

ALTERNATIVE SOLAR CHARGER FOR THE CELL PHONE

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**MOHD FAUZI BIN CHE SOH
FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM,
SELANGOR, MALAYSIA**

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ABSTRACT

Solar energy is a renewable energy source. Source of energy produced directly by sunlight can be converted into electrical energy using solar cells. One of the applications using this system is mobile phone battery charger. This solar battery charger can save energy compared charger existing electrical socket while not contributing to environmental pollution. By the way, the disadvantage of this energy source is due to the dependence on the presence or brightness of sunlight. The purpose of this project is to produce a mobile phone battery charger using solar energy in other cases to reduce electricity consumption. This project uses two methods namely the comparator circuit and PIC16F877A to observe the voltage of the solar cells on a continuous basis. If the voltage drops below the permissible limits, the system will transfer the connection to the battery. If the allowed, the voltage will be set to normal use voltage setter. As a result, devices will get the energy going and protected from the effects of the lack of voltage and Over-voltage.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION OF PROJECT

The solar energy which directly produced by the sun and it can be converted to electricity by using solar cell. For example, one of the application that using photovoltaic technology is battery charger cell phone. Solar energy can also be collected, stored and put to work by converting it to pollution-free thermal (heat) energy and electricity [1]. Solar cell is a device that converts the energy of sunlight directly into electricity by the photovoltaic effect. The main focus of this project is to design the charger with environmentally friendly materials and powered by renewable energy sources. The energy savings for battery charger cell phone is important in order to make sure that energy resource can be used for a long term. This project consists of three main elements which are voltage comparator, PIC microcontroller and relay switch. The voltage comparator is used to set and monitor the voltage level at solar cell and cell phone battery. The PIC microcontroller acts as the brain of the system that monitors the voltage from cell phone battery and control the switching of relay accordingly. The relay is used to switch on or off the solar cell as the main supply or to the battery as the backup supply.