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DESIGN AND DEVELOPMENT OF PROTOTYPE MODEL OF DUAL AXIS SOLAR TRACKING SYSTEM

GODBOLE VEDASHRI C, GOHILKRINAL H, H. N. KADEVAL, V. M. MODI,
J. R. SAMRIYA & AJINKYA DESHPANDE
Renewable Energy and Environmental Engineering Sardarkrushinagar
Dantiwada Agricultural University Banaskatha, Gujarat, India

ABSTRACT

Solar energy is rapidly gaining notoriety as an important means of expanding renewable energy resources. As such, it is vital that those in engineering fields understand the technologies associated with this area. project will include the design and development of prototype model of dual axis solar tracking system. Solar tracking allows more energy to be produced because the solar array is able to remain aligned to the sun. solar tracking PV panel produced more energy than the fixed one with about 49% efficiency. Two degrees of freedom orientation is feasible. The controller has been used to control the charge and discharge of DC battery to retain their long life. As well as dual axis tracking is possible due to two tracker are available in horizontal/vertical direction with LDR as senser. Which control the position of DC motor to track the panel in real orientation. The controller is designed to rotate the panel from -90o to +90o. The presented dual axis solar panel tracking system keeps the solar photovoltaic panel perpendicular to the sun throughout the year and thereby improving the efficiency of the solar system. There are 2 axes of rotation for this system which rotates according to Hour Angle and Declination.

KEYWORDS: Azimuth, Collector, Declination, Elevation, Hour Angle, LDR, Sensor, Tracker