# Design and Fabrication of Solar Water Pumping System with Smart Irrigation Technique

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The project is to design and construct a solar water pumping system that takes energy from the sunlight, and this energy is converted into electrical energy through photovoltaic cells and then stored in batteries. The submersible pump is powered by this energy after converting direct-current to alternating-current through an inverter and power is controlled by the controller. The water is pumped from bore well and collected in storage tanks, and then used for irrigation purposes. Emitters or drippers are devices used to control the discharge of water from the lateral to the plants. They are usually spaced closely less than 1 meter apart with emitters used for row crops. An emitter provides a specified constant discharge which does not vary much with pressure changes, and does not block easily. Thus, this method provides water at the root level combined with moisture level sensors and magnetic relay to stop water from being irrigated if desired water level is reached and use that saved energy for secondary purposes. This solar water pumping system reduces the amount of electricity consumed by agricultural system approximately 60%, thus providing more profit to the farmer and also benefiting the local consumer. Therefore, this research project can be very successful if implemented on a large scale,due to its energy saving and automation system, it can certainly prove itself to be productive and most of all – Eco Friendly.

**Awards Won:**