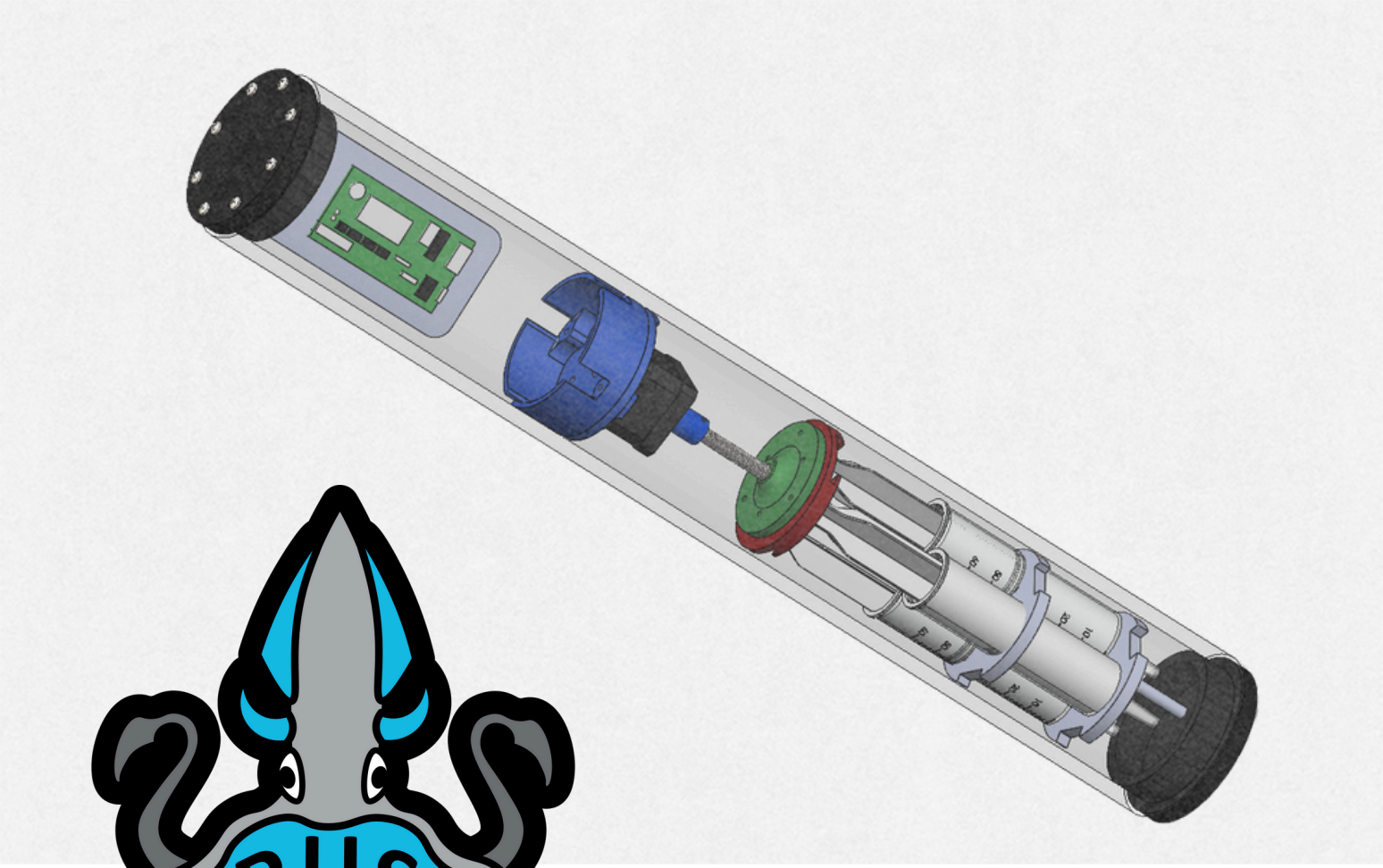
CRUSH DEPTH PROFILING FLOAT

CLOVIS COMMUNITY COLLEGE
FRESNO, CA, USA



Non-ROV Device

The float is built from a 3-inch PVC tube with a length of 49.8 cm. As the float system will not have any thrusters to move in the water, a water-based buoyancy engine is used. This engine utilizes density to sink, float, or stay neutral. The system consists of three 60 cc syringes connected to a cap. This cap is connected to a rod and is attached to a NEMA-17 step motor (Figure 12). On the upper side of the buoyancy engine, sensors and Rasberry Pi 4B are stored.

The float utilizes a state machine using limit switches to transition between states. It has three states: descending, ascending, and transmitting data. During the ascending and descending states, data will be collected with a pressure sensor. Data transmission occurs at the surface between the transition of the other two states. Data is transmitted over wifi using similar packaging methods as data transmission over the tether. It will continue with the current state until a limit switch has triggered a state change or data transmission has been completed.

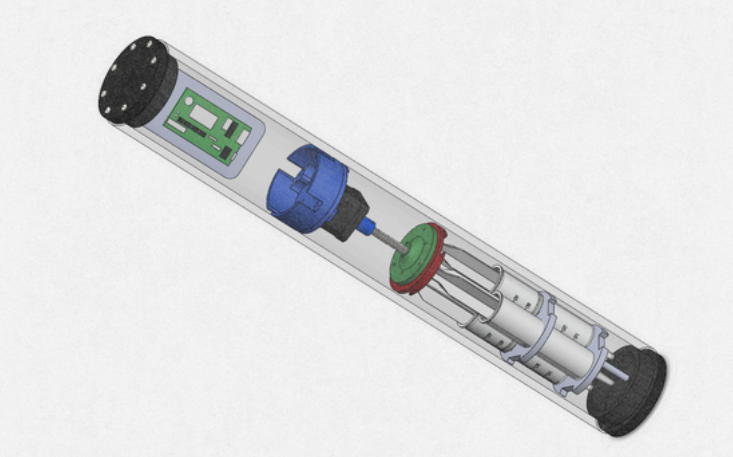


Figure 12. Float by Gevorg Kareyan

Safety

Safety Philosophy

Crush Depth aims to prevent any possible accidents and injuries in advance by putting the safety of its employees as a priority. The company used MATE's safety guidelines as a foundation to create a versatile safety protocol. To ensure the company abides by the safety protocol, a safety lead was appointed at the start of competition season.

Float SID

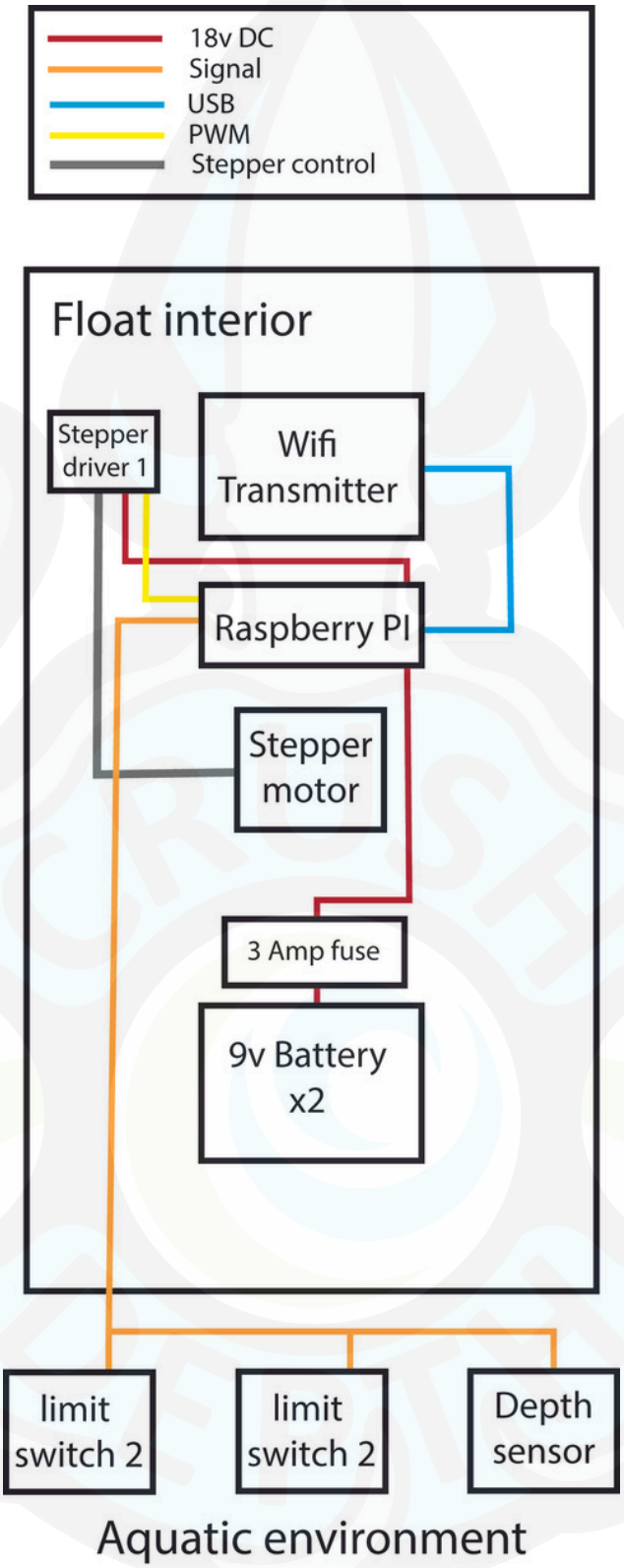


Figure 2. Float SID by Daniel Silguero