Fully Automatic Solar Panel Cleaning System

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Solar Energy is one of the most promising methods of renewable energy in the world, however this method of production of energy has a certain flaw, which is that if the panel that produces solar energy is not cleaned on a regular basis, the energy won't be produced at the same rate and efficiency as it should, had the panel been cleaned. Hence, the project was created to automatically clean solar panels. The project accomplished this by shining a laser light on the panel, which reflected back on an LDR sensor, and whenever the value fell below a certain calibrated point, or in this case 400 lux, it activated a water pump, which then cleaned the panel. The pump stopped, when the value rose above 500 lux, these values could be calibrated to the users need, and the surrounding environment. After cleaning the panel, there was a 67.5% increase in Lux production. Another factor that was considered was the conservation of water that was used for cleaning the panels. The project conserved water by washing the panel only when necessary and storing the water after cleaning the panel. In conclusion, the project proved to be both water and energy efficient and ensured that the panels were thoroughly cleaned. In future, a temperature sensor, a water filter for the restored water, and water-free cleaning methods are expected to be added to the project.

Awards Won:
China Association for Science and Technology (CAST): Award of $1,200