Shaan Subbaiah B C - 1BM18CS096

Program no – 11

Program Title – Measure distance using an Ultrasonic Sensor, LCD

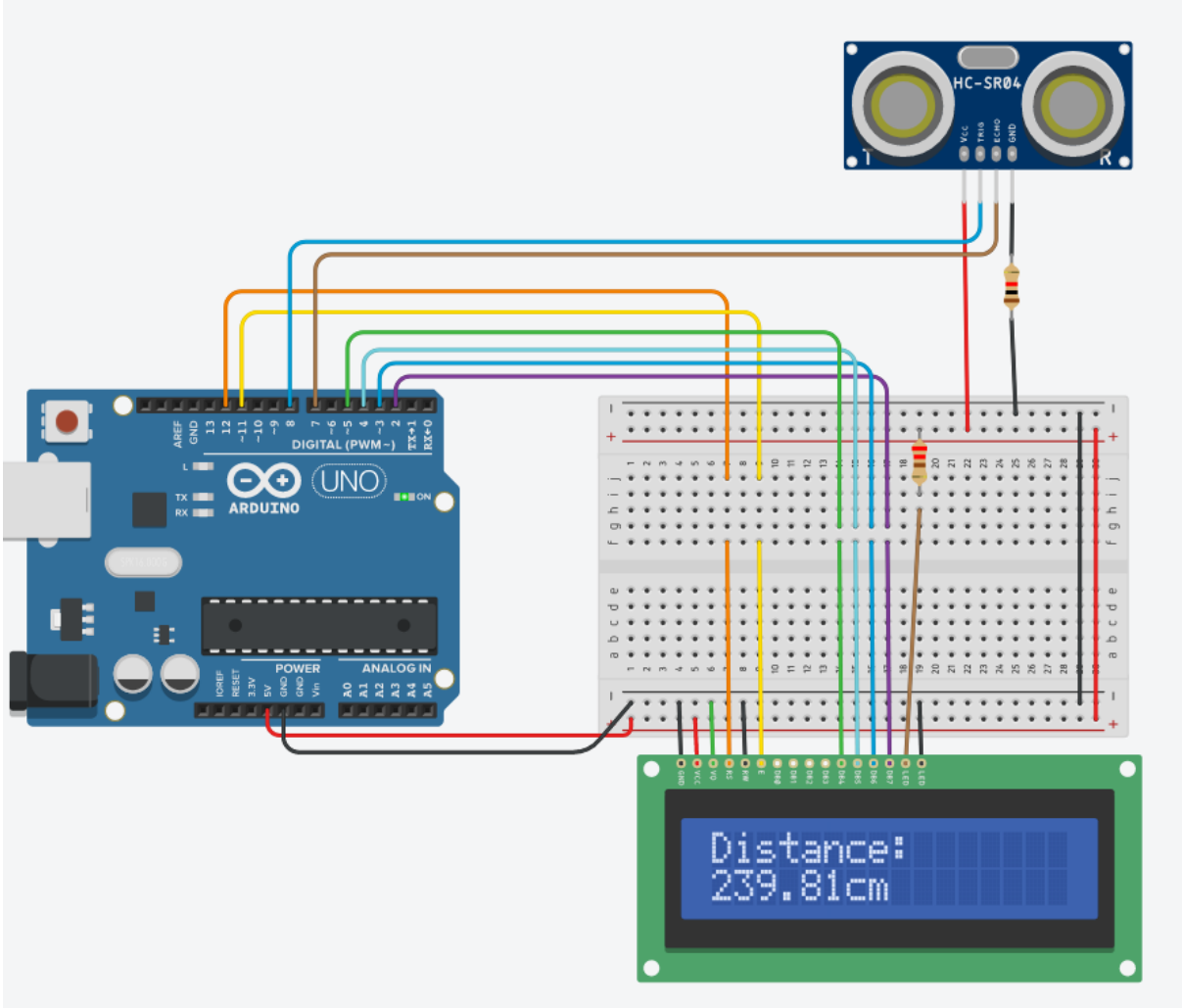
Aim

To display distance measured of an object on the LCD panel using an Ultrasonic Sensor.

Hardware Required

- Arduino Board
- Ultrasonic Sensor – HC-SR04
- 16x2 LCD
- 2x 240 Ohm Resistor

Circuit Diagram



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```
#include <LiquidCrystal.h>

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

void setup(){
    lcd.begin(16,2);
    lcd.print("Distance: ");

    pinMode(7, INPUT);
    pinMode(8, OUTPUT);

    Serial.begin(9600);
}

void loop(){
    lcd.setCursor(0,1);
    digitalWrite(8, HIGH);
    delayMicroseconds(10);
    digitalWrite(8, LOW);

    float duration = pulseIn(7, HIGH);
    float dist = duration * 0.034 / 2;

    lcd.print((String) dist + "cm");

    Serial.println((String) dist + "cm");
}
```

Code:

```
// Shaan Subbaiah B C - 1BM18CS096
// Distance using HC-SR04

/*
  The circuit:
 * LCD RS pin to digital pin 12
 * LCD Enable pin to digital pin 11
 * LCD D4 pin to digital pin 5
 * LCD D5 pin to digital pin 4
 * LCD D6 pin to digital pin 3
 * LCD D7 pin to digital pin 2
 * LCD R/W pin to ground
 * LCD VSS pin to ground
 * LCD VCC pin to 5V
 * 10K resistor:
 * ends to +5V and ground
 * wiper to LCD VO pin (pin 3)
*/
#include <LiquidCrystal.h>

// initialize the library with the numbers of the interface pins
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

void setup() {
  // set up the LCD's number of columns and rows:
  lcd.begin(16, 2);
  // Print a message to the LCD.
  lcd.print("Distance:");

  pinMode(7, INPUT);
  pinMode(8, OUTPUT);

  Serial.begin(9600);
}

void loop() {
  // set the cursor to column 0, line 1
  // (note: line 1 is the second row, since counting begins with 0):
  lcd.setCursor(0, 1);

  digitalWrite(8, HIGH);
```

```
  delayMicroseconds(10);
  digitalWrite(8, LOW);

  float duration = pulseIn(7, HIGH);
  float dist = duration*0.034/2;

  lcd.print((String)dist+"cm");
  Serial.println((String)dist+"cm");
}
```

Observation /Output

Distance is displayed on the LCD panel.