NISTTech

Smart Space

Pervasive devices, sensors, and networks, provide infrastructure for context-aware smart meeting rooms that sense ongoing human activities and respond to them

Description

A smart space is an environment where an integrated network of pervasive devices, sensors, computing hardware and software are integrated to realize a context-aware smart meeting room that senses ongoing human activities and responds to them. For example, an array of microphones can recognize voice patterns to identify which person is speaking. Video cameras also can be incorporated to continually scan the room for a visual record of the proceedings. In another implementation, a person's voice can be recognized by a computer to allow secure access stored information or the Internet. The NIST technology integrates hardware (acoustic telescope arrays, cameras and distributed computer servers) and software to provide an infrastructure for smart meeting room spaces with applications such as business meetings, engineering design, physician consults, emergency command centers, etc.

Applications

- **Smart Meeting Rooms**
  A Smart Meeting Room fitted with video cameras and microphones, can assist in transcribing and recording minutes from crucial meetings
- **Elder Care**
  Implemented in Elder Care Facilities, Smart Space's pervasive sensors along with staff members, assist residents in maintaining their independence, offering assistance as necessary and using pervasive sensors to monitor vital signs and health indicators

Advantages

- **Speech Recognition**
  The Smart Space System is capable of speech recognition and helps to keep organized meeting participants comments
- **Human Identification**
  Again, Smart Space helps to identify who said what
- **Natural Language Processing**
  Smart Space's ability to process natural language enhances the quality of meeting transcriptions

Abstract

Pervasive devices, sensors, and networks, provide infrastructure for context-aware smart meeting rooms that sense ongoing human activities and respond to them. These technologies require advances in areas including networking, distributed computing, sensor data acquisition, signal processing, speech recognition, human identification, and natural language processing. Open interoperability and metrology standards for the sensor and recognition technologies can aid research and development programs in making these advances. To address this need the NIST Smart Space and Meeting Recognition projects are developing tools for data formats, transport, distributed processing, and metadata. We are using them to create annotated multimodal research corpora and measurement algorithms for smart meeting rooms, which we are making available to interested members of the research and development community.

Citations

1. NIST's Information Technology Laboratory, Information Access Division. Smart Space Laboratory.

Related Items

- Article: NIST, Partners 'Booting Up' Tomorrow's Smart Workplace
- Article: Coming Soon to a Computer Near You- Smart Space Technology
- Article: Office Cubicles Soon May Become 'Smart Spaces'

Status of Availability

This technology is available in the public domain.

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