

## **iStoppFalls**

Many studies have shown that falls are a major cause of injury and death amongst older people. In fact, falls among older people cost the NHS more than £4.6 million a day <sup>1</sup>.

In an attempt to reduce the incidence of falls ActiveAge has highlighted many research programs. The latest project we came across is comprised of a consortium of world-leading technology experts from university and industry across Europe and Australia. Together they are working on an ICT-based solution called iStoppFalls, which can predict and prevent falls.

The iStoppFalls project, which started in October 2011 is being funded by the EU and Australia.

The project's aim is to develop ICT-based technologies which can be easily integrated into the daily life and practices of older people who live alone and which allow for continuous training, reliable fall risk assessment, and appropriate feed-back, based on discreet measuring technologies and adaptive assistance functions

Although the project is in the early stages of development the website highlights a list of functionality and technologies which the project team expect to use. These include:

**Senior Mobility Monitor (SMM):** This is the main component of the iStoppFalls system. It continuously monitors the users' mobility and keeps track of muscle power and function. This data is gathered and analysed to provide feedback in the form of a tailored exercise plan for the user. The system provides feedback via an innovative iTV application, which acts as a personal health advisor providing information and reasoning behind each exercise.

**Fall preventive exercise game (Exergame):** The game will use the Xbox/Kinect platform and another device to monitor the user's heart rate and facilitate prevention exercise training 3 times per week.

**eHealthPlatform:** Gathered data from the senior mobility monitor and Exergame will be stored in a data bank, which enables the system to predict the users patterns of movement and create a valid fall prediction & sustainable fall prevention solution.

For more information please visit:

[http://www.istoppfalls.eu/cms/front\\_content.php?idart=3&lang=1](http://www.istoppfalls.eu/cms/front_content.php?idart=3&lang=1)

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<sup>1</sup> <http://www.independent.co.uk/life-style/health-and-families/health-news/falls-among-elderly-cost-nhs-pound46m-a-day-2006411.html>

## Human-Robot Collaboration

ActiveAge has featured various robotic exoskeletons in the past such as Honda's Support Assistant. These have been developed to help individuals with disabilities, to support various parts of their bodies that may not be strong enough to support themselves.

Such technologies are usually comprised of a wearable robotic part, which fits onto the relevant part of the users body.

Now a French research team has opened a new chapter in human-robot interaction.

At Montpellier Laboratory of Informatics, Robotics, and Microelectronics (known by its French acronym LIRMM) a research team has shown how a robot can gain control of both its own arm and a person's arm to manipulate objects collaboratively.

The robot controls the human limb by sending small electrical currents to electrodes taped to the person's forearm and biceps, which allows it to command the elbow and hand to move.

Although this approach is still in the proof-of-concept stage, the researchers are confident that performing more complex tasks is possible.

The ultimate goal is to develop robotic technologies that can help people who are suffering from paralysis and other disabilities to regain their mobility.

For more information please visit:

[http://janela.lirmm.fr/~adorno/files/phd\\_thesis\\_final\\_version.pdf](http://janela.lirmm.fr/~adorno/files/phd_thesis_final_version.pdf)

<http://spectrum.ieee.org/automaton/robotics/medical-robots/robot-controls-human-arm>

[http://www.youtube.com/watch?v=HedXMbvabk&feature=player\\_embedded](http://www.youtube.com/watch?v=HedXMbvabk&feature=player_embedded)

## Dementia risk reduction app

Although Dementia cannot currently be cured or prevented there is strong evidence that adopting a brain healthy lifestyle can help reduce the risks associated with the disease.

Recently Alzheimer's Australia and Bupa Health Foundation announced the UK launch of a brain help application, designed to fight against Dementia.

BrainyApp is an iPhone application designed to help users monitor and improve the physical, mental, dietary and social aspects of their lifestyle.

The application is based on the latest research that links brain health and a reduced risk of dementia to a healthy heart and cardiovascular system.

*'Most people know how to reduce their risk of heart disease, diabetes and stroke but they don't realise that the same healthy lifestyle choices may also lower the risk of developing Alzheimer's disease and other kinds of dementia. The idea is that what is good for the heart is also good for the brain'<sup>2</sup>.*

BrainyApp is free of charge and the first of its kind to help individuals rate and track their brain health.

For more information visit:

<http://mindyourmind.org.au/>

[http://www.youtube.com/watch?v=mOTDBVr\\_T-Y&feature=youtu.be](http://www.youtube.com/watch?v=mOTDBVr_T-Y&feature=youtu.be)

<http://www.bupa.co.uk/www.bupa.co.uk/individuals/health-information/tools-calculators/brainyapp>

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<sup>2</sup> Jeremy Hughes, Chief Executive, Alzheimer's Society

## **Self-cleaning cotton**

For many older people doing daily laundry can be a difficult task for various reasons including reduced dexterity, failing eyesight or early onset dementia.

ActiveAge recently came across efforts in China to develop self-cleaning cotton fabrics. If these prove fruitful the results could be beneficial to older people as well as meeting the increased demand for what retailers are calling, “functional clothing”.

Engineers have created a chemical coating that causes cotton materials to clean themselves of stains and remove odours when exposed to sunlight.

The researchers from the Shanghai Jiao Tong University and Hubei University for Nationalities say the treatment is cheap, non-toxic and eco friendly.

The study focuses on using a nanoparticle, alcohol-based compound made up of Titanium dioxide and Nitrogen.

The substance is already used in self-cleaning windows, odour-free socks and stay-clean kitchen and bathroom tiles.

This type of product could not only be beneficial for individuals but also for businesses such as care homes and hotels.

For more information visit:

<http://www.bbc.co.uk/news/technology-16225050>

<http://pubs.acs.org/doi/abs/10.1021/am201251d?prevSearch=%255BAIIField%253A%2B%255BAIIField%253A%2Brealizing%2Bvisible-light%255D%255D&searchHistoryKey=>