IOT BASED DUAL AXIS SOLAR TRACKING SYSTEM WITH CLOUD TECHNOLOGY

A project report submitted in partial fulfilment of the requirements

For the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

Submitted by

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AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

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CERTIFICATE

This is to certify that the project report entitled **"IOT BASED DUAL AXIS SOLAR TRACKING SYSTEM WITH CLOUD TECHNOLOGY"** is a Bonafide work submitted by **K BHAGYARAJU, N PUSHPANJALI, T YASWANTH** in partial fulfilment of the requirements for the award of degree of

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ABSTRACT

The goal of this thesis was to develop a laboratory prototype of a solar tracking system, which is able to enhance the performance of the photovoltaic modules in a solar energy system. The operating principle of the device is to keep the photovoltaic modules constantly aligned with the sunbeams, which maximizes the exposure of solar panel to the Sun's radiation. As a result, more output power can be produced by the solar panel. The work of the project included hardware design and implementation, together with software programming for the microcontroller unit of the solar tracker. The system utilized an ATmega328P microcontroller to control motion of two servo motors, which rotate solar panel in two axes. The amount of rotation was determined by the microcontroller, based on inputs retrieved from four photo sensors located next to solar panel. At the end of the project, a functional solar tracking system was designed and implemented. It was able to keep the solar panel aligned with the sun, or any light source repetitively. When the output is calculated by voltage sensor which is connected to the NodeMCU Esp8266 and the collected data is uploaded to the Thing speak cloud. Design of this project is also a reference and a starting point for the development of more advanced systems in the future.