



PERFORMANCE STUDY ON SOLAR PANELS



A MINI PROJECT REPORT

Submitted by

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In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

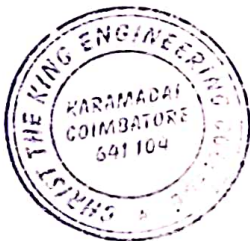
in

MECHANICAL ENGINEERING

CHRIST THE KING ENGINEERING COLLEGE

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JUNE 2023

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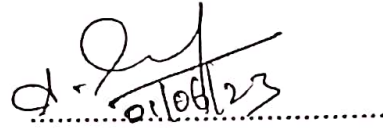
BONAFIDE CERTIFICATE

Certified that this project work titled "PERFORMANCE STUDY ON SOLAR PANELS" is the bonafide work of BLESSY HEPHZIBAH.G (710420114005), SABARI NAGESWARAN.S (710420114022), AZHAGUNILAVAN.S (710420114305), and MOULEESWARAN.T (710420114317) who carried out the project work under my supervision.



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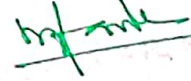
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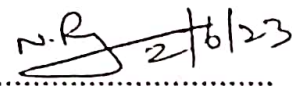
Submitted for the project viva-voce held on 02/06/2023



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ABSTRACT

This research looks at the performance of solar panels in the actual world, with an emphasis on efficiency and effectiveness. The study looked at the performance of solar panels under temperature, humidity, and irradiance.

The impact of environmental factors on the performance of single solar panels is also investigated. This includes assessing the effects of temperature variations, dust accumulation, shading, and soiling on panel efficiency. Data analysis and statistical modeling techniques are employed to quantify the relationships between these factors and the panel's performance.

The findings of this study provide valuable insights into the performance characteristics of single solar panels, aiding in the optimization of solar energy systems and the development of maintenance strategies. By understanding efficiency patterns, degradation mechanisms, and environmental influences, stakeholders can make informed decisions regarding panel selection, installation techniques, and operational practices, ultimately maximizing the benefits of solar energy generation.




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CHAPTER 10

CONCLUSION

10.1 RECAP OF THE IMPORTANCE OF INCREASING SOLAR PANEL EFFICIENCY:

There are several compelling arguments in favor of improving solar panel efficiency. More energy is generated because solar panels are more effective at transforming the sun's rays into electricity. As a result, the amount of renewable energy that can be produced and used increases.

Better efficiency means fewer solar panels are needed to produce the same quantity of power, resulting in cost savings. As a result, the equipment, installation, and maintenance costs associated with using solar energy decrease, making it more affordable for more people.

More energy may be produced in the same area if the efficiency of the generators is increased. It is especially vital to maximise energy production on a small plot of land in metropolitan settings or other places with limited space.

Boosting the performance of solar panels has a positive effect on the environment since it lessens the demand for new energy sources and cuts the use of fossil fuels. The environmental damage caused by conventional energy production is lessened, and greenhouse gas emissions are reduced.

Innovation and progress in solar panel technology are driven by the constant quest for greater efficiency. The result is more efficient production methods, cutting-edge materials, and innovative design that may be applied outside the solar business.

Maximizing solar panel efficiency is a key step towards realising solar power's full potential, fostering sustainability, and speeding up the shift towards a renewable energy future.



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