Mã lớp: 22324-CT29502

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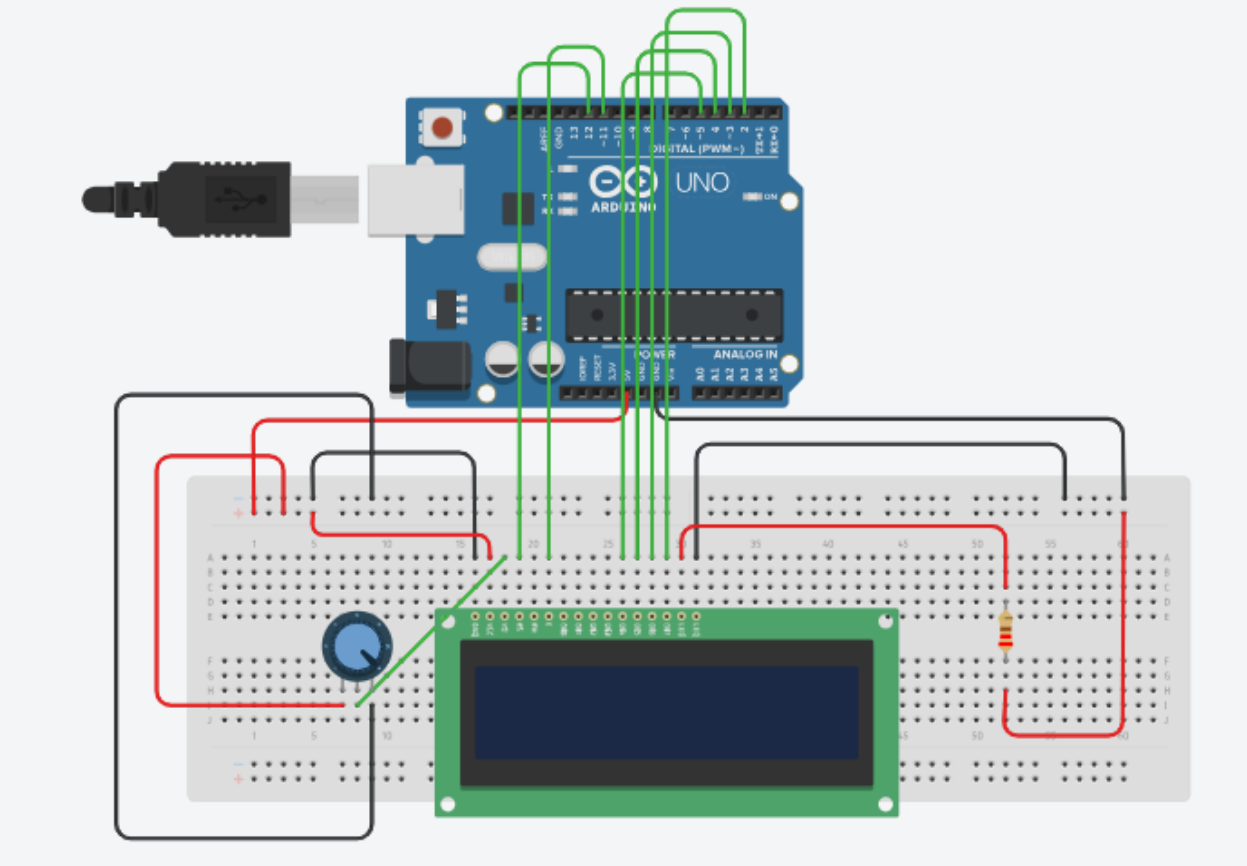
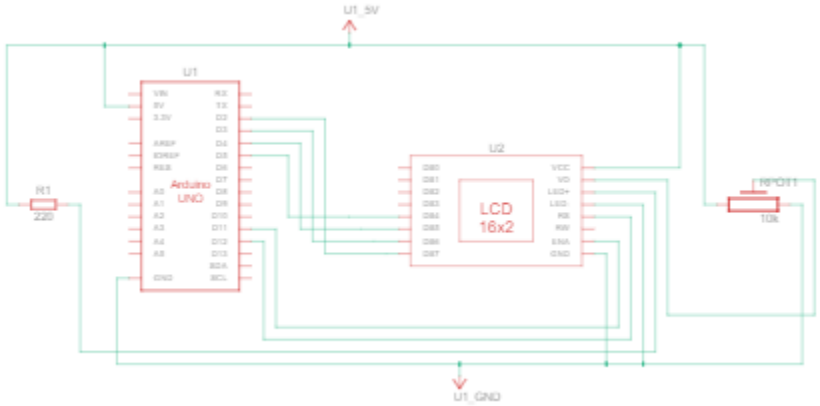
MSSV: B2110083

Ex 2.1:

- Install the circuit to connect the Arduino Uno to the LCD 1602
- Write a proggram to display Hello World on LCD 1602

1. Sơ đồ mạch





2. Sơ đồ chân

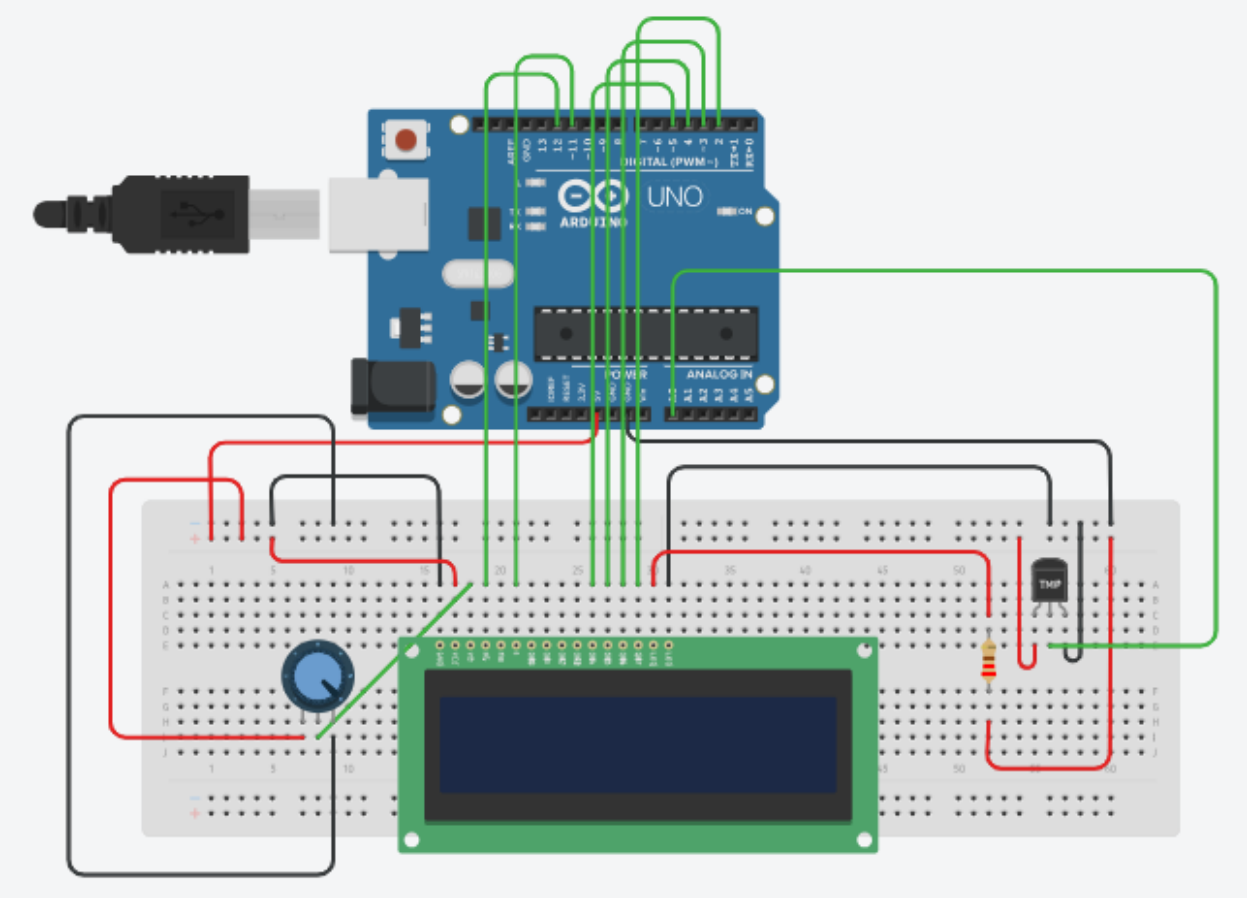
Arduino	LCD1602	Potentiometer	Ghi chú
D2	DB7		
D3	DB6		
D4	DB5		
D5	DB4		
D11	Enable		
D12	Register Select		
5V	VCC		
5V		Terminal 1	
5V	LED Anode		
GND	GND		
GND		Terminal 2	
GND	LED Cathode		
	Contrast	Wiper	

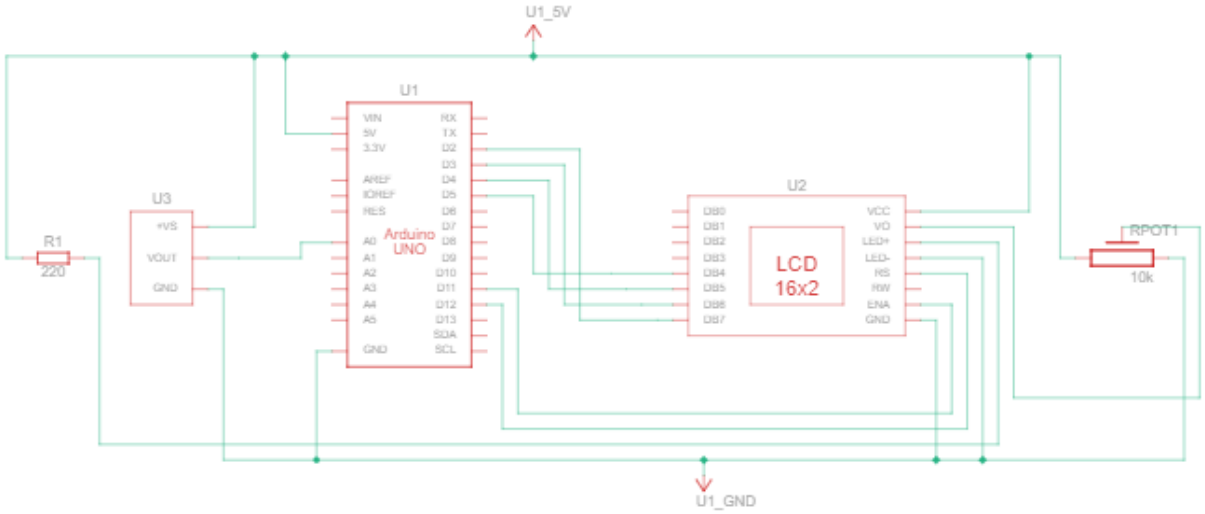
3. Mã lệnh

```
#include <LiquidCrystal.h>

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

void setup() {
  lcd.begin(16, 2);
  lcd.clear();
}

void loop() {
  lcd.setCursor(0, 0);
  lcd.print("Hello World!!!");
  lcd.setCursor(0, 1);
}
```

Ex 2.2:

- Install the circuit to connect the Arduino Uno to the TMP36 temperature sensor and LCD1602
- Write a program to read temperature from the temperature sensor and display it on the LCD
    1. Sơ đồ mạch





2. Sơ đồ chân

Arduino	LCD1602	Potentiometer	TMP36	Ghi chú
D2	DB7			
D3	DB6			
D4	DB5			
D5	DB4			
D11	Enable			
D12	Register Select			
5V	VCC			
5V		Terminal 1		
5V	LED Anode			
GND	GND			
GND		Terminal 2		
GND	LED Cathode			
	Contrast	Wiper		
5V			Power	
GND			GND	
A0			Vout	

3. Mã lệnh

```
# include <LiquidCrystal.h>

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

int sensorPin = A0;

void setup() {
  Serial.begin(9600);
  lcd.begin(16, 2);
  lcd.print("Hello World!!!");
}

void loop() {
  int reading = analogRead(sensorPin);

  float voltage = reading * 5.0 / 1024.0;

  float temp = voltage * 100.0;

  lcd.setCursor(0, 1);
  lcd.print("Temp: ");
  lcd.print(temp);
  lcd.print(char(178));
  lcd.print("C");
  delay(1000);
}
```