CONTROLLER FOR THE STAND ALONE ROOM LIGHTTING POWERED BY WIND ENERGY

By

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"In the name of God, the most gracious, the most compassionate"

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ABSTRACT

Renewable energy sources such as wind energy for electric power supply has received considerable attention in recently due to global environmental concerns associated with conventional generation and potential worldwide energy shortages. This wind energy is free and available everywhere. There are two types of wind energy system which is on-grind system and off-grid system. On g-grid system is for large power generation and off grid system is small power application. Off- grid system also know as standalone wind energy system that used in small application such as in village or house. The primary focus in this project is to design the suitable charge controller for prototype of stand-alone room lighting powered by wind energy. This controller design will involved two main development part which is software development and hardware development. This controller design will provide the protection to the battery during the charging and discharging activities. This is due to battery charger have it limiter for upper and lower voltage. In other way, the indicator Led and charging status display is design to convenience for costumer to checking the status of the system. Apart from that, the controller design also provide the protection from the over speeding of wind turbine that produce over voltage. All those characteristics of controller are design to produce high efficiency controller and compatible with the battery charger design and wind turbine design. Then the controller will integrate with prototype of the stand alone room lighting and test was carried out to test the performance of the prototype in two different room size.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The term alternative energy also known as renewable energy encompasses a variety of power generation sources available. Generally, it refers to electrical power derived from renewable resources such as wind or solar energy, as opposed to single-use resources such as coal. Figure 1.1 shows the one type of the wind turbine generation. The most common forms of alternative energy available for homeowner use today are solar power, wind power and micro-hydro power [1].

Figure 1.1: On grid wind turbine