

FINAL PROJECT

**THE EFFECT OF REFLECTORS ON OUTPUT
POWER AT SOLAR PANELS WITH
VARIATION OF ANGLE 60°, 75°, 90°**



Compiled as a Requirement to Achieve a Bachelor's Degree in Engineering
Department of Mechanical Engineering Faculty of Engineering
Universitas Muhammadiyah Surakarta

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2022

STATEMENT OF AUTHENTICITY FINAL PROJECT

I solemnly state that the proposed title of the Final Project " **THE EFFECT OF REFLECTORS ON OUTPUT POWER AT SOLAR PANELS WITH VARIATION OF ANGLE 60°, 75°, 90°**", which I submitted to the Department of Mechanical Engineering, Faculty of Engineering, Universitas Muhammadiyah Surakarta, as far as I know is not is an imitation of research or duplication of a thesis that has been published and or has been used to obtain a Bachelor of Engineering degree at the Universitas Muhammadiyah Surakarta or any other institution, unless the source of the information is properly included.

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Declare By,

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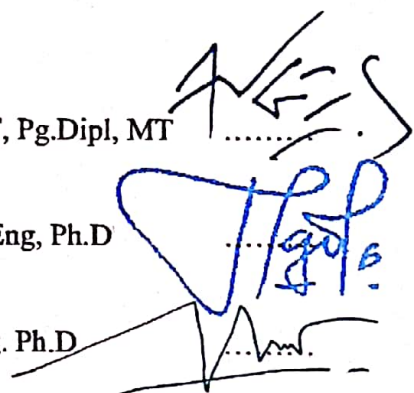
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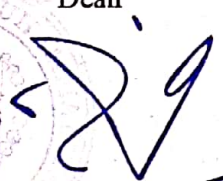
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MOTTO SHEET

“So which of the favors of your Lord would you deny?”

(Q.S: Ar-Rahman 55:13)

ABSTRACT

Large amounts of solar energy that can actually be used for solar power generation by using solar panels. However, solar cells as a solar power generating unit are not without problems. The output power of solar cells is very low compared to other types of power generation. The impact of the low efficiency of solar cells has an effect on the output of electrical power in solar panels. For this reason, efforts are needed to optimize the output of solar modules so that their efficiency also increases. One possible solution is to increase the amount of light hitting the surface of the solar module with the help of a solar reflector. This study aims to determine the effect of the reflector on the output power of a solar panel. The method used is direct experiment. Tests were carried out using two types of reflectors with varying angles of 60°, 75°, 90° and data collection every hour from 10 am to 3 pm for three days. The results of this study indicate that the use of an aluminum reflector can produce 35.12 watts of power or 6.04% more power than without a reflector. While a flat mirror reflector with an angle of 75° can produce 34.47 watts of power or 4.08% greater than without a reflector. Increasing the intensity of the light received causes the resulting voltage and current to increase, resulting in greater power.

Keywords: Reflector, Solar Cell, Power Plant, Photovoltaic

FOREWORD

Assalamu'alaikum Wr. Wb.

Alhamdulillahirobbil'alamin, all praise is only for Allah SWT, Lord of the worlds. It is thanks to His grace and favor that the preparation of this research report can be completed.

Final Project entitled **“THE EFFECT OF REFLECTORS ON OUTPUT POWER AT SOLAR PANELS WITH VARIATION OF ANGLE 60°, 75°, 90°”**, completed with the support of various parties. For this reason, on this occasion, the author with all sincerity and sincerity of heart would like to express his deepest gratitude and appreciation to:

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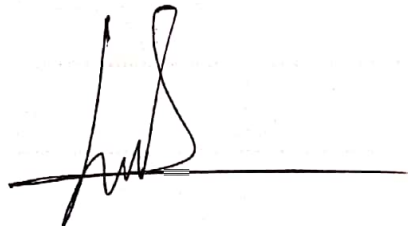
7. All friends and colleagues of Mechanical Engineering UMS class of 2017 who cannot be mentioned one by one who have helped in this research

The author realizes that this report is still not perfect, therefore the author really hopes for constructive criticism and suggestions from readers for future improvements.

Wassalamu'alaikum wr. Wb

Surakarta, 17 February 2022

Declare By,

A handwritten signature in black ink, consisting of a stylized 'G' and 'L' followed by a horizontal line.

GALIH AJI LUKITO

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