Project on

Vehicle Accident Warning System

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INTRODUCTION

This is an Arduino-based Vehicle accident warning system. This kind of system is the fastest-growing safety feature in automotive industries. Such a system enables vehicles to identify the chances of collision and give visual and audio warnings to the driver so that the driver can take necessary action to avoid an accident**.**

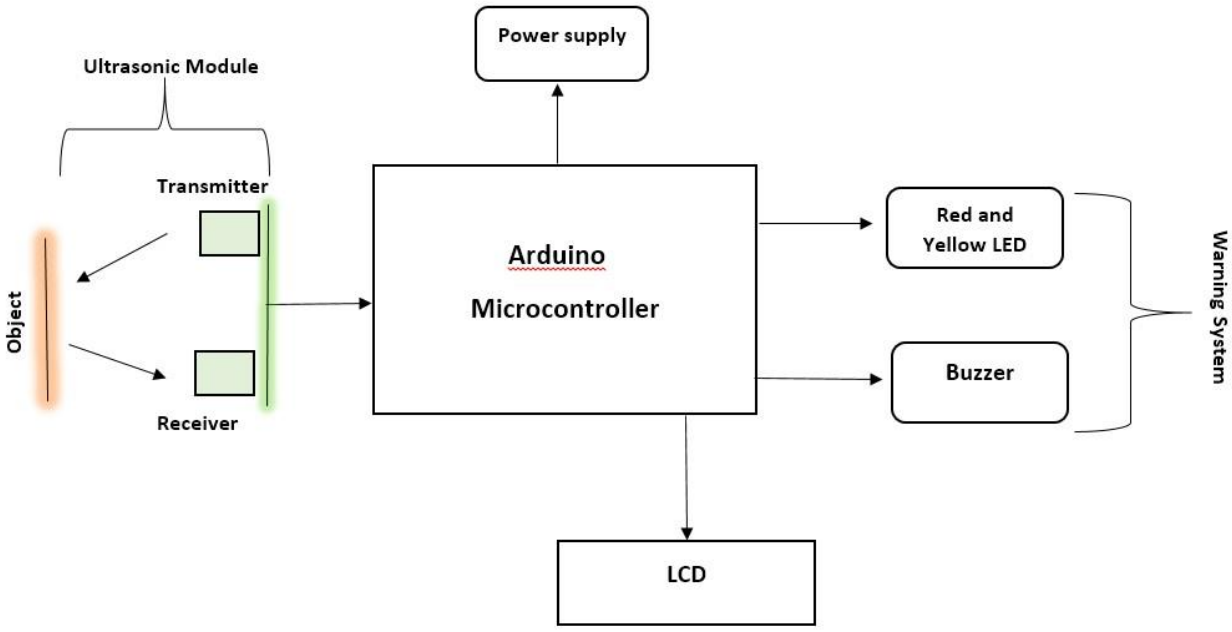
ABSTRACT

Vehicle accident warning system warn you of an impending collision by detecting stopped or slowly moved vehicles ahead of opponent vehicle. If there is an impending collision, the system will warn of the danger using lights, beeps.

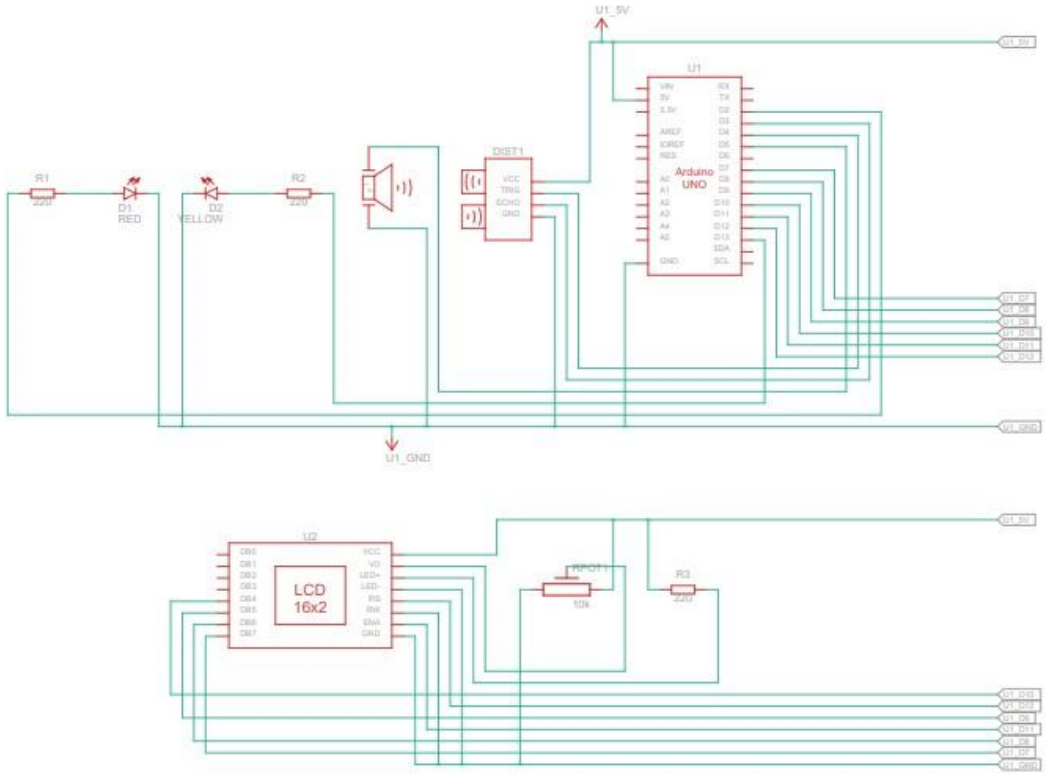
SYSTEM COMPONENTS

- Arduino UNO
- HC-SR04 Ultrasonic Module
- Piezo buzzer
- 10kohm Potentiometer
- 16x2 LCD Display
- Resistor
- Red LED
- Yellow LED
- Breadboard

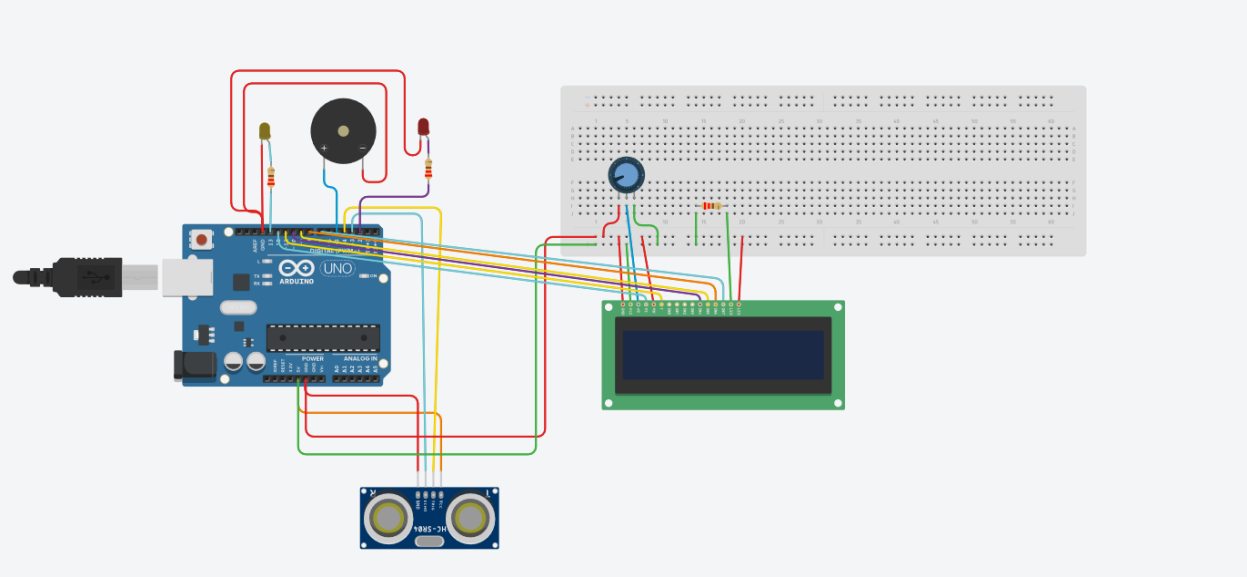
SYSTEM BLOCK DIAGRAM



SYSTEM CIRCUIT DIAGRAM



SYSTEM IMPLEMENTATION



SYSTEM PROGRAM

START

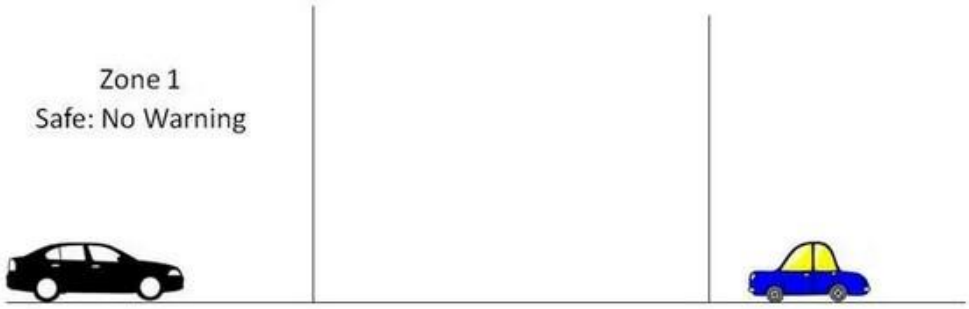
```
#include<LiquidCrystal.h>
LiquidCrystal lcd(12,11,10,9,8,7);
const int trigPin = 4;
const int echoPin = 3;
int buzz = 5;
long duration;
int distance;

void setup() {
  lcd.begin(16,2);

  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  pinMode(13, OUTPUT);
  pinMode(2, OUTPUT);
  Serial.begin(9600);

}

void loop()
{
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  duration = pulseIn(echoPin, HIGH);
  distance= duration*0.034/2;
```

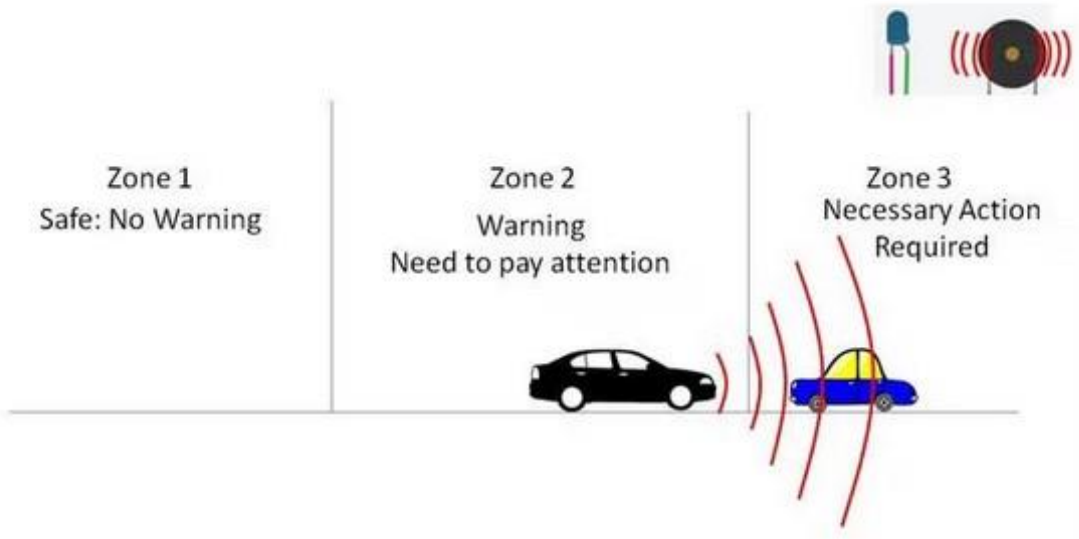
```
if(distance>80){
    lcd.setCursor(0,0);
    lcd.print("You are safe!");
  lcd.setCursor(0,1);
    lcd.print("Dist. is ");
    lcd.print(distance);
    lcd.print("cm   ");
  delay(100);
}

if(distance <= 80 && distance >= 30)
{
  lcd.setCursor(0,0);
    lcd.print("Warning!        ");
    lcd.setCursor(0,1);
    lcd.print("Dist. is ");
    lcd.print(distance);
    lcd.print("cm   ");
  delay(100);
  digitalWrite(13, HIGH);
}

else
{
  digitalWrite(13, LOW);
}

if(distance <= 30)
{
  lcd.setCursor(0,0);
    lcd.print("Caution!        ");
```

```
    lcd.print("cm   ");
  delay(100);
  digitalWrite(13, HIGH);
}

else
{
  digitalWrite(13, LOW);
}

if(distance <= 30)
{
  lcd.setCursor(0,0);
    lcd.print("Caution!        ");
    lcd.setCursor(0,1);
    lcd.print("Dist. is ");
    lcd.print(distance);
    lcd.print("cm   ");
  delay(100);
  digitalWrite(2, HIGH);
    tone(buzz, 2000);
    delay(100);
    noTone(buzz);
  delay(50);
}

else
{
  digitalWrite(2, LOW);
}
}
```

END

HOW THIS SYSTEM WORKS





CONCLUSION

A vehicle accident warning system is designed and mounted on a very simple and easily understandable model. The sensor can read distances that are at a shorter range accurately. There were differences in the expected distance and measure distance but the system is safe.