

Extending the MATCH Telecare System

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Abstract

The MATCH telecare system is a solution based on goals and policies for control and management of a range of sensors and actuators in the home. The system has been deployed in the MATCH Home Care Lab at the University of Stirling. Users are able to create new goals and policies although the policy language APPEL allows for complex and sophisticated policy definitions. This is difficult and time-consuming for non-experts. A goals and policies library allows users to select pre-defined goals and policies rather than create them but the pre-existing library was based on demonstrating the capabilities of the system rather than providing a user-focused library of policies and goals. The primary objective of this project has been to evaluate, extend and rationalise this policy library, creating a user-focused library of policies and goals that covers many common scenarios and enables quicker, easier setup of the system.

In the course of evaluating the policy library, the need for a speech messaging capability was established. Many of the useful policies in the policy library require speech output as a means of delivering a reminder, an encouragement or an alert to a resident in receipt of care. The MATCH system is built on the OSGi framework, so a secondary objective of this project has been to extend the capabilities of the MATCH telecare system by integrating a speech messaging facility in the form of an OSGi bundle.

Developing the policy library initially involved establishing user requirements based on the overarching aims of telecare systems. A period of prototyping and experimentation then followed. The creation of policies for the new library was directed by the requirements, by the results of prototyping, and by adaptation of existing policies. Developing the speech messaging facility largely followed a typical software lifecycle process including requirements analysis, design, implementation, and testing.

These developments have resulted in a significantly extended policy library for the MATCH telecare system. The new library allows for a wide range of possible scenarios and is firmly rooted in user requirements. In addition, speech messaging support has been integrated into the MATCH telecare system. This includes support for text-to-speech output using the CereVoice Engine as well as pre-recorded message output. Together, the extended policy library and the speech messaging facility provide a valuable addition to the capabilities of the MATCH telecare system.