Research Advances of Indoor Navigation for Blind People: A Brief Review of Technological Instrumentation

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nd persons need electronic traveling aid (ETA) olutions for better orientation and navigation in nfamiliar indoor environments, with embedded detection and recognition of both obstacles and tinations such as rooms, staircases, and elevators. use of GPS for locational references is impracti-, the development of such navigation systems is and requires a systematic review and evaluation technological approaches. Using the Preferred Items for Systematic Reviews and Meta-Analy-A) method, we evaluated and compared current pers that deal with the prototyping of assistive sual sensory perception substitution with audio signals) for blind and visually impaired persons. ed an instructional assessment of selected indoor prototypes using three main criteria: navigation s, sensors, and computer vision approaches. For tegory, we conducted a separate systematic review, this research area primarily specialize in software compare existing solutions and technologies. Th dedicated to that purpose. We performed a sys view of indoor ETA instrumentation as applied t developed research prototypes. We hope it w value-added knowledge regarding instrumentatio surement for researchers and developers in this fie

We found that the number of new publication search into, and development of, ETA solutions fo VI people has been growing over the past five ye the publications provide information about differ and assistive devices. A significant portion of the involves detecting obstacles and solving orientati igation issues.

Although many advanced solutions for orie navigation are currently available, only a few sy view articles were discovered [5], [6], as very f provide systematized, structured, and tested info the technology, functionality, and end-user ratings lutions. For instance, we can find a systematized s