Code for the servo motor braking system

#include <Servo.h>

// Define pins for IR sensor, relay, and servo

#define IR\_SENSOR\_PIN 2

#define RELAY\_PIN 7 // Pin for controlling the relay

#define SERVO\_PIN 6 // Pin for controlling the servo

Servo brakeServo; // Servo object for braking

void setup() {

// IR sensor pin

pinMode(IR\_SENSOR\_PIN, INPUT);

// Relay pin

pinMode(RELAY\_PIN, OUTPUT);

// Attach servo to pin

brakeServo.attach(SERVO\_PIN);

// Initialize servo and relay

brakeServo.write(0); // Servo in "no brake" position (0 degrees)

digitalWrite(RELAY\_PIN, LOW); // Relay off initially (motor is off)

}

void loop() {

// Read IR sensor value

int irValue = digitalRead(IR\_SENSOR\_PIN);

if (irValue == LOW) { // Obstacle detected

// Stop the motor (turn off relay)

digitalWrite(RELAY\_PIN, HIGH); // Relay off (motor stops)

// Apply brake using servo at 90 degrees

brakeServo.write(90); // Move servo to 90 degrees (brake position)

delay(2000); // Wait for 2 seconds at 90 degrees

// Return servo to 0 degrees (initial position)

brakeServo.write(0); // Move servo back to 0 degrees (brake released)

delay(1000); // Wait for 1 second at position 0

} else { // No obstacle

// Release brake

brakeServo.write(0); // Move servo to "no brake" position

delay(500); // Wait for servo to move

// Turn on the relay to power the motor (motor moves forward)

digitalWrite(RELAY\_PIN, LOW); // Relay on (motor starts)

}

}