

A virtual coach to enhance ambient assisted living

W-S. CHANG CHIEN, C-J. HSU, T-Y. LAI. *The implementation of virtual coach to enhance ambient assisted living. Gerontechnology 2014;13(2):180; doi:10.4017/gt.2014.13.02.359.00*

Purpose UniversAAL is an EU FP7 project¹ that aims to develop and employ an open platform for implementing ambient intelligence systems to support aging in place. ‘Virtual Coach’ is an Android-based somatosensory app installed in a TV Set-Top Box developed by Industrial Technology Research Institute (ITRI). Heart rate monitoring (through ANT+) and motion similarity analysis techniques have been converged in the system. In order to demonstrate the benefits of the UniversAAL, the ‘Virtual Coach’ has been transformed to connect with lights at home through the platform. Through the utilization of the UniversAAL platform, the virtual coach system has extended the service to assist the user to get involved with a wide variety of interaction with his/her home environment such as the lighting and temperature control system seen in *Figure 1*. **Method** The UniversAAL system architecture relies on the features of its middleware. For example, the context bus which is the overall ‘event’ handler, and the different communication buses (service bus) (*Figure 2*). The Virtual Coach has been connected to the UniversAAL ecosystem through the middleware. With pre-provision the heart rate threshold of user’s age by exercise level, the different heart rate measurements will trigger lighting by different color. The user will then be aware of the change of physical condition by the response of the light. For instance, when the heart rate exceeds the safety threshold, an alert will be sent out to trigger the red light through the platform. The system will simultaneously switch to the calm mode to keep the user safe. Five elderly participants volunteered to use the Virtual Coach AAL in their homes for 30 days. User responses were collected using the Likert Scale to evaluate feasibility and satisfaction. **Results & Discussion** The evaluation showed that Virtual Coach integrated with lighting and temperature control systems through universal open platform was successfully implemented in the households in order to facilitate real-time exercise monitoring. Four of the five participants reported that they were able to live more independently and they were also satisfied with the UAAL services. Users indicated that the service become more useful especially when they had a difficulty reading the instructions on the TV screen. The service has changed the user experience to support user awareness. Therefore, the AAL platform provides a standardized approach to make technically feasible and the state-of-art services that fulfill elders’ needs.

Reference

1. UniversAAL: <http://universAAL.org>; retrieved May 21, 2014

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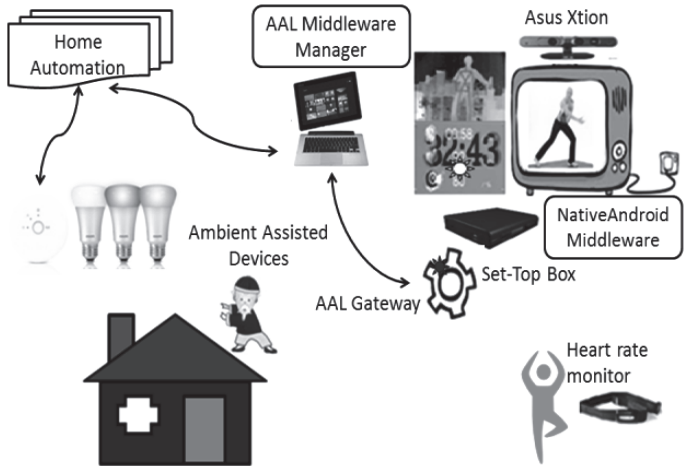


Figure 1. Service architectures and components

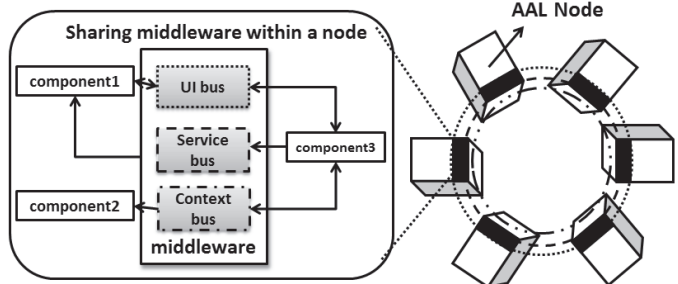


Figure 1. UniversAAL platform – Middleware