Obstacle Avoiding Robot using Arduino – Source Code

This document contains the complete Arduino source code for an Obstacle Avoiding Robot using Arduino UNO, Ultrasonic Sensor (HC-SR04), and Motor Driver (L298N/L293D). This PDF can be uploaded directly to GitHub as project documentation.

```
// Obstacle Avoiding Robot using Arduino
// Author: Your Name
// Description: Robot avoids obstacles using ultrasonic sensor

#define trigPin 9
#define echoPin 10

#define ENA 3
#define ENB 11
#define IN1 5
#define IN2 6
#define IN3 7
#define IN4 8

long duration;
int distance;

void setup() {
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);

  pinMode(ENA, OUTPUT);
  pinMode(ENB, OUTPUT);
  pinMode(IN1, OUTPUT);
  pinMode(IN2, OUTPUT);
  pinMode(IN3, OUTPUT);
  pinMode(IN4, OUTPUT);

  Serial.begin(9600);
}

void loop() {
  distance = getDistance();
  Serial.println(distance);

  if (distance > 20) {
    moveForward();
  } else {
    stopRobot();
    delay(300);
    turnRight();
    delay(500);
  }
}

int getDistance() {
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);

  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

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

void moveForward() {
  digitalWrite(IN1, HIGH);
  digitalWrite(IN2, LOW);
  digitalWrite(IN3, HIGH);
  digitalWrite(IN4, LOW);

  analogWrite(ENA, 150);
```

```
  analogWrite(ENB, 150);
}

void stopRobot() {
  digitalWrite(IN1, LOW);
  digitalWrite(IN2, LOW);
  digitalWrite(IN3, LOW);
  digitalWrite(IN4, LOW);
}

void turnRight() {
  digitalWrite(IN1, HIGH);
  digitalWrite(IN2, LOW);
  digitalWrite(IN3, LOW);
  digitalWrite(IN4, HIGH);

  analogWrite(ENA, 150);
  analogWrite(ENB, 150);
}
```