

T. ARAI. **Robots at home.** *Gerontechnology* 2012;11(2):352; doi:10.4017/gt.2012.11.02.512.00 **Purpose** One of the most promising applications of robots is human support, especially at home. An increasing number of elderly people demand proper daily support. The automation and assistance of housework would be helpful for people to go about their daily tasks. **Types of robotics** There are two types of robotics for these sorts of applications. One is the mobile service robot

capable of performing jobs such as, monitoring, security, cleaning, care support, etc. For this purpose, we have been developing mobile manipulation robots including a humanoid limb-mechanism. The humanoid is attractive since its mobility is suited to our human environments. The advance of humanoid control technique could improve their safety and could contribute to its actual use to provide support at home. We also developed wheelchair user humanoid robot support, where the robot is capable of pushing a wheelchair and taking goods and appliances for the user (Figure 1). The human robot interaction is another relevant issue when the robot supports tasks at home. We focused on mental safety by evaluating psychological effects of humanoid motion as well as its appearance (Figure 2). In addition, there is a robotics house where various kinds of actuators, sensors, networking are distributed separately in-house to monitor atmosphere as well as the resident, to control temperature, air conditioning, doors, windows, and electric appliances, capable of providing residents with comfortable living environment as well as contributing to an ecological life style (Figure 3).



Figure 1. Wheelchair user support

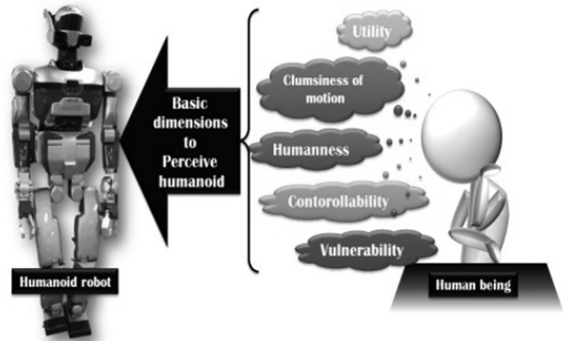


Figure 2. Evaluation of mental safety

**Summarizing** The keynote will cover the current status of relevant key robotics research activities, developed in our lab so far, including mobile manipulation, humanoid technology, human-robot interaction, image processing, and suggestions will be made about the future direction of these application.

**Keywords:** humanoid, RT component, RT middleware, sensor network, robotic house

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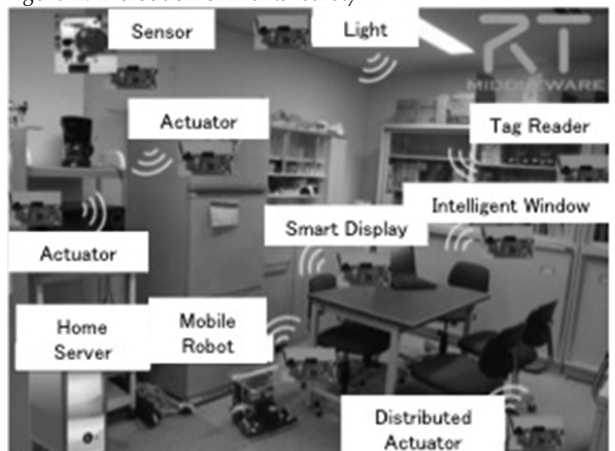


Figure 3. RT components at home