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Development and research of a human robot interaction for dementia care

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In this project a mobile assistance system for the care of people suffering from dementia has been developed. Worldwide, 46 million people suffer from dementia, and by the year 2050 this number is set to rise to 131.5 million. (Prince et al., 2015) At the same time, the nurses are missing to supply the steadily increasing number of people in need of care. Automated assistance systems can be a way to address the problem. New ways to gather data about emotions, body language and vital signs make new directions in robot design possible. People suffering from dementia have a tendency for excessive demands and aggressive behavior. At this point a care robot can intervene preventively or even deescalating. The goal of this project has been to provide an added value for the patient in everyday life and in emergencies through context-dependent and holistic communication. For this goal a complete detection of the vital signs by stationary, mobile and body-close sensors must be ensured. Only then, the assistance system can respond with sound, response or even light and scent. To match the technological possibilities and the human needs observations and interviews with patients and employees have been conducted. Based on this data user needs have been extracted which have formed the baseline for the creation of user scenarios. A design prototype has been developed which has enabled further research regarding the needs of the dementia patients. The prototype has been discussed with the patients and the caregivers.

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