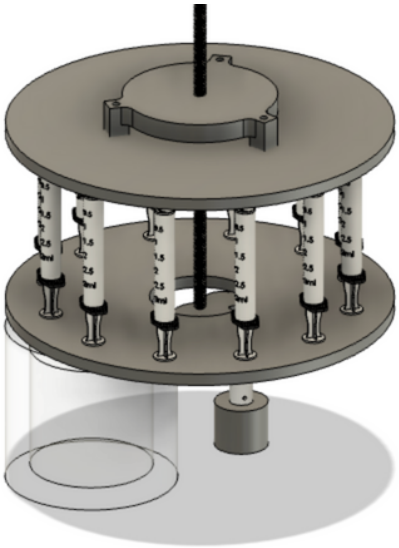
NON-ROV DEVICE

Operation:

The Gatling Float is a buoyancy-engine-driven float capable of making passes up and down to survey an area by compressing a ring of six syringes between two acrylic plates. This change in volume of the syringes changes the buoyancy of the float, thus allowing the device to go up and down. This compression is driven by a motor, stepped up for torque with a gearbox, that turns a male threaded rod connected to a female threaded mount on the top plate of the float. It is driven through an onboard Arduino and a 9V battery in a three inch acrylic enclosure.



CAD of the float

Float prototype

Safety:

The team has made sure that the Gatling Float will be safe for all involved. Most importantly, we depth tested the syringes at the maximum pressure they will be held at for fifteen minutes to be sure they would not burst and cause possible harm to anyone in the pool or on the deck. Also, we have placed the motor in the center of the float, putting it out of harm's way. It is indicated with black and yellow tape in accordance with the rules regarding motors and thrusters. The enclosure is designed to open should the internal pressure exceed that outside it. There is a 7.5A fuse placed less than 5cm from the positive terminal of the 9V alkaline battery. The battery itself is secured to the side of the enclosure.