European partnership funds research toward robot aides for the elderly

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In a European research collaboration geared toward enabling automated aides for the elderly, a test subject tries out the first functions of the ALIAS robot. Credit: Photographer, Uli Benz; copyright TU Muenchen.

A partnership among 20 European states, the European Union and a number of private enterprises has launched a three-year, 3.87-million-euro project to make robots capable of serving as adaptable, interactive, and above all safe assistants for elderly people. The research project, known as ALIAS, places special emphasis on maintaining social networks, warding off feelings of loneliness and isolation, and increasing activities that may protect and enhance cognitive capabilities. ALIAS is a project associated with the Cluster of Excellence CoTeSys (Cognition for Technical Systems) and will widen the competencies of the Technische Universitaet Muenchen (TUM) in the area of social robotics.

This commitment reflects a conviction that "social robotics" can help face the strong demographic changes in Europe, where more and more elderly people live alone in their homes or in nursing or elderly care homes, with different levels of autonomy.

Many elderly people wish to live at home the longest time possible. They also want to maintain social contacts with their family, friends, and neighbors, with former colleagues and others associated with their careers, and with well known faces from the local market or local services -- while at the same time being safe. In the western states of Germany alone, 19% of the population was over 65 years of age in 2005, with a forecast reaching 29% - 22.1 millions inhabitants - by 2030. Many new elderly-friendly devices and technologies are currently being developed, with a stronger inclusion of elderly users under the European Ambient Assisted Living Joint Programme. The objective of the AAL Joint Programme, which supports the ALIAS project, is to enhance the quality of life of older people and at the same time strengthen the industrial base in Europe through the use of information and communication technologies.

The function of the European project ALIAS -- Adaptable Ambient Living ASsistant -- led by the Technische Universitaet Muenchen, is to keep the user linked to his or her social network and in this way to improve quality of life by reducing loneliness and increasing cognitively stimulating activities. ALIAS facilitates social contacts by creating connections to people and events in the wider world. The plan is to develop, in three years, a mobile robot that interacts with elderly users, monitors their home environments, and provides cognitive assistance in daily life. The project is launched within the second call of the Ambient Assisted Living - Joint Programme under the coordination of Prof. Frank Wallhoff.

Existing concrete applications integrated into the mobile ALIAS robot

will facilitate daily life of elderly users. Examples are: proactive communication initiation with speech recognition (user to the robot: "Call my daughter!"); Internet telephone services including video calls; Internet chat between elderly people including support for cross-lingual chat; online gaming with friends; "Agebook"; E-cards; reading aloud from newspapers and other sources, using speech synthesis; and assisted mobility. Later, options of remote health monitoring will be developed as well. Many applications will use new interfaces adapted for the elderly on touch-screen computers (with big and easy keyboards).

Groups of elderly users in Europe will be asked to give their opinions on the functionalities of the robot from the start of the project, to match their needs to the potential of the robot. This open innovation model at the core of the project, alongside with gender and ethical studies, will help to establish sound economics for such robots. A key target is to prepare such robots for AAL users in five years time.

The safety of the robot with elderly people is of paramount importance. This will be an overarching, guiding principle for the collaboration, which brings together European leaders in several different areas of competence: a robot manufacturer; specialists for dialogue systems, human-machine interaction, content management and information retrieval, and autonomous navigation; and sociologists for acquiring the needs and preferences of the target group.

The project is led by Frank Wallhoff who has a position as Senior Project Coordinator at the Institute for Human-Machine Communication (Chair: Prof. Gerhard Rigoll) at TUM as well as Professor for Assistive Technologies with Jade University of Applied Sciences in Oldenburg. TUM is furthermore involved in ALIAS with the Department TUM-GSing "Gender Studies in Science and Engineering" under Prof. Susanne Ihsen.

The project is supported by the European Ambient Assisted Living - AAL Joint Programme for three years with a total budget of 3.87million euros and a requested AAL contribution of 2.36 million euros The robot will be presented at the next AAL European Forum in Odense, Denmark, on September 15-17. The project involves three academic institutions or public research organizations, five small high-technology enterprises and one end-user organization (TU Ilmenau, Eurecom, Cognesys, Guger Technologies, MetraLabs, Synergiums, Youse, PME Familienservice) in four different countries in Europe (Germany, Austria, France, Luxembourg).

At TUM, ALIAS is associated with the CoTeSys (Cognition for Technical Systems) Cluster of Excellence, supported by the German Research Foundation (DFG) as part of the Excellence Initiative. Associated Projects have a mutually enriching relationship to CoTeSys: they build on results from work in the Cluster but enable additional research on new topics originating from specific applications of cognitive technical systems.

More information: www.aal-alias.eu/

Provided by Technische Universitaet Muenchen