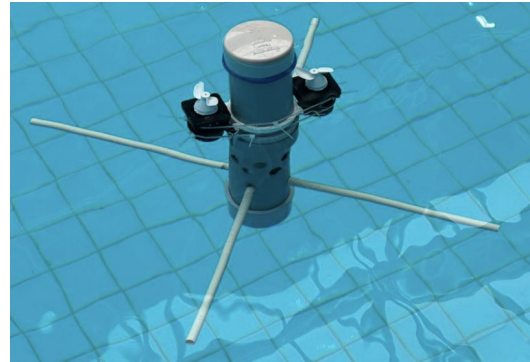
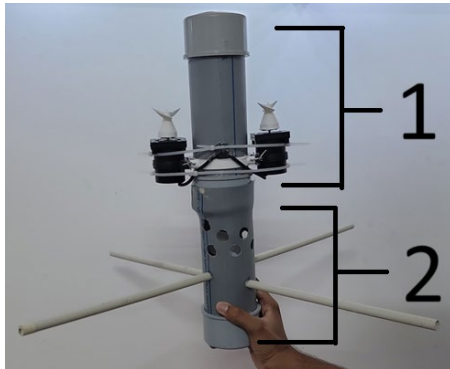


# Bangalore BullSharks – Non-ROV Device Design

## Task - 3

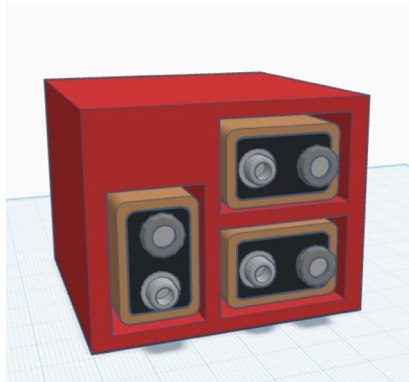
### Photo of our Float (Buoy):



Part 1 is the Airtight Electronic Housing  
Part 2 is the Weighted Support Structure

### Type of Battery used and a photo of the battery pack and fuse:

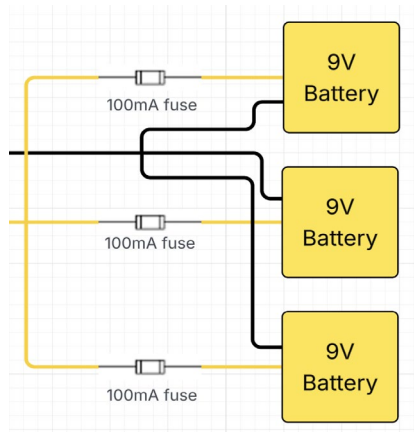
- Battery used: 3x 9V Battery
- 3 9V batteries connected in parallel
- Battery Pack:



### Full Load of Amps and Description:

- **3x 9V batteries** connected in parallel.
- Max amps per battery = **0.1A**
- Total Amps produced = **3 x 0.1 A = 0.3A**
- **3x 100mA** fuses 5 cm away from the positive terminal of the battery before connecting in parallel.
- **1x 300mA** fuse after wires converge in parallel.
- **1 step up converter** after making a parallel connection to step up to 12 volts.
- Moreover:
- 2x Pumps = 1.34 A
- Total Amps: 1.34, with a 150% overload calculation resulting in 2.01 A.

We've chosen a 5 A fuse to accommodate the entire equipment load, meeting standard safety practices.



### Description of how the battery pack was designed to safely fulfil the full load current needs and voltage requirements:

- The Battery pack will be placed in a plastic zip-lock bag with only the wires coming out from the top of the bag, ensuring no entry of water inside. The entire circuit will be placed in an outer ziplock bag. This provides 2 layers of protection for the battery back.
- The batteries will be fastened using stick-on velcro to prevent shaking inside the Pack.
- Attached to the pack will be housing for 3 fuses to keep things organised.

### Method for the Float to travel Vertically:

- Float is Slightly positively buoyant.
- The motors are mounted facing upwards, when wanting to descend the motors start running in the clockwise direction.
- This pushes the buoy down. To ascend back up the motors are simply switched off making the float return to the surface.

### Method of Float Communication to the shore side station:

- The float communicates to the system via the bluetooth module built into the ESP32.
- Prior to descending the float makes a connection to the system to send the initial data packet.
- Once submerged the connection is lost, during this time the ESP32 saves the recorded data.
- Once resurfaced the data is transmitted back to the system.