CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

There are many types of application that use DC motor for their operation such as, steel rolling mill, electric car, robotic, and so on. This application usually involve with the control system that use to manage their speed operation. My project based on DC Motor speed control using fuzzy logic system. The development of this project divided into two parts which is software and hardware development.

For the hardware section, a microcontroller will be used as a main control unit, while the input is temperature sensor and the actuator is DC motor. The motor will be controlled by H-Bridge Driver which can provide precise control for the system. For the software part, C-Language program will be used as instruction method to program the microcontroller. Fuzzy logic logarithm is implemented in the microcontroller along with the interface program for input (sensor) and output (DC motor).

1.2 PROBLEM STATEMENT

i. Non-Fuzzy is complicated to derive and interpret program if system involved with highly precision value.
ii. Non-Fuzzy controller has a long set point recovery and high overshoot which is makes it less appropriate for high speed application (Non Linear Operation).

iii. Whole configuration of Non-Fuzzy system need to be change if any modification needed by the system operation, compared with fuzzy that only need an average changing.

1.3 OBJECTIVE

i. To study and obtain the knowledge about Fuzzy Logic system operation, micro controller, motor drives, and other component that related with the project.

ii. To identify the problem, implementing, and improve to exchange the knowledge in troubleshooting and problem solving.

iii. To design and develop fuzzy logic instruction and the operation circuit to control DC motor speed using the Microcontroller

1.4 SCOPE OF PROJECT

i. Design and develop circuit by using Microcontroller, input, and output component.

ii. Develop software which is to Program Fuzzy Logic instruction in Microcontroller.

iii. Interface both software and hardware.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter refers to all the paper works, and references that gain from various sources. It’s including all important studies which have been done previously by others researchers. The related work has been carefully referred with some knowledge and recommendation from the previous work will be implemented for this project.

2.2 FUZZY LOGIC

For this section, I had done some journal review with detail about Fuzzy Logic and its application. I have reviewed some journals that provide me vast information about fuzzy logic and their implementation on microcontroller, and also excellent information for my project development. The journal is “Fuzzy Logic Microcontroller Implementation for DC Motor Speed Control” by Yodyium Tipsuwan and Mo-Yuen Chow, and the other one is “Design and Implementation of Fuzzy Logic System for DC Motor Speed Control” by Dr. Maan M.Shaker and Yareeb M.B. Ismeal Al-Khashab.