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FINAL REPORT OF DIPLOMA PROJECT

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POWER SUPPLY
(VOLTAGE REGULATOR)

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ABSTRACT

How do you control everything? By limiting freedom of course. In this case, my project will focus on the voltage regulator, where its job is to limit the output voltage. This is to meet certain requirements of a secondary circuit. For example, we don't want to activate the ceiling fan at 240V right? The fan will wear out faster and the tremendous output is too much for us. That's where the voltage regulator comes in. We can limit the speed of the ceiling fan to suit our needs. In addition to that, this concept is applied everywhere, from the brightness of an LCD (liquid crystal display), the speed of a grinder, drill, volume control etc.

My project is actually used in every electrical appliance. Why? To control the device, to put it quite simply. However, this project is extended. I will connect a digital panel meter to it so the user can adjust the voltage output in such a precise way. Putting stickers on knobs is not accepted these days. With this advantage, users can record down the output readings and perform advanced calculations more easily with the adequate accuracy of the panel meter. In conclusion, it is suitable to use anytime, any place and anywhere. It makes our life easier.

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INTRODUCTION

1.1 Background

Voltage Regulator

Definition

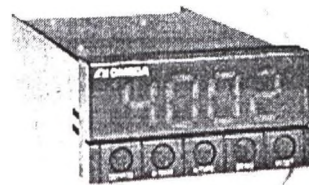
A circuit which is connected between the power source and a load, which provides a constant voltage despite variations in input voltage or output load. In other words, this circuit manipulates the output voltage that feeds a secondary circuit (a fan, water detector etc.) to meet certain requirements or limits.

Digital Panel Meter (display)

A panel meter is an instrument that displays an input signal in either a digital or analog form. Many panel meters also include alarm options as well as the ability to connect and transfer data to a computer. This time around, the panel meter included in this project is simple and effective. Its purpose is to display the output voltage with adequate accuracy. There are several types of panel meters in the market to begin with, each with its own unique abilities. They are:

1. Temperature and Process Panel Meters

The most common types of panel meter is one that accepts a single input and provides a digital display of the signal. These meters typically accept inputs from temperature sensors such as thermocouples and RTDs as well as process signals such as 4-20 mA, 0-5 Vdc and 0-10 Vdc.



DP25B Temperature and Process Panel Meter