# NAVIGATING INSOLE

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# Overview

# Introduction

- The Navigating Insole is a smart solution for visually impaired people to move around more freely. These special shoes use vibrations and technology to guide users, helping them understand their surroundings better and feel more confident while walking.
- This innovation improves the lives of visually impaired individuals by giving them more independence and making their daily experiences more comfortable.

# Literature Survey

| S. No | Title of the paper | Author(s) & Journal Details | Description |
|---|---|---|---|
| 1 | "Wearable Navigation Assistant for Visually Impaired People" | Nasim R and Hemanth Kumar - 2022 | It is a solution which is based on an embedded system that combines hardware and software to provide a technical aid. This technology is used for blind and people with visual impairment for obstacle detection, and slippery floors and detects the fall of the person and sends an alert message to the concerned person. |

| S. No | Title of the paper | Author(s) & Journal Details | Description |
|---|---|---|---|
| 2 | "Navigation shoes for impaired person" | Asmita Kakade, G.U Kharat, R.S Bansode - 2020 | A model that produces a wise electronic aid for blind individuals. It aims for an Electronic Travel Aid (ETA) kit to assist blind individuals in searching out obstacle-free paths. |
| 3 | "Smart Navigation Shoes for Visually Impaired Persons using IoT" | Priyanka Bharbade, Priyanka Jogi, Neeta Manakawad, Pankaj Dhakate - 2019 | It is to provide navigation assistance for visually impaired persons. Sensors detect obstacles and vibrators will vibrate according to direction. |

# Problem Statement

- Design an IoT-based navigation system for individuals to help them reach a fixed destination. The system should guide the user based on the movements towards left or right direction corresponding to the vibration.
- Existing navigation solutions may rely on visual and detection of obstacles, which can be limiting or disruptive to certain users.
- Therefore, there is a need for wearable technology that seamlessly integrates with everyday clothing, providing a discrete and intuitive way for individuals to navigate their surroundings while increasing mobility and independence.

# Proposed Method

- Navigation methods in smart shoes typically utilize sensors, GPS technology, to track the user's movement and orientation. By combining data from these sensors, the system can calculate the user's position and provide directional guidance.
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Vibration Motor

Esp32

GPS Module

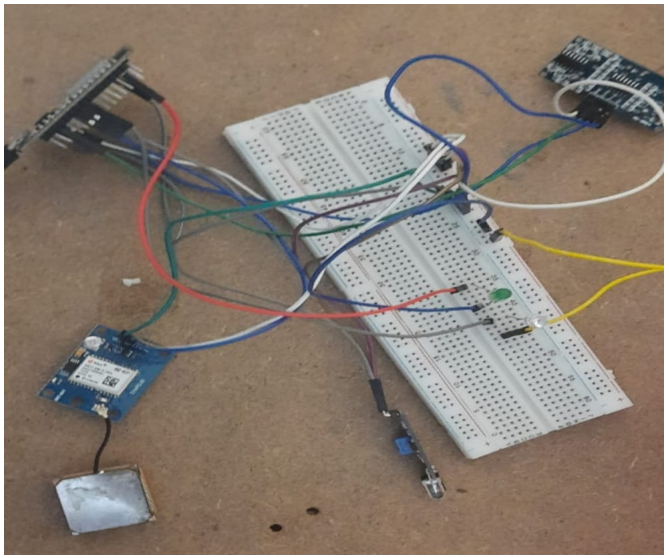
# Modules and Functionalities of modules

- Obstacle Detection
  - Integrating sensors and algorithms to detect obstacles or objects.
  - This feature enhances safety by providing alerts or rerouting guidance to avoid obstacles.
- Navigation through Vibration
  - Navigation through Vibration to reach destination.
  - Vibration in a particular shoe indicates the direction to walk.

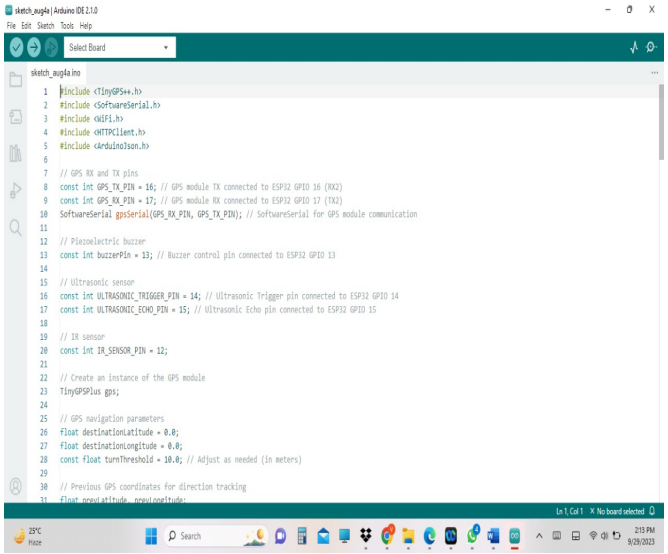
# Implementation

| **Module** | **Description** | **Status** |
|---|---|---|
| Module 1 | Obstacle Detection | In progress |
| Module 2 | Navigation through Vibration | Navigation through Vibration to reach destination. |

# Implementation - Gathering components and testing of different sensors



# Partial Implementation - Processing GPS module through writing code in Arudino IDE



# References


- "Smart shoes: walking towards a better future" system praposed by Miss. Rutuja Anil Shinde, Dr. B. A. T. University,Dr. S. L. Nalbalwar and Dr. Sachin Singh (ISSN: 2278-0181IJERTV8IS070167 Vol. 8 Issue 07, July-2019).

- Shanthi. M , Madhu Meena. M. K , Kadiravan. R , Kowsalya. R. J , Lokharaj.N "Smart Shoes For Visually People" Volume no.9 Issue No.3,2019.

- Benjamin etal (2014), Mrs. Shimi S. L. and Dr. S.Chatterji, "Design of microcontroller based Virtual Eye for the Blind", International Journal of Scientific Research Engineering Technology (IJSRET), Vol.3, No.8, pp.1137-1142, November 2014.

# Thank you