

RESEARCH NEWS

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Live safely even in old age – within your own four walls

What to do if you fall in your home? Many elderly people ask themselves these and similar questions; they want security without having to give up their own four walls. A new technology concept, developed by the Fraunhofer Institute for Experimental Software Engineering IESE in Kaiserslautern, Germany, now makes this possible – while also ensuring privacy. A communication tool integrates nursing care consultation and ensures social integration.

Security? Absolutely – this is especially true for older people who live alone in their home. But monitoring is a very different issue. Hardly anyone would like to be watched day after day by cameras, even if it is only by trusted relatives who use cameras to make sure that the person living alone is safe and sound. So what if you do not want to move out of your own home, but still want to make sure that help will arrive quickly in the event of an emergency?

Security plus privacy

Researchers from the Fraunhofer IESE, the Deutsches Institut für angewandte Pflegeforschung e.V. [German Institute for Applied Care Research] and CIBEK technology + trading GmbH have now developed the system SUSI TD, which combines security and privacy. There are no cameras or other such devices to be seen in the home environment. "Our system is based on non-invasive sensors, especially on motion detectors (such as those used in lamps and alarms) as well as touch sensors placed on often-used drawers or refrigerators," explains Rolf van Lengen, Head of Department at the IESE. On the basis of the sensory data, the system learns to identify the recurring actions of the person and to recognize when assistance is needed.

There is another plus in terms of privacy: the collected data remain in the residence and are also evaluated there. Only when the person's behavior deviates from the usual does the system send an encrypted message to the nursing care center or the nursing care support point.

Direct link to the offerings of the nursing care support points

Just as important as providing security is promoting independent living as well as social integration – that is, counseling the elderly. What can they do to maintain their health and master their everyday life? Who is available as a contact person if there are prob-

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lems in this area? This issue is of particular concern to Anne Gebert of the Deutsches Institut für angewandte Pflegeforschung e.V.: "Using a video communication tool, the people can talk directly with the counselors of the nursing care support points via touchscreen. As a result, the consultants are able to support people even more effectively than they could if they only paid occasional house visits." And more than that: via the communication tool, the residents can also contact friends and family members, play games or share pictures.

A central guiding principle in the development of the concept was to not create any new or duplicate structures. The concept has therefore been developed and tested with those individuals who are already active on the ground – that is, the nursing care support points and outpatient service providers.

Close feedback with test subjects

For the development of such a system, it is essential to keep the needs of the users in view. Therefore, the researchers initially equipped 18 apartments in the area of Trier, Germany, with the sensors, went repeatedly to the households and had direct contact with the people, experiencing firsthand their stories, desires and needs. In the follow-up project StuDI, the researchers want to integrate an adapted system into 100 apartments as a test run.

For the development of SUSI TD, Cornelius Moucha, Mario Schmitt and Rolf van Lengen from the Fraunhofer Institute for Experimental Software Engineering IESE, Anne Gebert from the Deutsches Institut für angewandte Pflegeforschung e.V. and Bernd Klein from CIBEK technology + trading GmbH received this year's Joseph von Fraunhofer Prize, entitled "Technik für den Menschen" [Human-Centered Technology for People]. The jury justifies the award by mentioning, among other things, "the special value which, in addition to the technical implementation, was placed on the ethical aspects."

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The new technology concept enables elderly people to live in their own four walls with a maximum of security and privacy. The System was developed by Cornelius Moucha, Rolf van Lengen, Anne Gebert, Bernd Klein, Mario Schmitt (from the left). © Piotr Banczerowski / Fraunhofer | Image in color and print quality: www.fraunhofer.de/press/research-news

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