// Define pins

#include <Servo.h>

Servo servo;

int trigPin = 9;

int echoPin = 8;

int greenLedPin = 6; // Green LED pin

int redLedPin = 5; // Red LED pin

// Define variables

long duration;

int distance;

void setup()

{

servo.attach(7);

servo.write(0); // Initial position of the servo

delay(2000); // Wait for 2 seconds

// Set the trigPin as an Output

pinMode(trigPin, OUTPUT);

// Set the echoPin as an Input

pinMode(echoPin, INPUT);

// Set LED pins as Output

pinMode(greenLedPin, OUTPUT);

pinMode(redLedPin, OUTPUT);

// Start the serial communication

Serial.begin(9600);

}

void loop()

{

// Clears the trigPin

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

// Sets the trigPin on HIGH state for 10 microseconds

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

duration = pulseIn(echoPin, HIGH);

// Calculate the distance

distance = duration \* 0.034 / 2;

// Prints the distance on the Serial Monitor

Serial.print("Distance: ");

Serial.println(distance);

// Servo control and LED logic based on distance

if (distance <= 15) // Change distance based on sensor placement

{

servo.write(0); // Servo moves to 0 degrees

digitalWrite(redLedPin, HIGH); // Turn on red LED

digitalWrite(greenLedPin, LOW); // Turn off green LED

delay(3000); // Keep the servo at 0 for 3 seconds

}

else

{

servo.write(90); // Servo moves to 90 degrees

digitalWrite(greenLedPin, HIGH); // Turn on green LED

digitalWrite(redLedPin, LOW); // Turn off red LED

delay(500); // Small delay to prevent rapid switching

}

}