

Usability and Usefulness of Localization Technology Used in Dementia Care

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Dementia

- Collective term for several chronic brain diseases - reduction in cognitive functioning
- Worldwide prevalence 35.6 million; projected prevalence 2050 115.4 million
- At greater risk of getting lost outdoors - higher risk of injury
- Worry and searching for carers

”We conducted perhaps a 100 searches in the last year he was living at home. It was terrible! I was so worried about him that it is almost impossible to describe”

Spouse of person with dementia




Localization technology

- Common combination - GPS and GSM (mobile phone) technology
- The person with dementia carries a GPS/GSM unit on his or her person
- Localization is done with a mobile phone or a computer with Internet access
- Call, SMS or web interface
- Location given as a set of map coordinates, an address, a point on a map or a combination of the above




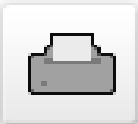




(Source: OnSat AS. Used with permission).



 Nokia Communication Centre – Meldingsl... - □ X

Fra: oy_dal
Klokkeslett: 15. april 2010 14:41

SOS Alarm from 09.02.2010 15:39:09, Location from 09.02.2010 15:38:20:
<http://maps.google.de/?q=60.9132750+10.7695583&sll=60.9132750,10.7695583&z=16>



Related research

- GPS/GSM increasingly used to locate persons with dementia
- Lack of knowledge in terms of the users' practical experiences
- Especially a deficiency in the knowledge about usability and usefulness



Aim of study

Main aim to explore and document how private citizens experience the usability, user friendliness and usefulness of GPS/GSM based localization devices used to locate persons with dementia



Method

- Six families interviewed about experience with localization technology
- Six spouses & one son - interviews of the persons with dementia inappropriate
- Completed Quebec User Evaluation of Satisfaction with assistive Technology 2.0 questionnaire (QUEST 2.0)



Results

- Used in conjunction with mobile phone; three also used computer
- Two families split tasks between several members when searching
- Persons with dementia all passive users
- Only use basic localization functions



Results II

- By and large informants found their localization aids easy to use
- Very useful
- Increased feeling of security and freedom
- Has had a positive impact on their overall situation
- All recommend equipment to others in similar situation



This is so simple to use that anyone can
use it

Spouse of person with dementia



My situation has become much easier. I clearly feel much calmer about it now, and if she goes out or disappears I know that I can find her

Spouse of person with dementia



Results III

- Some of the difficulties encountered:
 - Secure fastening of the device
 - Impractical size
 - User interface issues
 - Inadequate detail of the localization maps
 - System instability
 - General weaknesses with GPS-technology, i.e. does not function indoors



I think the user interface is not very user friendly. It is very elaborate with many key presses and menus when conducting a search

Spouse of person with dementia



I dread if it were to fail during a critical situation because I know it sometimes malfunctions

Son of person with dementia



Results IV

- There is agreement between the findings from the interviews and QUEST 2
- Overall interpretation - informants find the equipment easy to use, and it fulfils their needs



Discussion

- The findings indicate that the users find the equipment relatively easy to use
- How universal are the results?
- Sample
 - Relatively young informants
 - Quite familiar with ICT
 - Highly motivated
 - No stated disabilities affecting usage
- Are they average carers?



Discussion II

- Several received assistance from children; very skilled at ICT
- Only used the most basic functionality of the equipment
- Remedy - larger and more “representative” samples
- Potential for false sense of security – not mentioned by informants – usefulness given priority over safety concerns?
- Mild to moderate dementia



Conclusion and planned activities

- Localization equipment:
 - can successfully be used to locate persons with dementia who go missing
 - viewed as very useful and relatively easy to use despite some usability and technical issues
- Generalisation?
- Need for further R&D - security & privacy protection, new technologies, use in the public health sector and additional usability studies
- Seeking funding for project involving usability, privacy protection and data security



I was totally exhausted by all the searching.
This [the GPS] has simply given me a new
life".

Spouse of person with dementia



Acknowledgements

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Thank you!

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