

DEVELOPMENT OF AN AUTOMATED SOLAR PANEL CLEANING SYSTEM

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Abstract: The solar energy received by existing solar farms is wasted due to various reasons. One of the reasons for this is that the efficiency of solar panels is very low. The current data shows that the electricity produced by the solar panels, which have been manufactured in accordance with the current technology, is wasted in various ways. The main reasons for the losses is dust and particles, panel temperature, environmental factors, and panel conditions. Out of these, the losses due to dust and particles can be reduced by regular cleaning. Hence this research aims to develop an automated system for solar panel cleaning. Such systems are available in the market, however the existing machines have to be partially operated by humans. Through this research a system that automatically cleans the solar panels was developed, thus helping the solar panels to achieve optimum efficiency. The system consists of two basic parts. One part is moving and the other part is stationary . The stationary apart will measure the amount of light falling on the solar panels and the voltage produced. If there is a change in the voltage produced under certain lighting conditions, it identifies that there is a dust accumulation on the solar panels. Then the moving part cleans the solar panels by running the given program and following the path given by the program. Thus, the panels can produce electricity with greater efficiency than before.

Keywords: Solar Farms, Solar Panels, Technology, Machine