We propose research and development of a Knowledgeable Service Robot for Aging (KSERA) that will serve several related purposes for elderly persons in general and those with pulmonary disease in particular. Specifically KSERA provides (1) a mobile assistant to follow and monitor the health and behavior of a senior, (2) useful communication (video, internet) services including needed alerts to caregivers and emergency personnel, and (3) a robot integrated with smart household technology to monitor the environment and advise the senior or caregivers of anomalous or dangerous situations. KSERA aims at an adaptive technical aid that will provide
needed and useful services in a pleasant, easy-to-use format via a robot that also acts as a companion and assistant. The problems to be addressed by the research and field trials include: (1) robot mobile behavior, i.e. machine navigation and following a target person through a variable and cluttered environment, (2) ubiquitous monitoring of physiological and behavioral data through direct measurements and interaction with household sensors, and (3) human-robot interaction including new developments in shared environmental processing, affective technology, and adaptable multimodal interfaces. A single robotic device hosting entertainment and communication aids, and at the same time providing an assistant that monitors the environment and the user's behavior, contributes to the user's health and quality of life (QoL). It will be designed to use contextual information and adaptive decision making algorithms to continually update the monitoring and mobile behavior for improved interaction with its user and to provide information and support at the right time and place. Real user scenarios and participative design drive the research. Two prototypes will be developed and validated in real end-user environments by qualitative and quantitative validation metrics including measures of safety, user acceptance, care efficiency and QoL.

Fields of science

Programme(s)

Topic(s)

Call for proposal

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