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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.
  - to remind elderly about medication intake.
  - on a touch screen.
- The main findings were:
  - users understood the interface.
  - users were able to take medication with the touch screen support.
  - many were unable to perform slightly more advanced functions.
- The main conclusions / recommendations were:
  - interfaces should be as simple as possible.
  - usability tests should be routine in developing health technology for the elderly.

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.

MEDICATION INTAKE INTERFACE

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.
- Participants recognized the benefits of more advanced interface settings.
- Participants found the interface helpful for performing medication intake tasks.

Robot Acceptance
- Participants accepted the robot's assistance.
- Participants were willing to accept assistance from a robot.

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


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 incorrect results on a complicated task.
- Medication intake 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.

THE ROBOT RITA

- RITA is an intelligent, moving wooden table.
- Accompaniments people in their own home.
- Assist in activities of daily living.
- RITA continuously monitors the client.
- RITA analyzes behavioral patterns to detect uncommon situations.
- Clients are able to perform medication intake.
- RITA autonomously provides assistance.
- Notifications interval was evaluated.
- Usability tests were performed.

REFERENCES


