Researchers develop new solution for independent living: the 'empathetic home'

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TU/e will be putting the concept of the 'empathetic home' to the test. This is a home environment that 'empathizes' with the ageing resident and thus acts as or supports the voluntary care worker, for example with smart sensors embedded in the walls or floors or solutions of an ecological nature such as an 'edible wall' in the senior's living room. This will be happening in three assisted living centers of RSZK ZorgProfessionals (Eindhoven region), Woningstichting Domus (Roermond) and St. Jozefoord ('s-Hertogenbosch).

The Dutch population is ageing. In 2013 there were 2.8 million over 65 (16.8 percent of the population); in 2030 that figure is expected to be 4.2 million (23.9 percent) and in 2050 up to 4.7 million (26.2 percent). So government policy is geared to enabling seniors to live as independently for as long as possible and for people with a handicap to live as much as possible in a normal environment. However, there is a shortage of housing that complies with the needs and diverse requirements of senior citizens.

Empathetic home

"A home has to offer more than just a roof over your head, certainly for seniors," says Masi Mohammadi, professor of Smart Architectural Technologies at TU Eindhoven. "What if the house could take over some of the tasks of care or the voluntary care worker?" Mohammadi asks. "An empathetic home, which 'knows' you, has empathy, responds to

your needs and ensures that you have enough physical exercise, customizes your care and thus helps you stay healthy."

Home automation

The empathetic home brings us to the next phase in the development of home automation, Mohammadi believes. "In this new phase 'smart' is not just a precondition but smart technology is seamlessly integrated in the home surroundings and the technology adjusts optimally to the needs of the resident, supporting him in his daily activities."

Living in 2040

Mohammadi will be putting her vision and a number of concrete elements of the empathetic home to the test in a unique collaboration with three progressive assisted living centers. The three locations – RSZK ZorgProfessionals (Eindhoven region), Woningstichting Domus (Roermond) and St. Jozefoord ('s-Hertogenbosch) – form 'living labs' in which the effect of specific smart innovations can be studied directly.

Physical exercise

One example is the 'edible wall', a prototype of which was presented during the most recent Dutch Design Week in Eindhoven. The wall is actually a vertical indoor garden, whereby trays with plants or herbs can be placed at the appropriate height using a recognizable lever. "It encourages physical exercise," Mohammadi explains. "Seniors no longer have to bend down with difficulty or climb a stepladder to do the gardening." Other examples are a smart floor that warns of the risk of a fall or a guiding light strip on the wall and on the floor to support or stimulate daily activities.

Provided by Eindhoven University of Technology