

H. VAN DEN HEUVEL, C. HUIJNEN, P. CALEB-SOLLY, H.H. NAP, M. NANI, E. LUCET. **Mobiserv: A service robot and intelligent home environment for the Provision of health, nutrition and safety services to older adults.** *Gerontechnology* 2012;11(2):373; doi:10.4017/gt.2012.11.02.564.00 **Purpose**

The goal of the MOBISERV project¹ is to support independent living by means of a personal proactive service robot integrated with a smart-home environment and smart textiles. The combined system contains physical activity and health monitoring functionalities integrated into wearable fabrics, optical recognition units for monitoring nutrition habits, smart-home sensors and actuators, and a secure health and wellness reporting system for secondary stakeholders. These technologies provide older adults with: (i) nutrition assistance and dehydration prevention by eating and drinking reminders and encouragements; (ii) a personal health coach encouraging physical activities and exercises; (iii) games for cognitive stimulation; (iv) response to emotions, including stimulation of social interaction; (v) a mobile remote control for the home environment; and (vi) video communication to friends, family and a call centre. **Method** The design of the developed concepts and system was based on an in-depth user requirements phase, including a mixed methods approach combining literature reviews, observations, interviews, focus groups, questionnaires, cultural-probe studies and workshops with potential end-users (n=121) and secondary stakeholders (n=102) such as carers, dieticians, therapists, and family. The research was performed in the UK and the Netherlands. Based on the results, a total of seven personas were developed to support an understanding of the perspectives of the end-users. Based on the personas, scenarios and system functionalities were designed and evaluated by means of video prototypes, Wizard-of-Oz studies and semi-structured interviews. **Results & Discussion**

The studies provided rich knowledge about the context of use and potential barriers, constraints, and criteria for acceptability². Older adults are receptive to service robots whenever the robot does not interfere with their daily routine and if they can customize the robot's character and appearance. Participants reported that they want to be in control of the robots' behaviour. Important challenges for acceptance were the robot's voice, the level of system-initiative, and the level of social situation awareness. Based on the results of these initial evaluation studies, the system will be enhanced and again evaluated with end users in a fully functional smart home environment. During the trials, users experience the system for several hours with a researcher present to observe and initiate a dialogue. MOBISERV will be further improved to accommodate the users' needs and a second iterative design cycle is planned in which the system is evaluated and validated in a real-life long-term setting. At both pilot sites (in the UK and the Netherlands³) target users will spend a week in a smart home equipped with the MOBISERV system. Human-robot interaction will be evaluated in situ to gather knowledge about how a service robot can be effectively integrated into the users' specific context, considering introduction, training, age-related differences, health and experience with technology.

References

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