

F. CAVALLO, M. AQUILANO, M.C. CARROZZA, P. DARIO. **Robot-Era Project: The vision of 3D service robotics.** *Gerontechnology* 2012;11(2):364; doi:10.4017/gt.2012.11.02.620.00 **Purpose** The objective of this paper is to present the 3D-service robotics concept that will be developed as part of the Robot-Era Project (2012-2015). **Method** European population projections underline that the number of over-65 elderly people in the world will quickly increase in the coming years. Nowadays, society sustains elderly people to age well by means of medical cures, socio-medical services, and other social activities, but the level of requests for support and assistance is expected to become so high that it will be difficult to manage and sustain. In this context, the “3D-robotic services” concept is conceived as a plurality of complete advanced robotic services, integrated in intelligent environments, which will actively work in real conditions and cooperate with real people and together to provide favourable conditions for independent living, improving the quality of life and the efficiency of care for elderly people. Generally, the technological level of robotics has reached a good development level, as demonstrated by projects, such as Mobiserv, Ksera, Srs, Florence and Companionable. However, more efforts need to be made to improve the sensory motor and cognitive capabilities, such as navigation in unstructured environments, fine manipulation, advanced interaction, and integration in smart environments. **Results & Discussion** This concept innovatively and significantly enhances the performance and acceptability of the current services for aging well to a new quality level, provided by the cooperation of a plurality of robots and with the support of an ambient intelligence (Aml) infrastructure. Different robotic systems are integrated to cooperate and operate in domestic, condominium, and outdoor environments, appropriately equipped with Aml-infrastructure. The level of robotic services is effectively enhanced due to the inclusion of cooperative robots that are able to act in both the in- and outdoor environments, and of the Aml-infrastructure, fully integrated in domestic and urban contexts facilitating the operations of robots, providing effective tools to supervise the various scenarios and ensure safe operations, and connecting users (elderly people and caregivers), service providers (social services, medical centres, municipalities, shops, pharmacies, etc.) and robots (domestic, condominium, and outdoor). The development of the 3D-robotic services concept is already in progress in the context of the Robot-Era Project, a 4-years large scale integrated project funded by FP7-ICT-2011.7 (ICT-2011.5.4 ICT for Ageing and Wellbeing), started January 1, 2012. Robot-Era is sustained by multidisciplinary teams, where partners from different technological, medical, and industrial design disciplines collaborate to design and implement social service models in a user- and town-centred design approach and characterized by a high level of technology and acceptability. The study on the design of the robotic systems’ appearance and on how to make them usable and acceptable according to elderly users’ attitude and needs is based on the analysis of the affordance (functionalities are immediately apparent), safety (perceived as safe), aesthetics (perceived as familiar with an opportune combination of colors and soft / rigid materials), friendliness (emotionally accepted), usefulness (concretely useful in daily activities) and dependability (robust, effective, and reliable). The impact of 3D-robotic services on target elderly population is completely suited to the current demographic trends and to the wish of the elderly population to “age well”. In addition, it suggests possible outcomes in terms of sustainability of the welfare system.

References

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