Ambient Assisted Living: Chances and Challenges of Intelligent Homecare Solutions

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Demographic changes are observable in most industrialized countries and their social, economical and environmental consequences are often cited as one of the mayor challenges coming generations will have to face. Especially in Japan, where the overall population growth is nearly zero, the population's average age is climbing rapidly. Already today, nearly 25 million Japanese are over 65 and approximately 20,000 citizens are over 100 years old. What once was considered a population pyramid has long started to change towards a cone-shaped population structure in Japan. The World Health Organization [1] estimates that the original shape will have inverted to an up-side-down pyramid by 2035, with persons aged 80 and above accounting for the largest population group. Similar situations are observable in most countries of the western hemisphere including Germany.

As a consequence of these ongoing developments, more and more elderly people are expected to require care in the coming years. At the same time, the demographic change will also result in a reduction of the number of people who can provide care to older and disabled people [2]. If this development continuous, it is expected that by 2050 the number of kids who can care for their aging relatives is not sufficient anymore [3]. However, the need for assistance does not only arise due to the prevalence of chronic medical conditions, but also due to the declining physical abilities of older people. Decreased mobility makes carrying out daily tasks both at home and outsides more and more difficult, if not impossible, which makes third-party’s assistance unavoidable in many cases.

Ambient Assisted Living (AAL) environments are often cited as a promising solution to take care of the growing number of elderly or disabled people. The idea of Ambient Assisted Living is to provide assistive technologies for supporting people with specific demands in their daily activities, allowing them to grow old in their own homes. This is usually done by enhancing physical spaces with information, communication and sensing technology to make them sensitive and responsive to the presence of people. By providing a wide variety of services, including assistance to carry out daily activities, health and activity monitoring, enhancing safety and security, getting access to social, medical and emergency systems, and facilitating social contacts, AAL applications bear the potential of bringing medical, social and economical benefits to different stakeholders [4].

Today, research activities in are dominated by professionals from engineering, natural sciences, informatics and medical sciences, who mainly concentrate on aspects of technical feasibility and medical treatment. However, for fully exploiting the potential of AAL applications, not only aspects of technical feasibility, but also acceptance and usability issues have to be carefully
considered. In order to meet the needs of future user groups, an integrative and multidisciplinary approach is required, which combines engineering and medical knowledge with theoretical and methodological contributions of adjunct disciplines. This talk illustrates opportunities as well as potential pitfalls in the development process of Ambient Assisted Living systems and shows how an interdisciplinary research approach can contribute to the long-term success of computer-support homecare solutions.

References:


