Arduino Mini-Project

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Description

This Project is used to measure distance between it and other objects in front of it. It is built on a Arduino Uno and primarily uses an ultrasonic sensor for input detection along with a button that is used to check if the Arduino board is still being held. The Arduino has two buzzers that are used to signal how far away a object is by buzzing at different rates. Fast for close and slow for further away. If the Arduino is dropped the button will is no longer held down causing the buzzers to emit a constant noise altering the user to its location.

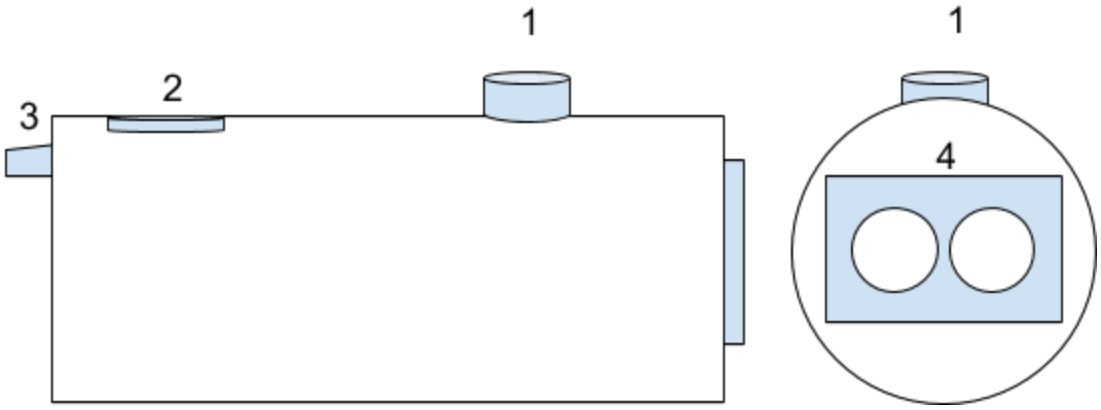
Concept

This project is designed around the idea of sonar. Using an Arduino Uno with a ultrasonic sensor and two piezo buzzers, the user is alerted to objects in front of the ultrasonic by simple buzzes. This could be used in many different ways such as working in low visibility and it could also be used by the disabled.

Limitations

There are a couple major limitations with the hardware that stop the project from being more useful. The ultrasonic sensor does not have a range long enough to detect farther than a few feet. This limits the device from detecting things at your feet or across the room with accuracy which greatly reducing its usability. The second major limitation is the volume of the buzzers. They work if there is not much noise to compete with but are easily drowned out by almost any other moderately loud noises. The board size is on the larger size and would need to be swapped out with a smaller board to make it a better size to handle.

Possible Housing



1. Push button
2. Speaker/Buzzers
3. Power switch
4. Ultrasonic sensor

The housing of the device would be 3D printed with plastic. It would have a cylindrical design that allows for it to be easily held in one hand. It will have the ultrasonic sensor mounted on the front with a button on top to detect if the user is holding it. Closer to the back of the device the buzzers will mounted internally with a speaker grill on the housing to allow sound to escape the casing. A power switch will be on the back allowing for the device to powered off or on.