# Background

Accident may happen frequently if the parents are ignorance, careless or lack of supervision of their children

# Problem Statement

Use Distance measurement with the HC-SR04 ultrasonic range module and alarm with LED light

# Requirements

Raspberry Pi, breadboard, Jumper wires, HC-SR04 ultrasonic sensor, LED lights, resistance.

# Design Principles

The Ultrasonic Distance Sensor detect the distance between children and dangerous items. When the distance less than 10 cm, the LED will blink that parents will get attention

# Prototype Architecture

LED small bulb and HC-SR04 ultrasonic distance measurement. The two modules are combined to enable distance measurement and to indicate when an obstacle is too close by flashing an LED light.

# Link to prototype code on Github

<https://github.com/hankchen2000/SIT210-11.2-Project-Artefact.git>

# Testing approach you have used for evaluating your system

The video has tested the code and operation.

After running the program, the command line will constantly display the current distance. When the value of the distance is less than 100cm, the LED will flash 3 times.

# User Manual

Connection for the project

图片包含 游戏机, 电路

描述已自动生成

The 4 pins of the HC-SR04 consist of 2 power pins (Vcc, GND) and 2 control pins (Trig, Echo).

Vcc and Gnd are connected to a 5v DC power supply, but it is not recommended to use a separate power supply to power it, you should use the GPIO port of your Raspberry Pi or microcontroller to output 5v and Gnd to power it. Otherwise, it will affect the operation of this module.

The Trig pin is used to receive control signals from the Raspberry Pi. Connect to any GPIO port.

The Echo pin is used to send the distance measurement result to the Raspberry Pi. Connect to any GPIO port.

# Conclusion

It took me one week for this project. This is the simple detected program. I was trying to add buzzer but it’s not working. If I have second chance, I could add buzzer to make sound.