

Overall Summary:

During the first two weeks the team first met with the client to collect information and requirements from them. We also looked into the existing technology that the client already had to see if it fit our needs for some of the project. From there, the team split up into smaller groups to learn Eagle CAD and study the existing board. The team then came up with some simple design plans to split our project into two pieces, the brain and the legs. Next we decided to simplify the existing board design.

Individual Contributions:

To describe individual contributions, we have given each team member their own paragraph. The paragraph will start with the student's name and end with weekly hours, followed by cumulative hours. The first week of this reporting period was spent preparing communication channels and meeting with the client, Everyone on the team spent about four hours working on senior design this week. Below each team member has outlined their contributions for the second week of this period.

Anastasia Golter: This week I downloaded Eagle CAD software and started to look at a previously designed PCB. This helped me become more familiar with the software, so that we could work on designing our own. We also met with the client to find out more details for our design. And lastly, I worked on updating the website with team bios and pictures. Weekly: 5.5, Cumulative: 9.5

Nicholas Stasi: This week I spent a few hours meeting with team members discussing high level design, and potential sensors and components we may use. I spent about an hour and a half downloading Eagle CAD software and becoming oriented with how it works. I spent about a half hour setting up a Git repository in GitLab for all of our existing code and Eagle CAD files. I spent a few hours this week researching the I2C communication protocol. Weekly: 5, Cumulative: 9

Emily Kinne: I went to the lab this week and worked with one of the grad students to learn about the Eagle CAD software. I also downloaded it onto my laptop to practice making a few simple board designs. I did some online research about our project and met with our team to brainstorm design ideas and come up with some questions to ask our client. Weekly: 5, Cumulative: 9

Zach DeMaris: I spent a few hours discussing the overall design of the project with various team members. I spent about an hour researching how I2C communication protocol works. Spent about an hour researching different I2C libraries for the Arduino. Spent an hour watching videos and reading about EAGLE cad software. Spent a couple hours in team meetings. Weekly: 6, Cumulative: 9

Jack Seiter: I spent most of my time these two weeks discussing the project with the team and client. I planned the network architecture for the software side of the project. I've done preliminary setup for the repository including folder structure, package documentation, a build helper script and a gitignore for the

code. Weekly: 5, Cumulative: 9

Andy Koenen: I spent a few hours getting to know the pcb schematic and board for the existing sensor layout that they had. I also spent a few hours talking to the client trying to figure out design requirements and standards. Lastly, I spent a few hours watching youtube tutorials to figure out how to use eagle cad to help design boards. Weekly: 7.5, Cumulative: 11.5

Pending Issues:

Going forward we are trying to figure out what sensors will work for our underwater sensor array and if mounting them all to a single board will be the best idea. This will require a couple different prototypes to try different kinds of board layouts. We also still have a decision to make when it comes to how these devices will communicate with each other or if they will communicate at all.

Plans:

For the next reporting period we will create 2-3 different prototypes of the board that will hold the sensors (temperature and accelerometer for now) and come up with a list of sensors and boards that we need to begin the hardware prototyping stage.

For one of the prototypes we will also take advantage of the existing code to reduce development time on that prototype. Finding new sensors will involve a research and testing, and may take an additional reporting period. We plan on searching for sensors that use mostly I2C protocol as it is simple to use and fits well with the physical system expectations. Once we create the new board layout we will have it printed and order the surface mount sensors. Once they arrive we will solder on the components and start testing code and reading out data. The board printing will take approximately 2 weeks. While this happens we will research more sensors and discuss communication of the data and which other pieces of hardware we will need.