Body Linked Interface Navigational Device

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The goal of this project was to design a navigational device for visually impaired people, utilizing ultrasonic sensors. We began by researching the components we planned on using, then we sketched a rough preliminary sketch of a possible solution. Our first sketch was a headset that the user would put on. On the headset would be a series of sensors which would be wired to the Arduino on the back of the headset. Output from the Arduino would be sent to a hand-held interface which would use solenoids to press upon the user's hand in different places to indicate where objects were in relation to the user. After the peer review we learned that it would not be optimal to have the sensors, and the apparatus on the head of the user, so we then made a new sketch. Our new sketch featured a harness that the user would put on, that would have sensors positioned on it. We also decided to use vibration motors in place of solenoids, due to the high price of solenoids in comparison to vibration motors. After the Prototyping we began experimentation to evaluate the performance of our solution. We did so by measuring if the sensor was detecting different types of objects at various angles and distances from the sensor. We concluded that our prototype was in fact operating as intended, and it was performing better than expected.

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