

CAR CRASH DETECTOR

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ABSTRACT

This thesis proposes a new technology of the safety system that called car crash detector. The sensor will detect the impact of collision and send the signal to the system. The system will automatically turn off the engine if met the condition. This can avoid the car from burning or get exploded. The system also prevent the airbag to activate when the collision give low impact. Programmable Interface Controller (PIC) is use as an interface between the input (sensor) and output (engine system) and the PIC used in this project is PIC18F4550. In this thesis, the whole project will be described briefly in each chapter. The system use distance detector or distance sensor type to detect the distance changes on the front of the car. The change of the distance that varies by speed is considered to make sure the correct programming code can be written in the PIC. In Chapter 2, the theoretical aspect regarding the PIC18F4550 microcontroller, sensor and voltage regulator will be presented and explained for further understanding. In Chapter 3, the measure Development for Car Crash Detector System hardware and software designs are explained. The technical aspects are discussed with the aid of the schematic design. The analyzing of the results and discussions are presented in Chapter 4. Finally, the conclusion and future developments are stated in Chapter 5.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

A great number of people die every year in car accidents. In most cases, these accidents happen because of the mistake of one driver overtaking the other vehicle, or driving the car in fast speed. The other factors like bad condition of the road, mountainous regions, slippery road, or snow falls etc also contribute a great deal in causing accidents [1]. So we cannot say the accident is only happen when the people are careless not alert for something that important when driving. For some example hydroplaning accidents are caused when a driver loses steering control because a layer of water on the roadway prevents direct contact between the tires and the road surface [2]. The resulting loss of friction causes the vehicle to lose braking, steering and power to the wheels causing a complete loss of control by the driver. The vehicle skids until it collides with something else or friction between the road and wheels is regained. Hydroplaning risks include deep water or heavy rain, speeding, imbalance or overloaded vehicle and poor tire maintenance or damage of tire when it not changes for long time period. Another cause of car accident is include collision with the animal such as cow, goat, deer, or more else of the wildlife [3]. All of these accidents cannot easily to avoid because it actually happen without any warning. So, the important step should be considered if we want to rate down the accident case.

Nowadays the technologies become more important to our life and we cannot deny that. The technologies help us to get the more advance in something like the electric device and many more. In case of the technology in device, we can consider all the accident avoidance that included in high cost car. This technology also can be applied to all of car and this will become more important thing today