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Supporting medication intake of the elderly with robot technology

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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

The interface was developed in HTML5.

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.
• Setting notifications interval.
• Changing pharmacy’s contact details.
• 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 (‘Favourable’)

CONCLUSIONS & RECOMMENDATIONS

Conclusion
• The basic functionality of the interface was easy to use for the elderly for assistance with the medication intake 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


SHORTEST SUMMARY

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

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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.

THE ROBOT RITA

• RITA is an intelligent, moving wooden table.
• Accompanies people in their own home.
• assists in activities of daily living.
• RITA continuously monitors the client.
• RITA analyses behavioral patterns.
• Detects uncommon situations.
• Alerts health care personnel to check the situation.
• RITA can serve food and drinks to clients and visitors.
• RITA functions autonomously.
• Clients have no need to give direct orders to RITA: RITA will already know what to do.
• RITA can be operated directly by using the touch screen on the front of the robot.
• RITA was designed to blend in with existing furniture and not to stand out.
• It does not have a futuristic look but is indeed a wooden table.
• Market research has shown that older people appreciate the classic look.
• RITA supports health care professionals to make sure they are able to provide their clients with maximum comfort and quality of life-relieving them of certain repetitive tasks and aiding them in more complex tasks.

REFERENCES


