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Smart Ultrasonic Walking Stick for Visually Impaired People

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Abstract: *This project develops an innovative, user-friendly Ultrasonic Blind Walking Stick (UBWS) to enhance mobility and independence for visually impaired individuals. The UBWS integrates ultrasonic sensors, microcontrollers, and vibration motors to detect obstacles within 3 meters, providing real-time audible and tactile feedback. Testing demonstrated 95% obstacles detection accuracy, improved navigation confidence, and portability. The UBWS offers an efficient, affordable solution, enhancing quality of life. Key benefits include increased independence, enhanced mobility, reduced accidents, and improved psychological well-being. Future developments focus on advanced sensor calibration and machine learning. The project develops an innovative, user friendly Ultrasonic blind walking stick (UBWS) to enhance mobility and independence for visually impaired individuals.*

Keywords: Ultrasonic Blind Walking Stick, Visually Impaired, Assistive Technology, Accessibility, Mobility Aid, Obstacle Detection