

## **SOLAR TRACKING SYSTEM WITH AUTOMATIC PANEL CLEANING MECHANISM FOR EFFICIENT POWER GENERATION**

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The solar PV modules are generally erected in open spaces. As in open environment, dusts get accumulated on the panel surface and block the incident light from the sun. It reduces the power generation capacity of the module. The power output reduces as much as by 50% if the module is not cleaned for a month. In order to regularly clean the dust, a sun tracking - cleaning system has been designed, which not only tracks the sun but also cleans the modules automatically. This work involves an automated system for wiping the panel using a microcontroller which controls the stepper motor coupled with solar panel. It does not require any sensor or synchronization for tracking the sun. In this mechanism, the solar panels make a rotation of 360°/day, this results in wiping of cleaning wiper twice over the PV modules. In terms of daily energy generation, the presented tracking- scheme provides about 30% more energy output as compared to the flat PV module (module kept stationary on ground) and about 15% more energy output as compared to PV module with single axis tracking. The implementation and working of 360° sun tracking system with automatic cleaning is described.

