

AUTOMATIC SOLAR PANEL CLEANING SYSTEM

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1. Abstract

The venture is about the plan and improvement of a sunlight powered charger cleaning framework. The primary object of this plan model is to clean the sunlight powered charger utilizing an electrical system, to such an extent that effectiveness or nature of sunlight powered charger isn't compromised. Indeed, bay district - particularly Saudi Arabia-are confronting a great deal of residue storms and the sun powered chargers should be cleaned habitually. In the event that assignment is performed physically, it will be expensive and tedious. Water sprinklers and a unique cleaning material will be utilized in the imagined system plan to protect nature of cleaning

2. INTRODUCTION :

There is a sizable amount of sun oriented radiation accessible all over the planet to fulfill the interest for sun based power frameworks. The extent of the sun's beams that arrive at the world's surface is sufficient to accommodate worldwide energy utilization multiple times over. All things considered, each square meter of land is presented to sufficient daylight to deliver 1,700 kWh of force consistently. Sunlight powered charger massively affects our reality. It can assists our current circumstance with being better without utilizing other power age establishes that can hurt the climate, however sun based power plant should be cleaned essentially at regular intervals. It by and large relies upon the country for instance in the Middle East, it should be cleaned consistently so it will be so expensive. There are a ton of strategies for cleaning the sun powered chargers; our thought is to plan a brilliant sunlight powered charger that cleans itself

consequently and somewhat to keep an elevated degree of productivity of the sunlight based charger.

3. MOTIVATION

Cleaning your sunlight based chargers is vital. Soil on the sun powered chargers forestalls the passage of light. In addition, sunlight powered chargers are made to work by permitting light enters the sun oriented cells. Bird crap, residue or dust keep the light from arriving at the sunlight based cells which at last prompts less energy creation..

4. PROBLEM STATEMENT

Nine Common Problems with Solar Panels

Delamination and inner erosion. Assuming dampness finds its direction into the board, it can cause inner consumption. ...

Electrical issues. Defective wiring keeps your sunlight based chargers from performing great. ...

Miniature breaks. ...

Problem areas. ...

PID impact. ...

Birds. ...

Snail trails. ...

Rooftop issues.

5. Working model of Automatic Solar Panel Cleaning System



6. Whole System (side view)



7. PROPOSED SYSTEM

7.1. METHODOLOGY

Right when an electrical beat of high voltage is applied to the ultrasonic transducers, it vibrates across an unambiguous scope of frequencies and produces an ejection of sound waves. Whenever any check comes before the ultrasonic sensor, The sound waves will reflect back as resonance and produces an electric heartbeat. It resolves the time taken between sending sound waves and getting resonance. The resonance models will be differentiated and the instances of the sound waves to choose distinguished signal condition. ADVANTAGES, LIMITATIONS & APPLICATIONS

7.2. ADVANTAGE

Further develop effectiveness. There is no question that cleaning your boards will expand their general productivity. ...

Guarantee. ...

Water doesn't do it for you. ...

Increment solidness. ...

Stylish allure. ...

Review. ...

Further develop ROI time.

7.3. LIMITATIONS

Some robotized sunlight based PV cleaning frameworks don't acquaint treated water with wash off the residue aggregated, subsequently can't be totally powerful to eliminate bird droppings that stay on the boards. Cleaning frameworks with electrodynamic screen require dry surface and isn't appropriate for blustery environments.

7.4. APPLICATIONS

- In Solar Power Plants.
- In private houses that utilization sun oriented power.

8. FUTURE SCOPE

The decrease of result power is lessening subsequent to cleaning of sunlight based charger by water shower with utilizing elastic wiper. The dirt, speck of particles or bird droppings are the reasons of misfortunes influence. Another procedure is cleaning can't totally eliminate all soil and other particles from sun powered charger, it's only eliminate upper layer. In this framework no outside power is required, framework utilizes re-energize capable battery and furthermore battery is re-energize straightforwardly from sun oriented panel. This framework is comprised of light weight-enduring material, so the expense and power utilization is less compared to other system. Water is down the temperature of sun

based plate during the cleaning system ,it's additionally increment the proportion of force age.

9. CONCLUSION

The Solar Panel Cleaning System project intended to bring an improved answer for keeping up with sun powered effectiveness. The primary degree was to foster a machine that can clean a sunlight powered charger by a legitimate control framework. This task is a created model to develop a new and expanding market. The venture group hit numerous snags en route. Planning the control framework required learning Raspberry Pi setups, python coding and its obstruction with the electrical parts. Utilizing fastening sheets to carry out the planned circuit, equipment wiring, transfers and hardware were new encounters. This being said, the venture satisfied the ideal plan with the arranged control and component. The DC engines were constrained by the two transfers and drivers to achieve speed and bearings control. Additionally, control code for the DC engines and the water siphon were composed then carried out in the framework. At last, the MPPT charge regulator was associated with the off framework. Nonetheless, the model was not finished as a result of the difficulties and the limits that were referenced before.

REFERENCES

1. Adinoyi, M. J., and Said, S. A. (2013). Impact of residue gathering on the power results of sun oriented photovoltaic modules. *Environmentally friendly power*, 60, 633-636.
2. Shajan K .Thomas ,Shelvin Joseph ,Sarrop T S ,and Sahad Bin Haris" ,Solar Panel Automated Cleaning (SPAC) System ",in 2018 International Conference on Emerging Trends and Innovations In Engineering And Technological Research (ICETIETR), 2018.
3. Surajit Mondal ,Amit Kumar Mondal ,Abhishek Sharma, and Vindhya Devalla" ,An outline of cleaning and avoidance processes for improving productivity of sun powered photovoltaic boards ",*Current Science*, vol. 115, no. 6, pp .1065-1077 ,September 2018.
4. Marcel Grando ,Elias Renã Maletz ,Daniel Martins ,and Henrique Simas" ,Robots for Celaning Photo Voltaic Panels: State of the Art and Future Prospects ",in IX JORNADAS ARGENTINAS DE ROBÓTICA, Cordoba, Argentina, 2017, pp. 29-34.
5. Andrew Sweezey ,Mark Anderson, Ashton Grandy ,and Jeremy Hastie" ,Robotic Device for Cleaning Photovoltaic Arrays ",in International Conference on Climbing and Walking

Robots , 2009. 6. Victronenergy.com. 2020. VE.Direct Protocol FAQ [Victron Energy]. [online]
Available at:

7. 2020. CP12650F-X 12V 65Ah(10Hr). second ed. [ebook] Shenzhen Center Power
Technology Co., Ltd, p.2. Accessible at:

8. 2015. Framework Connected System: Loss Diagram. first ed. [ebook] Seneca: Canadian
Solar, p.07. Accessible at: