NEW MANSOURA UNIVERSITY

SMART WEARABLES FOR ENHANCED MOBILITY

PROJECT OVERVIEW

Smart shoes equipped with sensors and haptic feedback are an exciting innovation for enhancing mobility and safety for people with disabilities.

POTENTIAL BENEFITS

- *Enhanced Mobility*
- *Increased Independence*
- *Improved Safety*
- *Health Monitoring*

These smart shoes can significantly improve the quality of life for people with disabilities by providing greater autonomy and safety.

SENSORS

- Ultrasonic Sensors: These detect obstacles in the user's path by emitting sound waves and measuring the time it takes for the echoes to return.
- Pressure Sensors: Embedded in the soles to monitor the user's gait and balance.

HAPTIC FEEDBACK

- Vibration Motors: Placed in different parts of the shoe to provide tactile feedback. For example, a vibration on the left side indicates an obstacle on the left.
- Customizable Feedback Patterns: Users can adjust the intensity and pattern of vibrations to suit their preferences.

APPLICATIONS

- Daily Navigation: Assisting users in navigating crowded or unfamiliar environments.
- Rehabilitation: Used in physical therapy to monitor progress and provide feedback on walking patterns.

Future Developments

- Integration with IOT
- AI and Machine Learning
- Energy Harvesting

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