#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

LiquidCrystal\_I2C lcd(0x27, 16, 2); // Set the LCD address and dimensions

// Pin assignments

const int trigPin = 2; // Trigger pin of the ultrasonic sensor

const int echoPin = 3; // Echo pin of the ultrasonic sensor

const int greenLedPin = 4; // Pin connected to the green LED

const int yellowLedPin = 5; // Pin connected to the yellow LED

const int redLedPin = 6; // Pin connected to the red LED

const int buzzerPin = 7; // Pin connected to the buzzer

void setup() {

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

pinMode(greenLedPin, OUTPUT);

pinMode(yellowLedPin, OUTPUT);

pinMode(redLedPin, OUTPUT);

pinMode(buzzerPin, OUTPUT);

// Initialize LEDs and buzzer

digitalWrite(greenLedPin, LOW);

digitalWrite(yellowLedPin, LOW);

digitalWrite(redLedPin, LOW);

digitalWrite(buzzerPin, LOW);

Serial.begin(9600);

// Initialize the LCD

lcd.init();

lcd.backlight();

lcd.begin(16, 2);

}

void loop() {

// Send ultrasonic pulse

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Measure the duration of the echo pulse

long duration = pulseIn(echoPin, HIGH);

// Calculate distance in centimeters

float distance = duration \* 0.034 / 2;

// Display distance on the LCD

lcd.setCursor(0, 0);

lcd.print("Distance: ");

lcd.print(distance);

lcd.print(" cm");

// Set LED indicators and buzzer based on distance

if (distance <= 20) {

digitalWrite(greenLedPin, LOW);

digitalWrite(yellowLedPin, LOW);

digitalWrite(redLedPin, HIGH);

tone(buzzerPin, 1000); // Play a tone at 1000Hz

} else if (distance <= 50) {

digitalWrite(greenLedPin, LOW);

digitalWrite(yellowLedPin, HIGH);

digitalWrite(redLedPin, LOW);

noTone(buzzerPin); // Turn off the buzzer

} else {

digitalWrite(greenLedPin, HIGH);

digitalWrite(yellowLedPin, LOW);

digitalWrite(redLedPin, LOW);

noTone(buzzerPin); // Turn off the buzzer

}

delay(500); // Adjust the delay as needed

}