

**Pensacola Catholic High School
Crubotics Ranger Team**

BCG FLOAT DESCRIPTION

Crubotics's 2023 BCG float consists of a central cylinder of PVC modified to house an air inflation system that moves air to and from one bladder inside the housing of the float, to an external bladder located above the housing. This system changes the buoyancy of the float and allows it to move VERTICALLY according to its programming. The internal system is composed of 4.5-volt peristaltic pumps, coupled with 9-volt solenoid valves to move the air to and from 300-lbs rated contractor air shims via 6mm polyurethane tubing. All electronics on board are powered by a 9-volt alkaline battery, and regulated by a 7.5 Amp fuse with a calculated draw of 5.24amps. The onboard control system consists of an Arduino running an autonomous timer transmitted by Bluetooth. The user turns on the float via a waterproof switch on the exterior of the float. From there the float runs autonomously. There is a carry handle on the upper exterior of the float to assist in deploying and retrieving the float, as well as to give divers a safe hold on the float should they need to during the competition. In the case of over-pressurization, there is a pressure release valve to prevent dangerous situations for divers and sea life.

