UNIVERSITI TEKNOLOGI MARA

DESIGN OF SINGLE AXIS ROTATING SOLAR PANEL FOR SOLAR ENERGY HARNESSING

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ABSTRACT

This work presents the design of rotating solar panel for solar energy harnessing. Solar energy is known as one of the renewable energies and can be harnessed using solar panel. In this work, the aim is to increase the solar energy of the solar panel by setting up the solar panel to rotate in a single axis. Hence, the solar panel can harness the energy at the full potential and subsequently provide the fitting angle for the solar panel to obtain more potential energy. The panel is swept from angle 20 degrees to 160 degrees and will cease when the higher potential energy is achieved. The finding reveals that highest voltage is 9.23 V at 3.00 pm of angle 92 degree.

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TABLES OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter presents an overall overview of this project. Besides that, the objectives, scope of work and outline of the thesis were also provided.

1.2 PROJECT OVERVIEW

Energy consumption tends to grow continuously. Due to this the rapid use and depletion of fossil fuel occurs. These factors lead to the need of renewable energy resources such as wind, fuel stack and photovoltaic as stated by A. Sharma [1]. Renewable energy is the source of energy that can be used and recycled again and again. It is the energy that never finish when we keep using it. Solar energy is obtained from the sun light. Sunlight has two components, the direct beam that carries about 90% of the solar energy, and the diffuse sunlight that carries the remainder [2]. As the majority of the energy is in the direct beam, maximizing collection requires the sun to be visible to the panels as long as possible.

Solar panel can be placed at any place such as at the roof of the house or can be placed in the large field area to act as a solar farm. However, when the solar panel is set up in static condition, it can only harness higher potential energy at certain time. Therefore, it can only generate higher potential energy when the sun is above the solar panel. When the sun starts to rise or fall, the solar panel can generate the potential energy even though it is not as high as when the sun is at its peak. If the solar panel can