, freezing and step length. This feasibility study will determine the recruitment, willingness to be randomised, loss-to-follow-up rates and appropriate outcome measures for a subsequent trial to evaluate the effectiveness and cost-effectiveness of functional electrical stimulation in a standard clinical setting.</p>	<p>NIHR</p> <p>Apr 16 – Apr 18</p> <p>£244,166</p>
<p>Empowering next generation implantable neural interfaces</p> <p>Imperial College London</p> <p>www.imperial.ac.uk/people/t.constandinou</p>	<p>This fellowship is on next-generation neural interfaces that can be used with assistive technologies such as prostheses or mobility aids. Neural interfaces are devices whose aim is to control devices with thoughts, enabling better control. It is hoped that the research will affect both neuroscience and the development of medical devices.</p>	<p>EPSRC</p> <p>Aug 15 – Jul 20</p> <p>£1,016,560</p>
<p>Enabling technologies for sensory feedback in next generation assistive devices</p> <p>Newcastle University</p> <p>www.senseback.com/contact</p>	<p>The researchers have developed a bionic hand fitted with a camera that instantaneously takes a picture of the object in front of it, assesses its shape and size, and triggers a series of movements in the hand, enabling the user to reach out and pick up the object. A small number of amputees have trialled the new technology.</p>	<p>EPSRC</p> <p>Apr 15 – Apr 18</p> <p>£1,444,280</p>
<p>Energy efficient lower limb prostheses</p> <p>University of Salford</p> <p>http://energy-efficient-lower-limb-prostheses.org.uk/contact/</p>	<p>The team has studied the potential of hydraulic technology for enabling the controlled storage of energy, the transfer of energy between joints and the return of energy in prosthetic legs.</p>	<p>EPSRC</p> <p>Sep 13 – Mar 17</p> <p>£671,817</p>

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<p>Environment-aware listener-optimized binaural enhancement of speech</p> <p>Imperial College London</p> <p>www.imperial.ac.uk/people/mike.brookes</p>	<p>In this project, the researchers will extend existing monaural binary masking techniques to provide binaural speech enhancement while preserving the inter-aural time and level differences that are critical to the spatial separation of sound sources. The researchers will also develop a metric able to predict the intelligibility of a speech signal for a binaural listener with normal or impaired hearing in the presence of competing noise sources. This metric is the key to finding automatically the optimum settings for individual listeners' hearing aids in a particular environment.</p>	<p>EPSRC</p> <p>Sep 15 – Aug 18</p> <p>£983,624</p>
<p>EPSRC-NIHR HTC Partnership Award Plus Funds: Technology Network-Plus on Devices for Surgery and Rehabilitation</p> <p>Barts Health NHS Trust</p> <p>http://gtr.rcuk.ac.uk/projects?ref=EP/N027132/1</p>	<p>The aim of the project and proposed network is to establish a forum for surgical innovation with seamless integrations of engineering research, clinical translation and industrial development. The network will cover three research areas that have similar challenges for research but need to be examined in different clinical contexts: sensing for improved peri-operative care, smart surgical devices, and assistive devices and robots.</p>	<p>EPSRC</p> <p>Sep 16 – Sep 19</p> <p>£507,552</p>
<p>Evaluating brain stimulation for dysphagia after stroke</p> <p>Salford Royal NHS Foundation Trust</p> <p>www.research.manchester.ac.uk/portal/Shahdeen.Hamdy.html</p>	<p>The researchers have investigated the best treatment package for a safe, portable, non-invasive brain stimulation technique, transcranial Direct Cortical Stimulation (tDCS), in stroke patients who have swallowing difficulties.</p>	<p>NIHR</p> <p>Sep 14 – Aug 17</p> <p>£188,561</p>

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Project title, organisation, contact	Summary	Funding
<p>F.R.A.M.E. (facial remote activity monitoring eyewear) An inconspicuous, non-invasive, mobile sensor device for real-time control of assistive technologies through facial expression</p> <p>Nottingham Trent University</p> <p>www.ntu.ac.uk/staff-profiles/architecture-design-built-environment/philip-breedon</p>	<p>The aim of the project is to develop an inconspicuous, non-invasive mobile sensor device for the real-time control of assistive technologies using facial expression.</p>	<p>NIHR</p> <p>Jul 16 – Jul 18</p> <p>£846,293</p>
<p>Feasibility of a RCT of the Active Communication Education (ACE) programme plus hearing-aid provision versus hearing-aid provision alone</p> <p>Bradford Teaching Hospitals NHS Foundation Trust</p> <p>http://medhealth.leeds.ac.uk/profile/1100/427/nick_thyer</p>	<p>The aim of this study is to establish the feasibility of successfully delivering and evaluating a full-scale randomised controlled trial, including economic, acceptability and intervention fidelity components, of hearing-aid fitting alone versus hearing-aid fitting plus the Active Communication Education programme.</p>	<p>NIHR</p> <p>Oct 16 – Sep 18</p> <p>£249,935</p>
<p>A feasibility study and pilot trial of a modified video-feedback intervention for children and foster carers to improve mental health outcomes of children with reactive attachment disorder</p> <p>University College London</p>	<p>VIPP-Foster-Care is a video feedback intervention to support the carers of those children in foster care who show signs of developing reactive attachment disorder.</p>	<p>NIHR</p> <p>Sep 15 – Oct 19</p> <p>£484,959.04</p>
<p>Feasibility study of an RCT to investigate the effectiveness of a humanoid robot to support social skills development in children with an autism spectrum disorder</p> <p>Hertfordshire Community NHS Trust</p> <p>www.hct.nhs.uk/about-us/research/</p>	<p>The study will investigate the feasibility of running a full-scale trial to evaluate the effectiveness of using a humanoid robot, Kaspar, to improve the social skills of children newly diagnosed with ASD.</p>	<p>NIHR</p> <p>Dec 16 – Nov 18</p> <p>£239,903</p>

Project title, organisation, contact	Summary	Funding
<p>A feasibility study of using an immersive virtual reality environment to reduce anxiety in children with autism spectrum disorder</p> <p>Northumberland, Tyne and Wear NHS Trust</p> <p>www.ncl.ac.uk/ion/staff/profile/jeremyparr.html#background</p>	<p>The research led to the clinical provision of the Newcastle Blue Room Treatment, a novel treatment for situation-specific anxiety, phobia and fear for children with autism spectrum disorder aged 7 to 17 years.</p>	<p>NIHR</p> <p>Feb 15 – Mar 17</p> <p>£244,542</p>
<p>A feasibility study of virtual reality as a therapeutic intervention in children with ambulatory cerebral palsy</p> <p>Sussex Community NHS Foundation Trust</p> <p>www.sussexcommunity.nhs.uk/get-involved/research/nintendo-wiifit-research.htm</p>	<p>This research explored the potential of using a widely available computer console (the Nintendo WiiFit) in the home to deliver regular, tailored physiotherapy schedules of virtual reality therapy to children with cerebral palsy. Aspects of the trial design were successful, but the feasibility study (in which 30 children with cerebral palsy participated) highlighted necessary modifications to the inclusion criteria and outcome assessments before a definitive trial could take place.</p>	<p>NIHR</p> <p>Jan 15 – Dec 16</p> <p>£227,431</p>
<p>A feasibility study to investigate the effects of a functional standing frame programme in people with severe sub-acute stroke on function, quality of life and neuromuscular impairment; and a systematic review on non-pharmacological interventions for orthostatic hypotension</p> <p>University of Plymouth</p> <p>www.plymouth.ac.uk/staff/angie-logan</p>	<p>The aim of the study is to find out if it is possible and practical to use a functional standing frame programme with people with severe stroke in the sub-acute hospital setting.</p>	<p>HEE/NIHR</p> <p>Apr 16 – Mar 19</p> <p>£269,711</p>

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<p>A feasibility trial of Power Up: a smartphone and tablet app to support young people to make shared decisions in therapy</p> <p>University College London</p> <p>www.ucl.ac.uk/ebpu/about/EBPU_Staff_Profiles/Miranda_Wolpert</p>	<p>This research will develop a smartphone and tablet app called 'Power Up' to support young people to have their say when accessing Child and Adolescent Mental Health Services.</p>	<p>NIHR</p> <p>Sep 15 – Mar 18</p> <p>£463,600</p>
<p>FLOURISH</p> <p>Atkins UK</p> <p>www.atkinsglobal.com/en-GB/angles/our-contributors/john-mccarthy</p>	<p>Connected and autonomous vehicles will play a significant role in a future transport system and unlock enormous social benefits at the same time. The aim of FLOURISH is to realise many of these benefits by helping to ensure that connected and autonomous vehicles are developed with the user in mind and are technically secure, trustworthy and private. Using older people and others with assisted living needs as an exemplar to develop an understanding of the diverse needs of a particular user group, FLOURISH will develop innovative products, processes and services that are directly transferable to the wider community.</p>	<p>Innovate UK</p> <p>Jun 16 – May 19</p> <p>£3,727,460</p>
<p>Frame fit: randomised controlled trial to determine the acceptability, safety and efficacy of a falls prevention exercise programme for walking frame users</p> <p>King's College Hospital NHS Foundation Trust</p> <p>www.kch.nhs.uk/news/public/news/view/16541</p>	<p>This aim of this study is to find out if an exercise programme specifically designed for walking-frame users improves balance and reduces falls. The programme consists of eight home visits from a physiotherapist, in which exercises will be prescribed to the participant, plus a booklet and necessary equipment. In addition, the participants will receive telephone support from the physiotherapist.</p>	<p>HEE/NIHR</p> <p>Apr 14 – Mar 18</p> <p>£157,871</p>

Project title, organisation, contact	Summary	Funding
<p>Freedom through design: putting people at the heart of wheelchair design</p> <p>Motivation Design</p> <p>www.motivation.org.uk/contact</p>	<p>Following earlier proof of concept, this project aimed to develop a range of six wheelchairs that can be assembled from one set of components.</p>	<p>Innovate UK</p> <p>Oct 15 – Mar 17</p> <p>£84,383</p>
<p>Fuel Assistance Made Easy (FAME)</p> <p>assist Mi</p> <p>www.assist-mi.com/contact-us/</p>	<p>FAME combines user profile data and new payment capability to improve disabled drivers' experience at service stations by enabling: (a) petrol retailers to anticipate customer arrival and needs; (b) customers to receive suitable forecourt assistance with refuelling their vehicles; and (c) payment for fuel and other goods to be made from customer smartphones without leaving the vehicle, through an advanced accessible payment solution.</p>	<p>Innovate UK</p> <p>Nov 16 – Apr 18</p> <p>£295,024</p>
<p>Generating and using 'big data' to identify hearing aid patterns of usage in order to optimise and personalise fitting</p> <p>University of Manchester</p> <p>www.manchester.ac.uk/research/John.keane/personaldetails</p>	<p>A network of academics, clinicians and manufacturers of hearing aids and clinical diagnostic equipment was used to characterise a hearing aid user by recording suitable measures of the pattern and site of hearing loss, the cognitive function of the aid wearer, and the experience of the wearer with using the hearing aid.</p>	<p>MRC</p> <p>Jul 15 – Dec 16</p> <p>£104,571</p>
<p>GetAMoveOn: transforming health through enabling mobility</p> <p>University College London Interaction Centre</p> <p>https://ucl.ac.uk/research/health-and-well-being/gamo</p>	<p>In this project, the researchers want to use movement to improve health, developing innovative technology with this aim in mind. They want to concentrate on three specific groups: school children, office workers and older people.</p>	<p>EPSRC</p> <p>Jun 16 – May 20</p> <p>£923,685</p>

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<p>Give & Take Care Brunel University London www.brunel.ac.uk/environment/themes/ageing-studies/research-projects/give-and-take-care</p>	<p>The project involves creation of the GAT (Give&Take) pension scheme using an alternative currency called the GAT, which has no monetary value. GATs are accumulated and deposited in a special localised bank, building up a balance that, over a period, if and when the need arises, will be used to service a care pension for the partner.</p>	<p>Innovate UK Feb 16 – Feb 18 £1,000,369</p>
<p>Graphene micro-sensors for adaptive acoustic transduction University of Edinburgh www.research.ed.ac.uk/portal/en/projects/graphene-microsensors-for-adaptive-acoustic-transduction-gmaat(2185fe11-a587-48ff-b4cf-d9736c2a0f9b).html</p>	<p>This project aims to develop novel acoustic transduction technology for use in hearing aids. The main proposition is to use an ultra-thin film membrane (graphene) as the vibrating mechanical component in a resonant gate transistor.</p>	<p>EPSRC Sep 15 – Aug 17 £477,577</p>
<p>GyroGlove: tremor-reducing device for Parkinson’s disease GyroGear http://gyrogear.co/contact</p>	<p>The company received a proof-of-concept award for a wearable device for stabilising hand tremors. The device is based on a miniature gyroscope attached to the back of the hand. Initial experiments in test rigs and with patients with Parkinson’s disease have demonstrated that the amplitude of hand tremors can be reduced by 70%.</p>	<p>Innovate UK Apr 16 – Mar 17 £99,941</p>
<p>Hearing aids for music: exploring the music listening behaviour of people with hearing impairments University of Leeds http://musicandhearingaids.org/about-the-project/</p>	<p>This project represents the first large-scale systematic investigation of how music listening experiences are affected by deafness and the use of hearing aids.</p>	<p>AHRC Feb 15 – Jan 18 £197,836</p>

Project title, organisation, contact	Summary	Funding
<p>The Heels Trial: evaluation of lightweight fibreglass heel casts in the management of ulcers of the heel in diabetes</p> <p>Nottingham University Hospitals NHS Trust</p> <p>www.heels-trial.co.uk</p>	<p>The research found that lightweight fibreglass heel casts did not improve diabetic heel ulcer healing over usual care and the economic analysis showed that usual care was cheaper.</p>	<p>NIHR</p> <p>Feb 11 – Feb 17</p> <p>£1,358,852</p>
<p>Home Service</p> <p>University of Sheffield</p> <p>www.catch.org.uk/contact-us/</p>	<p>This was a longitudinal study of 10 elderly and physically disabled people who were using voice-enabled assistive technology around the home.</p>	<p>EPSRC</p> <p>Sep 11 – May 16</p> <p>£600,000</p>
<p>Hub for device personalisation in the treatment of congenital diseases</p> <p>University College London</p> <p>https://iris.ucl.ac.uk/iris/browse/profile?upi=SSCHI22</p>	<p>This project will drive the development of bespoke devices and tailored therapies for children and young adults born with physical defects. Engineering methods and computer virtual reality will be used to study the shape of the patient defects and design new devices that can be easily tailored to individual need, on demand.</p>	<p>EPSRC</p> <p>Apr 16 – Mar 21</p> <p>£1,002,830</p>
<p>I-DRESS</p> <p>University of the West of England</p> <p>www.brl.ac.uk/research/researchthemes/assistedliving/idressproject.aspx</p>	<p>The project aims to develop a robotic system providing disabled users with proactive assistance with getting dressed. The research is being undertaken with partner organisations in Spain and Switzerland.</p>	<p>EPSRC</p> <p>Dec 15 – Nov 18</p> <p>£305,523</p>
<p>Identifying appropriate symbol communication aids for children who are non-speaking</p> <p>Manchester Metropolitan University</p> <p>www.rihsc.mmu.ac.uk/staff/profile.php?name=janice&surname=murray</p>	<p>The research aims to determine how to optimise clinicians' decisions about the provision of symbol communication aids.</p>	<p>NIHR</p> <p>Jan 16 – Dec 18</p> <p>£686,112</p>

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<p>Improving the Wellbeing of people with Opioid Treated CHronic pain; I-WOTCH</p> <p>University of Warwick</p> <p>https://warwick.ac.uk/fac/med/research/ctu/trials/iwotch/</p>	<p>In this project, people with long-term use of opioids for managing chronic pain will be allocated to one of two groups: one comprising usual care plus an information booklet and a relaxation CD, and the other involving the same elements plus a 3-day group-based, educational course. Diaries and follow-up questionnaires will help to assess whether or not this self-management programme reduces opioid use.</p>	<p>NIHR</p> <p>Sep 16 – Sep 18</p> <p>£1,575,853.57</p>
<p>‘In the making’: a co-constructed mapping and feasibility study of digital fabrication labs and their potential to catalyse cultural change</p> <p>University of Salford</p> <p>www.seek.salford.ac.uk/profiles/UHURLEY.jsp</p>	<p>There are already examples of disabled people using digital fabrication to design and produce objects, such as ramps, that make day-to-day life easier. The researchers have studied the potential for this technology to help to improve the lives of disabled people, their families and the communities in which they live. A series of workshops was run with disabled people: https://hci.sbg.ac.at/wp-content/uploads/2015/11/Breadth_Depth_Height.pdf</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FM006026%2F1</p> <p>www.inthemaking.org.uk/</p>	<p>AHRC</p> <p>Jan 15 – Jun 16</p> <p>£81,002</p>
<p>Inclusive Digital Content for People with Aphasia (INCA)</p> <p>City, University of London</p> <p>http://gtr.rcuk.ac.uk/projects?ref=EP%2FP025587%2F1</p>	<p>The aim of this project is to investigate, co-design and trial digital content tools for people with aphasia. The research will explore a blended approach to digital content, intertwining the digital and physical worlds, and will have an emphasis on co-creation with users.</p>	<p>EPSRC</p> <p>Jul 17 – Jun 20</p> <p>£496,294</p>

Project title, organisation, contact	Summary	Funding
<p>Individually randomised controlled multi-centre trial to determine the clinical and cost effectiveness of a home-based exercise intervention for older people with frailty as extended rehabilitation following acute illness or injury, including embedded process evaluation</p> <p>Bradford Teaching Hospitals NHS Foundation Trust</p> <p>http://clahrc-peninsula.nihr.ac.uk/research/home-based-extended-rehabilitation-of-older-people-hero</p>	<p>Frail older people who are admitted to hospital for acute illness are often even more frail when they are discharged, which can mean that they are no longer able to perform daily tasks at home or live independently, and may need to move into a care home. The HOPE programme offers older people with frailty a 12-week physiotherapist-delivered exercise programme at home, involving five home visits and seven telephone sessions, as well as a complementary manual. After this, participants will receive 12 further weeks of telephone support in the transition to self-management.</p>	<p>NIHR</p> <p>Mar 17 – May 21</p> <p>£2,038,930.19</p>
<p>Interactive training platform to improve manual wheelchair skills</p> <p>University of Lincoln</p> <p>http://staff.lincoln.ac.uk/kgerling</p>	<p>This project integrates human–computer interaction and computer vision to provide a platform for in-home interactive wheelchair skills training.</p>	<p>EPSRC</p> <p>Dec 16 – Dec 17</p> <p>£83,525</p>
<p>Investigating SOcial Competence and Isolation in children with Autism taking part in LEGO-based therapy clubs in School Environments (I-SOCIALISE)</p> <p>Leeds and York Partnership NHS Foundation Trust</p> <p>www.comic.org.uk/research/lego</p>	<p>The aim of the project is to use LEGO-based therapy to equip children with autism spectrum disorder with the necessary social skills for day-to-day life. This is done by using LEGO to make social interactions interesting to the children. The researchers want to find out if using LEGO therapy in schools would affect the social competence of children with autism spectrum disorder, as well as reducing their social isolation.</p>	<p>NIHR</p> <p>Jan 17 – Dec 17</p> <p>£971,711.20</p>

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Project title, organisation, contact	Summary	Funding
<p>Investigating the effectiveness and cost effectiveness of using FITNET to treat paediatric CFS/ME in the UK</p> <p>University of Bristol</p> <p>www.bristol.ac.uk/ccah/research/childdevelopmentdisability/chronic-fatigue/fitnet-nhs/</p>	<p>FITNET is an internet-based treatment for children with chronic fatigue syndrome or ME. It provides cognitive–behavioural therapy through the use of interactive sessions that children receive at home. Children are also required to complete homework relating to the sessions. Children and their parents are supported by cognitive–behavioural therapists.</p>	<p>NIHR</p> <p>May 16 – Oct 21</p> <p>£994,430</p>
<p>Let Me Show U!</p> <p>Advanced Digital Innovation</p> <p>http://sbrihealthcare.co.uk/company/advanced-digital-innovation-uk/</p>	<p>Advanced Digital Innovation has been awarded proof-of-concept funding for a proposed new product to help children with physical disability explain to new carers the best way to help them address the various physical challenges of daily life using the specialised equipment provided.</p>	<p>NHS England</p> <p>2017</p> <p>£99,971</p>
<p>Limb Glider intelligent rehabilitation device</p> <p>Vivo Smart Medical Devices</p> <p>www.vivosmartmedical.com/contact/contact-details</p>	<p>The project aimed to develop ‘Limb Glider’, an intelligent device for home rehabilitation for lower and upper limbs. It uses a cloud-based system to remotely manage rehabilitation, helping to improve outcomes and allow people greater independence.</p>	<p>Innovate UK</p> <p>Jan 15 – Dec 16</p> <p>£239,711</p>
<p>Low-cost personalised instrumented clothing with integrated FES electrodes for upper limb rehabilitation</p> <p>University of Southampton</p> <p>www.ecs.soton.ac.uk/people/ky2</p>	<p>The aim of the research is to develop and evaluate personalised instrumented clothing with integrated functional electrical stimulation electrodes for upper limb rehabilitation for people who have experienced stroke.</p>	<p>MRC</p> <p>Sep 16 – Feb 19</p> <p>£882,747</p>

Project title, organisation, contact	Summary	Funding
<p>Ludic artefacts: using gesture and haptics to support subjective wellbeing of people with dementia</p> <p>Cardiff Metropolitan University</p> <p>www.cathytreadaway.com/research/designing-for-dementia/laugh/</p>	<p>The project is investigating ways of supporting the well-being of people with late-stage dementia through the development of new kinds of playful artefacts. The researchers have run a series of participatory workshops to inform the design development process.</p>	<p>AHRC</p> <p>Apr 15 – Apr 18</p> <p>£424,183</p>
<p>Machine learning for hearing aids: intelligent processing and fitting</p> <p>University of Cambridge</p> <p>http://learning.eng.cam.ac.uk/Public/Turner/Turner</p>	<p>Current hearing aids suffer from two major limitations: hearing-aid audio processing strategies are inflexible and do not adapt sufficiently to the listening environment; and hearing tests and hearing-aid fitting procedures do not allow for a reliable diagnosis of the underlying nature of the hearing loss and frequently lead to poorly fitting devices. This research will use new machine-learning methods to revolutionise both of these aspects of hearing-aid technology, leading to intelligent hearing devices and testing procedures that actively learn about a patient's hearing loss, thereby enabling more personalised fitting.</p>	<p>EPSRC</p> <p>Dec 15 – Nov 18</p> <p>£565,347</p>
<p>Managing Adolescent first episode Psychosis: a feasibility Study (MAPS)</p> <p>Greater Manchester West Mental Health NHS Foundation Trust</p> <p>www.psychosisresearch.com</p>	<p>The aim of the MAPS project is to investigate which treatment is best for young people experiencing a first episode of psychosis. The three options are psychological therapy alone (involving cognitive-behavioural therapy and family intervention), antipsychotic medication alone, and the two treatments combined. The results will help the researchers decide if a full trial is warranted.</p>	<p>NIHR</p> <p>Mar 17 – Feb 19</p> <p>£601,480.60</p>

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Project title, organisation, contact	Summary	Funding
<p>The MARQUE project: Managing Agitation and Raising QUality of Life. A project to improve quality of life in people with moderate or severe dementia</p> <p>University College London</p> <p>www.ucl.ac.uk/psychiatry/marque/about-the-project</p>	<p>This programme aims to reduce agitation and increase quality of life in people with dementia, increasing knowledge, including how to implement findings, to improve quality of life for those with dementia. The research will involve observing and interviewing a wide range of people with dementia and those who care for them at home, in care homes and at the end of life, to understand better how agitation is currently managed, barriers to good practice and how to improve care, and then to devise and test interventions.</p>	<p>ESRC</p> <p>Mar 14 – Feb 19</p> <p>£3,269,382</p>
<p>Mechanical Muscle Activity with Real-time Kinematics (M-MARK): A novel combination of existing technologies to improve arm function following stroke</p> <p>University of Southampton</p> <p>www.southampton.ac.uk/healthsciences/about/staff/jane_burridge.page#contact</p>	<p>M-MARK will help stroke patients regain arm function by supporting them in undertaking independent home exercise. M-MARK will provide feedback on an iPad, either using an avatar (a human-like figure that mimics patients' movements) or through success in playing games.</p>	<p>NIHR</p> <p>Nov 15 – Oct 17</p> <p>£935,455</p>
<p>MICA: integrated interfacial sensors for assessments of lower limb prosthetics</p> <p>University of Southampton</p> <p>www.southampton.ac.uk/engineering/about/staff/ljiang.page#contact</p>	<p>The researchers aimed to develop a prototype intelligent prosthetic liner that would allow clinicians to quickly and accurately assess and optimise socket fit. The findings have been published: http://journals.sagepub.com/doi/pdf/10.1177/0954411917690764</p>	<p>MRC</p> <p>Apr 14 – Apr 16</p> <p>£428,803</p>

Project title, organisation, contact	Summary	Funding
<p>Mobility and Quality of Life: Improving methods of economic evaluation of assistive technology for adults and children with impaired mobility</p> <p>Bangor University</p> <p>http://cheme.bangor.ac.uk/NathanBrayBiography.php</p>	<p>The project will use qualitative and quantitative research methods to develop a new preference-based instrument for measuring the quality of life of people who use wheelchairs and mobility aids.</p>	<p>HCRW</p> <p>Sep 16 – Aug 19</p>
<p>A multi-centre randomised controlled trial to assess the effectiveness and cost effectiveness of a home-based self-management standing frame programme in people with progressive MS</p> <p>Plymouth Hospitals NHS Trust</p> <p>www.plymouth.ac.uk/research/sums</p>	<p>The recruitment of 140 participants is now complete. One trial participant has commented, 'This programme has improved my posture considerably as well as my confidence'.</p>	<p>NIHR</p> <p>May 15 – Apr 18</p> <p>£343,761</p>
<p>Neighbourhoods and Dementia: A mixed methods study</p> <p>University of Manchester</p> <p>www.neighbourhoodsanddementia.org</p>	<p>This project will develop a set of core outcome measures that will involve people with dementia and their carers in deciding what measures and priorities are important for them, including what makes a dementia-friendly neighbourhood; using technology to help couples, where one person has a dementia, to better self-manage the condition and, more importantly, their relationship; and piloting a digitalised life story intervention for Deaf people (British Sign Language users) who live with dementia.</p>	<p>ESRC</p> <p>May 14 – Apr 19</p> <p>£4,022,446</p>

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Project title, organisation, contact	Summary	Funding
<p>New and emerging technologies for hearing loss</p> <p>University of Birmingham</p> <p>www.io.nihr.ac.uk/topics/summary-new-and-emerging-technologies-for-hearing-loss/</p>	<p>The NIHR Horizon Scanning Research and Intelligence Centre undertook a horizon scanning review to identify technologies in clinical development for the management and reduction of the negative consequences of hearing loss. The full review is available at www.io.nihr.ac.uk/topics/summary-new-and-emerging-technologies-for-hearing-loss/</p>	<p>NIHR</p> <p>Apr 16 – Dec 16</p>
<p>New pathways to hearing: a multisensory noise reducing and palate based sensory substitution device for speech perception</p> <p>University College London</p> <p>https://iris.ucl.ac.uk/iris/browse/profile?upi=JISKI83</p>	<p>Commercially available correction for hearing loss is mostly limited to hearing aids and cochlear implants. These devices suffer from signal processing and sensory transduction limitations. This research aims to address these limitations through multisensory remapping.</p>	<p>EPSRC</p> <p>Dec 15 – Dec 18</p> <p>£700,744</p>
<p>Next generation innovative power wheelchair</p> <p>Freedom One Life</p> <p>http://freedomonelife.com/</p>	<p>Feasibility award for an innovative powered wheelchair.</p>	<p>Scottish Enterprise</p> <p>2016</p> <p>£100,000</p>
<p>A non-inferiority randomised controlled trial comparing the clinical and cost-effectiveness of one session treatment (OST) with multi-session cognitive behavioural therapy (CBT) in children with specific phobias</p> <p>Leeds and York Partnership NHS Foundation Trust</p> <p>www.sheffield.ac.uk/scharr/sections/dts/ctru/aspect</p>	<p>One-session therapy, an alternative to usual cognitive–behavioural therapy, is currently used successfully with adults but has not yet been tested for use with children. The researchers plan to compare one-session therapy with multi-session cognitive–behavioural therapy for the treatment of specific phobias in children, which can severely affect quality of life.</p>	<p>NIHR</p> <p>Jul 16 – Jun 20</p> <p>£1,371,954</p>

Project title, organisation, contact	Summary	Funding
<p>Novel Bio-Inspired ‘Smart’ Joint for Prosthetics and Robotics Lower Limbs</p> <p>University of the West of England</p> <p>www.brl.ac.uk/research/researchthemes/medicalrobotics/bio-inspiredjoint.aspx</p>	<p>The researchers will investigate the feasibility and development of a novel bio-inspired prosthetic joint that will exploit the important features of the human knee joint. An investigation will be undertaken to compare the ‘smart’ joint’s energy consumption and gait efficiency with that of current prosthetics.</p>	<p>EPSRC</p> <p>Apr 17 – Apr 19</p> <p>£101,090</p>
<p>Novel directional microphone design for speech enhancement in complex environments</p> <p>University of Strathclyde</p> <p>https://pure.strath.ac.uk/portal/en/projects/novel-directional-microphone-design-for-speech-enhancement-in-complex-environments(f8589bdd-df47-473d-b9e1-cae6b690ef42).html</p>	<p>The primary objective of the project is to create a hearing aid system, involving microphones, that can reduce or control unwanted noises, such as background noise and echo, and focus the hearing aid on only the sound arriving from in front of the user. 3D printing will be used to create new ways of mounting the microphones in hearing aids.</p>	<p>EPSRC</p> <p>Jul 15 – Jun 18</p> <p>£432,134</p>
<p>Occupational therapy intervention for residents with stroke living in UK care homes</p> <p>University of East Anglia</p> <p>www.uea.ac.uk/health-sciences/people/profile/g-peryer</p>	<p>The researchers aimed to investigate if occupational therapy was beneficial for people who had experienced stroke and were living in a residential or care home. The occupational therapy included the provision of or adaptations to equipment, as well as exercises and activities for the person to practise.</p>	<p>NIHR</p> <p>Sep 09 – Aug 15</p> <p>£1,930,486</p>

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Project title, organisation, contact	Summary	Funding
<p>Osteoarthritis Technology NetworkPlus (OATech+): a multidisciplinary approach to the prevention and treatment of osteoarthritis</p> <p>Cardiff University</p> <p>http://research.cardiff.ac.uk/converis/portal/Project/9536428?auxfun=&lang=en_GB</p>	<p>A network of academics, clinicians and industry representatives is looking to provide high-level evidence of the efficacy and safety of medical devices relating to musculoskeletal disorders and osteoarthritis through clinical studies and with a high degree of user involvement. The studies will involve biology, engineering and biomechanics. The aim is to identify the challenges to technology development, which will help to ensure that future studies are conducted with the latest scientific advances incorporated.</p>	<p>EPSRC</p> <p>Oct 16 – Sep 20</p> <p>£968,486</p>
<p>Performance-based selective training for robot-mediated upper limb motor learning and stroke rehabilitation</p> <p>University of Birmingham</p> <p>www.birmingham.ac.uk/staff/profiles/psychology/miall-chris.aspx</p>	<p>Over half of stroke survivors experience difficulty with reaching and grasping. Recent research suggests that therapy-assisted rehabilitation works because it is personalised and targets those areas that the individual finds most difficult. The project aimed to replicate this approach for this robot-mediated rehabilitation programme, changing task difficulty across training sessions.</p>	<p>MRC</p> <p>Nov 12 – Oct 15</p> <p>£404,452</p>
<p>Performing Empowerment: Disability, Dance, and Inclusive Development in Post-Conflict Sri Lanka</p> <p>University of York</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FP008178%2F1</p>	<p>This research project examines an innovative way of empowering people with conflict-related disabilities in Sri Lanka through an unusual combination of dance and law.</p>	<p>AHRC</p> <p>Nov 16 – Apr 18</p> <p>£80,152</p>

Project title, organisation, contact	Summary	Funding
<p>Personalised fitting and evaluation of hearing aids with EEG responses</p> <p>University of Southampton</p> <p>www.southampton.ac.uk/engineering/about/staff/stevebel.page#contact</p>	<p>The project aims to improve the personalised fitting of hearing aids. The research seeks to achieve an assessment of hearing function and speech processing in the brain (from the cochlea to the brain stem and cerebral cortex) by the computer analysis of electroencephalographic responses to complex real-world signals.</p>	<p>EPSRC</p> <p>Jul 15 – Jun 18</p> <p>£908,086</p>
<p>Personalised monitoring and enhanced self-management in mental health (CareLoop)</p> <p>University of Manchester</p> <p>www.population-health.manchester.ac.uk/healthinformatics/research/Careloop/</p>	<p>The project aimed to build a system for long-term symptom monitoring in mental health that can be linked to hospital- and community-based information technology and care management systems.</p>	<p>MRC</p> <p>Feb 13 – Oct 15</p> <p>£897,681</p>
<p>Piezoelectric nano-fibre based acoustic sensors for artificial cochlea</p> <p>University College London</p> <p>https://iris.ucl.ac.uk/iris/browse/profile?upi=WSONG66</p>	<p>This research seeks to enable a potential new generation of cochlear implants based on piezo-nano-fibre with high performance and prolonged implantation. This could improve the listening abilities offered by cochlear implants.</p>	<p>EPSRC</p> <p>Sep 15 – Aug 18</p> <p>£870,392</p>
<p>Power-Up! Fuelling a new generation of assistive technologies</p> <p>University College London</p> <p>http://gdi.cs.ucl.ac.uk/powerup.html#projects</p>	<p>The Power-Up! project aimed to adapt an existing power add-on used by people who self-propel their wheelchairs so that it provides an optimal level of proportional assistance and incorporates fuel cell technology to drastically reduce the weight of the device.</p>	<p>EPSRC</p> <p>Aug 16 – Jul 17</p> <p>£99,424</p>

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Project title, organisation, contact	Summary	Funding
<p>A practical, yet flexible functional electrical stimulation system for upper limb functional rehabilitation</p> <p>University of Salford</p> <p>www.salford.ac.uk/health-sciences/health-academics/rhs020</p>	<p>Following a stroke, many people are left with upper limb impairments. In collaboration with <i>Odstock Medical</i>, the researchers have developed an upper limb rehabilitation system. The system supports the user to perform a given task, through the delivery of appropriately timed electrical stimulation to weak or paralysed muscles, that they would otherwise be unable to perform unaided.</p>	<p>NIHR</p> <p>Jan 14 – Mar 17</p> <p>£568,894</p>
<p>A pragmatic Randomised Controlled Trial of Sensory Integration Therapy versus usual care for sensory processing difficulties in Autism Spectrum Disorder in children: impact on behavioural difficulties, adaptive skills and socialisation (SenITA)</p> <p>Cardiff University</p> <p>www.cardiff.ac.uk/centre-for-trials-research/research/studies-and-trials/view/senita</p>	<p>It is common for children with ASD to experience difficulty processing sensory information (sight, touch, sound, smell and taste), and such problems can affect a child's ability to socialise and integrate into everyday life, as well as their behaviour. To address this, the researchers aim to find out whether using occupational therapist-delivered sensory integration therapy face to face with children improves outcomes compared with usual care.</p>	<p>NIHR</p> <p>Oct 16 – Mar 20</p> <p>£1,193,553.14</p>
<p>Prefabricated and custom orthoses in early rheumatoid arthritis (PREACHER)</p> <p>University of Leeds</p> <p>http://medhealth.leeds.ac.uk/profile/771/724/michael_backhouse</p>	<p>Foot pain and deformity affect up to 90% of patients with rheumatoid arthritis and substantially affects their quality of life. The researchers aim to gain new insights into foot deformity and explore the potential of a range of insoles to prevent these irreversible changes from developing.</p>	<p>NIHR</p> <p>Jan 14 – Apr 18</p> <p>£430,408</p>
<p>Pressure care support surface and suspension device technology for the treatment and prevention of pressure ulcers</p> <p>Talar-Made</p> <p>www.talarmade.com/contactus.aspx</p>	<p>The project aimed to demonstrate proof of concept for a novel technological support solution to managing and treating pressure ulcers.</p>	<p>Innovate UK</p> <p>Feb 15 – Apr 16</p> <p>£100,000</p>

Project title, organisation, contact	Summary	Funding
<p>PRIDE – Promoting Independence in Dementia</p> <p>University of Nottingham</p> <p>www.institutemh.org.uk/x-research-/pride</p>	<p>This study aims to identify how social and lifestyle changes may help to reduce the risk of developing dementia and disability; to better understand the social consequences of dementia; and to develop and evaluate an effective social intervention to support independence and quality of life for people with early-stage dementia and their carers.</p>	<p>ESRC</p> <p>Mar 15 – Feb 19</p> <p>£2,931,365</p>
<p>A randomised controlled trial to evaluate the outcomes and mechanisms of a novel digital reasoning intervention for persecutory delusions</p> <p>King’s College London</p> <p>https://kclpure.kcl.ac.uk/portal/en/projects/a-randomised-controlled-trial-to-evaluate-the-outcomes-and-mechanisms-of-a-novel-digital-reasoning-intervention-for-persecutory-delusions(1ba8197b-34af-44f8-8fa5-ccd66ad18044).html</p>	<p>The aim of the project is to provide therapy to people experiencing paranoia using SlowMo, which helps users to reduce the pace of their thoughts, thereby helping to minimise upsetting or distressing thoughts. The therapy comprises face-to-face sessions supplemented by an interactive website, which provides games and advice, and a mobile phone app.</p>	<p>NIHR</p> <p>Feb 17 – Aug 19</p> <p>£1,324,847.35</p>
<p>RATULS: robot assisted training for the upper limb after stroke</p> <p>Newcastle University</p> <p>https://research.ncl.ac.uk/ratuls/contact%20information/</p>	<p>The research is evaluating the effect of robot-assisted training on arm function after stroke, whereby a machine exercises the shoulder, elbow, wrist and hand. The aim is to find out whether repetitive exercise as part of rehabilitation is beneficial, compared with enhanced upper limb therapy or usual NHS rehabilitation.</p>	<p>NIHR</p> <p>Jan 14 – Apr 19</p> <p>£3,094,000</p>

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Project title, organisation, contact	Summary	Funding
<p>ReaDySpeech for people with dysarthria after stroke: a feasibility study</p> <p>University of Manchester</p> <p>Claire.Mitchell@manchester.ac.uk</p>	<p>This study aimed to evaluate the feasibility of using computer-based technology to deliver speech rehabilitation exercises for patients with dysarthria following stroke. In early clinical testing, therapists found it was easy to use and that training/support was sufficient, and they reported positive feedback from participants.</p>	<p>NIHR</p> <p>Oct 14 – Sep 17</p> <p>£299,048</p>
<p>Resilience and Inclusion: Dancers as Agents of Change</p> <p>Coventry University</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FP003702%2F1</p>	<p>Building on previous work, this project will produce easily accessible resources to change perceptions about disability and to show how the law of copyright can be applied to support the sustainability and effect of dance made and performed by disabled dance artists. This will also stimulate the development of new business models for dance.</p>	<p>AHRC</p> <p>Oct 16 – Oct 17</p> <p>£70,147</p>
<p>Revolutionary spinal brace service: increasing confidence and outcomes in children</p> <p>Project Andiamo</p> <p>http://sbrihealthcare.co.uk/company/project-andiamo/</p>	<p>Project Andiamo has been awarded proof-of-concept funding to create a back brace service pathway for children with spinal deformities to assist and restore function.</p>	<p>NHS England</p> <p>2017</p> <p>£99,539</p>
<p>Robot House 2.0 – infrastructure for the study of smart home and autonomous robotic systems</p> <p>University of Hertfordshire</p> <p>http://homepages.herts.ac.uk/~comqkd/</p>	<p>The funding extends the functionalities of the robotics hardware in the existing Robot House: creating the Robot House 2.0 and making it accessible to other research groups.</p>	<p>EPSRC</p> <p>Mar 17 – Mar 19</p> <p>£578,051</p>

Project title, organisation, contact	Summary	Funding
<p>A Robot training buddy for adults with ASD</p> <p>Heriot-Watt University; University of Glasgow</p> <p>www.edinburgh-robotics.org/academics/ruth-aylett</p> <p>www.dcs.gla.ac.uk/vincia/</p>	<p>The project will develop a socially competent robot training buddy that will help adults with ASD to better deal with social signals in work-related scenarios.</p>	<p>EPSRC</p> <p>Nov 16 – Apr 20</p> <p>£1,067,328</p>
<p>SAMS: software architecture for mental health self management</p> <p>University of Manchester; Lancaster University; King's College London</p> <p>http://ucrel.lancs.ac.uk/sams/contact.php</p>	<p>Promoting self-awareness of change in cognitive function is a major step in encouraging people to self-refer for assessment for dementia-related conditions. The project aimed to develop a tool to help individuals develop this self-awareness.</p>	<p>EPSRC</p> <p>Apr 13 – Sep 16</p> <p>£692,196</p>
<p>SCAMPI: Self-Care Advice, Monitoring, Planning and Intervention</p> <p>City, University of London</p> <p>www.city.ac.uk/people/academics/neil-maiden#profile=overview</p>	<p>The consortium will develop a new form of computerised toolkit that will allow someone living in their own home with a chronic condition, together with their relatives, carers and healthcare professionals, to self-manage both their care of the condition and life with it. People will interact with the new toolkit through a new form of intelligent visual care plan, called VIZ-CARE.</p>	<p>EPSRC</p> <p>Mar 17 – Feb 20</p> <p>£1,006,000</p>

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<p>Seeing what they see: compensating for cortical visual dysfunction in Alzheimer's disease</p> <p>University College London</p> <p>www.ucl.ac.uk/dementia-vision/seeing-what-they-see</p>	<p>The project's objective is to demonstrate that helping people with Alzheimer's disease to interact more successfully with their visual environment at home can lead to a significant improvement in the well-being and quality of life of both patients and carers. The project will measure the effect of visual aids and strategies on a person's ability to move around the environment and on quality of life. The design of the visual aids and compensatory strategies themselves will be based on a combination of patient/carer interviews (qualitative evidence) and cutting-edge scientific understanding of the nature of visual impairments.</p>	<p>ESRC</p> <p>Apr 14 – Mar 18</p> <p>£2,115,953</p>
<p>Sensor Platform for Healthcare in a Residential Environment (SPHERE)</p> <p>University of Bristol</p> <p>www.irc-sphere.ac.uk/contact</p>	<p>SPHERE is a EPSRC Interdisciplinary Research Collaboration developing a number of different sensors that will combine to build a picture of how we live in our homes. This information can then be used to spot issues that might indicate a medical or well-being problem.</p> <p>The first installation of the sensors in a participant's home took place in December 2016, with subsequent installations in up to 100 homes.</p>	<p>EPSRC</p> <p>Oct 13 – Sep 18</p> <p>£11,683,500</p>
<p>Sensory Objects Enterprise – Co-Development and Start Up project</p> <p>University of Reading</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FP007430%2F1</p>	<p>This project aims to co-develop employment for people with learning disabilities as part of a training and sensory dialogue service that can help museums and heritage sites to realise more accessible and meaningful experiences for their visitors with learning disabilities.</p>	<p>AHRC</p> <p>Jun 17 – May 18</p> <p>£80,611</p>

Project title, organisation, contact	Summary	Funding
<p>Simultaneous control of multiple degrees of freedom in myoelectric hand prostheses (SimCon)</p> <p>Newcastle University</p> <p>https://research.ncl.ac.uk/bspl/contact.html</p>	<p>The project aimed to develop a radically novel and biologically informed control approach that enables simultaneous control of multiple joints in an upper limb prosthesis, and compare this with the standard current on–off prosthesis control method.</p>	<p>EPSRC</p> <p>Sep 15 – Dec 16</p> <p>£100,277</p>
<p>Smart composite puncture-proof and flat-free tyres</p> <p>Flat Free Tyres (t/a Greentyre)</p> <p>www.greentyre.co.uk/contact.php</p>	<p>The research aimed to develop an advanced flat-free tyre to meet demand in the wheelchair and other markets.</p>	<p>Innovate UK</p> <p>Oct 14 – Mar 16</p> <p>£161,235</p>
<p>Socio-technical materials for prosthetic hands</p> <p>University of Dundee</p> <p>http://handsofx.co.uk/</p>	<p>This project explored how engineering design, collaborative design, materials culture, digital fabrication and service design can be combined to revolutionise the personal selection of materials in prosthetic hands.</p>	<p>EPSRC</p> <p>Feb 16 – Jul 17</p> <p>£230,357</p>
<p>SONOPA: social networks for older adults to promote an active life</p> <p>Docobo</p> <p>www.docobo.co.uk/contact-docobo.html</p>	<p>Innovate UK co-funded this European project, which combined a social network with activity recognition in a smart home environment to stimulate and support activities and daily life tasks.</p>	<p>Innovate UK</p> <p>May 13 – Apr 16</p> <p>£150,641</p>
<p>Speech Rehabilitation from Articulator Movement (SRAM)</p> <p>Practical Control Limited</p> <p>www.practicalcontrol.co.uk/contact.html</p>	<p>Patients whose voice box must be removed as a result of throat cancer can no longer speak. Earlier research has generated speech that is understandable and recognisable as the user’s own voice. The technique uses small magnetic implants and sensors to detect movements of the mouth and tongue that it converts directly into speech. In this project, further development, improvement and evaluation of the system are being undertaken.</p>	<p>NIHR</p> <p>Jan 16 – Apr 18</p> <p>£655,678</p>

Annex. Listing of assistive technology research and development projects 2016–17

Project title, organisation, contact	Summary	Funding
<p>Speech therapy apps for rehabilitation</p> <p>Barnsley Hospital NHS Foundation Trust</p> <p>www.catch.org.uk/current-project/star/</p>	<p>Articulation therapy can help people with speech impairment improve their speech. It is, however, time-consuming, and patients rarely receive sufficient therapy to maximise their communication potential. The aim of this project was to deliver a novel computer-based articulation therapy, using apps for tablet computers that patients can use to administer their own therapy.</p>	<p>NIHR</p> <p>Feb 15 – Jan 17</p> <p>£613,356</p>
<p>Spontaneous Mobile Accessible Rail Travel (SMART)</p> <p>Assist-Mi</p> <p>www.assist-mi.com/contact-us/</p>	<p>The project aims to create an accessible rail travel solution for passengers with disabilities. It offers train users the ability to communicate in real time with service providers and even request assistance before they arrive. The project will help make giving 24 hours' notice and pre-booking trains a thing of the past.</p>	<p>Innovate UK</p> <p>Feb 16 – Aug 18</p> <p>£260,631</p>
<p>Standing frames as part of postural management for children with spasticity. What is the acceptability of a trial to determine the efficacy of standing frames?</p> <p>Newcastle University</p> <p>https://research.ncl.ac.uk/understandingframes/contactinformation/</p>	<p>The researchers will carry out two surveys and hold discussions with children, parents and healthcare providers to prepare for a trial or trials of the effectiveness of standing frames to help children with cerebral palsy.</p>	<p>NIHR</p> <p>Oct 15 – Feb 18</p> <p>£253,395</p>
<p>STEMReader</p> <p>ECS Partners</p> <p>www.stemreader.org.uk/contact/</p>	<p>The project has developed STEMReader, a tool that will assist with reading aloud and comprehending mathematical symbols and notations. A beta version of the tool is available to download from the STEMReader website: https://stemreader.org.uk/download/</p>	<p>BIS</p> <p>Nov 14 – May 16</p>

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<p>Support Ageing Population – to live as independently as possible</p> <p>Levstone</p> <p>http://levstone.com/contact/</p>	<p>This award was for a new mobile app for elderly people that runs on their phones and tablets and features built-in well-being sensors. It lets an elderly person's 'trusted people' see if they feel lonely or unhappy, and if they are up and about and moving inside their home.</p>	<p>Innovate UK</p> <p>Nov 16 – Jan 17</p> <p>£50,000</p>
<p>Supporting shared decision making for older people with multiple health and social care needs: a realist synthesis to inform emerging models of health and social care</p> <p>University of Hertfordshire</p> <p>http://researchprofiles.herts.ac.uk/portal/en/publications/specialist-nursing-and-community-support-for-the-carers-of-people-with-dementia-living-at-home(3eaf2810-2a19-4850-819c-9c48ddeab3e5).html</p>	<p>The researchers investigated how shared decision-making could work for and be strengthened among older people with multiple health and care needs, their carers and healthcare professionals.</p>	<p>NIHR</p> <p>Jul 16 – Jun 17</p> <p>£164,879.62</p>
<p>Sustainable Care: connecting people and systems</p> <p>University of Sheffield</p> <p>www.sheffield.ac.uk/polopoly_fs/1.718769!/file/Overview-Sustainable-Care-research-programme-2.pdf</p>	<p>This programme concentrates on the care needs of adults living at home with chronic health problems or disabilities, and seeks sustainable solutions to the UK's contemporary 'crisis of care'. This includes assessing the potential of emerging technologies to enhance care system sustainability; developing case studies of emerging home care models; and exploring how care technologies can be integrated to support working carers, ensuring well-being outcomes across caring networks.</p>	<p>ESRC</p> <p>Oct 17 – Mar 21</p> <p>£2,055,243</p>

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<p>Tackling Disabling Practices: co-production and change</p> <p>University of Bristol</p> <p>www.bristol.ac.uk/sps/gettingthingschanged/about-the-project/</p>	<p>There are many areas in which research has shown what works, but in which we do not yet know how to stimulate and maintain changes in practice. This project's aim is to develop and sustain practices on disabled people's terms.</p>	<p>ESRC</p> <p>Apr 15 – Mar 18</p> <p>£1,346,912</p>
<p>A tailored, cognitive behavioural approach intervention for mild to moderate anxiety and/or depression in people with chronic obstructive pulmonary disease (COPD): A randomised controlled trial (TANDEM Tailored intervention for ANxiety and DEpression Management in COPD)</p> <p>Queen Mary University of London</p> <p>http://www.qmul.ac.uk/blizard/research/centres/centre-for-primary-care-and-public-health/research-projects/tandem/</p>	<p>A new cognitive–behavioural therapy-based intervention, TANDEM, is aimed at reducing anxiety and depression in people with chronic obstructive pulmonary disease, a condition that can lead to repeated admissions to hospital and low quality of life. Many people with this condition experience anxiety and depression but there are currently low uptake rates of pulmonary rehabilitation, which can reduce the symptoms of both. The effectiveness and cost-effectiveness of TANDEM prior to pulmonary rehabilitation, compared with pulmonary rehabilitation alone, will be assessed in this project.</p>	<p>NIHR</p> <p>Apr 16 – Jun 20</p> <p>£1,677,686</p>
<p>Tangible Memories: Parlours of Wonder</p> <p>University of Bristol</p> <p>http://gtr.rcuk.ac.uk/projects?ref=AH%2FN009568%2F1</p>	<p>The project aims to co-design engaging community spaces (parlours) where older people can interact with evocative objects and an app to record and share their memories and life histories. The vision is that these spaces will be co-curated by and for residents, care staff, families and community members.</p>	<p>AHRC</p> <p>Nov 16 – Oct 17</p> <p>£80,630</p>
<p>Technology enriched supported housing: a study into the lived experience of older people with dementia and their carers</p> <p>Ulster University</p> <p>www.ulster.ac.uk/staff/s.martin.html</p>	<p>This research is exploring the lived experience of people with dementia, and their carers, when a technology-enriched supported housing model is the living option of choice.</p>	<p>PHA</p> <p>14 – 17</p> <p>£385,490</p>

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<p>Telehealth in motor neurone disease</p> <p>University of Sheffield</p> <p>http://sitran.org/clinical-studies/telemedicine</p>	<p>A handheld telehealth device has been developed that enables patients with motor neurone disease to be monitored from their homes so that they can be provided with specialist care when it is required. A pilot study aimed to learn how a larger trial could evaluate the clinical effectiveness and cost-effectiveness of this telehealth system.</p>	<p>NIHR</p> <p>Mar 14 – Feb 17</p> <p>£303,390</p>
<p>Towards bespoke bio-hybrid prosthesis: manufacturing bio-inductive interfaces in 3D</p> <p>University of Leeds</p> <p>https://engineering.leeds.ac.uk/staff/834/Professor_Russell_Harris</p>	<p>The researchers envisage a prosthesis that will respond to biological feedback via a tissue engineered abiotic/biotic conduit between the artificial prosthetic and remaining biological muscle and nerves.</p>	<p>EPSRC</p> <p>Apr 16 – Jun 18</p> <p>£525,896</p>
<p>Towards visually-driven speech enhancement for cognitively-inspired multi-modal hearing-aid devices</p> <p>University of Stirling</p> <p>http://cogavhearing.cs.stir.ac.uk/contact.html</p>	<p>This project aims to develop a new generation of hearing aid technology that extracts speech from noise by using a camera to see what the talker is saying. The wearer of the device will be able to focus their hearing on the target talker and the device will filter out competing sound.</p>	<p>ESPRC</p> <p>Oct 15 – Sep 18</p> <p>£418,262</p>
<p>Trustworthy robotic assistants</p> <p>Universities of Bristol, Hertfordshire, Liverpool, and the West of England</p> <p>http://robosafe.org/</p>	<p>The researchers have investigated robotic assistants within the home environment. One study showed that people prefer expressive, communicative robots over efficient and effective ones: https://arxiv.org/ftp/arxiv/papers/1605/1605.08817.pdf</p>	<p>ESPRC</p> <p>Mar 13 – Oct 16</p> <p>£1,200,701</p>

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<p>A Translational alliance between Newcastle University and Össur Newcastle University www.senseback.com/contact</p>	<p>As part of the EPSRC-funded SenseBack project, researchers are developing a number of important technologies to restore sensation to individuals who use prosthetic legs. The translational alliance will work together to translate the technologies developed in the SenseBack project to lower limb prostheses.</p>	<p>EPSRC Jun 16 – May 19 £240,010</p>
<p>Understanding and alleviating reading difficulties in older adults University of Leicester www2.le.ac.uk/departments/psychology/research/language-and-vision</p>	<p>This project will explore issues with reading and eye movement control with the intention of more fully revealing the basis of differences in reading ability and to inform efforts to ameliorate the difficulties that older readers experience.</p>	<p>ESRC Nov 14 – Nov 18 £158,162</p>
<p>VocaTempo: advanced communication therapy for children with speech impediments Therapy Box http://sbrihealthcare.co.uk/company/therapy-box</p>	<p>Therapy Box has been awarded proof-of-concept funding to support the development of a new app-based voice-input communication aid, which will recognise words spoken by a child with severely impaired speech and speak out a clear version of the message.</p>	<p>NHS England 2017 £99,820</p>
<p>WE ARe ABLE: displays and play University of Central Lancashire http://weareable.org.uk/contact/</p>	<p>The project aimed to investigate whether wearable displays can assist children with ASD and children with visual impairment when playing with other children.</p>	<p>EPSRC Sep 14 – Sep 17 £90,586</p>
<p>Wearable soft robotics for independent living University of Bristol https://therighttrousers.com/about/</p>	<p>The research team are developing soft robotic clothing to enable those with mobility impairments, disabilities and age-related weakness to move easily and unaided and to live independently and with dignity. Focus groups have been held in Bristol Robotics Laboratory.</p>	<p>EPSRC Jul 15 – Jun 18 £2,026,740</p>