Kephalē: ODDS

"Obstacle Differentiation and Detection System"

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Persona + Users

- People who want to navigate spaces with a better sense of awareness of their surroundings
- Navigating cool places without getting into trouble or fear of hurting oneself
- People with visual impairment
- Practical uses are for around the house, in hotels, around work and hopefully integrated into city planning for streets, public stairs and obstacles.
- Help with physical activity like running

Current Situation + Design Challenge

- "Need a better way for visually impaired people to navigate public spaces."
- Encompases obstacle detection, obstacle awareness and landmark recognition into one product.
- Helps when in places that are both unfamiliar, ordinary and both indoor and outdoor.
- Inexpensive, reasonable for all types of people and available to the world.
- Solving many problems that have individual solutions by combining innovations.

# Solution: O.D.D.S. (Obstacle differentiation and detection system)

Whether alerting you of incoming obstacles, notifying you of a landmark or reminding you of where you are in a specific environment, ODDS will let you know!

Including the intellisensor, which detects incoming objects and serves as the main hub in connection with the other components, this piece is either worn centrally or with glasses.

Beacons come with the package as well, pairing with the intellisensor to notify when you are in contact with them.

A wristband is included with vibration to use silently to avoid noisey alerts in public places or when guests are over.

Conceptual Model

intellisensor

on button

Vibrating Wristband
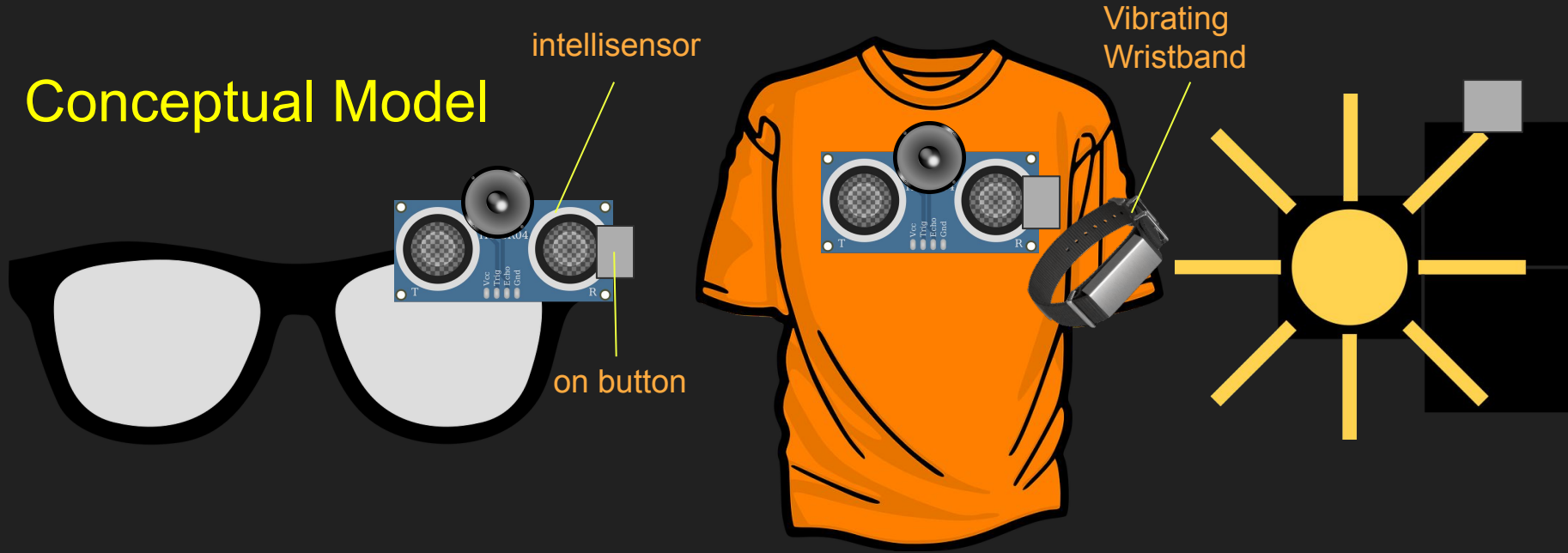
First, a user attaches the intellisensor to their glasses or chest. Next, press the on button on the side of the intellisensor. The sensor will automatically be connected to the wristband and you will be alerted when objects are in the way. Finally, place a beacon in a useful spot and turn it on by pressing the button on the top. The beacon is now active and you're wristband will vibrate when you get close.
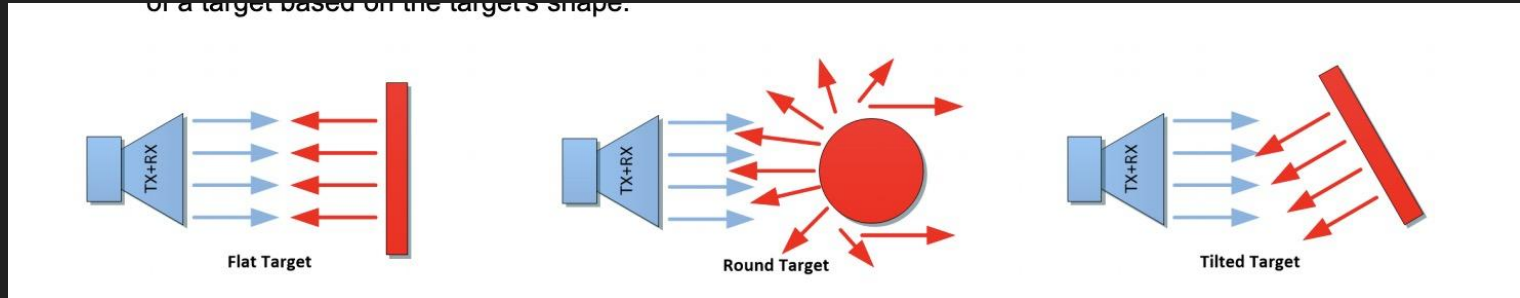
Details

Frequency Ranges: 25 - 50 kHz

Distance Range: Up to 5 meters (configurable)

Prototype w/ Arduino code and Raspberry pi

Intellisensor can determine if obstacle is at an angle or round

Future User Testing

In the future, we hope to test the delay between the intellisensor and the vibrating bracelet

- Make sure delay is minimal so that the user has time to react

Also hope to test the accuracy and precision of the intellisensor as it searches for obstacles

Lastly, we wish to streamline process to make design smaller, more efficient, and more compact using integrated circuits