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The Vision Glove

A glove-based LiDAR system integrated with popular mobile devices offers real-time, detailed environmental monitoring via vibration feedback to assist the visually impaired in navigation.

Engineers at Purdue University have developed a LiDAR based system to assist the visually impaired in navigating unfamiliar environments. The system leverages the LiDAR functionality built-in to iPhone Pro model cell phones since 2017 to recognize potential obstacles (walls, furniture, etc) and notify the user via an array of vibration motors positioned on the fingers of the user via a glove. The array features 3 motors per finger for 4 of the fingers on the hand. Distance data from 3D space collected from the LiDAR is mapped to a 2D environment with the use of vibration. Object position and relative distance are then conveyed to the user.

Technology Validation: This technology has been validated through a preliminary prototype.

Advantages:

-Offers real-time environment monitoring

-Greater detail and functionality than current state-of-the-art

-Integrates with popular mobile device (iPhone)

Applications:

-Aid to the visually impaired

-Wearable technology

TRL: 4

Intellectual Property:

Provisional-Patent, 2022-12-07, United States | Utility Patent, 2023-12-06, United States

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Robotics & Automation/Perception & Sensing
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