Code Robot

// constants won't change

**const** **int** TRIG\_PIN = **11**; // Arduino pin connected to Ultrasonic Sensor's TRIG pin

**const** **int** ECHO\_PIN = **10**; // Arduino pin connected to Ultrasonic Sensor's ECHO pin

**const** **int** LED\_PIN = **8**; // Arduino pin connected to LED's pin

**const** **int** BUZZER\_PIN = **9**; // Arduino pin connected to Piezo Buzzer's pin

**const** **int** DISTANCE\_THRESHOLD = **20**; // centimeters

// constants won't change

**const** **int** ENA\_PIN = **7**; // the Arduino pin connected to the EN1 pin L298N

**const** **int** IN1\_PIN = **6**; // the Arduino pin connected to the IN1 pin L298N

**const** **int** IN2\_PIN = **5**; // the Arduino pin connected to the IN2 pin L298N

**const** **int** IN3\_PIN = **4**; // the Arduino pin connected to the IN1 pin L298N

**const** **int** IN4\_PIN = **3**; // the Arduino pin connected to the IN2 pin L298N

// variables will change:

**float** duration\_us, distance\_cm;

// the setup function runs once when you press reset or power the board

**void** **setup**() {

// initialize digital pins as outputs.

Serial.begin (**9600**); // initialize serial port

pinMode(TRIG\_PIN, OUTPUT); // set arduino pin to output mode

pinMode(ECHO\_PIN, INPUT); // set arduino pin to input mode

pinMode(LED\_PIN, OUTPUT); // set arduino pin to output mode

pinMode(ENA\_PIN, OUTPUT);

pinMode(IN1\_PIN, OUTPUT);

pinMode(IN2\_PIN, OUTPUT);

}

**void** **loop**() {

// generate 10-microsecond pulse to TRIG pin

digitalWrite(TRIG\_PIN, HIGH);

delayMicroseconds(**10**);

digitalWrite(TRIG\_PIN, LOW);

// measure duration of pulse from ECHO pin

duration\_us = pulseIn(ECHO\_PIN, HIGH);

// calculate the distance

distance\_cm = **0.017** \* duration\_us;

**if** (distance\_cm < DISTANCE\_THRESHOLD) {

digitalWrite(BUZZER\_PIN, HIGH); // turn on Piezo Buzzer

digitalWrite(LED\_PIN, HIGH); // turn on LED

digitalWrite(IN1\_PIN, LOW); // control motor A spins anti-clockwise

digitalWrite(IN3\_PIN, LOW); // control motor A spins clockwise

**for** (**int** speed = **255**; speed >= **0**; speed--) {

analogWrite(IN2\_PIN, speed); // control the speed

analogWrite(IN4\_PIN, speed); // control the speed

//delay(10);

}

}

**if** (distance\_cm > DISTANCE\_THRESHOLD) {

digitalWrite(BUZZER\_PIN, LOW); // turn off Piezo Buzzer

digitalWrite(LED\_PIN, LOW); // turn off LED

digitalWrite(IN2\_PIN, LOW); // control motor A spins clockwise

digitalWrite(IN4\_PIN, LOW); // control motor A spins clockwise

**for** (**int** speed = **0**; speed <= **255**; speed++) {

analogWrite(IN1\_PIN, speed); // control the speed

analogWrite(IN3\_PIN, speed); // control the speed

//delay(10);

}

}

}