SPEC SHEET

BUOYANCY ENGINE

Name: Buoyancy Engine

Dimension (**D x H**)**:** 138 mm x 707 mm

Weight: 3.65 kg

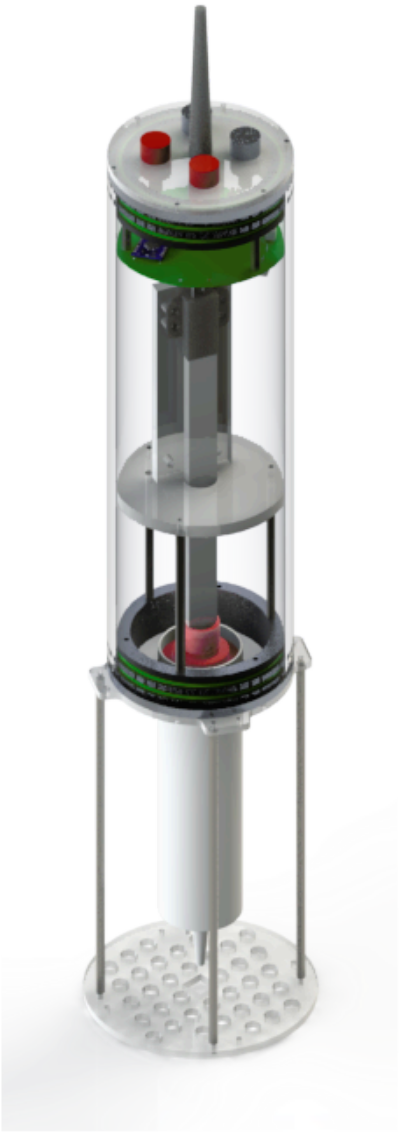
Power Supply: Two pairs of 8 x 1.5V AAA batteries (Serial, 12V)

Design Rationale:

It is designed to perform vertical profiles autonomously for a specific duration by buoyancy adjusting.

A linear actuator is placed on top and connected to the plunger of syringe.

Electronic parts are stored above the linear actuator to receive signals and manipulate the engine's motion: Sinking and Floating.



How Buoyancy Engine Works:

The buoyancy engine is designed to operate by changing density caused by controlling the water stored in the syringe.

The linear actuator provides vertical movement by converting the rotary motion of the electric motor to linear motion. A 300 mL syringe is connected to a stroke rod, which is connected with the lead screw. As the electric motor rotates, the linear actuator provides a vertical motion to the stroke rod to pull or push the syringe, the water will be driven into the syringe or withdrawn from the syringe. The pressure data will be collected by the pressure sensor in this process.

For the communication between the ground station and the engine, a short-range wireless technology standard, Bluetooth, would be used to transmit and receive data. To avoid improper connection, the master-slave mode would be set up in the Bluetooth modules.