An Automated Solar Panel Cleaning System based on Arduino's Dust Elimination Technology

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Abstract: *The solar panel is vulnerable to accumulate dust on its surface. The efficiency of the solar panel gradually decreases because of dust accumulation. Hence, cleaning the PV panels is a problem of great practical engineering interest in a solar PV power generation. In this project, the problem is reviewed and methods for dust removal are discussed. In this project Arduino based electromechanicalsystem is proposed to use as a cleaning mechanism and it will try to clean the solar panel and increase the efficiency of solar panel. In the previous system to clean the solar panel, we are using the manual operated system. In that there are various errors are come sometimes due to manual error, improper cleaning of the solar panels is taking place also due to bird waste and dust and dirt has accumulated on the surface of the solar panel due to which the efficiency of the solar panel is reduced. The time to time cleaning of the solar panel is not taking place due to which it harms the solar panels. If we want to clean the solar panel mechanically, then there is wear and tear are created due to which losses of the system are increasing. And the system efficiency decreases so this system is also not energy efficient. Hence, we are implementing this system automatic solar panel cleaning system. In this system, all the automation is taking place by using Arduino board and timer control. By which without human interference solar panel cleaning system will be automatically turned on and automatically turn off. Experimental results show that the proposed cleaning system can operate with an efficiency of 60- 70% for different types of sands.*

Keywords: Solar Panel, Arduino-Uno, solar energy, Dust Accumulation, photovoltaic, inexhaustible, Light Dependent Resistor.

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