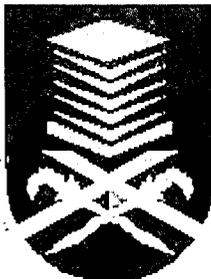


BATTERY MONITORING SYSTEM

**This thesis is presented in partial fulfillment for the award of the
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ABSTRACT

This research deals with the design of a system to monitor the performance of solar battery. It will measure the several parameters such as voltage, current, ambient temperature, cell temperature and solar irradiance of battery and Photovoltaic (PV) module. All the parameters are display on the LCD (Liquid Crystal Display). This system using Peripheral Interface Controller (PIC) microcontroller as a control unit hence the results of measurement are stored in memory of the system and can be sent by Universal Asynchronous Receiver/Transmitter (UART) device to personal computer (PC). By installing Visual Basic Express software of battery monitoring system, the data can be sent to personal computer and save in database file that can be visualized in form of tables. Ampere hour and State of charge (SOC) batteries being obtain from the table. This will result the Battery Monitoring System.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

As the Solar PV system technology grows rapidly and become more popular all over the world, engineers and scientists have carried out many researches, taken measurements and modeled for PV systems for various applications[1]. There are two types of photovoltaic systems, an On-grid and a standalone (Off-grid) system. Standalone PV systems are commonly used in rural areas, where there is no connection to the national electricity grid. Standalone PV systems are independent to grid electricity because they have their own energy storage system. Since PV technology is continuous growing and it will become competitive to conventional systems, standalone PV systems are more interesting to investigate. Figure 1.1 below shows a typical diagram of the components involved in a standalone PV system. An inverter need to be added if an AC load is utilized.

The battery is used to store the energy that generated by solar panel. Mostly, battery discharged energy at night when there is no energy supply by the solar panel. The most common type of batteries for a solar power system is regular 12 Volt sealed lead acid batteries[2]. These batteries are tough, can deliver a lot of power quickly and economically in term of price compared to other types of battery such as Gel, Lead acid and Absorbed glass mat (AGM) [3].