IOWA STATE UNIVERSITY
Department of Computer Science

Smart Home Lab

Discovery
Innovations in Smart Technology

Learning
Bridging Theory and Practice

Outreach
Supporting Successful Aging and Independent Living

IOWA STATE UNIVERSITY
Department of Computer Science
www.cs.iastate.edu
226 Atanasoff Hall
Ames, IA 50011
515 294-4377
E-mail: smarthome@cs.iastate.edu

ALL SCIENCE IS COMPUTER SCIENCE

http://rs.cs.iastate.edu/smarthome

IMAGINE A HOME...

Imagine a home in which your loved ones are safe and secure. Imagine a home that helps to monitor their health, ensures that their refrigerator is stocked, helps them to cook their meals, and reminds them to take their medication. Imagine a home that automatically adjusts the lighting and temperature according to their preferences or time of day. Imagine a smart home.

Smart home technology utilizes sensors and programmable appliances to improve residents' quality of life. It is a multidisciplinary new research domain that requires integration of the latest computer technology in embedded systems, wireless networking, human-computer interface, software engineering, and much more. Smart home technology can usher in a new era in elder care, health management, energy and resource conservation, urban planning, and architecture.

Smart home technology should not be intrusive, nor should it require computer knowledge on the part of the user. Residents of a smart home can interact with the technology through simple voice commands, the telephone, or a mobile device. Family can interact remotely to be assured of optimal environmental conditions in the home and general health condition of residents. Smart technology in the home is programmed specifically to the user, providing information about conditions only when and where it is wanted and through methods that are familiar and comfortable for the residents and their families.

INTEGRATED HOME TECHNOLOGIES:

A refrigerator that communicates with the medicine management system to cross-check food intake with prescriptions for possible problems … a microwave that senses cooking temperature and time for easier preparation … a pantry shelf that networks with other appliances to monitor food inventory and creates a shopping list that can be sent via e-mail to a shopping service or a care provider … a TV that understands voice commands. What else can you imagine in the smart home? Contact us to develop it here!

SMART ENVIRONMENT:

Embedded sensor systems monitor everything from the physical condition of residents to home energy consumption. A smart floor can notify emergency services in the event of a fall. Lighting systems can be automated, heating and cooling systems can self-adjust for maximum efficiency, and security systems keep residents safe and secure. Smart home technology can be environmentally conscious, architecturally interesting, and financially affordable.

SMART MEDICINE:

A medicine management system that integrates the doctor, pharmacy, and smart home subsystem. It ensures safety by checking for conflicts among medicines, health conditions, and food. Researchers in computer science, gerontology, and human development and family studies collaborate to protect patient privacy and help make medical monitoring and management a simpler, more integrated process.

Invest in your future … an imaginative future … a smart future!

Contact the Iowa State Department of Computer Science for more information about the Smart Home Lab.