Submission to
***ECPPM 2008* - eBusiness and eWork in AEC**
(*Sophia Antipolis*, France, 10-12 September 2008**)**

Spaces Meet Users in Virtual Reality

Esa Nykänen, Heli Kotilainen, Janne Porkka
Esa.Nykanen@vtt.fi, Heli.Kotilainen@stakes.fi, Janne.Porkka@vtt.fi

Technical Reserarch Center of Finland (VTT)
P.O. BOX 1000 , 02044 VTT, Finland

National Research and Development Centre for Welfare and Health (STAKES)
P.O. Box 220, FI-00531 Helsinki, Lintulahdenkuja 4, Finland

Technical Reserarch Center of Finland (VTT)
P.O. BOX 1000 , 02044 VTT, Finland

Keywords : User requirements, Virtual Reality, Patient Room

Abstract

How Well Do Spaces Support Processes within the Spaces like patient room ?

VTT, Stakes, Finpro, several companies and Tekes have jointly funded a two-year project for developing A User-Oriented Hospital Space. The HospiTool project is carried out within Tekes FinnWell program (topic area: Development of the operational processes of healthcare) in 2006-2008.

Problem Status :

There is a need to take end-user opinions into plans when desiging hospitals.

Objective:

HospiTool-project was started to find new concepts for end user participation using state of the art visual technology (virtual reality) and compare it to the results from traditional (real environment)interviews etc. The 3d architectural information was further developed to feel as natural as possible for communication process.

Approach and Methods:

The HospiTool project introduces an interactive user-oriented approach to health facility planning, construction and renovation. Tools were developed that enable end user participation in the planning and evaluation of hospital spaces in order to match the spaces with user needs and requirements. This was done by HospiTool version of VTT's EcoProP© User Requirements Management Tool and by making use of new visualisation technologies. 3D model was used both in the Computer Aided Virtual Environment (CAVE) and in VTT's Lumeviewer.

Results:

Making use of virtual environments gives a possibility to provide planners and designers with increased understanding of user experiences. Systematic requirements management is enhanced by true dialogue and it is relatively easy to produce and compare various options in an early planning phase.

The HospiTool process was successful in creating a platform for development of user-driven innovations in the operating environment: process innovations for healthcare and

product innovations for industry. Ultimately, the main objective is to develop a generic concept for inclusive design: to make spaces support processes within the spaces.The evidence based design is also taken into consideration in the consept.

The project has alredy been creating a real feedback from end-users (both patients and nurses) to the new hospital building which is in the planning phase.

Ther further project starts support closely one hospital planning phase only. The different stakeholders (architect, bathrooms deliverer, door deliver etc) are participatinf the project as well as planning the project continuation.

Figure 1 : *Concept for User Requirements management*

References:

Douglas C.H. & Douglas M.R. Patient-friendly hospital environments: exploring the patients' perspective. Health Expecrtations (2004) 7: 61 - 73.

Douglas C.H. & Douglas M.R. Patient-centred improvements in health care built environments: perspectives and design indicators. Health Expecrtations (2005) 8: 264 - 276.

ICT for whole life optimisation of residential buildings. Häkkinen, Tarja, Vares, Sirje, Huovila, Pekka, Vesikari, Erkki, Porkka, Janne, Nilsson, Lars-Olof, Togerö, Åse, Jonsson, Carl, Suber, Katarina, Andersson, Ronny, Larsson, Robert & Nuorkivi, Isto. VTT Tiedotteita - Research Notes 2401. VTT. Espoo (2007), 111 - 120

Home Service Concept. From User Needs to Services
Nykänen, Esa; Sarvaranta, Leena; Nummelin, Johanna
2004. VTT Building and Transport, Espoo. 31 p. + app. 1 p.
VTT Tiedotteita - Research Notes : 2252