DEVELOPMENT OF

DIGITAL WATTMETER

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HABIBAH BT YAACOB
Faculty of Electrical Engineering
MARA Institute of Technology
40450 Shah Alam
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ABSTRACT

This report presents the development of wattmeter. This project describes the studies and construction of a digital wattmeter. The system consists of two main parts namely power measurement and display. In display circuit, ADC CA3162E is used to convert the signal from analog to digital and CA3161E is used as BCD-to-seven segment decoder/driver. It is designed for 220V power supply with frequency 50 Hertz which uses variable load. A measurement using ordinary wattmeter (analog) was incorporated in the experiment set-up to be taken as a comparison.

The finish product will be a portable and hardy type system will cost effectiveness is taken into consideration.

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CHAPTER 1

1.0 INTRODUCTION

A measurement system is an instrument that is designed to obtain information about physical process and to present that information in a suitable way to technical system. In an electronic measuring system, the various instrument function are realized with electronic component. So, measurement system are available for almost any electric quality such as voltage, current, power and etc.

This project is to develop a wattmeter which will display digital output. Wattmeter is required to ensure that the total system load is within the capacity of available generating plant. In this project a very simple and small circuit are used to produce lower cost and better performance. It makes use of 220V supply with frequency of 50Hz, need the analog to digital converter (ADC) and using a three seven segment common anode type to display the power value. This project can measure a.c power.

1.1 Design requirement

The aim of this project is to develop a digital wattmeter that will fulfil the following requirement.