

SOLAR TRACKER ON SOLAR HOME SYSTEM TO OPTIMIZE SUNLIGHT ABSORPTION

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ABSTRACT

This study presents a *solar tracker* in resolving optimization of solar panel to capture the sunlight on solar home system. The concept of this *solar tracker* development utilizing a parabolic actuator drive as a mechanical driver of solar panels. The mechanical solar panels adjusted to the needs of solar panel motion in order to obtain optimal sunlight. The mechanical motion of the *solar tracker* covering east to west to optimize sunrise to sunset and from north to south or vice versa as an optimization of the annual sun shifts. The study phase begins by designing the *solar tracker*, controller system design, development, testing, and analysis. Measurement data obtained by testing the results of development according by the performance of the system. After testing phase, the mounting of solar panel can follow the sunlight from all angles overall from sunrise to sunset and sun shift too . The result of the angle change of solar tracker for five days in average generate 507 watts per day while those not using solar tracker produces 403 watts per day and the use of the actuator for five days in average is 12.54 watts. The data usage of the solar tracker can optimize the capture of sunlight while the power consumption of the motor is quite small. The use of solar tracker can increase the optimal use of solar panels as a source of renewable energy.

Kata Kunci: *Solar panels; Solar tracker; actuators*