DC-DC BOOST CONVERTER USING FUZZY LOGIC CONTROLLER

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ABSTRACT

This dissertation presents the simulation design dc-dc boost converter using fuzzy logic controller. All the simulation was been held in MATLAB-SIMULINK. The evaluation has been carried out and was been compared between open loop system and closed loop system to demonstrate the fuzzy logic controller can improve the performance of boost converter by reducing the percentage of overshoot, and producing the output voltage with the same amount as required.

Design and calculation the components' especially for the inductor has been done to ensure the converter operate in continuous conduction mode. Beside that, the precious calculation of the parameters will guide to the maximum performance of the system.

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TABLE OF CONTENTS

CHAPTER 1

Introduction

1.0 Introduction

The task of power electronics is to process and control the flow of electric

energy by supplying voltages and currents in a form that is optimally suited for

user load. Figure 1.1 shows a power electronic system block diagram. The

output of the power processor is a function of voltage, current, frequency, and

the number of phases is desired by load. Feedback controller is commonly used

to compare the output of the power processor unit with a reference value.

Hence, the difference is the error between the two can be minimized by the
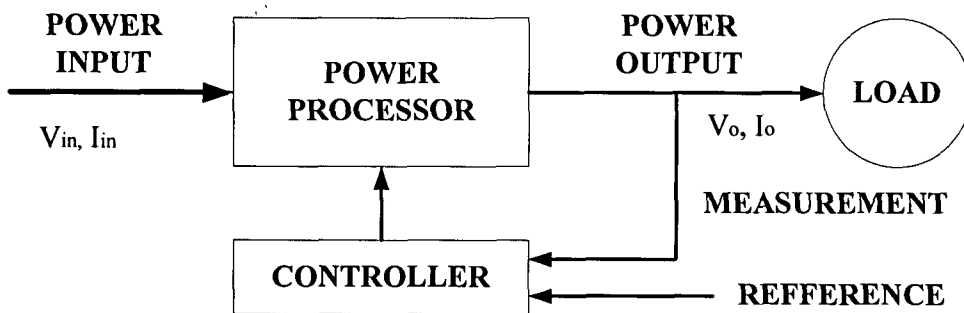
controller.

Figure 1.1
Block Diagram of Power Electronic System[1]

The field of power electronics has experienced a large growth due to confluence

of several factors. The controller consists of linear integrated circuit and/or

digital signal processor[2]. Modern semiconductor technologies have made it