

According to the American Federation for the Blind, there are 10 million blind and visually impaired people in the United States of America.

**Our Mission:**

***“Provide a safe, effective, and reliable assistive device for Blind & visually impaired swimmers”***



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## IPRO 310

### **Designing and Building Assistive Devices for Blind and Visually Impaired Swimmers: Active Device**



## The Problem:

Blind and visually impaired swimmers have the following difficulties:

- Location in pool.
- Directional alignment.
- Awareness of obstacles.

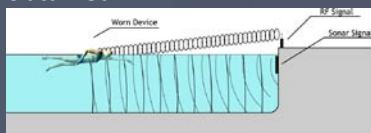
## Active Device Advantages:

- Portable- does not require installation.
- Instant alerts to a swimmer about orientation.
- Minimizes erratic motion in the lanes.
- Reduces visibility- does not draw attention to swimmers disability.

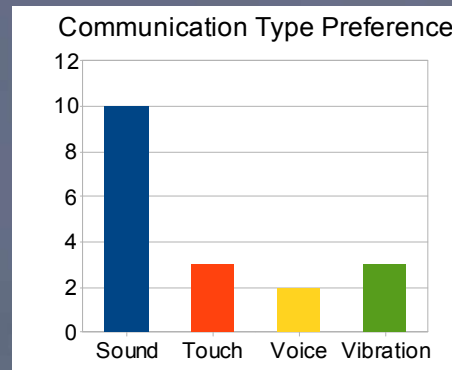
## Previous Device:

Previous groups developed a vibrating belt and a snorkel device to communicate with BVI swimmers.

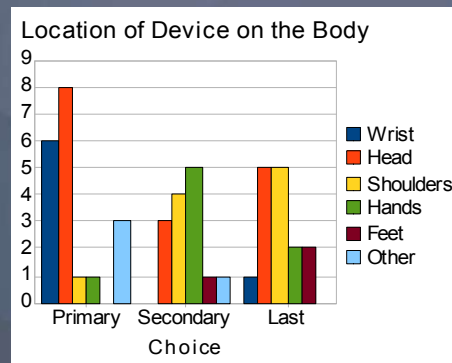
- Not comfortable wearing the device.
- Feedback language questionable
- Technology created before user input was obtained



## Survey Results:



Visually impaired individuals were asked how they would like to receive information.



Visually impaired individuals were asked where on the body they would prefer an assistive device.

**Conclusion:** Visually impaired people prefer an audio device that is worn on the head.

## Goals achieved:

- A survey was created and administered to the BVI community.
- A prototype of the snorkel using headphones was built.
- Research on multiple technologies was completed. Three were selected. (Ultrasonic sensors, Invisible Fence, Hydrophone)
- Built hydrophone prototype.
- All the research was documented for the reference of future IPRO 310 students.



## Future goals:

- To gain more feedback from the BVI community to guide design.
- Implement the concept of the researched technologies in building a new active device.
- To use the modified prototype of the snorkel device in the next pool test.