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// Define pins for the ultrasonic sensor

const int trigPin = 9;

const int echoPin = 10;


// Define pins for the LEDs

const int led1 = 5;

const int led2 = 6;

const int led3 = 7;


void setup() {

  // Initialize serial communication at 9600 bits per second
  Serial.begin(9600);


  // Set the trigPin as an OUTPUT
  pinMode(trigPin, OUTPUT);


  // Set the echoPin as an INPUT
  pinMode(echoPin, INPUT);


  // Set the LED pins as OUTPUT
  pinMode(led1, OUTPUT);
  pinMode(led2, OUTPUT);
  pinMode(led3, OUTPUT);
}


void loop() {

  // Clear the trigPin by setting it LOW
  digitalWrite(trigPin, LOW);

  delayMicroseconds(2);
```

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// Set the trigPin HIGH for 10 microseconds to send out a pulse
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

// Read the echoPin, returns the sound wave travel time in microseconds
long duration = pulseIn(echoPin, HIGH);

// Calculate the distance in cm
long distance = duration * 0.034 / 2;

// Print the distance on the Serial Monitor
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");

// Turn on LEDs based on distance
if (distance <= 5) {
    digitalWrite(led1, HIGH); // Light up LED1
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
}
else if (distance > 5 && distance <= 10) {
    digitalWrite(led1, LOW);
    digitalWrite(led2, HIGH); // Light up LED2
    digitalWrite(led3, LOW);
}
else if (distance > 10 && distance <= 15) {
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    digitalWrite(led1, LOW);  
    digitalWrite(led2, LOW);  
    digitalWrite(led3, HIGH); // Light up LED3  
}  
else {  
    digitalWrite(led1, LOW);  
    digitalWrite(led2, LOW);  
    digitalWrite(led3, LOW); // Turn off all LEDs if distance is more than 70 cm  
}  
  
// Wait for 100 milliseconds before the next measurement  
delay(100);  
}
```