



the Aware Home
Research Initiative

Emerging Technologies to Support Aging-in-Place

Presented by

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How Technology Fits

Responding to changing needs

- Physical modifications to the home
- Services
 - Caregivers
- **Technology**
 - Smarthome technologies
 - **Services Technologies**





Broad Areas of Aging Services Technologies

- Safety (environment)
- Physical and mental health and wellbeing (self management)
- Social connectedness (other people)



Safety

Personal Emergency Response System

- Pendant, watch, base station
- Two-way remote voice
- Accelerometer
- GPS + fall detection
- Monitoring personnel



Brickhouse Alert – GPS communicator/sensor

Advanced In-home Monitoring

- Motion Sensing
- Monitor routine automatically



QuietCare system

Safety

Activity monitoring thru computer vision

- Built into environment, not on person
- Better understanding of activity context
- Automating more services, responding intelligently
- Share with caregiver, if necessary
- Privacy and acceptance



(Romero, & Abowd)



Safety

Other areas:

- Fall prevention

- Get up and Go assessment

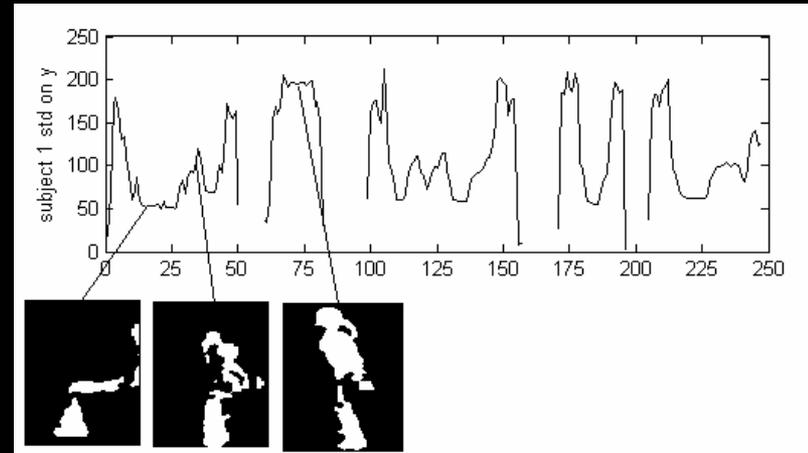
- Automated monitoring of physical environment

- Monitoring of behavioral trends

- Kitchen hazards – automated monitoring

- Stovetops

- Microwaves



Get up and Go Monitoring (Berrada, Romero, & Abowd)



Health and Wellness

Personal Health Record (PHR)

- All health information in one location
- Quick sharing with electronic health record (EHR) for medical practitioners
- Reduce errors
- Barriers:
 - Healthcare today
 - Compatibility
 - Adoption of computer technologies is slow





Health and Wellness

Telehealth systems in the home

- Virtual Doc Visits
 - Remote diagnosis
- Vital signs monitoring
- Wellness monitoring
- Coaching or question-based assessment

AND Medical Devices: Blood pressure monitor, scale and thermometer, Nonin Medical Bluetooth Pulse Oximeter and Apex Fitness BodyBugg





Health and Wellness

Medication management/adherence

- Reminder systems
- Automated dispensing systems
- Choke collar sensor and tagged pills?



MD.2



Health and Wellness

Cognitive assessment and strengthening

- Alzheimer's detection
 - DETECT
- Cognitive Fitness
 - mPower
 - BrainAge (Nintendo)



Zenda Technologies, DETECT



Dakim, Inc., invented the **mPower Cognitive Fitness System**



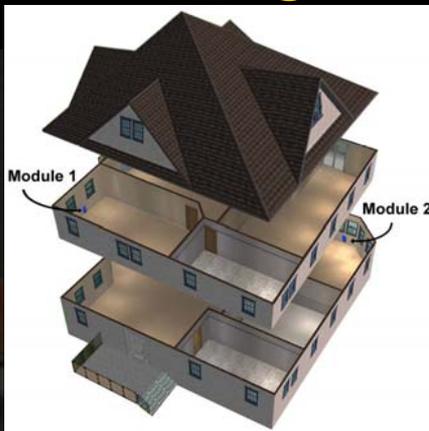
Health and Wellness

Cognitive aids around the home

- FETCH – finding lost objects
- Powerline Positioning
 - Location awareness
- Memory Mirror
- Cooks Collage



FETCH (Kientz, Patel, Tybekhan, & Abowd)



Powerline Positioning – location aware (Patel, Truong, Abowd)



Memory Mirror (Tran & Mynatt)



Connective Technologies

Virtual visitation with family
and friends

- Community Center
- In-home



Family Virtual Visits



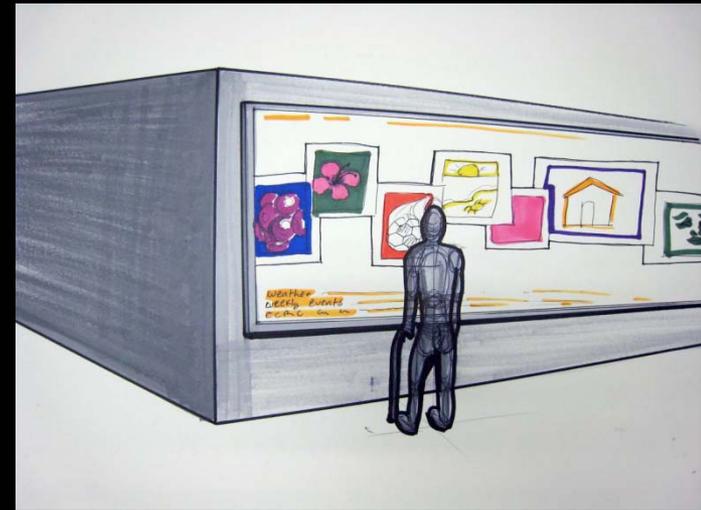
Connective Technologies

Computer 101

- SimpleC application

Addressing Social Isolation

- Linking community residents
- Beyond the organized community
 - CCRC, NORC, general aging-in-place



(Winegarden & Jones)

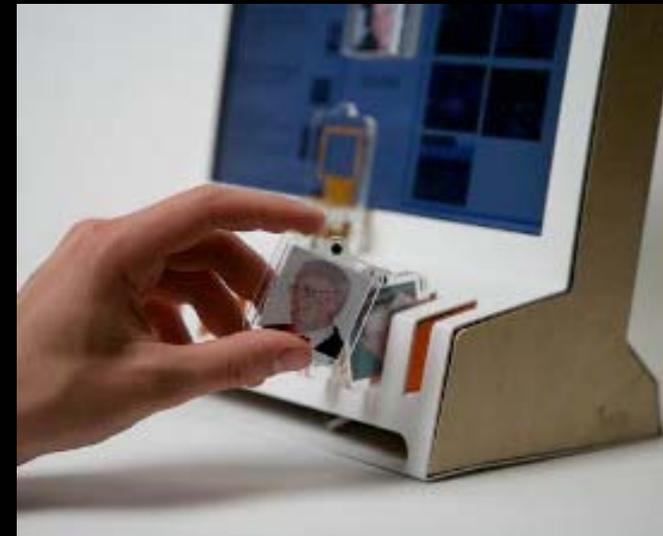


Connective Technologies

- Gaming
 - Social
 - Physical
- Online social networking
 - Myspace
 - Facebook



Wii Sports Bowling at the Sedgebrook retirement home in Lincolnshire, - Chicago Tribune



The Jive: social networking



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