

Z. YANG, B. BECERIK-GERBER. **An indoor way-finding solution for elderly people.** *Gerontechnology* 2012;11(2):350; doi:10.4017/gt.2012.11.02.502.00 **Purpose** Today's buildings are becoming more unique and complex. Elderly people may have difficulties when moving around unknown indoor environments, thus inhibiting them to participate in society. This study explores the possibility of personalized navigating services for elderly people in indoor environments. The solution we developed takes into account the personalized health state of users, for example, ability to walk a specific distance, or a difficulty in taking stairs. We present an indoor navigating solution for elderly people that take into account not only 3D-building geometry but also safety and the ability of the elderly user. **Method** The solution integrates an improved A* algorithm¹ with a grid-based building information modeling (BIM) environment², adding specific personalized requirements³ for elderly people⁴. **Results & Discussion** The simulated results demonstrate that the solution can effectively perform navigation for elderly people. The solution can generate the shortest and safest route to guide elderly people to their destinations. Next steps would be the integration of this solution into hand-held devices and evaluation of its performance in terms of speed, accuracy, and dependability in real world indoor environments.

References

1. Nilsson NJ. Principles of Artificial Intelligence. California: Tioga Publishing Company; 1980
2. Lee YC, Na S, Ahn HS, Yu W. Human-robot interactive guiding system's application in sonar quick mapping. Proceedings of the 16th IEEE International Conference on Robot and Human Interactive Communication; 2007; pp 194-199
3. Yuan W. iNav: An indoor navigation model supporting length-dependent optimal routing. Proceedings of the 13th AGILE International Conference on Geographic Information Science, Guimarães; 2007
4. Tseng YC. A distributed emergency navigation algorithm for wireless sensor networks. Proceedings of IEEE Computing; 2011

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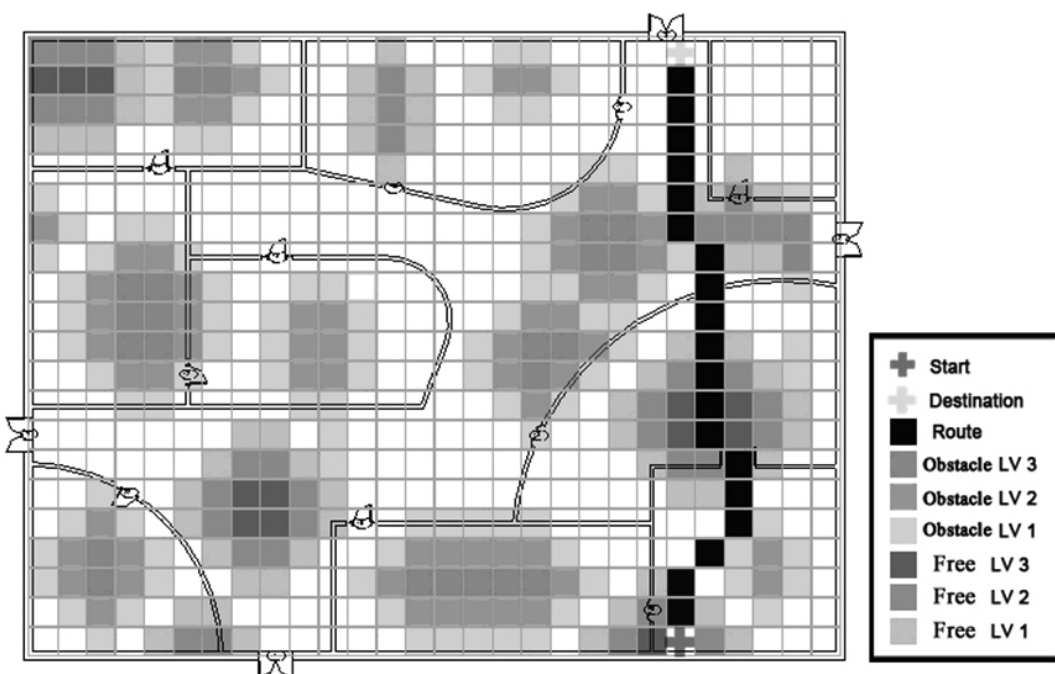


Figure 1. Indoor way-finding solution for elderly people