Supporting medication intake of the elderly with robot technology

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SHORTEST SUMMARY

- RITA is a robot to assist the elderly in daily activities.
- We developed and evaluated an interface for RITA.
- Interviews with caregivers.

AIM OF THE STUDY

- To develop a robot interface to assist the elderly with their medication intake.
- To investigate whether the target group is willing to accept medication intake assistance from a robot.

BACKGROUND

- Medication intake can prove to be a complicated task for the elderly.
- Roughly 50% of all prescribed medication is taken incorrectly (MacLaughlin, et al., 2005).
- Simplification of this task might have beneficial effects on this group’s general health and society’s healthcare costs.
- Together with Enacer Company we developed an assistive robot for the elderly, called RITA (the Reliable Interactive Table Assistant).

DESIGN PROCESS

Interviews with caregivers
- Main result:
  - it is especially important to check whether the elderly actually take their medication.

Focus group of elderly
- feedback on the clarity of the design.
- requirements analysis.

Main result:
- Font size should be increased for optimal utility.

Interface development
- The interface was developed in HTML5.

User study
- Usability test of the interface on the touch screen.
  - subjects were asked to perform a number of tasks related to the intake of medication.
  - basic task: supervision of medication intake.
  - more advanced functions: change settings.
  - Acceptance questionnaire.

MAIN RESULTS OF USER STUDY

Usability test
- The majority of participants in this study (17 out of 19) were able to take their medication with assistance of the interface.
- Participants found it difficult to work with more advanced interface settings.
- Post-Study Usability Questionnaire (Likert 5-point scale).
- Users rated usability positively.
- Mean score of 3.9 (between ‘Neutral’ and ‘Agree’).

Robot Acceptance
- Robot Acceptance Questionnaire (Likert 5-point scale).
- User accepted help from the robot.
- Mean score of 3.5 (‘Neutral’).

CONCLUSIONS & RECOMMENDATIONS

Conclusion
- The basic functionality of the interface was easy to use for the elderly for assistance with the medication intake task.
- Elderly are willing to accept assistance of a robot with this task.

Recommendations
- Interfaces for the elderly should really be as simple as possible.
- Testing of usability aspects during the design process is vital for a well-designed robot.

REFERENCES