Navigational Support Cane

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I built a navigational white cane whose purpose is to help the visually impaired navigate around objects more easily. Since I found few equivalent devices on the market for the visually impaired, and with my interest in helping others, I took the opportunity to make a smarter cane. The problem that regular probing (white) canes have is that they only alert the user to objects that he or she taps or hits with the cane. However, with this project, the cane operator will be notified when an obstacle or impediment is in front of him or her by using an ultrasonic sensor connected to a buzzer. This happens because I coded an Arduino Uno, an open-source microcontroller board, to sound the buzzer when the sensor detects an object. The cane has an additional feature that allows the user to flip a switch that will immediately send a text message to a caregiver saying, “Help! I’m lost” along with his or her exact GPS coordinates. This is done using the 1Sheeld board, a smartphone Arduino configure shield, on which I activated the SMS and GPS features.

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