Non ROV Device Document

Non-ROV overcurrent protection:
One motor 3.0 amps
Raspberry Pi 0.3 amps
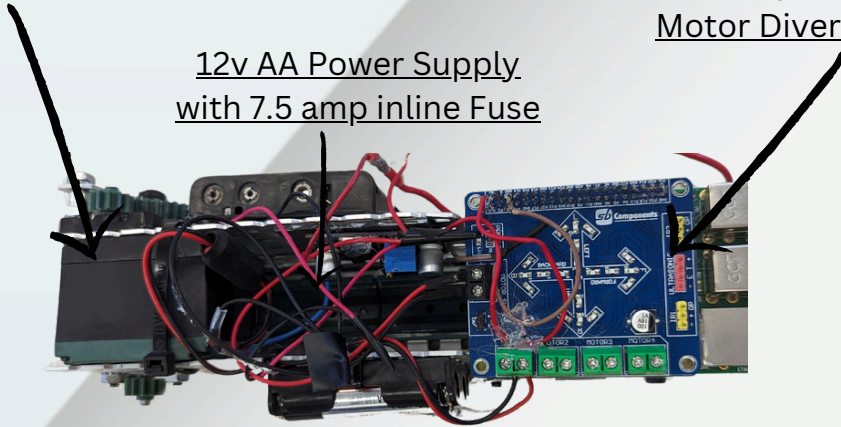Total Amps: 3.3 amps X 150% = 4.95 amps

Main Body Housing

Control and Drive Hub

Vex two wire motor.

12v AA Power Supply with 7.5 amp inline Fuse

Raspberry Pi 3 and Motor Diver Hat

Control and Drive Hub Housing

Syringe Housing

Our team innovated a vertical profiling float that operates using a buoyancy engine. This autonomous vertical profiler gathers data and wirelessly transmits it to a designated shore station.

The design team initiated the development of both the hardware and software for the float. Simultaneously, we began sketching the float and how all the components would integrate. To ensure its functionality, the float had to be neutrally buoyant. Calculations were made regarding the tube size and the necessary water displacement. Based on these calculations, we explored the most efficient method to collect and exchange the required amount of water to ensure the buoyancy engine's operation.

The float is equipped with a raspberry pi 3 as the primary controller and powered by eight AA batteries connected in series, providing a total voltage of 12v. We selected AA batteries for their dual benefits: a sustained power source that could be accommodated within the float's interior and their compact size.