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# CHILD SAFETY CAR REVERSE PARKING SYSTEM

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## INTRODUCTION

Every year, thousands of children are killed or seriously injured because a driver backing up didn't see them. A back over incident typically takes place when a car is backing out of a driveway or parking space.

This accident always occurs on private property or home due to the situation and blind spot of the car. Even the best vehicle had a "blind area" of more than 2 meters behind it. By proposing the car reverse parking with sensor and buzzer, the blind zone behind vehicle can be reduced.

In this project, car reverse parking sensor is to warn the driver and people around it while the car is being reverse. This project is programmed to have six different level of output feedback. This output will result with the activation of Buzzer and light up the LED. Different distance setting range will result with different frequency of sound and number of LED light up. The less the distance between the car and the object behind it, buzzer will make higher tone of sound and more LED will light up and vice versa.

## ISSUES/PROBLEM STATEMENT

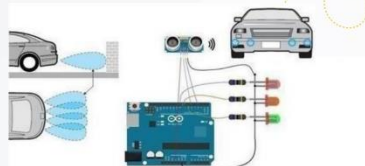
In recent years the problem of young children being struck by reversing motor vehicles has come to attention. Many of these accidents occur on private property and therefore are not recorded in road accident statistics. Most cases in Malaysia the victims are their own family member. This accident always occurs on private property (home) due to the situation and blind spot of the car. Even the best vehicle had a "blind area" of more than 2 meters behind it. By proposing the car reverse parking with sensor and buzzer, the blind zone behind vehicle can be reduced.

## OBJECTIVES

- To trigger the ultrasonic sensor so it can measure the distance between car and object behind it.
- To activate the Buzzer sound and light up LED when the distance between car and object in the certain setting range.

## METHODOLOGY

The project aims to develop a car reverse parking sensor that detects objects behind the car using an Ultrasonic Sensor, an Arduino Uno, a buzzer, and a light-emitting diode. It uses Arduino Integrated Development Environment (IDE) programming, and Proteus Software for circuit simulation.



How it work.. The Arduino UNO will function as a microcontroller, controlling the output result. This project's output is a buzzer and an LED. The narrower the distance between the automobile and the item behind it, the LED will light up and the frequency of sound produced by the buzzer will increase.

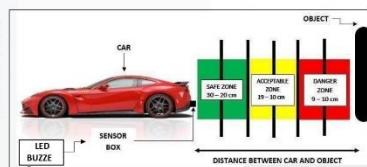


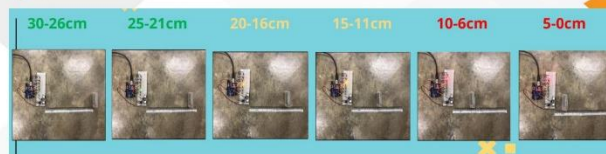
Figure 1.1: System Diagram of Child Safety Car Reverse Parking System



Figure 1.2: Block Diagram of Child Safety Car Reverse Parking System

The system's primary goal is to determine the distance between the automobile and the item behind it to inform the driver and anyone nearby when the car is being reversed. This system's input is the HC-SR04 Ultrasonic Sensor, which it utilizes to compute the distance between two objects by broadcasting and receiving a signal. In this example, the HC-SR04 will send the signal and then send back the receiving signal, which has already read the distance to the Arduino UNO. The Arduino UNO will then function as a microcontroller, controlling the system's output. This system's output is a buzzer and an LED. Only when Arduino receives a specific setting range reading of distance between car and item behind it will the buzzer and LED be activated. When this occurs, the buzzer will activate, and the LED will light up.

## FINDINGS



RESULT OF EACH RANGE.

Table 1: Child Safety Car Reverse Parking System Test

Distance (cm)	LED1	LED2	LED3	LED4	LED5	LED6	Sound of Buzzer
30	ON	OFF	OFF	OFF	OFF	OFF	250
25	ON	ON	OFF	OFF	OFF	OFF	260
20	ON	ON	ON	OFF	OFF	OFF	270
15	ON	ON	ON	ON	OFF	OFF	280
10	ON	ON	ON	ON	ON	OFF	290
5	ON	ON	ON	ON	ON	ON	300

The LED will light up based on the distance between the object and the sensor, and the buzzer will sound louder as the distance between the object and the sensor increases.

## NOVELTY

Child Safety Car Reverse Parking System can reduce blind area behind the vehicle. This system is capable to warn the driver and people around it while the car is being reverse at certain distance.

## CONCLUSION

Child Safety Car Reverse Parking System aims to be one of the alternatives to help the driver alert if any obstacles behind the vehicle. The system will activate the ultrasonic sensor that is installed on the back bumper of the car so that it can measure the distance between the car and the object behind it, as well as to activate the buzzer sound and light up the LED when the distance between the car and the object behind the car is within a certain setting range.

## COMMERCIALIZATION

The Safety Child Car Reverse System shows great potential for parents or driver to leverage on its benefit to prevent any fatal incident from happening.