Creation of a Highly Efficient Surface ROV Invoking Cylindrical Solar Panels, Year 5

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Solar energy is a source of energy that is readily available and is much needed in our world today. Sadly, due to the high land cost and low panel efficiency, it is not more widespread on a small scale in our world today. Through this project can a fully autonomous efficient surface ROV be created for the purpose of chemical stirring in pools and circulation of water in a lake or other body of water be created that utilizes solar energy as a power source. Through this year's experimentation the efficiency of motors and propellers utilized for thrust for the Rov was focused upon. In order to test this a structure was built to test the thrust of motors at varying motor Kv ratings, Propeller design, and input powers to analyze the optimal conditions for the most efficient cost-effective design for the Rov. Through this experimentation it was found that the 1400Kv motor produces on average 2.3x more thrust than the 2500Kv motor. It was also found that the 1400Kv motor was 3.6 times more efficient than last years thruster design. The predictions that a 1400Kv motor prefers a higher blade pitch than the 2500Kv motor was confirmed through experimentation. By making these changes and others to the input voltage and control electronics a much more efficient Rov for the dispersion of dissolved oxygen into bodies of water can be made. This allows the Rov to function more hours from the cylindrical solar panels and optimize its power consumption.

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