



Design Brief

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INTRODUCTION

An ROV consists of many systems that are independently constructed and then assembled into a single ROV. The frame, power, controls,

propulsion, and buoyancy are the major systems. In addition, your ROV may have a number of other systems depending on its purpose

and mission. Mission tools such as grippers, hooks may need to be constructed. A camera can be added to the ROV. All of these systems

need to be integrated together into one ROV. All of the systems are interconnected, altering one system may affect another system. For

example, adding more manipulators may mean adjusting buoyancy. You will also need to adjust your frame to hold additional tools. The

design of the control box influences the number of motors and the placement of those motors on the frame.

Your job is to combine all the ROV systems into an integrated vehicle to complete the task at hand:

- **Frame:** A sturdy three dimensional structure that holds all the systems together.
- **Power:** Provides the pathway for the electrical energy to get from the surface controller to the ROV.
- **Control:** Allows the ROV pilot to control thrusters, tools, cameras, lights, and other subsystems on the vehicle.
- **Tether:** Transmits data and power between the vehicle and the controller on the surface.
- **Propulsion:** Provides the force to move the ROV through the water.
- **Buoyancy:** Adjusts the tendency of the ROV to float or sink.
- **Mission Tools:** Grippers and sensors to achieve the mission tasks.

