



Helping the elderly with memory disorders to orientate in built environment

– a field study of a technological system

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VEESC - research project

- Value Creation in Smart Living Environment for Senior Citizen
- Funded by Academy of Finland 2009-2012
- Partners: Department of Information Processing Science (TOL), Department of Architecture (ARK) and Department of Medical Technology (LTEK) of University of Oulu , VTT, Oulu Deaconess Institute
- Partners in case Karpalokoti: TOL, ARK, LTEK, VTT



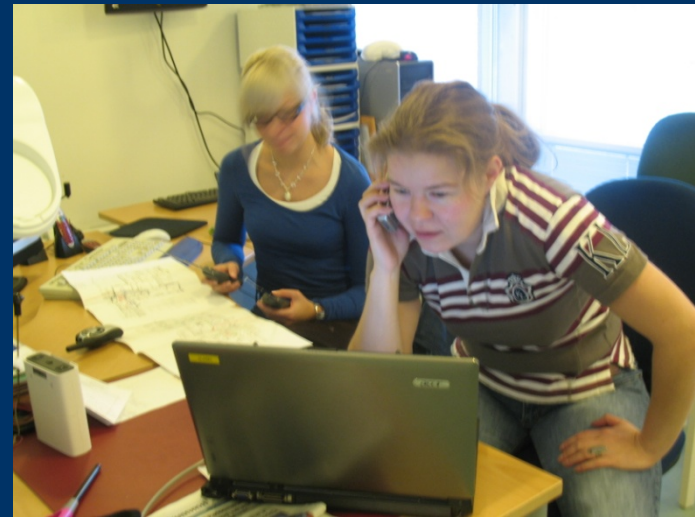
Aim of the field study

- To develop technology supporting elderly with memory disorders to orientate in everyday life.
- On activity route we were testing orientating with help of guiding technology on in advance defined route.
- The tested components of orientation were getting off the ground, keeping on right track, recognition of the landmarks, being guided back to right track and recognition of destination



The method

- We were using technology called "Wizard of Oz", in which technology still under refining is simulated to appear as coherent entity for the user.



Orientation advising

- Orientation advices were given through three different modalities: visual signal (picture, text), audio signal and tactile signal (vibration).
- Two of them were used at time.
- Combination of modalities was chosen according to the wishes and capacities of the senses of the participant.



Orientation advising

- Orientation advices given: getting off the ground, turning left and right, going forward, recognizing correct doors and landmarks, stopping and turning back.

•Visual signal:



•Audio signal:

"Käännä vasemmalle"

•Tactile signal:

"Left wristband vibrates"



Realization of the field study

- The study was conducted in 2009/2010 in the dementia rehabilitation unit 'Karpalokoti' in Pyhäjärvi, Finland.
- Orientating was tested both indoors and outdoors.



Subjects

- Eleven subjects, five female, six male
- 20 entries (12 indoors, 8 outdoors)
- Aged 59–90 years (median 83 years)
- Their degree of difficulty of dementia was between mild and severe (MMSEs 3–23)
- Walking condition "from frail to hobby skier".
- They and/or their relatives had given the informed consent for the study.



First results

- Mostly the orientating with technology on a defined route succeeded with a few misinterpretations.
- The most common difficulties were getting off the ground, straying from the defined path, finding the right door and the attractions of real-life context like other people.



First results

- The degree of difficulty of dementia didn't seem to predict succeeding in orientating with the guiding system.
- Using the landmarks wasn't as successful as using left, right and go straight on as guiding information. The ability to exploit the landmarks was dependent on the degree of dementia.



First results

- Attitude of the subjects
 - Mostly positive
 - No frustration even with little difficulties in orientation
- Difficulties of the test setting
 - Subjects seeking support from personnel and researchers
 - Acquiring information by interviewing troublesome



Thank you

Further information
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