

**I PRO 310**

**Designing and Building a Prototype  
for Assisting Blind Swimmers**

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# The Problem

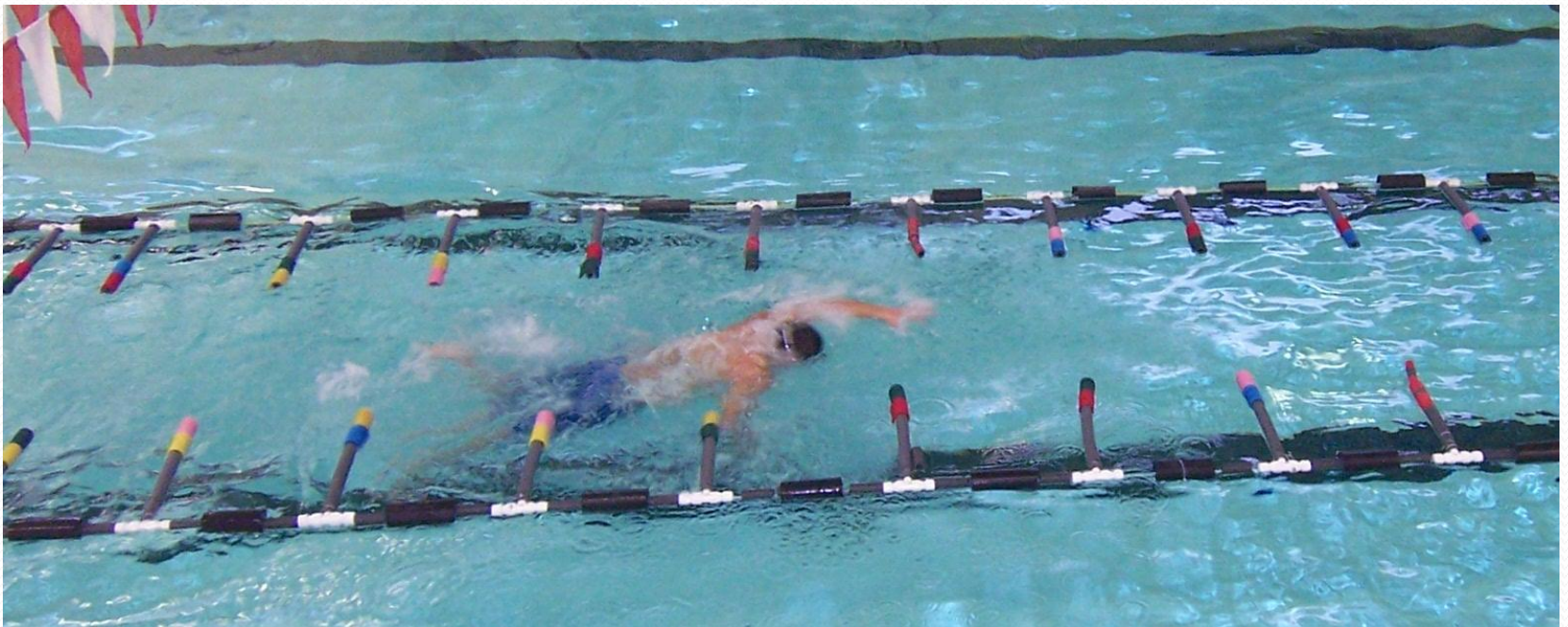
10 million visually impaired people in the U.S do not feel safe or secure when exercising

# Objective

Designing, building and testing devices which aid the visually impaired while swimming.

# PASSIVE DEVICE

- Orient swimmer using stationary objects in a pool



# Goals

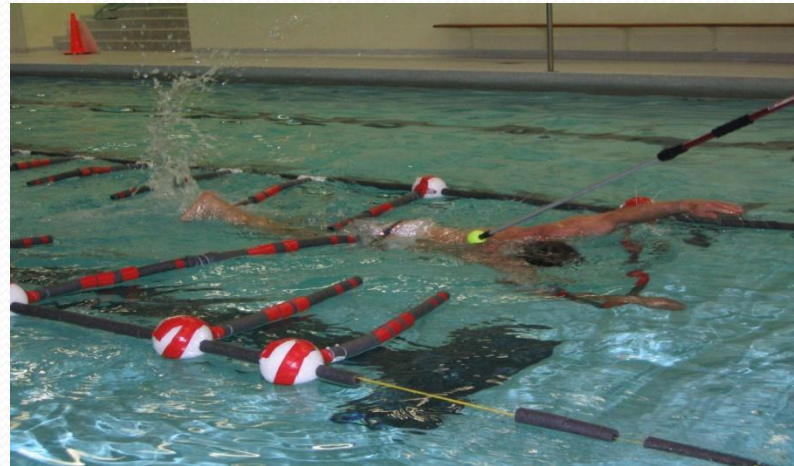
- Overall:
  - Have a device ready for long term durability test
- Side Tappers
  - More effective and safer connection to T-Connectors
- End Tappers
  - More effective and reliable





# POOL TEST DESIGNS

- Lane Line Safety
- Side Tappers:
  - 2 methods of attachment
  - 2 ways to secure texture pads to tappers
- End Lane Tappers:
  - 1 new design with tappers suspended from below the water
  - 3 new designs using different materials from the sides



# Active Device

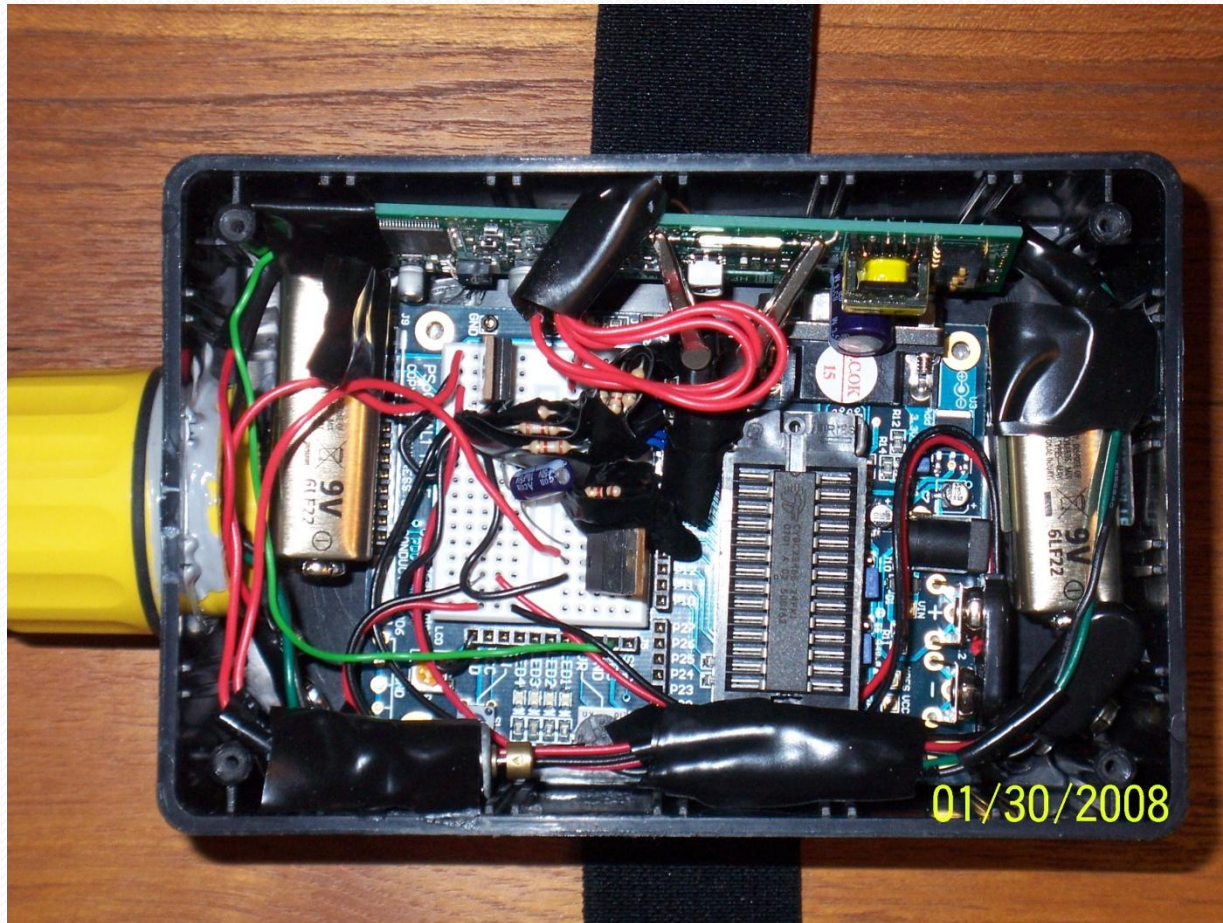
- Battery powered
- Uses tactile feedback
- Attached to the swimmer preferably on the lower back
- Alerts the swimmer about the pool walls and ends

# Goals

- Repair the current device
- Build feedback circuit using the PSoC
- Make the device water proof
- Implement an On/Off switch
- Test The revised Prototype
- Modify the prototype of Rose Hulman Institute of Technology(Potentially)

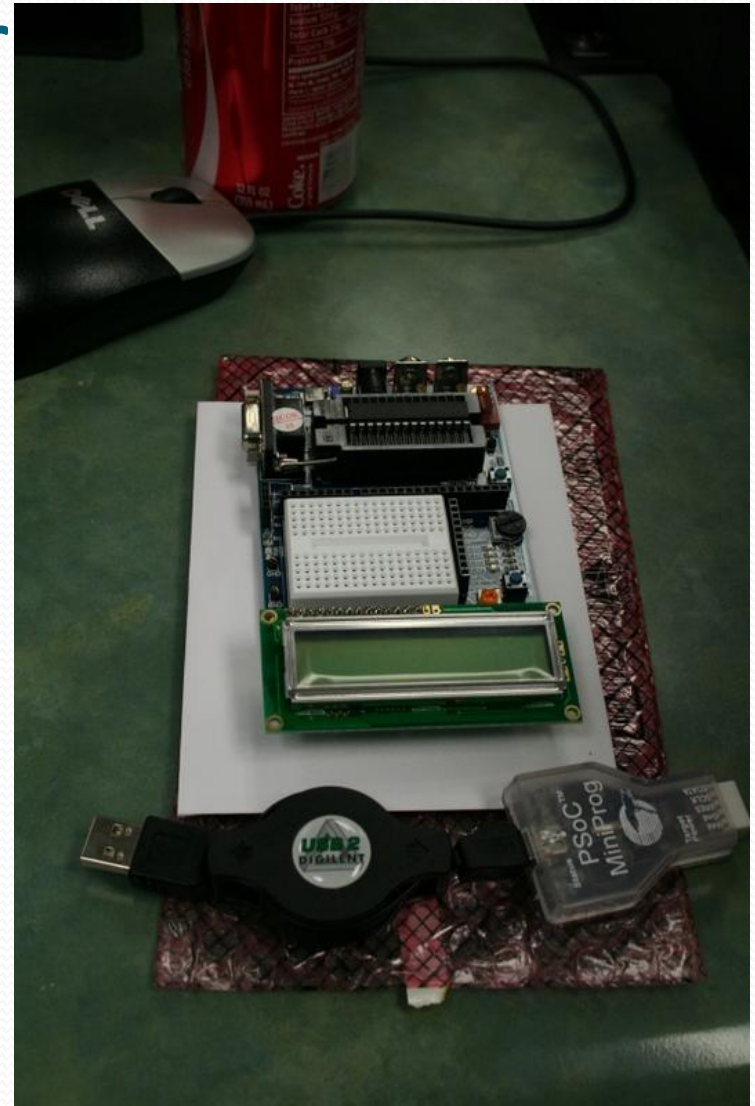


# Active Device



# PSoC Micro controller

- Donated by Cypress semiconductor(\$200)
- Programmable System on a Chip
- Programmed either using Assembly Language or C, C++



# Results



- Pool Test o
- Attended the Psoc seminar by cypress semiconductors

# Pool tests

## **Pool Test 0:**

- Results from the pool test

## **Pool Test 1:**

- Test the vibrating device in the water



# Summary

Problem: 10 million visually impaired

Objective: Create devices which assist exercise

Plan: Design, build and test devices which aid visually impaired in swimming

Milestones:

March 9<sup>th</sup> : Pool Test 1, Test design 7 of passive tactile device and design 3 of active sonar device

April 20<sup>th</sup> : Pool Test 2, Test design 8 of passive tactile device and design 4 of active sonar device

Questions???