RoboSub Tasks List

Sub-Teams

Frame and Hull

The frame and hull team is responsible for creating the frame of the sub and doing testing and adjustments to ensure all constraints are met. The team is currently working on fabrication and will later move on to buoyancy and waterproof testing.

Members: Joseph I., Alfonso M.

Navigation

The navigation team will continue on the work that the frame and hull team completed and will be focusing on the placement of the thrusters, the Arduino code to control thruster movement, and coordination with the computer vision team on integrating the thruster control code with the computer vision system.

Members: Kevin M., Joseph I., Alfonso M., Sidra G.

Computer Vision

The computer vision team is creating an image processing system to enable underwater navigation. The system is programmed in Python and run in a Linux environment through an operating system called ROS (robot operating system). The team is currently working on Python programming for the image processing portion of the project.

Members: Sidra G., Ralph B., Ivy C., Omar C.

Hydrophones

The hydrophones team must create a system that can detect sounds at certain frequencies underwater and determine an approximate location based on time differences in sound detection. Currently, this team has nobody actively working on it, and would require lots of research and testing.

Contact if interested: sidra.gibeault@gmail.com

Small/Independent Tasks

Power Distribution Board/System

The power distribution system takes the battery's output power and distributes it appropriately to all electrical systems on the sub. Most likely a simple system with buck converters.

Members: Jimmy L., Jesus R.

Servo Programming/Learning Arduino

This task is aimed towards helping members who want to learn programming learn how to code in C for servo control in Arduino. The servo programming is for the weapons systems and will later be integrated into the main code by the computer vision team.

Members: Britney T., Brianna T., Onyx A.

Thruster Control Board Design

Each thruster has an electronic speed controller (ESC) and fuse attached to one of the lines. The thrusters need a circuit board that can accommodate these components for the thruster to function. A board design from last year is available for reference; the only difference will be the number of thrusters. This task is perfect for anyone hoping to learn how to use EagleCAD to design and get manufactured a printed circuit board.

Contact if interested: sidra.gibeault@gmail.com

Weapons Systems Design

The weapons systems will consist of a mechanical arm and claw and a torpedo system. If other systems are needed based on the rules announced by RoboNation, more systems may be added to this description. This team will be creating the mechanical designs for the systems described, and the servo team will be doing the programming for these systems.

Members: Andrew L., Kevin M.

LED Lights

The LED lights are intended to help the team know what the sub is doing without being connected to it. These lights act as “thinking lights”, which mean they will light in a different pattern based on what task the sub is currently trying to perform. All that is required for this task is programming an RGB LED strip.

Contact if interested: sidra.gibeault@gmail.com

Image Labelling

This task is intended to help our computer science senior design team with labelling images they use to train their computer vision system. The task is very easy and a good opportunity to work with the computer science senior design team on something important but not too challenging.

Contact if interested: sidra.gibeault@gmail.com

As the end of the semester approaches, more tasks will be available for members to work on. This document will be updated accordingly.

If you are not working on something or would like more to work on, please email back or let us know on Friday which part of the project you would like to work on. Each task has a deadline – more information will be provided once you have chosen the part of the project you would like to work on.