

Indoor navigation for the visually impaired: Where are we today?

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ABSTRACT

Despite over a decade of intensive research and development, the problem of delivering an effective indoor navigation system to the blind and vision impaired (BVI) remains largely unsolved. This paper involves a unique merging of the most recent and significant findings in the areas of indoor navigation and human-computer interaction design, in an attempt to clearly identify a strategy to successfully solving this problem. In keeping with this focus, areas of interest relating to the design of navigation systems have been isolated including those of positioning accuracy, reliability, seamlessness of integration with varying environments and, perhaps the most fundamental and challenging, the nature of information that is outputted to a BVI user. Of these areas, we discuss the notable achievements that have been made thus far, as well as some crucial issues which remain unresolved or are yet to receive attention. The results of this paper clearly prove the need for a new focus and design attitude in relation to this problem – one which incorporates universal design, recognizes the uniqueness of its audience and understands the challenges associated with a product's intended environment.

KEYWORDS: Indoor Navigation, Vision Impairment, Universal Design, Information