

Hackley Whirlpool Robotics Float Non-ROV document

"The Abyss"

Our float continues with the main goals of our ROV. It is designed to fit perfectly into the ROV's primary gripper. This allows the operators to deploy the float easily. Its design is cost-effective, allowing many to be constructed and deployed. Once deployed, it begins to relay information to the main ROV seamlessly. This information can include data from the top layer of the water column to a surface monitoring station.

Specifications:

Communication:

“The Abyss” has been programmed to send data to a surface control receiver autonomously. “The Abyss” is both a cost-efficient and data-effective device. Our float device consists of a buoyant PVC pipe that has an ESP32, which is sending information to another ESP32 connected to a computer. The float contains an electronic component consisting of a Linear actuator controlled by an L298N Motor Driver and the ESP32. The ESP32 is also programmed to communicate important information from a 2.4 GHz module to another ESP32 located on the surface.

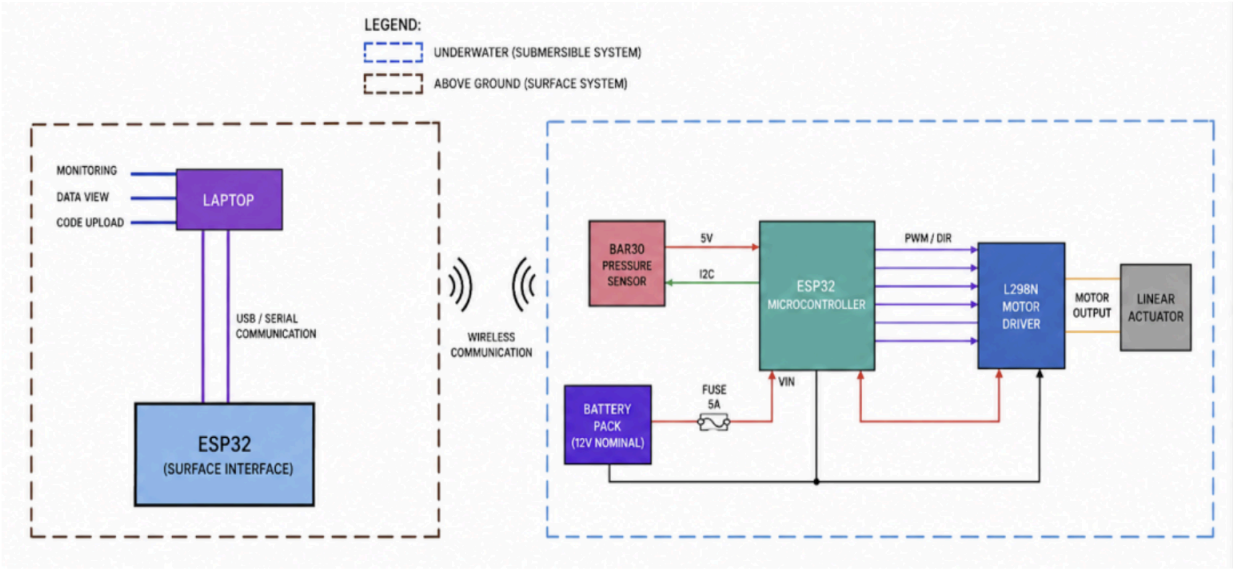
Buoyancy Engine:

The float is also positively buoyant and uses a buoyancy engine to move down the water column. When the linear actuator is not in operation, and there is no water left in the syringe, it floats back to the surface. The float, once it has reached the bottom of the water column, takes a reading of the water pressure. The profiler can be easily retrieved by the ROV. “The Abyss” is designed to float and sink autonomously, enabling it to survey the top layer of the water column with minimal human intervention. This device is cost-effective and highly efficient in collecting data from various sources of water.

Power:

The device is powered by 2 NiMH battery packs, and a 5A inline bladed fuse

Float SID



POWER SYSTEM SPECIFICATIONS
• EIGHT 9V BATTERIES = 0.9V EACH
• FOUR AA BATTERIES = 2.8V EACH
• TOTAL AMPS = 3.6A
• FUSE RATING = 5A



*The "Abyss" Vertical
Profiler Float
Photo Credit: Lucas
Sosa*



*NiMH Battery Packs and 5A fuse
Photo credit: Melissa Boviero*