Navigation Aid for the Visually Impaired

Technology No. z06043

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Blind Assistive Technology is Superior to Traditional White Cane

This mobility aid helps the visually-impaired, or those working in low visibility areas, navigate indoors by assisting in the identification and avoidance of obstacles. The typical support instrument for the visually impaired is the "white cane", which is used for the detection of obstacles by providing a limited degree of feedback to the user. The portable indoor navigation aid alerts the user to the layout of an entire indoor area upon entrance so as to assist in collision avoidance.

Portable Aid for the Visually Impaired

The navigation tool is a small, light-weight device that can be attached to a cane or individual. Through the use of hardware and software, users are informed of objects in a room by audio and haptic feedback technologies. Pose (position and orientation) tracking is used to provide map-based localization, spatial layouts, landmark discovery and route planning. Instead of locating obstacles through the use of a cane, there is the ability to identify objects in the room in advance to facilitate quicker, trouble-free navigation from point A to B. This mobility aid is a revolutionary solution to path navigation in unfamiliar indoor areas for the visually-impaired and those working in low visibility conditions.

BENEFITS OF THE INDOOR NAVIGATION AID

- Does not require manually placed receivers or transmitters in buildings, e.g. radio-based beacon systems or talking signs
- Low power, small size and light weight
- Does not require GPS or magnetic compass
- Does not use wheels in contact with ground
- Can be carried by the user or attached to another device, e.g. white-cane, flashlight
- Wide array of applications, e.g. first responders, hospitals, shopping malls, airports, and military use

Phase of Development This technology has a working prototype.

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