Abstract
This project is a wearable detection device that will assist the user in being more aware of their surroundings.

Background
The inspiration for this project was there are many incidents of violent crime in urban areas, that could be resolved in a more timely manner.

Objectives
- Proximity detection behind user
- Fall/impact detection
- Verbal phrase recognition
- Autonomous emergency services contact
- Phone notifications

Program Description
For the ultrasonic sensor (HC-SR04) the program will send a trigger signal for the sensor to start an ultrasonic pulse and listening for the echo. The data from the sensor will be calculated by the program to determine the distance of the detected object.

The accelerometer and gyroscope (MPU-6050) will work together to sense if there was a fall or impact that occurred.

The microphone (MAX-9814) will be always listening for a trigger phrase.

Future Plans
- Comfortable and discrete physical design
- Introduce portable power source
- Implement Bluetooth and phone service capability

Design
3D Render of Bracket for HC-SR04

Design (cont.)
3D Render of Cover for MPU-6050

Block Diagram of the Device
Circuit for HC-SR04 Output to Raspberry Pi