

The BAT Cane: A Low-Cost Smart Cane for the Blind

Kim JongHyun, Raman Nageshwaran, Andria Thatcher, Jeff Wiest

Dr. Mark Fehlberg, Associate Instructor

Background

The blind often use a “travel cane” for navigation. Our team’s “BAT (Blind-Assistive Technology) Cane” incorporates haptic-feedback features and obstacle detection for improved sense of direction.

Design Features & Logic

- Straight-path detection
- Ultrasonic sensors to sense obstacles
- Haptic feedback for real-time guidance
- Low cost

Device Operation

Path deviation is detected by an electronic gyroscope mounted in the belt. Obstacles are detected by an ultrasonic sensor mounted on the cane. A small microcontroller interprets the signals from the sensors and warns the user by activating vibrotactors in the hand (for obstacles) or on the waist (for path deviation).

Conclusions

The BAT Cane improves a blind person’s ability to navigate through an environment.

