

SOLAR TRACKING AND POWER MONITORING SYSTEM USING EMBEDDED AND IOT APPROACH

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This paper aims to build a solar tracking system that can follow the sun's position on its own and align itself to minimise the angle at which incoming sunlight strikes it. In order to maximise the use of solar energy, this paper provides a thorough review of power monitoring techniques and solar tracking systems. Solar tracking systems play a critical role in meticulously aligning solar panels with the sun's trajectory, thereby bolstering energy capture efficiency. Furthermore, power monitoring techniques facilitate ongoing evaluation and control of solar energy generation in real-time, thus ensuring the system operates at peak performance levels with utmost reliability. The proposed system will be constructed utilizing light sensors, an Arduino UNO microcontroller which is programmed, and a DC motor controlled by motor driver based on the microcontroller instructions with an external power source. Additionally, a monitoring system will be integrated to provide real-time data on voltage, and temperature ratings. This information will be displayed on an LCD display and made accessible on mobile devices through an Internet of Things (IoT) module-Wi-fi module. This will offer a cost-effective and efficient solution for renewable energy generation.