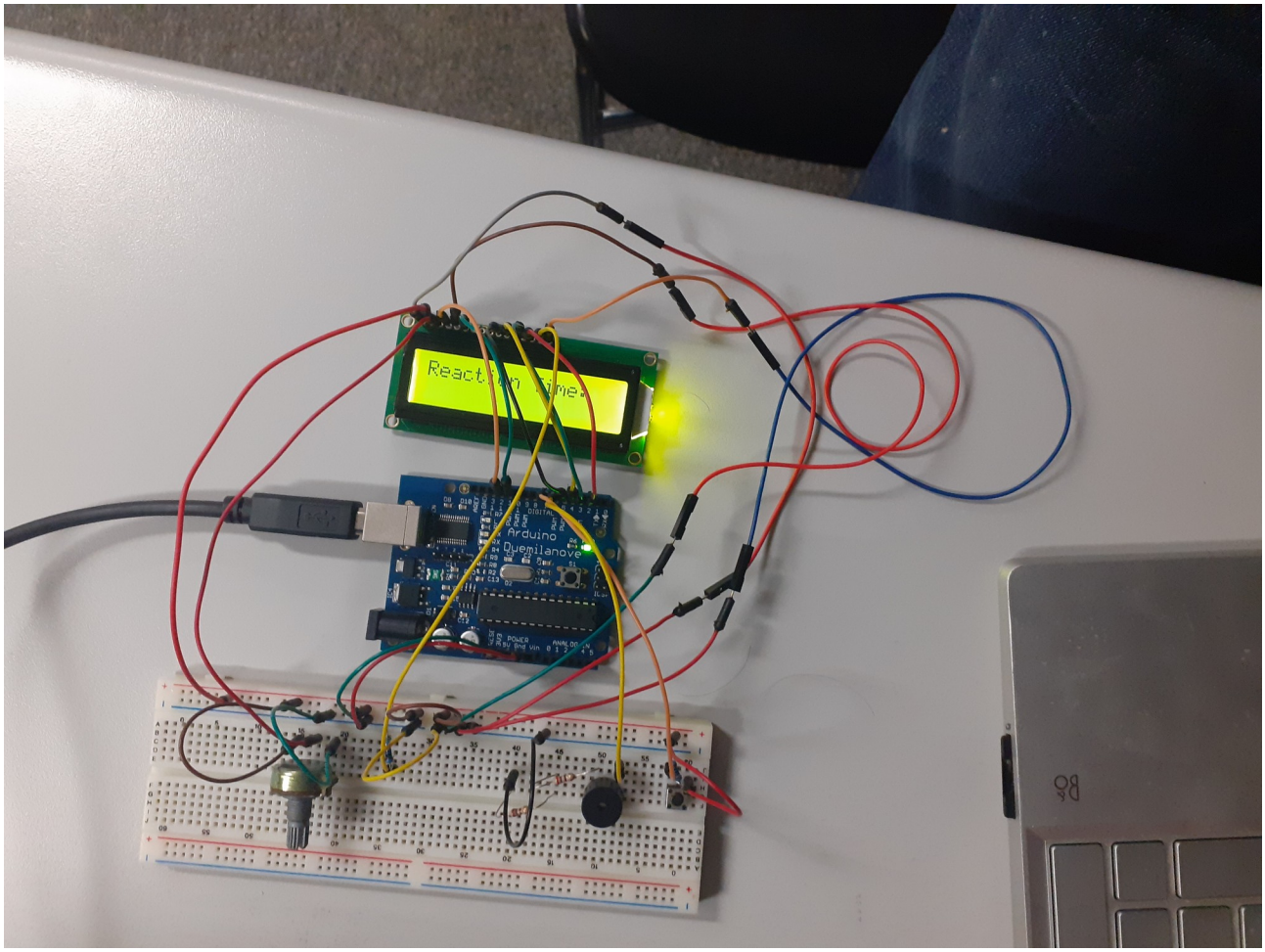
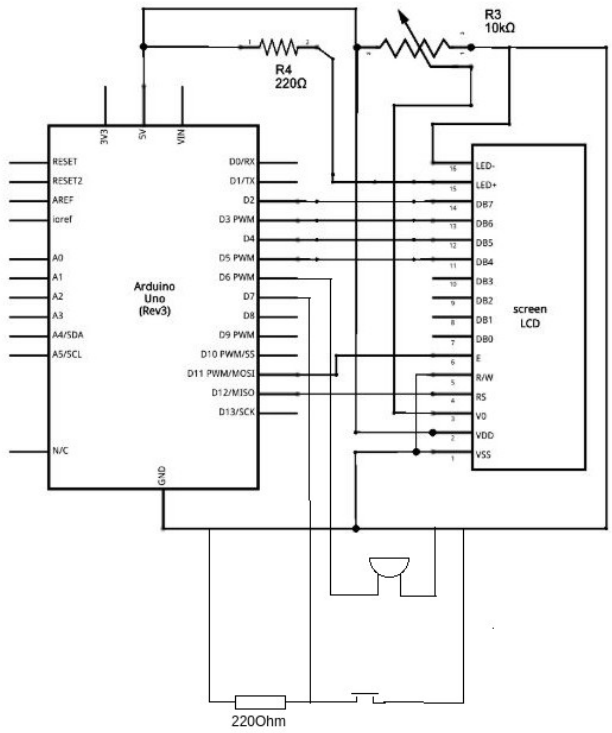
Assignment 2:LCD and Reaction Timer V1

Image



Circuit Diagram



Code

```
/*
  LiquidCrystal Library - Hello World

  Demonstrates the use a 16x2 LCD display.  The LiquidCrystal
  library works with all LCD displays that are compatible with the
  Hitachi HD44780 driver. There are many of them out there, and you
  can usually tell them by the 16-pin interface.

  This sketch prints "Hello World!" to the LCD
  and shows the time.

  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)

  Library originally added 18 Apr 2008
  by David A. Mellis
  library modified 5 Jul 2009
  by Limor Fried (http://www.ladyada.net)
  example added 9 Jul 2009
  by Tom Igoe
  modified 22 Nov 2010
  by Tom Igoe
  modified 7 Nov 2016
  by Arturo Guadalupi

  This example code is in the public domain.

  http://www.arduino.cc/en/Tutorial/LiquidCrystalHelloWorld

*/

// include the library code:
#include <LiquidCrystal.h>
#define BUZZER 6
#define BUTTON 7
```

```
// initialize the library by associating any needed LCD interface pin
// with the arduino pin number it is connected to
const int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);
const int time_before_buzz = random(10000);
bool buzzed = false;
bool pressed = false;
void setup() {
  // set up the LCD's number of columns and rows:
  lcd.begin(16, 2);
  // Print a message to the LCD.
  lcd.print("Reaction Time:");
  pinMode(BUZZER, OUTPUT);
  pinMode(BUTTON, INPUT);
  Serial.begin(9600);



}

void loop() {
  static int buzz_time;
  lcd.setCursor(0,1);
  // if the random amount of time has passed and this is our first time round the loop
  if (millis() >= time_before_buzz && !buzzed) {
    // set the buzzer pin to high
    PORTD |= 0b01000000;
    buzzed = true;
    buzz_time = millis();
  }
  if (PIND&0b10000000 && !pressed  && buzzed){
    Serial.println("button pressed");
    PORTD &= 0b10111111;
```

```
    lcd.print(millis()- buzz_time);
    pressed=true;
  }

}
```