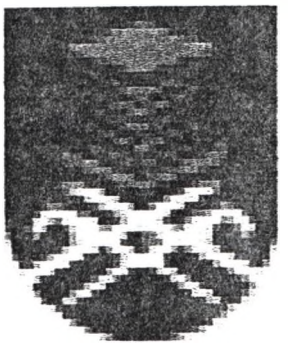

FACULTY OF ELECTRICAL ENGINEERING
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FINAL REPORT OF DIPLOMA PROJECT

"THE SOLAR FLASHING LIGHT"

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ABSTRACT

Solar energy is one kind of energy that existed. It is a reusable source since we get it direct from the sun. Solar energy is economical as heat from the sun is free and the cost is far less than using other sources like current source. Our project, the Solar Flashing Light is applicable in Malaysia because of our geographical location that near the equator line: the heat of broad daylight is high.

The Solar Flashing Light is divided to two parts: battery charger and the output (flashing light).

The battery charger will charge the rechargeable battery from the solar panel. The solar charger circuit contains one IC and other components such as resistors, preset resistor, transistor, diodes and PCB terminal block. The IC used in this circuit is shunt regulator formed by type TL431LP precision voltage regulator from National Semiconductor. The diodes used here are the high-power series diode and schottky diode. The transistor used here is power darlington by type TIP147.

In this project, the energy is used to perform flashing light from LED. This flashing output can be applied to highway roads and airplane highways for traffic beneficial.

ACKNOWLEDGEMENT

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND THEORY

IC LIGHT FLASHER

The 555 timer connected acts as an astable multivibrator. Both the trigger and treshold inputs (pins 2 and 6) to the two comparators are connected together and to the external capacitor. The capacitor charges toward the supply voltage through the two resistors, R4 and R5. The discharge pin (7) connected to the internal transistor is connected to the junction of those two resistors.

When power is first applied to the circuit, the capacitor will be uncharged, therefore, both the trigger and treshold inputs will be near zero volts (Figure 1). The lower that also turns off transistor T1. That allows the capacitor to begin charging through R4 and R5. As soon as the charge on the capacitor reaches 2/3 of the supply voltage, the upper comparator will trigger causing the flip-flop to reset. That causes the output to switch low. Transistor T1 also conducts. The effect of T1 conducting causes resistor R5 to be connected across the external capacitor. Resistor R5 is effectively connected to the ground through internal transistor T1. The result of that is that the capacitor now begins to discharge through R5.