

Self-standing Blind Cane: An Assistive Device for the Visually Challenged

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Abstract

This project highlights the need for enhancing the mobility of people who use blind canes while also going about their daily activities. Currently having your one hand tied up holding the cane creates limitations for people who use the blind canes. Our solution allows cane users to be able to stand the cane on the floor without it falling, thus eliminating the need for searching it again. This solution is a step ahead of the existing cane stands because, unlike existing stands, it does not require either the person to find a wall, or a shelf to hang the cane or fold the cane to hang it. This gives the user immediate freedom from holding the cane, for example to shake somebody's hand or sign a check.

We built this solution using six stages of problem solving, understanding and defining the problem, researching existing solutions., conducting in-depth user interviews and observations, determining the specifications, and developing several design iterations before the final design was accepted and approved by our co-designer, user Ms. Jill Wolfe.

Ms. Wolfe is suffering from progressive blindness and have been struggling with the use of cane while working. She served as the co-designer throughout the process by sharing her experiences with us and giving us user inputs on the design iterations. In this manner, I used the user-centered design process to develop this prototype.

Acknowledgement

This project was first developed for the Lincoln Labs-MIT Beaver Assistive Technology Challenge. Rohit Mahesh was involved in the initial stages of the project.

Biographies

Suhani Dalela is a Senior at Saline High School, Saline and dual enrolled at the University of Michigan. She was a finalist at the Invention Convention National 2023, first place winner at Invention Convention National 2020, First place winner at Invention Convention Michigan in 2020 and 2023. Suhani is also a student reporter for the Invention Convention Worldwide.

Currently, Suhani is the Captain of Lemelson-MIT EMUinVENT InvenTeam 2023-24. An AP Scholar and National Merit Scholarship Semi-finalist, Suhani plans to become an Engineer in the near future.