Temp Sensor and LCD

“KEEP IT TOASTY FRIENDS”

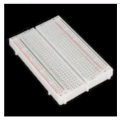
COMPONENTS AND SUPPLIES

Arduino UNO

Temperature Sensor

Adafruit Standard LCD - 16x2 White on Blue

Jumper wires (generic)



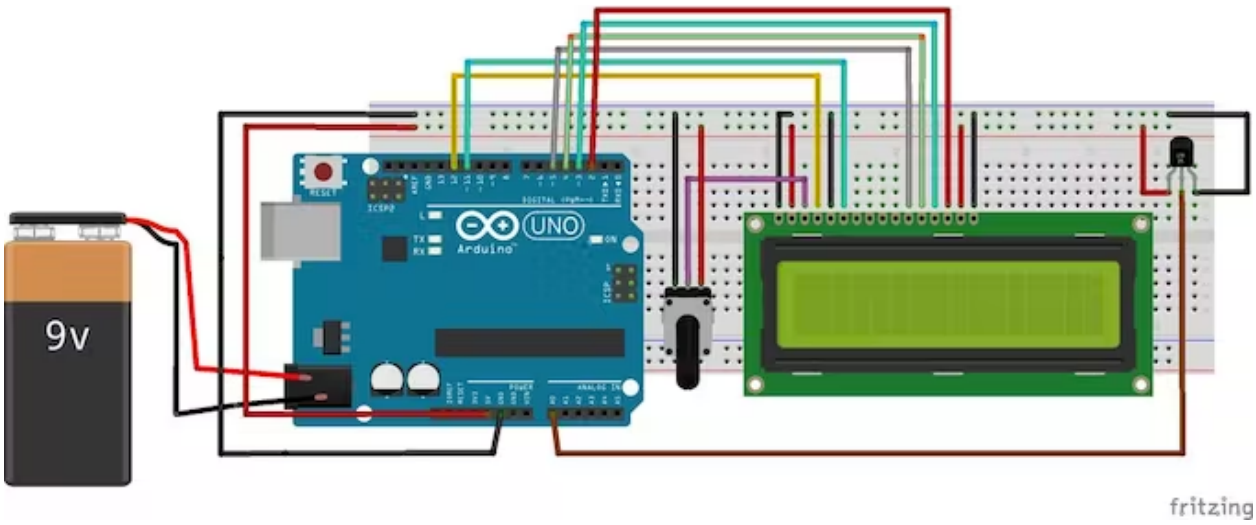
Breadboard (generic)

Make an LCD thermometer with an Arduino UNO and a LM35/36 analog temperature sensor with jumpers and a breadboard.

By following the schematic below, plug the LCD in the breadboard and then connect it to the Arduino board with jumpers. After that plug the potentiometer and the sensor in the breadboard, connect the left and the right pins of the pot to ground and +5V and the middle one to the LCD display.

Then connect the sensor to ground and to +5V and to the Arduino but be very carefully, because if you connect it wrong the sensor will heat up to 280+ C(540 F) and might get damaged. Once you have connected everything move on the next step.

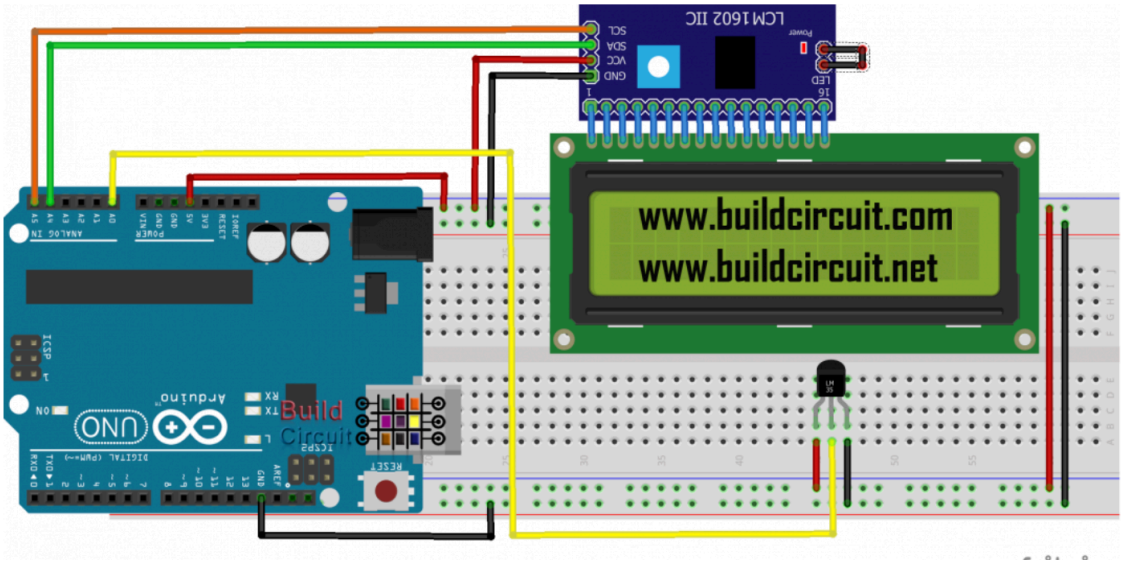
This schematic is for parallel bus LCD



```
<p>// include the library code #include
// initialize the library with the numbers of the
interface pins
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
// initialize our variables
int sensorPin = 0;
int tempC, tempF;
void setup() {
// set up the LCD's number of columns and rows:
lcd.begin(16, 2);
}
void loop() {
tempC = get_temperature(sensorPin);
tempF = celsius_to_fahrenheit(tempC);
lcd.setCursor(0,0);
lcd.print(tempF); lcd.print(" "); lcd.print((char)223);
lcd.print("F");
delay(200);
}
int get_temperature(int pin) {
// We need to tell the function which pin the sensor is
hooked up to. We're using
// the variable pin for that above
// Read the value on that pin
int temperature = analogRead(pin);
// Calculate the temperature based on the reading and
send that value back
float voltage = temperature * 5.0;
voltage = voltage / 1024.0;
return ((voltage - 0.5) * 100);
}
```

```
int celsius_to_fahrenheit(int temp) {
return (temp * 9 / 5) + 32;
}</p>
#include <LiquidCrystal.h>
LiquidCrystal lcd(12, 11, 5, 4, 3, 2); //Digital pins
to which you connect the LCD
const int inPin = 0;                    // A0 is where
you connect the sensor
void setup()
{
  lcd.begin(16,2);
}
void loop()
{
  int value = analogRead(inPin); // read the value from
the sensor
  lcd.setCursor(0,1);
  float millivolts = (value / 1024.0) * 5000;
  float celsius = millivolts / 10;
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print(celsius);
  lcd.print("C");
  lcd.setCursor(0,1);
  lcd.print((celsius * 9)/5 + 32); //turning the
celsius into fahrehait
  lcd.print("F");
  delay(1000);
}
```

SCHEMATIC WHILE USING I2C LCD:



This is just a simple Arduino project comprising Arduino, LM35, and I2C LCD. It displays the room temperature on the I2C LCD and the serial monitor.

DWEEN CODE:

```
 int t=0;
int sensor = A0;
float temp;
float tempc;
float tempf;
```

```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
//const int rs= 12, en=11, d4=5, d5=4, d6=3, d7=2;
LiquidCrystal_I2C lcd(0x27, 2, 16);
void setup() {
pinMode(sensor,INPUT);
lcd.begin();
lcd.backlight();
Serial.begin(9600);
} void loop() {
delay(2000);
t=t+2;
temp=analogRead(sensor);
tempc=(temp*5)/10;
tempf=(tempc*1.8)+32;
Serial.println("_______");
Serial.println("Temperature Logger");
Serial.print("Time in Seconds= ");
Serial.println(t);
Serial.print("Temp in deg Celcius = ");
Serial.println(tempc);
Serial.print("Temp in deg Fahrenheit = ");
Serial.println(tempf);
lcd.setCursor(0,0);
lcd.print("Temp in C = ");
lcd.println(tempc);
lcd.setCursor(0,1);
lcd.print("Temp in F = ");
lcd.println(tempf);
}
```