



CWRUbotix

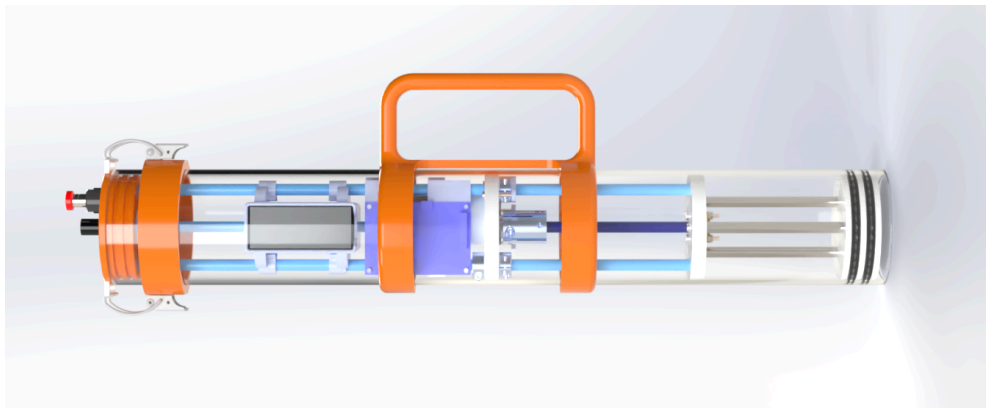
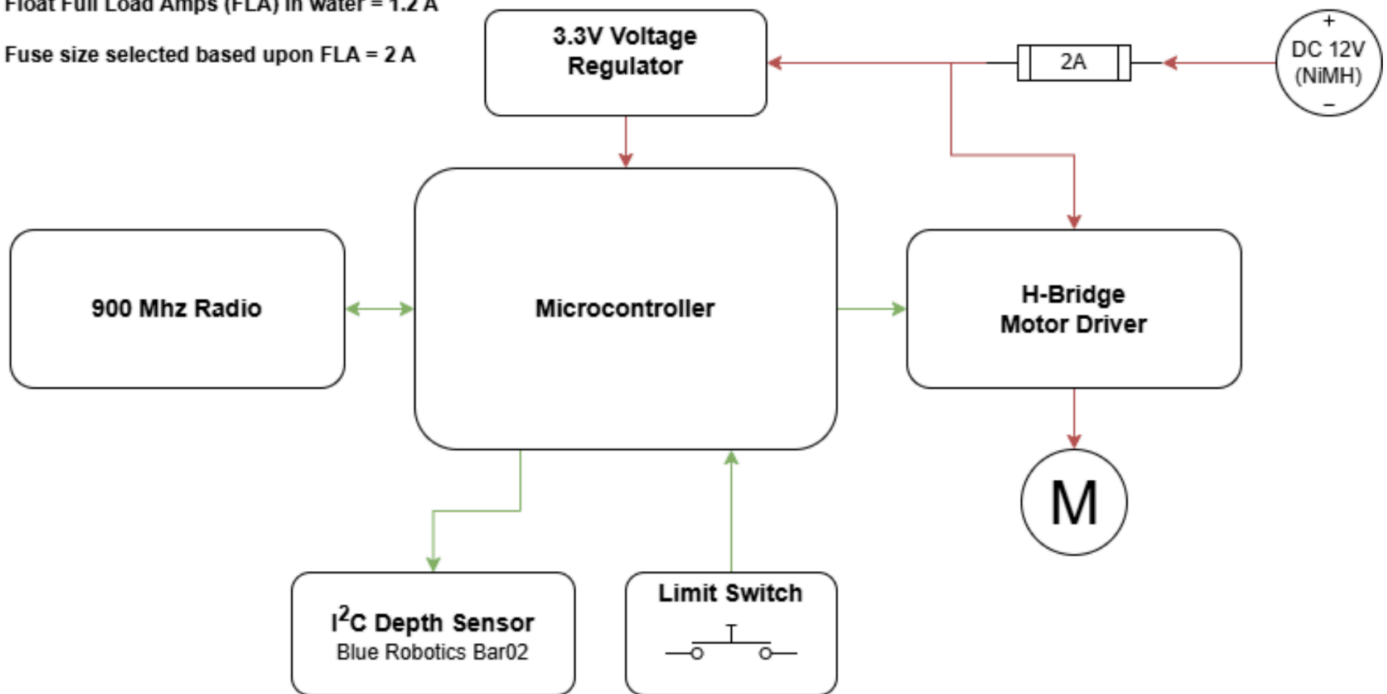
2026 Non-ROV Device Design

Monitoring and Mitigating the Impacts of Climate Change on Our Water World

Case Western Reserve University
Cleveland, OH, USA

Float Full Load Amps (FLA) in water = 1.2 A

Fuse size selected based upon FLA = 2 A



Non-ROV Device (Float)

The main body of our vertical profiling float consists of high-pressure hard polycarbonate tubing and has either side sealed with an aluminum end cap and a stainless steel piston, each with a double o-ring seal. The end cap is held in place by latches and includes a 2.5cm pressure relief hole plugged with an aluminum stopper with two o-rings. If the pressure within the float rises above ambient, the plug will be forced out, releasing the pressure. The float is powered by a 12V NiMH battery pack. To allow people to easily hand carry the float and for it to be retrievable by a MATE ROV, a handle is attached of width 13 cm and protrudes 5 cm (required to have a loop of 5 cm by 5 cm respectively). A 3D printed TPU tube is added to the end cap to act as strain relief for the antennae that was prone to being stressed and breaking in the past.



Vertical Profiling Float Electronics (Batteries Not Shown)