

BUOY

IPRO 310

Assistive Devices for Blind and Visually Impaired Swimmers

A vision for blind swimmers

Agenda

- Problem Statement
- Mission
- Team Organization
- Goals
- Progress
- Team Specific Information
 - Current obstacles & solutions
 - Anticipated challenges



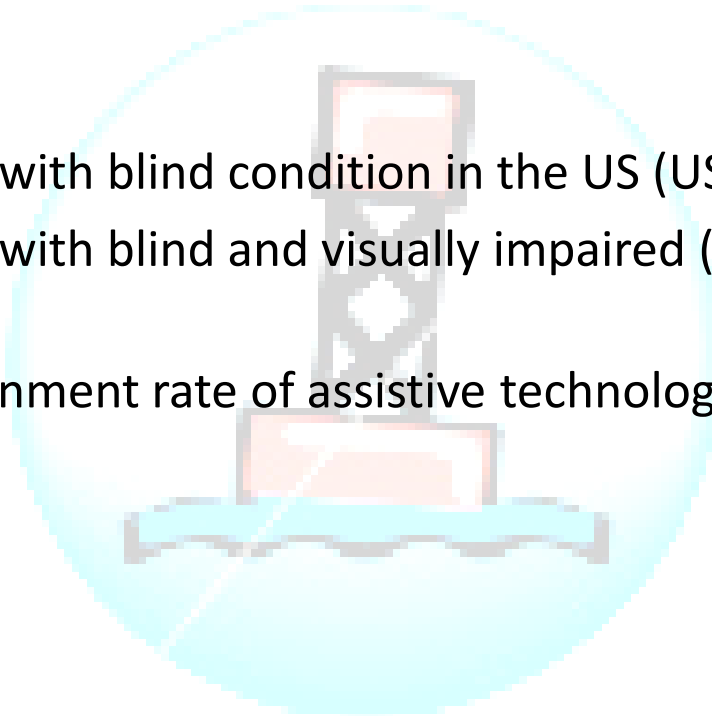
Problem Statement

Background:

- 1.8 million people with blind condition in the US (US Census)
- 7.8 million people with blind and visually impaired (BVI) condition in the US (US Census)
- Up to 80% abandonment rate of assistive technology (Michigan Dept of Education)

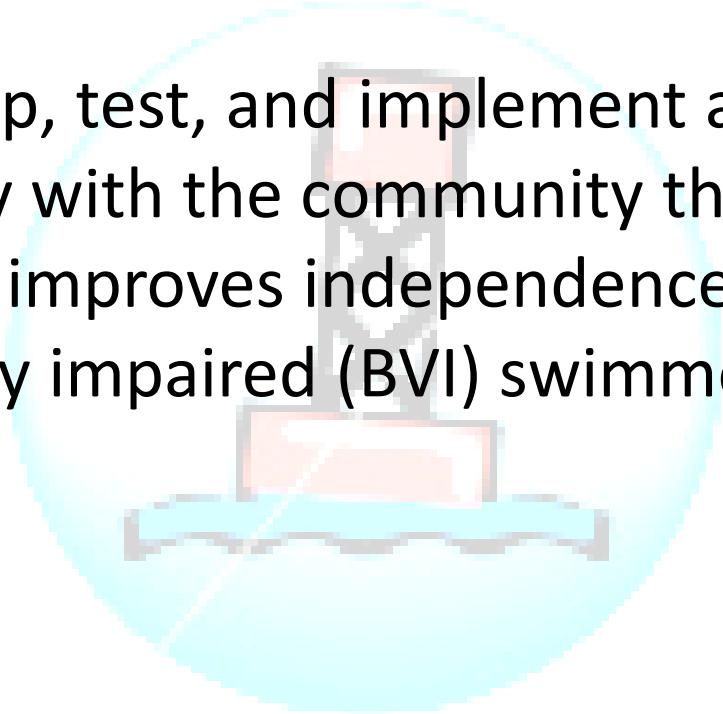
Problems:

- Safety
- User Independence
- Concealment of device
- Detect obstructions



Buoy Mission Statement

“To develop, test, and implement assistive technology with the community that promotes safety and improves independence of blind and visually impaired (BVI) swimmers.”



Team Organization

1: EM Field Technology

Thomas Hotz (ME): LEAD
Coleman Baar (ME)
Kim Dykeman (PSYC)
Roman Lopez (ARCH)
Smita Sarkar (BME)
Nithin Winston (BME)

2: Laser Technology

Kevin Kruse (BME): LEAD
Lisa Kwiatkowski (BME/EE)
Brendan Lane (AE)
Joanna Sowiak (BME)
Carl Stelcel (BME)
Raymond Zhou (EE)

Documentation

Lisa Kwiatkowski (2): LEAD
Coleman Baar (1)
Joanna Sowiak (2)
Nithin Winston (1)

Media

Smita Sarkar (1): LEAD
Roman Lopez (1)
Carl Stelcel (2)
Raymond Zhou (2)

Survey

Kim Dykeman (1): LEAD
Thomas Hotz (1)
Kevin Kruse (2)
Brendan Lane (2)

Faculty and Advisors

Frank Lane (Rehab Psych), Ken Schug (Chem)

Goals

- Develop working prototype using electromagnetic field and/or laser technology
- Continue BVI community involvement
- Create Buoy website that is accessible to BVI community
- Record Buoy progress

Progress

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Progress

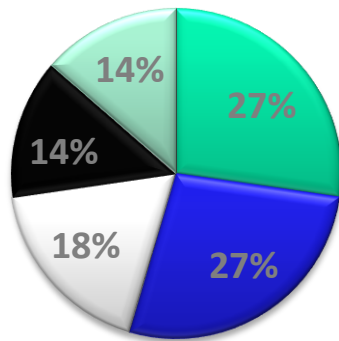
Sub-teams:

- Completed project plan
- Posted class minutes
- Completed IRB certification
- Updated survey
- Conducted survey/ analyzed data
- Continued development of BVI accessible website
- Photo documentation of work and posted in iGroups
- Researched pool regulations regarding electric devices

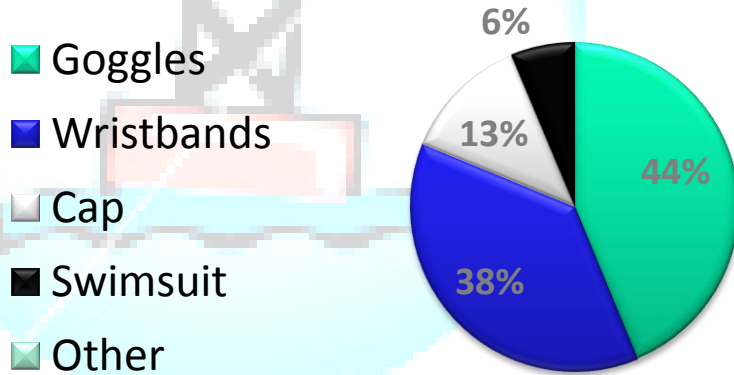


Research/Survey Progress

Where would you like the device to be located?



Which type of alert tone would you prefer?



- Tone
- Vibration
- Verbal
- Both

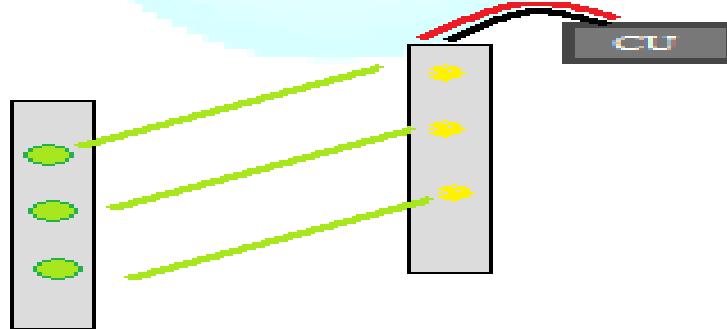
Laser Technology

Current obstacles & solutions:

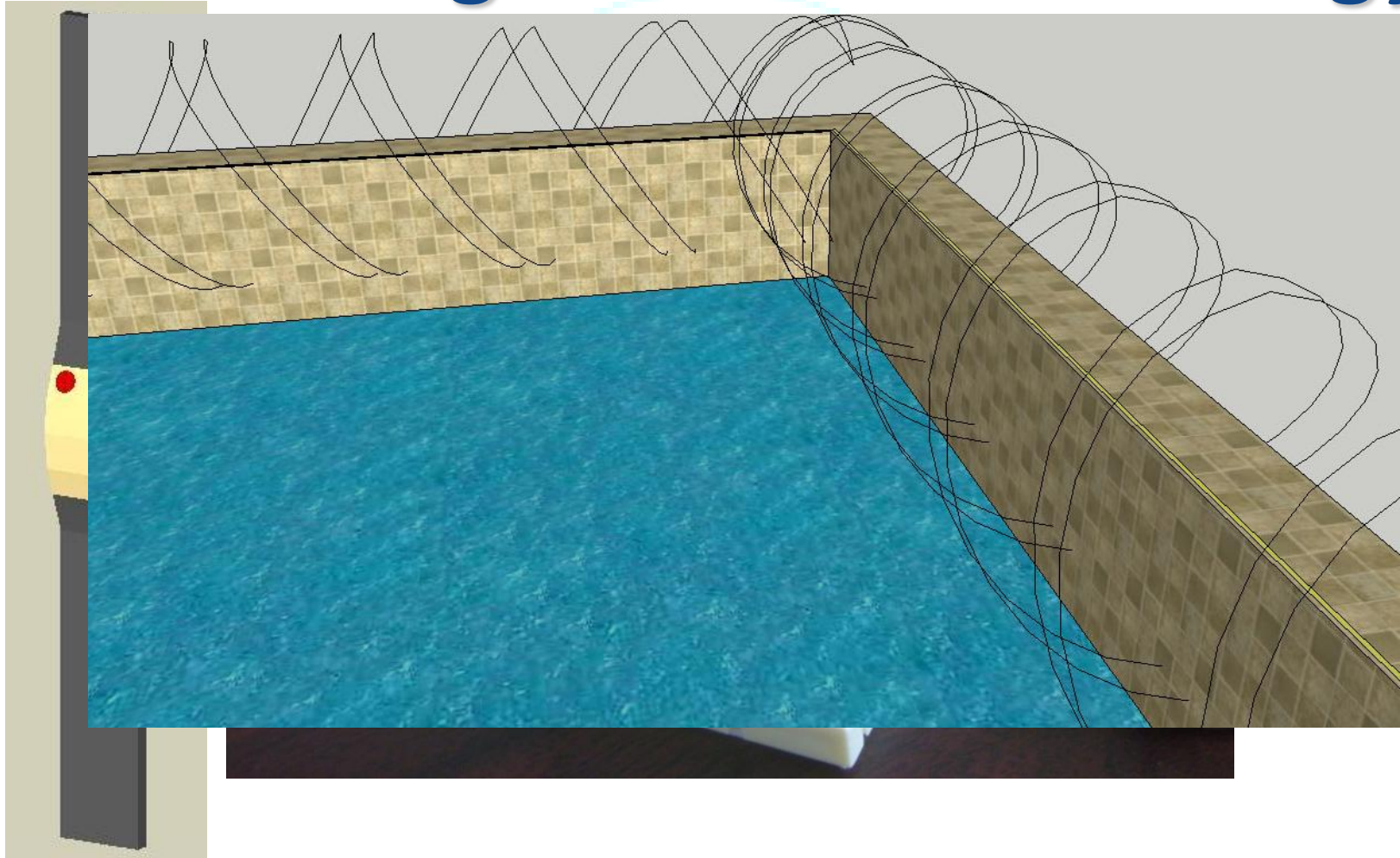
- Maximizing distance of laser beam
 - Compared red and green lasers

Anticipated challenges for this semester:

- Waterproofing device for underwater use
- Installation in a pool environment



Electromagnetic Field Technology



Needs / Questions / Requests

- Continued help from subject matter experts
 - Circuit design
 - BVI community for testing
 - Website development

