Character LCD I2c Adapter (I2c Connection Example)

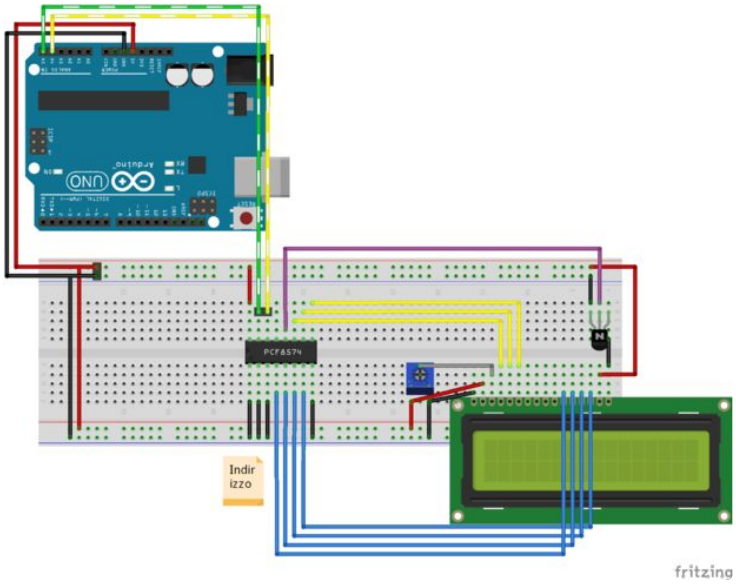
by xxreef

I create a connection schema for create a personal board to connect It in i2c mode.

LiquidCrystal Arduino library for the character LCD displays, forked project for create a personal schema to learning pcf8574.

In the github project you can find schema, photo and library code.

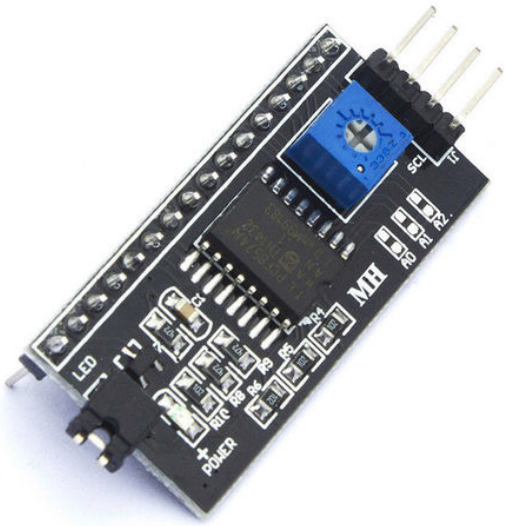
Here a video of milled PCB derived from Fritzing breadboard schema.



https://youtu.be/A2fXZqE8OaM

Step 1: Original Part for Original Library

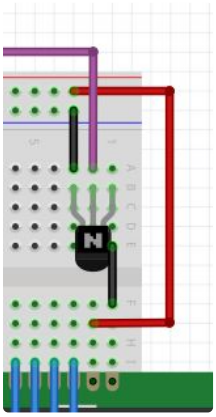
You can find the component for the original library (not my forked) from eBay.



Step 2: Wiring Diagram: Back Light

As you can see in the wiring diagram I connect to P7 an NPN (2N2222) transistor to enable/disable backlight.

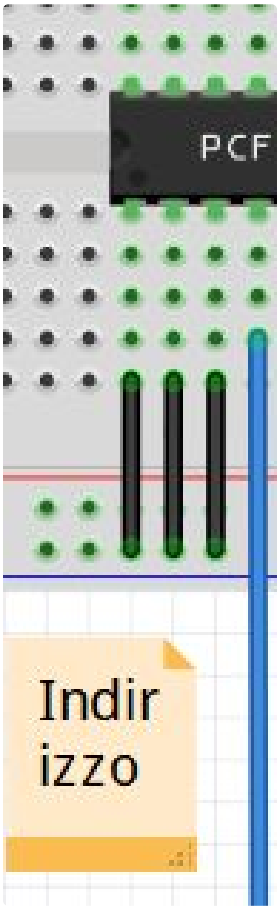
On library I must invert power on to LOW from HIGH because I have only a NPN transistor.



Step 3: Wiring Diagram: Address

I set the address all low (you can connect It as you need, in the datasheet you can find all configuration).

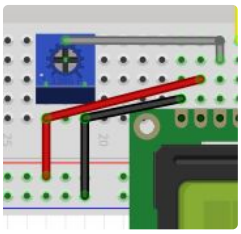
I find very useful sketch that search all i2c component attached, use this to check address.



INPUTS			I²C BUS SLAVE 8-BIT READ ADDRESS	I²C BUS SLAVE 8-BIT WRITE ADDRESS
A2	A1	A0		
L	L	L	65 (decimal), 41 (hexadecimal)	64 (decimal), 40 (hexadecimal)
L	L	H	67 (decimal), 43 (hexadecimal)	66 (decimal), 42 (hexadecimal)
L	H	L	69 (decimal), 45 (hexadecimal)	68 (decimal), 44 (hexadecimal)
L	H	H	71 (decimal), 47 (hexadecimal)	70 (decimal), 46 (hexadecimal)
H	L	L	73 (decimal), 49 (hexadecimal)	72 (decimal), 48 (hexadecimal)
H	L	H	75 (decimal), 4B (hexadecimal)	74 (decimal), 4A (hexadecimal)
H	H	L	77 (decimal), 4D (hexadecimal)	76 (decimal), 4C (hexadecimal)
H	H	H	79 (decimal), 4F (hexadecimal)	78 (decimal), 4E (hexadecimal)

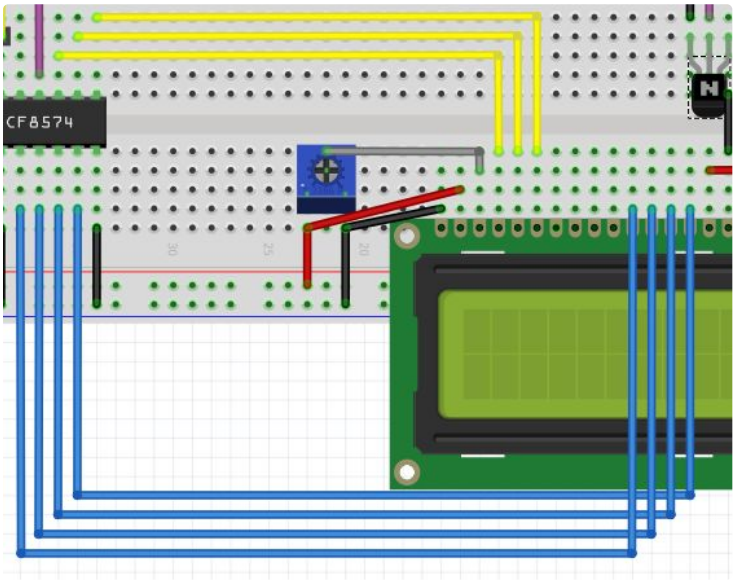
Step 4: Wire Diagram: Trimmer

To select correct contrast you need to add a trimmer 1K is best with 10K is more difficult to find correct contrast.



Step 5: Wiring Diagram: Transfer Data

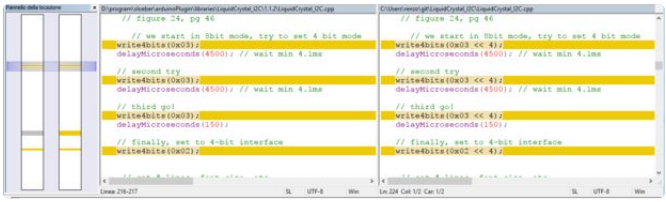
Blue and yellow wire is to send data to device, I don't connect the device as original library so I must fork the lib and add some change.

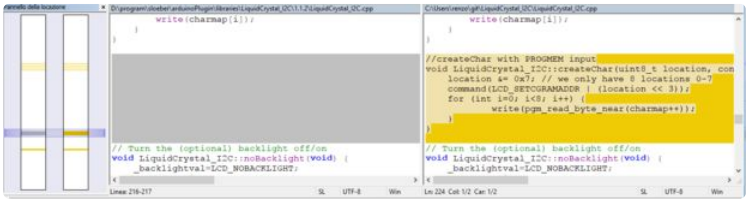


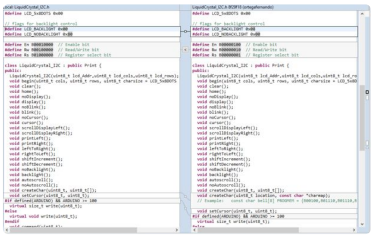
Step 6: Change to the Original Lib

As you can see in the image I shift some bit, and substitute it with fixed declaration of Enable, RW, Register Select, and Back light pin.

If you want you can reconvert the schema to the original.

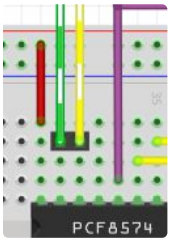






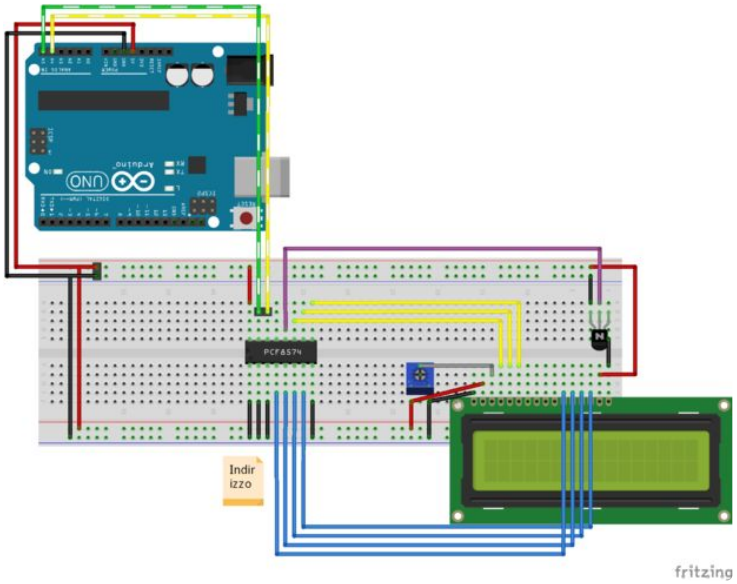
Step 7: Wire Diagram: SDA SCL

Banded wire is the SDA SCL pin of my arduino.



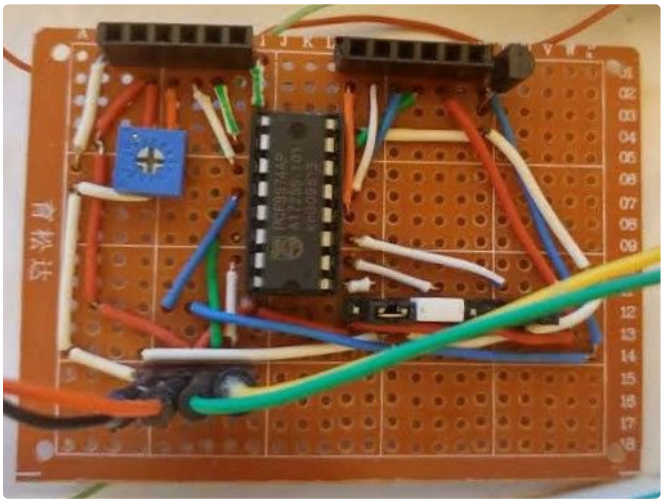
Step 8: Wire Diagram

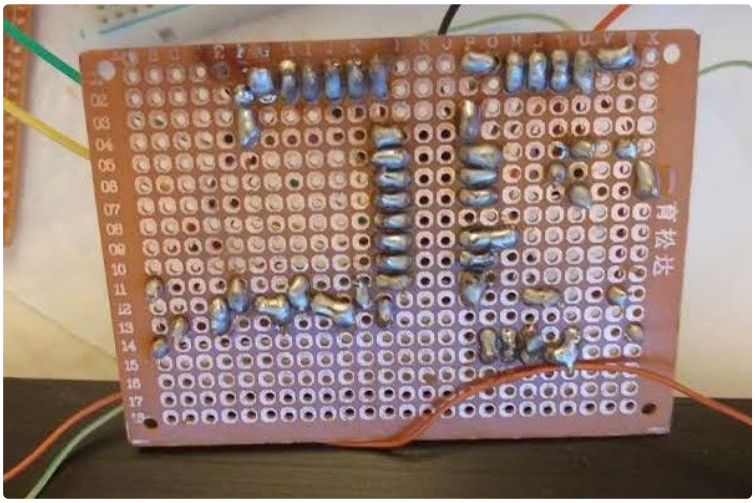
As you can see the wiring diagram is quite simple, than I try to create on prototype board the schema.

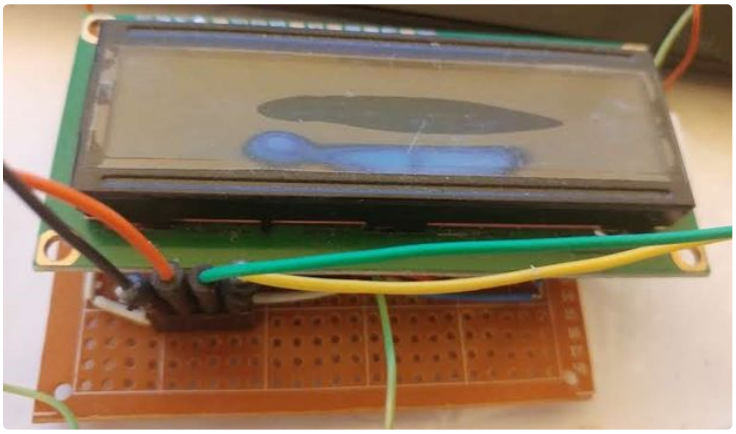


Step 9: Prototype Board

It's not so beatiful but It's work.

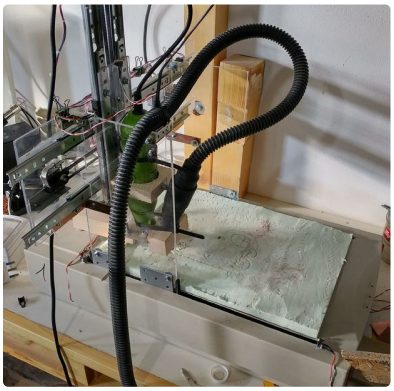


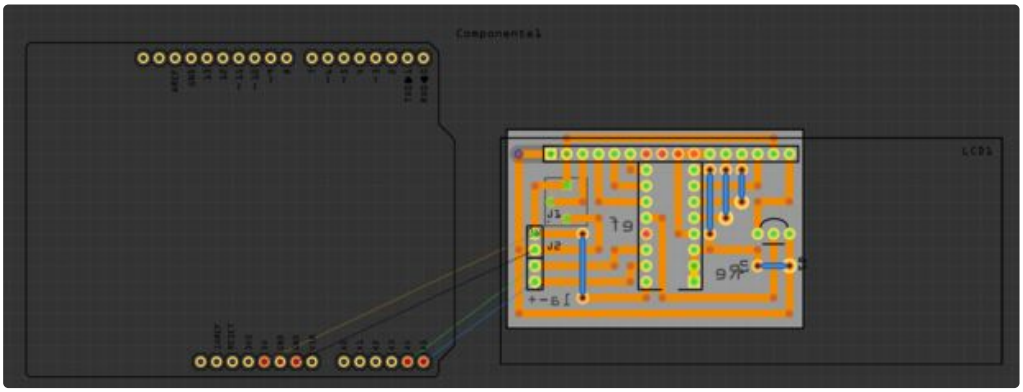


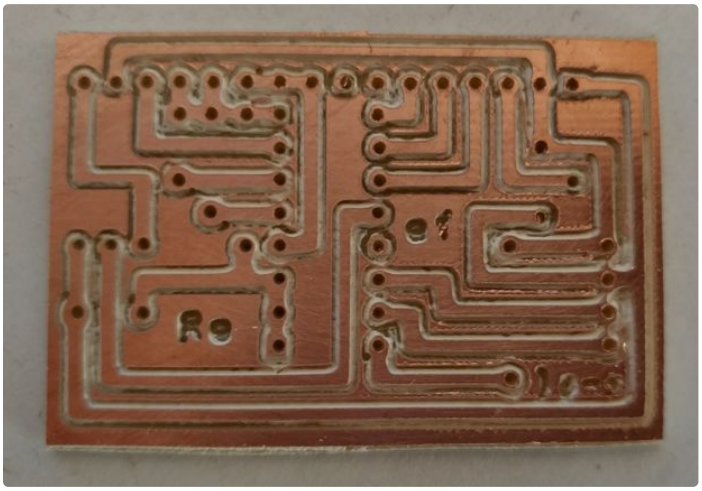


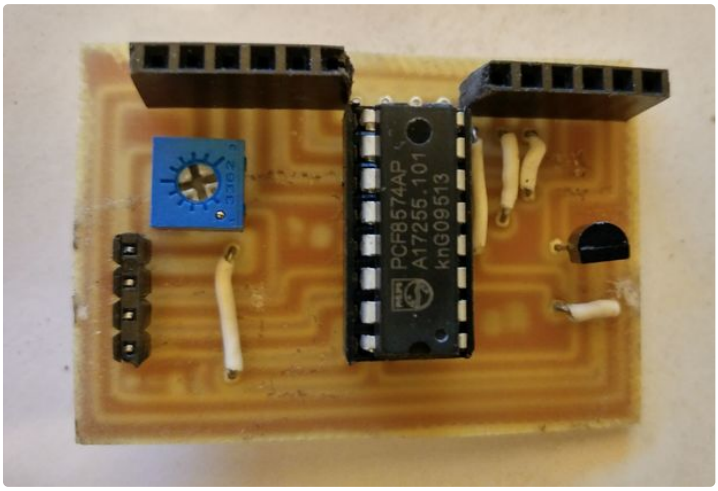
Step 10: Milling PCB

From the schema I create a PCB and I try to mill PCB with my router (I'm starting a guide how to mill PCB).









Step 11: Thanks

i2c project series:

- Temperature humidity sensor
- Analog expander
- Digital expander
- LCD