Project Number: Group 18

Project Title: VINS: Visually Impaired Navigation System

Team Members: Varun Bhandari, Angeline Jacob, Niharika Mishra, Sai Singanamala

Adviser: Dr. Hana Godrich


Project Abstract:

Technology has evolved to accommodate people with sight impairments, but we believe we can enhance their quality of life by improving how they interact with their surroundings. Our project is a navigation aid that provides audio directions to a destination with integrated alerts about the proximity of nearby objects and commands to reorient the direction the user is facing.

The closest example to our setup is the Arduino Sight. The Sight detects and alerts the user of ground obstacles like curbs. Our product, on the other hand, not only provides navigation from point A to point B but also alerts the user of the objects in their path. A set of ultrasonic sensors, along with an accelerometer and an Arduino will be placed on the user’s chest to detect the proximity of objects and this feeds data such as object distance, angle and user direction into our Android app. The data is sent to our app via a bluetooth module and the app narrates the distance of the objects based on the data it receives. For example, if the sensors read an object to the left of the user, the app will announce, “object at 10 o’clock, move right.” Our app also provides the user with navigation instructions using the Google Maps API. This allows the user to receive directions along with alerts which protects them from obstacles in their path.