Smart Uses of Smart Tech: Technology for Aging in Place

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Safety & Security Sensors

Controller
Transmits information from safety and security sensors onwards through the system

Smoke Sensor 1

Gas Sensor 2

Gas Actuator

Door Intrusion Sensor 3

Biometric Door Lock 4

Internet cloud

CENTRAL SOFTWARE
The diagram below shows the typical placement of sensors in a senior residence. The sample floor plan uses sensors included in the eNeighbor Remote Monitoring package.
Person - Environment Fit

![Graph showing the relationship between person competencies and environmental press, highlighting the concepts of adaptation level, positive affect, and adaptive behavior.](image-url)
Neuropathic Mobility

People with Peripheral Neuropathy have a number of balance, walking and foot health problems. When you lose the ability to walk normally, the chance of falling, the formation of sores and ulcers, and ultimately amputations increases. By restoring more normal walking, you may be able to increase mobility and decrease these issues.

Your brain constantly uses many inputs that enable you to walk, which is called a “feedback loop”. Vision, balance, memory, feeling from the bottom of your feet, and when they touch the ground are some of the important ones. When Peripheral Neuropathy diminishes the feeling in your feet, it breaks the feedback loop and hampers your balance and walking. The great news is that your brain doesn’t forget how to walk.

WalkJoy stimulates alternative healthy nerves below your knee that send information to the brain, which substitute for the nerves in your feet that are damaged. This re completa tes the feedback loop. Now you're walking again!
Stay Active and Independent

Introducing the first all-in-one, voice-controlled device designed to keep you independent, active and safe.
Smartstones: Wearable Touch Communicator

SEND PRIVATE MESSAGES WITH SWIPE AND MOTION GESTURES. WE ARE PIONEERING NONVERBAL COMMUNICATION.

$35,000 USD raised by 183 backers

70% of $50,000 flexible goal
Superflex is Defining the Future of Movement™ through Powered Clothing™

From biomechanics to apparel design, our team draws on diverse backgrounds and expertise.

Interested in joining our team? Contact jobs@superflextech.com to find out about the following positions:

Product Manager
STEER: Wearable Device That Will Not Let You Fall Asleep

At any sign of drowsiness, Steer will warn you with vibration and gentle electric impulse, so you do not fall asleep while driving.

Pre-order STEER

Created by Creative Mode

287 backers pledged €32,374 to help bring this project to life.
Wearable Unit

Fabric Electrodes & Sensors

Figure 3 Example of e-textile system for remote, continuous monitoring of physiological and movement data. Embedded sensors provide one with the capability of recording electrocardiographic data (ECG) using different electrode configurations as well as electromyographic (EMG) data. Additional sensors allow one to record thoracic and abdominal signals associated with respiration and movement data related to stretching of the garment with shoulder movements. (Courtesy of Smartex, Italy).
Six major themes of designing for aging

• Design Theme
• Provide environmental support through context, cues, and organization
• Improve the physical stimulus
• Display information consistently
• Provide training
• Capitalize on crystallized knowledge
• Recognize knowledge, interest and motivation
Unique aging issues to be considered

- Visual acuity
- Visual accommodation
- Color vision
- Contrast detection
- Dark adaptation
- Glare
- Illumination
- Motion perception
- Useful field of view

- Auditory acuity
- Auditory localization
- Audition in noise
- Haptic control
- Proprioceptive perception
- Temperature perception
- Vibration perception
Aging Status Changes May Require Different Technologies

- Home Safety
  - Alarm System
- Personal Status
  - E-mail, Phone, Video, Chat, Text, GPS
- Personal Safety
  - PERS, Fall Detection, Home Monitoring
- Quality of life
  - Virtual Reality, Gaming
- Personal Health
  - Medication Reminders, Dispensers, Wellness Guides
- Personal Medical Status
  - Chronic disease monitors, Online health Communities, Forums

Time

Independent → Frailer
Why Hearables for All?

- Increased social isolation from hearing loss
- 3X fall risk with mild hearing loss
- Half of older adults 75+ face hearing difficulty
- Only 30% of adults 70+ with hearing loss who could benefit from hearing aids have used them
- Up to 40 percent faster cognitive decline

Sources: National Institute on Deafness and Other Communication Disorders; Johns Hopkins University;
Virtual Personal Assistants and Smart Homes for Older Adults
Study Outcomes (n=15)

**Popular Skills**

- Weather & Temperature (67%)
- Alarm & Timers (53%)
- Music, Date/Time (40%)
- News (27%)
- Searching information (20%)
Study Outcomes (n=15)

- 75% used their smart devices at least once a day
- 100% felt the Alexa overall made their life easier
- 71% felt more connected to family, friends, and the community since the start of the Alexa pilot
The Alexa Project Today

- 90 Voice First devices
- “Pay it forward”
- Addressing wellness and social isolation
- “Alexa Club”
- Scale and diffusion model across additional communities
Thank You

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