TECXOTIC

TecXotic's Non-ROV Device

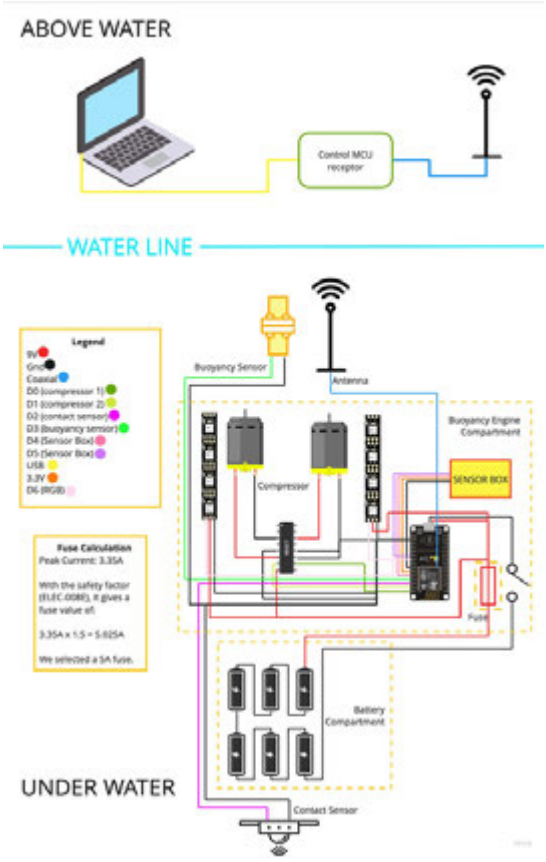
DESIGN

The device features a maximum body diameter of 18 cm and a minimum body diameter of 11 cm, with an overall height of 60 cm. To achieve stable vertical submersion, the weight was strategically concentrated at the lower end of the float. A PLA component was positioned at the upper end, and two rings were added to facilitate the ROV's (Remotely Operated Vehicle) grip on the device.

BUOYANCY ENGINE

The float uses a suction motor, solenoid, and air pump to manipulate a pressure bag for buoyancy control, managed by sensors that determine its position. In case of sensor failure, an auxiliary system with a touch button and buoyancy sensor ensures it continues to function by determining whether it is on the surface or at the bottom of the sea.

This year, TecXotic's float device has been significantly improved with the addition of two baumanometers, enhancing buoyancy control precision. The buoyancy engine's membrane inflates and deflates to adjust volume and density, allowing more accurate ascent and descent.



ELECTRONICS AND CONTROL

Inside the cylinder, the system includes an air pump, solenoid valve, and two baumanometers working together to manipulate a pressure bag. A Blue Robotics Bar30 Depth sensor, along with a gyroscope and accelerometer, provide precise depth control. The system regulates the pump based on sensor readings and serves as an access point with the pilot and copilot page for the ground station to connect, obtain telemetry, and initiate the immersion process.