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FINAL REPORT OF DIPLOMA PROJECT

FACULTY OF ELECTRICAL ENGINEERING

CAR SECURITY ALARM

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ABSTRACT

Car Security Alarm is a security system designed to detect car theft using switch as a mode of sensing.

The main purpose of accomplishing this project is to outcome with a new device to detect break-ins of car theft.

In order to complete this project, there are several programs that could be used. We decided to finish up our project using the PCB Designer to come out with the PCB Designer.

Piezo buzzer sounds when the car door is opened (black wire connected to ground). When door is closed (black wire is disconnected), the capacitor is discharged. Then, when the door is reopened (black wire is reconnected), the horn will sound.

The expenses for this project came up to a total of RM30.65.

The project is considered successful, yet need some improvisations and adjustments. This are probably due to the components that are unable to function properly.

This proposed project will provide a better life comfort and an environment free from thieves.

1.0 INTRODUCTION

1.1 BACKGROUND

Back in the olden days, several car alarms were published, with varying degrees of complexity, which is from detecting mechanical vibration in to sensing the small voltage drop appearing across the battery's earth strap when the courtesy light illuminates. Unfortunately, with the latter design, some kind of calibration is required, and with the former, the next person to lean against the car is going to get a terrific shock.

In this design, the alarm is triggered by the large voltage swing generated when the courtesy light switch closes (12V to 0V at the earth side of the light). There is in entry delay to avoid arousing the suspicions of the local constabulary, and the alarm switches off after five minutes, as required by law, as well as for the sake of the battery (but no-one is going to steal a car with flat battery.

1.2 SCOPE OF WORK

This is a Car Security Alarm project, made to simplify the needs of our society. The Introduction, which has the basic description of this project, is briefly explained in Chapter 1. In Chapter 2, the circuit design and its operation are elaborated on. The Hardware Construction is all in detailed in Chapter 3. As for Chapter 4, all the simulations and results are compiled. Chapter 5 is mainly about the Discussions and Recommendations. Last but not least, the Conclusion or also known as summary, is put in Chapter 6.

1.3 OBJECTIVE

The purpose of this project is to outcome with a new device that helps detect any break-ins or intrusions of a car. Furthermore, this can assist prevent theft from occurring.

2.1.2 COMPONENTS LIST AND DATA

A. RESISTOR

A resistor is an electrical component that limits or regulates the flow of electrical current in an electronic circuit. Resistors can also be used to provide a specific voltage for an active device such as a transistor.

All other factors being equal, in a direct-current (DC) circuit, the current through a resistor is inversely proportional to its resistance and directly proportional to the voltage across it. This is the well-known Ohm's Law. In alternating-current (AC) circuits, this rule also applies as long as the resistor does not contain inductance or capacitance.

Resistors can be fabricated in a variety of ways. The most common type in electronic devices and systems is the *carbon-composition resistor*. Fine granulated carbon (graphite) is mixed with clay and hardened. The resistance depends on the proportion of carbon to clay; the higher this ratio, the lower the resistance.

Another type of resistor is made from winding Nichrome or similar wire on an insulating form. This component, called a *wire-wound resistor*, is able to handle higher currents than a carbon-composition resistor of the same physical size. However, because the wire is wound into a coil, the component acts as an inductors as well as exhibiting resistance. This does not affect performance in DC circuits, but can have an adverse effect in AC circuits because inductance renders the device sensitive to changes in frequency.