Postprint

E-care@home: Initial Usability Considerations

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Background

The E-care@home project aims to develop a smart sensor and communication infrastructure with semantic interoperability capable of monitoring patients in their home. The system will use a wide array of sensors, both medical and environmental, and an advanced computer reasoning layer capable of interpreting sensor data and deliver natural language summaries of the patient health status. One critical issue is that of the usability of such a system to the users, i.e. patients and care providers.

Method

The project's usability work focuses on user-centered design and the overall usability of the future system. There are three identified user groups: care providers, elderly patients with chronic obstructive pulmonary disease and co-morbidity, and elderlies in better health but that are afraid of or at risk for falls. Interviews, observations, and literature reviews will be used in a first phase to construct personas of prototypical users, goal-oriented user stories outlining how and why the different user groups want to use the E-care@home system, user expectations on the features of the system, as well as other system design constraints and opportunities.

Results

To date, interviews and observations have been carried out with representatives from the user groups at three different sites: SICS East/Linköping University, Örebro University, and Mälardalen University. Work is ongoing to process and analyze this data and synthesize it with existing literature. Some examples of important user expectations that have been identified thus far are simplified and personal communication between care providers and caretakers, increased frequency of health data collection, increased security through automatic alarms, and usable system interfaces.

Future work

The work on usability will continue throughout the E-care@home project. The next phase includes controlled user tests of prototype technology in test beds and, pending results, potential longitudinal studies in real home environments.