Abstract

Increment of efficiency of solar power system using Dual Axis Sun Tracker (DAST) through PID controller and Light Detecting Resistors (LDR) has been attempted in this paper. The model is simulated in the MATLAB/SIMULINK environment initially. Later in a hardware model is fabricated with the help of four sensors placed in the four sides of the panel to sense the position of the sun and two DC series motors to rotate the solar panel. To improve this hardware system, computer interfacing is made so that the solar panel can move smoothly in both the direction i.e., East to West and North to South. PID controller is designed in MATLAB/SIMULINK. To enhance its efficiency the gains of the PID controller are tuned using the Fuzzy logic controller. This simulation model is interfaced with the hardware model through an AuDrino Mega board. The results are approaching the feasible limit for real implementation and can be applied for large solar power system.

References


Index Terms
Computer Science Fuzzy Systems

Keywords
Solar tracking system, DAST, PID controller, Fuzzy logic controller, LDR