

Dual Axis Solar Tracking System

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Abstract: *Dual axis solar tracker can simultaneously track sun's radiation in both horizontal and vertical axis. The dual-axis solar tracker tracks the angular height position of the sun in addition to following the sun's east-west movement. The dual-axis works similar to single axis but it captures the solar energy more effectively by rotating its axis along vertical and horizontal axis. They use the same principle as the mountings of astronomical telescopes. In order to achieve maximum efficiency, the device tracks seasonal variations and daily tilt. The work focuses on the design and fabrication of automatic dual axis solar tracker prototype using Arduino code based on microcontroller along with fundamental of solar panel parameter and its use. The device is able to simulate the sun's tracking of 12 months thus, enhancing the conventional solar panels.*

Keywords: Dual Axis, Stepper Motor, LDR Sensors, Declination Angle

REFERENCES

- [1]. Juang, J.N. and Radharamanan, R., 2014. Design of solar tracking system for renewable energy. In proceedings of the 2014 Zone 1 conference of the American society for engineering education (pp. 1-8). IEEE.
- [2]. Das, A. and Swthika, O.V., 2016. Arduino Based Dual Axis Sun Tracking System. Advanced Science Letters, 22 (10), pp.2837-2840.
- [3]. Barsoum, N., Nizam, R. and Gerard, E., 2016. New approach on development a dual axis solar tracking prototype. Wireless Engineering and Technology, 7(1), pp. 1.11.
- [4]. Vit, J. and Krejcar, O., 2016. Smart solution of alternative energy source for smart houses. In International conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (pp. 830- 840). Springer, Cham.s.
- [5]. Reddy, J.S., Chakraborti, A. and Das, B., 2016. November. Implementation and practical evaluation of an automatic solar tracking system for different weather conditions. In 2016 IEEE 7th Power India International Conference (PIICON) (pp. 1-6). IEEE.
- [6]. Saravanan C., Dr .M.A. Panneerselvam, I. William Christopher, "A Novel Low Cost Automatic Solar Tracking System", International Journal of Computer Applications (0975 – 8887) Volume 31– No.9, October 2011
- [7]. Solar Tracking, Gerro Prinsloo, Robert Dobson 2014 Book Edition ISBN: 978-0-62061576-1
- [8]. John A. Duffie, William A. Beckman Solar Engineering of Thermal Processes, 4th Edition - GearTeam, page: 471, 477