D. Mahoney, E. Mahoney. Aging-in-place with 'AT EASE'. Gerontechnology 2008; 7(2):160. The Automated Technology for Elder Assessment, Safety, & Environment (AT EASE) research project was designed to assess the feasibility of using off the shelf X10 motion sensor technology in senior independent living facilities running complex signal based systems, to conduct systematic sensor reliability and validity testing, to elicit staff, residents, and families concerns about Aging-in-Place, and to develop and pilot test sensor monitoring technologies to address their concerns. **Background** Independent Living Facilities (ILFs) are burgeoning in the U.S.A. Anecdotal evidence is growing that elders' may appear intact during pre-admission interviews but upon relocation become confused. Others as they age-in-place are at risk for physical as well as cognitive impairments. Given the limited staffing in ILFs, safety monitoring technologies may offer a means to ensure residents safety. **Methods and results** *Phase 1-3*: ILFs representing 500 elder units were our field site. Eight focus groups comprised of 26 residents, staff, & families reported their concerns. Among many concerns, the theme of being independent arose and the groups identified ways to achieve this via technology. Ceiling damage from water overflows also rose. *Phase 2*: We modified our previously tested monitoring system used in elder homes in the community to incorporate features requested by the new participants. Field testing of the X10 motion sensors revealed poor reliability and validity and 149 confounding wireless signals. *Phase 3*: Converted to Zigbee, and used off the shelf Zigbee based wireless motion and water sensors to monitor the elders' functional health patterns and bathroom water overflows over a four month period. Pre and Post measures were obtained with 10sets of end-users – the management staff, elders, family, and affiliating nurse practitioners. **Discussion** Our findings suggest that pre-admission interviews to assess the capacity of an elder to reside in an ILF should be conducted on more than one occasion, in part without the family present, and include standardized cognitive and physical function screening as a baseline for comparison over time. ILF monitoring technologies need to be able to customize to the concerns of the key stakeholders in order to promote adoption and buy-in. Participants preferred easily accessible and readable reports, with passive observation and reporting. Users preferred few alert functions, and limited but significant alert notifications. There was no end-user tolerance for system downtime or testing. Tailoring technologies to the resident and facility is feasible and recommended. We also demonstrated for the first time that stratified Internet based reporting targeted to multiple family and staff authorized end-users was achievable while maintaining confidentiality and privacy.

References

1. Sixsmith A. Alzheimer's Care Quarterly 2006;7:194-202
2. Mahoney D, Purtilo R, Webbe F, Alwan M, Bharucha A, Adlam T, Jimison H, Turner B, Becker S. Alzheimer's and Dementia 2007;3:217-226

Keywords: independent living, ZigBee wireless, outcome research

Address: MGH Institute of Health Professions, USA; E: dmahoney@mghihp.edu

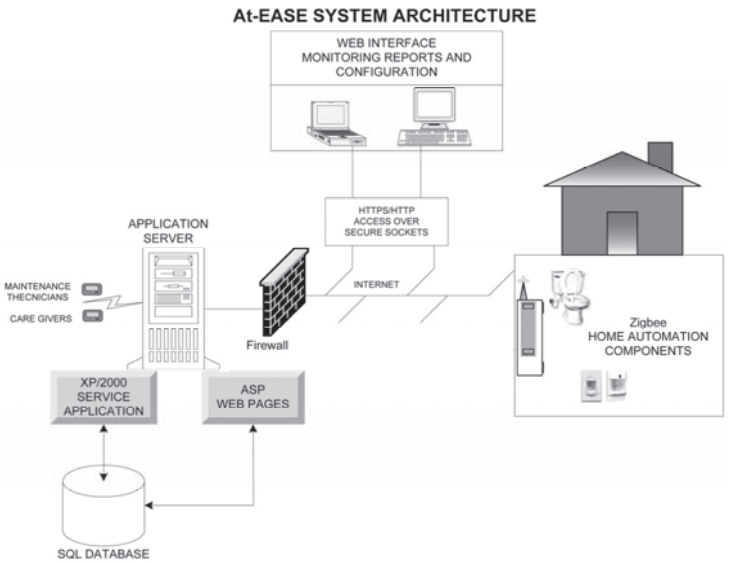

Figure 1 Zigbee Wireless Internet Based Stratified Reporting System