Abstract

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Microcontroller Based Hybrid Renewable Energy System

Abstract: This paper presents the design and implementation of a hybrid renewable energy system. This system is composed of two subsystems sun tracking, and wind energy. The sun tracking system, tracks the sun locations from sun rise to sun set using a set of solar cells mounted on a movable mechanical system. A position control system is used to track the sun and trying to collect the largest amount of solar radiation and convert it into electrical energy. The wind energy system converts the wind energy into electrical energy by using a wind turbine and a DC generator. The solar cell and DC generator output are regulated, and fed to set of batteries. The batteries output is used to fed DC loads AC loads through a three phase inverter circuit. The microcontroller is used in the design of the position control of the sun tracking system and in the control circuit of the three phase inverter. A powerful software package, called HOMER have been used.