Project Objective:

The objective of this senior design project is to design an underwater remote operated vehicle (ROV) that is powered entirely by solar power. The ROV must be capable of transmitting live video for both observation and navigation, operate at a depth of three meters, and operate for ten minutes at full power. Possible applications of the design project include habitat conservation, aquatic soil samples, water purity analysis at depth, underwater infrastructure repair, and disaster relief.

Table 1: Fulfilment of Engineering Design Specifications

Specification	Requirement	Actual
Power	100% solar powered	Satisfied
Op. Life	The must travel for ten minutes at full speed in a pool	>>30 min.
Live Video	The submarine will send live video to the operator	Satisfied
Weight	The entire unit will be weighted and must be less than or equal to 35kg	33.5 kg
Depth	The submarine will operate from that depth of 3m	4m
Volume	Must have total spatial volume maximum of 1.5 m^3	1.5 m^3
Range	Operating range of the ROV must be no less than 25 m	>35m
Set Up	Must only require ten minutes to set up	Satisfied
Operation	Must be operated by a single person only	Satisfied
Fail Safe	Return to the surface after three minutes due to buoyancy at 3m	Satisfied