A Look at Honeywell`s Technology that Supports Elder Independence at Home

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One of the most critical issues we face as a society is that of providing support to an ever-increasing number of people over the age of 65. There is evidence that most older people wish to remain at home as they `age in place,` in familiar surroundings, with people they know and with possessions they treasure. This desire to remain at home, however, is complicated in many ways.

As we age, we experience changes in our level of physical functioning that often interfere with our abilities to carry out some of those activities we do every day and that help us to remain independent. There are sensory changes that may pose health and safety problems. Most of us will experience some chronic illness that necessitates taking daily medication. There are changes in memory that also may pose a threat to safety; for example, we may forget a medication or forget that we turned on the stove. These issues concern not just the older person, but his family as well, many of whom may be living quite a distance from him.

Based on these facts and on a belief that technology might provide a way to address some of the concerns, Honeywell, in consultation with the University of Minnesota School of Nursing, and with funding from the National Institutes of Standards and Technology, has designed and is testing an integrated technological system prototype. The system, dubbed the Independent Lifestyle Assistant™ (I.L.S.A.), is comprised of sensors and monitors that provide a personal profile of the elder`s mobility and medication patterns twenty-four hours a day. These patterns are interpreted by I.L.S.A. and reported to the elder and family via a website. In addition, I.L.S.A. provides reminders to the elder by telephone if she forgets to take a medication, and to her family, by phone and by website if the pattern of mobility changes more that 50% in 24 hours.

The field test of this prototype is currently underway. Specific objectives are to support elder independent living, to provide peace of mind to caregivers, to support efficient quality care for caregiving organizations, and to provide cost savings for government and industry. The vision of what the system could do included the ability to gather information about the elder, his activity, and his home status by listening to the home and communicating with devices, to assess the need for assistance based on the system`s understanding the elder`s condition and what activities were going on inside the home, to respond to a given situation by providing assistance

to the elder and getting help when necessary, and to share health and status information with authorized caregivers to help improve the quality and timely delivery of care

The field test sample includes 11 elders in two states; seven are in Minnesota and four are in Florida. The University of Florida is a partner in this field test; clients there are living in their legacy homes in the community of Gainesville. The Minnesota clients are located in two facilitiesó one facility has five women living in apartments and the other has one woman in assisted living and a man in an independent apartment. The age range of this sample is 76-96 years. All except one are widowed. The married client`s spouse, however, has recently been admitted to assisted living with a diagnosis of Alzheimer`s/dementia.

The I.L.S.A. system was placed in each client`s home in February of 2003. The test will last 6 months. The system itself consists of a control box that is hidden in a closet and that talks to sensors and devices, motion sensors that detect motion in each room, a medicine caddy to tell I.L.S.A. when the client takes her medications, a telephone so that I.L.S.A can call with a message, and a webpad that depicts information from I.L.S.A. sensors. Data being collected during the field test include all sensor data, repeated measures of client health (SF-36) and cognition (MMSE), pre and post measures of family caregiver burden, weekly and monthly reports of client and caregiver use of and satisfaction with I.L.S.A., and reports of response to the system overall in two focus group sessions with clients and caregivers.

Although we have not analyzed the results, we have learned many lessons to date. Among these is that there is great variation in the abilities of elders to use this integrated system. One woman has impaired vision such that she cannot see the screen on the webpad. We thought our print was large enough to accommodate this. Other clients have suggested larger icons on the desktop and on the toolbars, and color variations that would help them to see. Many check their webpad daily and use it to verify their own schedule that they keep. There is a mix of responses to the phone reminders such that we are testing the language used for its effectiveness with elders. Family caregivers appreciate the ease with which they can view their parents schedule and medicine intake; they use the information to contact their parents to check in.

These are just a few preliminary findings related to useability of this technology. Our clients are helping us to know what needs they have and how we can better help them to meet those needs through technology. Our ultimate goal is to enable elders to remain at home with the help of I.L.S.A. or someone like her.

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