1. Detail description of all the functionality of your product

This project will improve navigation for the visually impaired. It will improve confidence in movement and provide additional sensory feedback to reduce collisions above the waist. An ultrasonic distance sensor triggers a buzzer to alert the user of an obstacle ahead. Infrared sensors provide additional situational awareness by alerting the user to other people nearby with an audio cue. Additionally, an included RGB sensor will allow for easier color identification, which is useful when coordinating outfits.

Rgb sensor - when the rgb sensor determines the color which the sensor is facing it will use recorded voice clips and play them through the speaker to allow the user to determine the color.

Ultrasonic - will determine how far the use is from the object or wall and then will use the speaker as an output and make a chirping sound louder and more frequent as you get closer.

Infrared sensor - will determine if there is a moving object in front of the user and will vibrate if no moving object then it will not vibrate.

Vibration motor - will act as an output for the infrared sensor to vibrate as the user is the field of the moving object.

Speaker - will act as an output for rgb sensor and ultrasonic sensor by saying the color or chirping if getting closer to an object

Button - hold the button to turn on the color sensor. If pressed once, it will turn the whole device on and off so the user can choose to have it running or not.

We have made significant progress in the construction of our product. We have a large portion of the code for the button and the ultrasonic sensor complete.

2. Define the state diagram showing how the product works, make sure that you include all the behavior of all different sensors/inputs and feedback/outputs

Our product state diagram

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