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FINAL REPORT:

SOLAR PUMP WATER HEATING CONTROLLER

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ABSTRACT

The solar pump water heating is used to heat the water by using solar energy and stored the hot water into the water tanks. This project need to flow the hot water from the solar panel into the hot water tank. This will be when the temperature of both solar panel and hot water tank reach the Differential temperature. Differential temperature is temperautre were set to operates the solar pump to flow in and out the water. This prototype help to build a water heating system by using natural supply energy which are solar energy from the sun which can reduce environmental pollution and lowest the cost. Lower cost in this projects means that solar panel consumes solar energy which is a renewable type sources. The circuit was designed by using software Proteus 8.0. The design prototype circuit was fabricated by using veroboard and the output were measured. The output is the motor which represented the solar pump functioned when the temperature of reached diffON which show the solar pump is pumping the water from solar panel to hot water tank and water flow into the solar panel from the supplies when the temperature diffOFF is reached.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

A solar pump water heating controller is an electronic device that controls the circulating solar pump in a solar hot water heating system to harvest as much heat as possible from the solar panels and protect the system from overheating. In this project the solar panel is used to supply power source to the water pump to be operate and also used to detect the temperature of the solar panel. The temperature of solar panel is used to control the on/off the water pump when compared it with the hot water tanks temperature. The comparison between the temperature is known as differential temperature where is the main point or target that used to control the operation of the pump in this system.

To control the On/Off of water pump, differential on (diffON) temperature which is the most higher than or equal and differential off (diffOFF) temperature the least higher than or equal temperature of hot water tank need to be set. The diffON will trigger the water pump to on and diffOFF will trigger the water pump to off.

Then there were a controller used in this system which function to enhance the cycle of solar pump operation when enough heat consume from the sun on the solar panel is sufficient and moving the water that has been heated through the solar pump to the hot water tank. Overheat protection can be achieve by turning off the solar pump when the Hot water tank reaches its maximum temperature and sometimes cooling the store by turning the pump on when the temperature of hot water tank is hotter than the panels.