EE/CprE/SE 491 WEEKLY REPORT 11

March 8, 2020 – April 2, 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**

Everyone has kind of been working on their own component now. We split people up to be working in small groups or individually. The two computer engineers are in charge of obtaining camera footage and giving an analog signal to the Arduino over a serial pin. This gets processed by the electrical engineers working with the radio modules and the FM Transmitters. The radio module is used to cycle between the two FM Transmitters depending on which direction the swimmer is going.

○ **Pending issues**
  ● Carson Kneip: Getting the serial information to Arduino from Raspberry Pi and processing it.
  ● Paden Uphold: Need to learn the code better
  ● Nathan Mortenson: getting the correct signal sent from the arduino to the fm transmitter
  ● Timothy Steward: I don't know stuff. I need to learn, specifically about different image processing techniques and how to combine them, but learning is a slow process.
  ● Conor Albinger: Need to test the tone generated on the arduino with the FM transmitter.
  ● Jake Sieverding: Having issues with Python detecting the imports.

○ **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Carson Kneip	Worked on Arduino code to implement the radio modules into our system. The	10	82

	modules will communicate across the pool to alert the other controller when the swimmer is coming.		
Paden Uphold	Researched in AdaFruit FM transmitter website looking for ways to connect to the raspberry pi	3	61
Nathan Mortenson	Researched the fm transmitter and how and auxiliary sound signal is sent	5	62
Timothy Steward	Learned about optical flow, numpy and python. Tried to apply optical flow and other techniques to test video.	9	105
Conor Albinger	Worked on determining how to generate an arduino audio signal that is compatible with our FM transmitter.	6	61
Jake Sieverding	Learning Python and installing CV libraries.	6	61

- **Plans for the upcoming week**
  - Carson Kneip: Start figuring out how to format the final poster board and what content needs to be included. And continue working with the radio modules.
  - Paden Uphold: Start working on the poster. Reply to questions on our peer evaluation video.
  - Nathan Mortenson:Start working on the poster and help where needed
  - Timothy Steward: Continue working with computer vision, try to get something working. Figure out protocol to get data to the Arduino.
  - Conor Albinger: Write the arduino code to activate the FM transmitter when the swimmer is at a specific distance.
  - Jake Sieverding: Get the CV to run properly through Python.

Summary of weekly advisor meeting

This week's meeting went well, we discussed how we were going to transfer to all virtual meetings and what the final goal is for the project now. Obviously, we won't be able to have a final product with everything together because we aren't able to meet up physically anymore to put it together. Our testing facilities are all shut down so we have to just obtain some camera footage that's already online and try manipulating that data. All the components are going to be programmed to work together through serial inputs.