



The optimization of the tracking mechanism used for a group of PV panels

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Abstract. The paper presents researches on increasing the energetic & economic efficiency of the photovoltaic conversion by designing and optimizing a dual-axis tracking mechanism that simultaneously changes the position of the panels using two motor sources; the driving source for the daily motion is a rotary motor, while the seasonal motion is performed with a linear actuator. The main task in optimizing the tracking mechanism is to maximize the energetic gain by increasing the solar input and minimizing the energy consumption for tracking. The design strategy aims to identify the optimum angular field for the daily motion, as well as the optimum actuating time in the step-by-step motion. The study is made by developing the virtual prototype of the tracking mechanism, in the mechatronic concept.

Key words

PV panels group, tracking mechanism, control system, virtual prototype, optimization.

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