

(54) Title of the invention : Dual Axis Solar Tracking System with Weather Sensor

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(57) Abstract :

Solar power is the fastest growing means of renewable energy. The project is designed and implemented using simple dual axis solar tracker system. To maximize energy generation from sun, it is necessary to introduce solar tracking systems into solar power systems. A dual-axis tracker can increase energy by tracking sun rays from switching solar panel in various directions. This solar panel can rotate in all directions. This dual axis solar tracker project can also be used to sense weather, and it will be displayed on LCD. This system is powered by Arduino, consists of servo motor, stepper motor, rain drop sensor, temperature and humidity sensor and LCD. Energy crisis is one of the primary issues in the developing country like ours. There is a huge gap between energy demand and generation. Solar energy is one of the most effective resources of the renewable energy which could play a significant role to solve this crisis. This research presents a performance analysis of dual axis solar tracking system using Arduino. The use of solar energy is increasing rapidly in the present scenario due to its environmental friendliness and abundance. Building a solar plant and arranging them to face the maximum amount of solar energy is an easy, fast, cheap, and everlasting way of production of energy. Dual axis solar tracker will be made by the combination of some mechanical and electronic components which will adjust itself to face the sun over the course of time with the help of sensors attached in it. A comparative analysis shows that a dual axis solar tracker is 10-15% more effective than a stationary solar panel and about 8-10% more effective than a single axis solar tracker.

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