

IoT Based Smart Blind Stick

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Abstract: *The IoT-Based Smart Blind Stick is an innovative assistive technology solution designed to enhance the mobility, safety, and independence of visually impaired individuals by integrating modern advancements in embedded systems, real-time sensing, and internet-based communication. This smart stick is equipped with ultrasonic sensors for obstacle and terrain detection, a GPS module for real-time location tracking, and a Raspberry Pi as the central controller that manages sensor data and communication with a Flask-based web server. The device provides immediate alerts to the user through vibration motors or buzzers, helping them avoid potential hazards in both indoor and outdoor environments. In addition, a dedicated SOS button allows users to send emergency alerts with live GPS coordinates to caregivers, who can monitor the user's location and activity history via a web dashboard built with HTML, CSS, and JavaScript. With its focus on affordability, portability, and scalability, the system exemplifies the application of IoT and cloud technologies in assistive healthcare, offering a powerful, low-cost solution for enhancing the quality of life and safety of visually impaired individuals while promoting inclusive smart living.*

Keywords: IoT, Smart Blind Stick, Raspberry Pi, Ultrasonic Sensor, GPS Tracking

