

AIRMATH : Third Eye for Blind Ultrasonic Vibrator Glove

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Abstract: *The “Third Eye for Blind” is an innovative assistive wearable device designed to enhance mobility and independence for visually impaired individuals. This project presents an ultrasonic vibrator glove that detects obstacles in the user’s path and provides real-time tactile feedback through vibration alerts. The system utilizes ultrasonic sensors to measure the distance between the user and surrounding objects. When an obstacle is detected within a predefined range, the glove activates vibration motors with varying intensity based on proximity, allowing the user to perceive distance through touch.*

The glove is lightweight, portable, and energy-efficient, making it suitable for daily use. It is powered by a microcontroller that processes sensor data and controls the vibration mechanism accordingly. Unlike traditional walking aids, this device offers hands-on environmental awareness, improving safety and navigation in indoor and outdoor environments.

The proposed system aims to provide a cost-effective, user-friendly, and reliable solution to assist visually impaired individuals in avoiding collisions and navigating independently. By converting spatial information into tactile signals, the ultrasonic vibrator glove acts as a “third eye,” enhancing confidence, safety, and quality of life for blind users.

Keywords: Assistive Technology, Ultrasonic Sensor, Vibration Feedback, Smart Glove, Obstacle Detection, Visually Impaired Aid, Wearable Device, Tactile Navigation, Microcontroller-Based System, Mobility Assistance

