
EE/CprE/SE 491 WEEKLY REPORT 9

February 14, 2020 – February 27, 2020

Group number: 05

Project title: Vision Impaired Swim Aid

Client &/Advisor: Leland Harker

Team Members/Role: Carson Kneip, Paden Uphold, Nathan Mortenson, Timothy Steward,

Conor Albinger, and Jake Sieverding

- **Weekly Summary**

  This week we moved on to look into other possibilities for detecting the swimmer besides previous sensors tested. We ordered an infrared camera with the idea that we could use it to detect the position of the swimmer in the pool and started looking into using computer vision. Some of us also went to the pool and tested both the FM transmitters together.

- **Past week accomplishments**
  - Carson Kneip: Got both transmitters to work at the same time. Whenever the headphones pick up the stronger signal it only plays that audio, when it switches over to the other transmitters signal it has some slight static but not terrible. After we get the two arduinos communicating, then we can send the same audio from both controllers to the same station.
  - Paden Uphold: Helped Carson with transmitter testing first time got kicked out since a club had the pool reserved. Second time we got it to work, but had a lot of static in the middle and but clear signals closer to the transmitter.
  - Nathan Mortenson: designed and prepared plans to build supporting frames for the sensors for use in the pool
  - Timothy Steward: Downloaded Matlab and OpenCV. Took video footage from the pool test and was able to load in Matlab and OpenCV and do some basic operations on it. Started watching videos online about computer vision. I learned about how images are represented in the computer and some basic filtering. The videos I am watching are available here: https://www.udacity.com/course/introduction-to-computer-vision--ud810.
  - Conor Albinger: Researched previous computer vision and tracking work with water-related projects.
  - Jake Sieverding: Researching computer vision. Trying to figure out shape recognition.

- **Pending issues**
  - Carson Kneip: Getting the two arduinos to communicate with each other.
  - Paden Uphold: Can we decrease the amount of static?
  - Nathan Mortenson: creating the frames
  - Timothy Steward: I need to learn more about computer vision in order to write software to detect the swimmer's position in the pool.
  - Conor Albinger: Need to start integrating detection and communication systems.
  - Jake Sieverding: Need to learn more about computer vision.

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Carson Kneip	Went to the pool a couple of times and got both transmitters sending signals on the same station.	10	65
Paden Uphold	Went to the pool to help test transmitter and got it to work but has static in between	10	55
Nathan Mortenson	Plan and obtain materials to build testing frames	5	53
Timothy Steward	Installing computer vision software. Playing around with video footage from the pool. Watching videos about computer vision basics.	8	84
Conor Albinger	Researched previous computer vision and tracking work with water-related projects.	8	50
Jake Sieverding	Researching computer vision.	6	47

- **Plans for the upcoming week**
  - Carson Kneip: Do some more coding on the Arduino's to get them to communicate.
  - Paden Uphold: Continue to work with the transmitter and see if there is a way to decrease static the user would hear.
  - Nathan Mortenson: create and test the setups for the new sensors
  - Timothy Steward: Continue to learn computer vision basics. Apply them to video from pool testing. Get more videos for testing.
  - Conor Albinger: Start integrating detection and communication systems.
  - Jake Sieverding: Attempt testing and design of swimmer shape recognition.

Summary of weekly advisor meeting

Didn't have a meeting during this period.