Use of Ultrasonic Sensor to Guide the Visually-Impaired

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Abstract

According to the World Health Organization (WHO), at least 2.2 billion people are visually impaired, suffering from eye-sight issues (Vision Impairment and Blindness). Many of these people injure themselves or even die while trying to cross streets, because it is difficult for them to distinguish where they are or what is around them with traditional blind sticks (D'Apice). The purpose of this study is to improve a traditional blind stick with the use of technology (What Will People Think About Me If I Use a White Cane?). The new blind stick has the capability to detect obstacles upfront before an individual collides with the obstacle. An ultrasonic sensor will be used to measure the distance between an individual and an object (Hassan 2012). The buzzer will be used to emit a sound when an object is close. In what way is this blind stick different from the traditional blind stick that already exists? The ultrasonic sensor has a set of threshold limits and if any obstacle is found within that range, the buzzer will turn on. The buzzer will act as a way to alert right-after the ultrasonic sensor detects the object. The new blind stick's goal is to ensure that the task of moving a blind person is easy and comfortable. The components of the new blind stick are fairly affordable to most people (Blind Arduino Project). The new blind stick can reduce the need to bring an additional individual to navigate places.

Keywords
Blind, stick, obstacle, technology, and Arduino.

Biography
Mahbuba Sumiya is a current high school student at Benjamin Carson High School of Science and Medicine. She has been working in labs around Detroit for almost her entire high school year. She hopes to go into the field of medicine in the future.