

DEVELOPMENT OF DYNAMIC WEIGHBRIDGE AND INTERFACING BY USING PIC

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ABSTRACT

The project is about developing the dynamic weighbridge interfacing so that it can measure weight in motion at a higher speed. The interfacing system to be used is PIC16F873 which converts the analog into digital signal and it is going to be improved. The Peripheral Interface Controller (PIC) is a microcontroller which has its own assembly language and it is like a computer on a single chip. Programming PIC needs an extra circuitry which is called circuitry programmer. The new design of the weighbridge interface will have the feature of faster data processing which has the ability to measure weight in motion at a higher speed

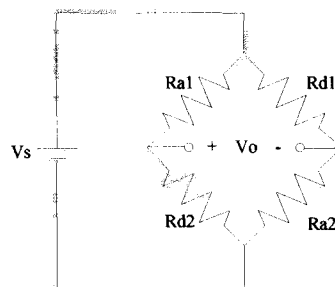
CHAPTER 1

INTRODUCTION

1.1 Introduction

The current available weighbridge which is used for commercial purposes is not designed for moving vehicles. Therefore, the purpose of the project is to develop a new weighbridge and interfacing part so that vehicles can move across it at a higher speed. This is more efficient that more vehicles' weights can be measured in a specific time compare to the earlier version.

Four strain gauges are used and they are been connected in Wheatstone bridge form (Figure 1.1). All of the strain gauges are attached to a metal plate which acts as a weighbridge model (Figure 1.2). Two active strain gauges are used to detect the weight of the vehicle. As the vehicle passes through the bridge, the bridge will slightly bend and this will result in the active strain gauges to bend. The output voltage will depend on how much the strain gauges are bent. Two dummy strain gauges are used to compensate the temperature effect of the Wheatstone bridge.



- Ra1: Active strain gauge 1
- Rd1: Dummy strain gauge 1
- Ra2: Active strain gauge 2
- Rd2: Dummy strain gauge 2

Figure 1.1: The strain gauges which are connected in Weighbridge form