



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Sierra H. Laird	Project Number J0214
Project Title Remotely Operated Vehicles: Remote vs. Local Power	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals the purpose of this project is to design and build a Remotely Operated Vehicle and find out whether a Remotely Operated Vehicle works better with a power source on land, connected with a cable, or a power source right on the Remotely Operated Vehicle.</p> <p>Methods/Materials Material list: 1.30 ft of PVC pipe. 2.32 PVC pipe Ts. 3.8 PVC pipe corners. 4. 1 bag of 50 plastic ties. 5.1 1/4 pint of PVC cement. 6.3 sealed beam headlights. 7.3 4in PVC end caps. 8.1 spare inner tube from tire of 1973 MG car. 9.6in x 6in x 4in PVC electrical j-box. 10.marine battery box. (first 10 materials only.) METHOD: I measured and cut the PVC pipe, then glued and assembled it with a few pieces of rebar in the bottom frame for weight. Then my father and I wired it and put on the lights. Next, we spray painted it bright yellow. We then connected the propellers to the moters and fitted it to the ROV with plastic ties and put grill surrounding the inner tube and bottem of the ROV. We then put on the wheels, then we put the battery case onto the bottom of the ROV, we then tested the motors and lights to make sure they worked. After that we did a water test, switching the battery from inside the ROV to onto land with a cable transferring the power. And them i wrote out my report with the results.</p> <p>Results SPEED: 1. the local powered ROV went about 4 mph. 2. the remote powered ROV went about 2 mph. STABILITY: 1. the local powered ROV was fairly stable and didn't tip over. 2. the remote powered ROV was fairly stable and didn't tip over. USER CONTROL: 1. the local powered ROV turned with uneven bursts of speed and took a second to stop. 2. the remote Rov turned more slowly, but more consistently, and stopped more quickly.</p> <p>Conclusions/Discussion My conclusion is that without further tests it is difficult to tell whether my hypothesis was correct or not. I think that the Rov with local power was faster and the ROV with remote power had more control. I will continue to test the ROV untill I have a clear answer and i am certain that eventually i will.</p>	
Summary Statement Whether a ROV with remote or local power works better.	
Help Received Father helped design, build and test ROV; wrote and typed report myself.	