

Solar-Powered IoT enabled Floating Axial

Utility

This is portable solar-powered floating axial flow pump for small and marginal farmers. Designed to float on water bodies like ponds, rivers, and lakes, it eliminates complex installation procedures, ensuring easy portability. The pump operates using a 250-watt DC motor powered by two solar panels (170 W each), providing a total capacity of 340 W. It lifts water up to a 3-meter head.



The system features a 433 MHz wireless remote control switch with a 5V relay module, allowing users to operate it from a distance of approximately 30 meters. Additionally, the pump is integrated with Internet of Things (IoT) technology, enabling remote operation via a smart device. This feature enhances convenience and reduces manual effort.

Field testing at the CIAE farm pond demonstrated impressive performance, with an average discharge of around 20,000 liters per day (lpd) at a 3-meter head. The efficiency of the pump varies throughout the day due to fluctuations in solar radiation. The developed pumping system is a cost-effective solution customized for small and marginal farmers, offering an affordable and sustainable method for water lifting, irrigation, and other agricultural applications.

Specification and Performance		
Yield/productivity	:	20,000 liters per day
Efficiency	:	27-50%
Pump capacity	:	1/3 hp
Panel Capacity	:	340 watt ratings

Design: ICAR-CIAE, Bhopal

Commercialization Status: Ready for Commercialization

Proposed stakeholders: Small and marginal farmers, pump manufacturers, etc.

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