

**Customer Requirement: The system must be able to be tested in the water trough in the Graff hall robotics lab.**

Engineering Requirement: The ROV portion of the system will be contained within a 24" x 24" x 24" volume, not including the tether or the manipulator assembly.

**Customer Requirement: The system must complete the underwater task(s) using a manipulator.**

Engineering Requirement: (1) The ROV portion of the system will be able to lift a 2.5 pound weight (weight in air) from the floor of a tank.

Engineering Requirement: (2) The ROV portion of the system will use a gripper with a minimum of one degree of freedom.

Engineering Requirement: (3) The system will be able to complete the assigned task within 5 minutes after arriving at the work location.

Engineering Requirement: (4) The ROV portion of the system will unplug a connector with an average success rate of 80% or greater out of 10 attempts.

Engineering Requirement: (5) The ROV portion of the system will grab an object with an average success rate of 80% or greater out of 10 attempts.

**Customer Requirement: The system must have accurate position and sensor measurements.**

Engineering Requirement: (1) The ROV portion of the system will be neutrally buoyant or positively buoyant with a buoyant force no greater than 50 N.

Engineering Requirement: (2) The ROV portion of the system will not pitch more than 25 degrees forward or backward in still water.

**Customer Requirement: The system must be maneuverable.**

Engineering Requirement: (1) The ROV portion of the system will weigh less than 50 pounds.

Engineering Requirement: (2) The ROV portion of the system will have thrusters placed in locations that enable independent X, Y, and Z movement.

**Customer Requirement: The system must work in an underwater setting.**

Engineering Requirement: The ROV portion of the system will be able to power on after being submerged under greater than 5ft of water for 30 minutes.

**Customer Requirement: The system must operate without power being sent over the tether.**

Engineering Requirement: The system will have a battery life of greater than or equal to 1 hour while the system is powered on with no thrusters running.