

2020 Vision: Wearable Haptic Ultrasonic Object Detector
(Technical Report)

The Efficacy and Acceptability of Assistive Devices for the Visually
Impaired
(STS Research Paper)

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by

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Preface

A successful assistive device must not only work in the lab; it must be adopted by its intended users.

A capstone team, 2020 Vision, contributed to the design, development, and production of a wearable device that improves the user's situational awareness. The device communicates with the user through a haptic feedback system and an ultrasonic sensor, protecting the wearer from incoming objects. We conducted cost and production analyses to ensure a low-cost system that can be marketed to a wide range of users. The team shipped a working prototype of the device, contributing to efforts to develop low-cost, wearable assistive devices for the visually impaired.

To succeed, an assistive device must be accepted by its intended users. Deterrents include complexity, incompatibility with external systems, and social stigma. Efforts to serve the needs of disabled persons must identify and integrate social and technical factors.

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