UNIVERSITI TEKNOLOGI MARA
KAMPUS BUKIT MERTAJAM
2003

FINAL REPORT OF DIPLOMA PROJECT

FACULTY OF ELECTRICAL ENGINEERING

LOW POWER LED VOLTMETER

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND THEORY

This is a low power voltmeter circuit that can be used with alternative energy system that runs on 12 and 24 Volt batteries. The voltmeter is an expended scale type that indicates small voltage steps over the 10 to 16 Volt range for 12 Volt batteries and over the 22 to 32 Volt range for 24 Volt batteries. Power consumption can be as low as 14 mW when operated from 12V and 160 mW when operated from 24 V.

It is possible to set the meter to real equal steps equal steps across a variety of upper and lower voltages the meter saves power by operating in a low duty-cycle blinking mode where the led indicators are only on and consuming power briefly during a repeating 2 second cycle. The circuit may be switched to a high power mode where the active led stays on at all times.

Different colored led may be used for the voltage level indicators; this allows the battery state to be read in the dark. With the new blue led, it is possible to have a nice looking rainbow of colors using two each of read, amber; yellow, green, and white led. This circuit will also work with inexpensive and common red led. If the circuit is to be used in sunlight, ultra-bright led should be used, although even those may be hard to read without some kind of sun-shield.

1.2 OBJECTIVE OF THE CIRCUIT

Objective is very important for student to start and complete this project. There are a few objectives in doing this project as follows:

- To familiar the students with electronics components and circuit besides knowing the function of them.
- Let students to derive a brilliant idea and creativity in creating a new invention in electronic used.
- Let students to learn more about electronics' components, this knowledge will be used either in studying or working.
- To let student manage their time in doing this project.
- Let student discuss with some people in doing their research.
- Lets student know how to make a report.