

PHOTOVOLTAIC AND LED COMBINATION FOR RECYCLE WASTE OF LIGHT ENERGY

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ABSTRACT

This report presents a proposal for an energy conservation system to be developed by combination of two main devices. Those two main devices are LED (light emitting diode) and PV module (photovoltaic). Since LED device is turn ON, light emitted to surrounding. That light from LED that was emitted will lose in surrounding in term other energy. What was concern in this project, why cannot turn that lose energy into electrical energy. The aim of this project is to develop an energy conservation system by which using light energy from light source that was emitted lose to surrounding turn into electrical energy . That electrical energy produced will recycle to be used to power up the light system. This combination system looks like a small standalone photovoltaic systems with LED as load. The system uses battery that has two functions as main source to light LED and as storage for photovoltaic system. The energy sources drain by photovoltaic effect on two conditions. First condition the energy gain from sun during daylight that capture by photovoltaic module. Second condition the energy gain by extract waste of light energy to electrical energy from LED light source. The designation involve of choosing the photovoltaic module type, photovoltaic maximum power, photovoltaic system parameter, battery capacity, charging and discharging rate of battery and controller and LED parameter.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Today's world, oil, coal, natural gas and other major energy facing the risk of resource depletion, while also increasing environmental pressures, therefore, environmental protection, energy conservation has become worldwide industries to pursue. Solar energy is a clean, green energy, the semiconductor light-emitting diode (LED) is an environmentally friendly, energy saving, high efficiency solid-state light source.

In the past 100 years, lighting has gone through three major stages which incandescent, fluorescent, HID lamps. Which is the first generation of incandescent light, fluorescent light is the second-generation, and high-intensity gas discharge lamp is the third-generation light sources (HID). Now in the lighting industry with a broad vision of development of the LED light source is called the fourth-generation light source. Novel semiconductor LED as light source with a long life, high luminous efficiency, low power consumption, short startup time, solid structure and so on. [1]

1.1.1 The principle of solar photovoltaic

Solar photovoltaic power generation is dependent on the solar cell module, the use of electronics properties of semiconductor materials, when the sunlight in the semiconductor PN junction, PN junction barrier because the district had a