

UNIVERSITI TEKNOLOGI MARA

**REMOTE MONITORING-BASED SOLAR TRACKING
SYSTEM WITH DUAL AXIS CONTROL**

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ABSTRACT

The energy demands all over the globe are at an all time high as various industries require mass production and manufacturing which requires steady and sufficient amount of supply of electricity. Solar Photovoltaic energy in particular is widely implemented due to its cleanest and sustainable renewable energy. The energy production of a solar photovoltaic panel depends on various factors such as solar irradiance, solar cell materials, solar cell surface temperature etc. A solar panel generates more energy with more exposure to sunlight. A fixed solar panel is unable to capture maximum sunlight during the day as the sun's position is always shifting. For this reason, the solar energy lacks the efficiency to become a much more dependable energy supply. This project is aimed to design and develop Remote Monitoring-Based Solar Tracking System with Dual Axis Control. The objective of this project is to increase the efficiency of solar power generation by orienting them toward the sun throughout the day. The main components required for this project is LDR which acts as the input sensor. Two servo motor is used to rotate the panel around two axes (plural). Humidity and Temperature sensor will also be used as inputs and the will be displayed on LCD as output. A PCB is developed to complete the prototype of this project. From this report, it is hoped that the efficiency and dependence on renewable and sustainable solar energy can be increased.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In the pursuit of sustainable and efficient energy utilization, the integration of solar power has emerged as a pivotal solution to address the growing energy demands while minimizing environmental impact. The "Remote Monitoring-Based Solar Tracking System with Dual Axis Control" project represents a significant leap forward in harnessing solar energy by combining dual-axis solar tracking technology with the capabilities of the Internet of Things (IoT). This innovative system aims to enhance the performance and output of solar panels through real-time monitoring and precise control, ultimately optimizing energy harvest from the sun.