

# Arduino-project 006 – Display text on a LCD

May 31, 2018 | Example code, Guides | 0 comments

Sometimes you want to give more information to the user of your devices than what can be conveyed with a couple of LEDs. For that an **alphanumeric LCD** is a very convenient solution.

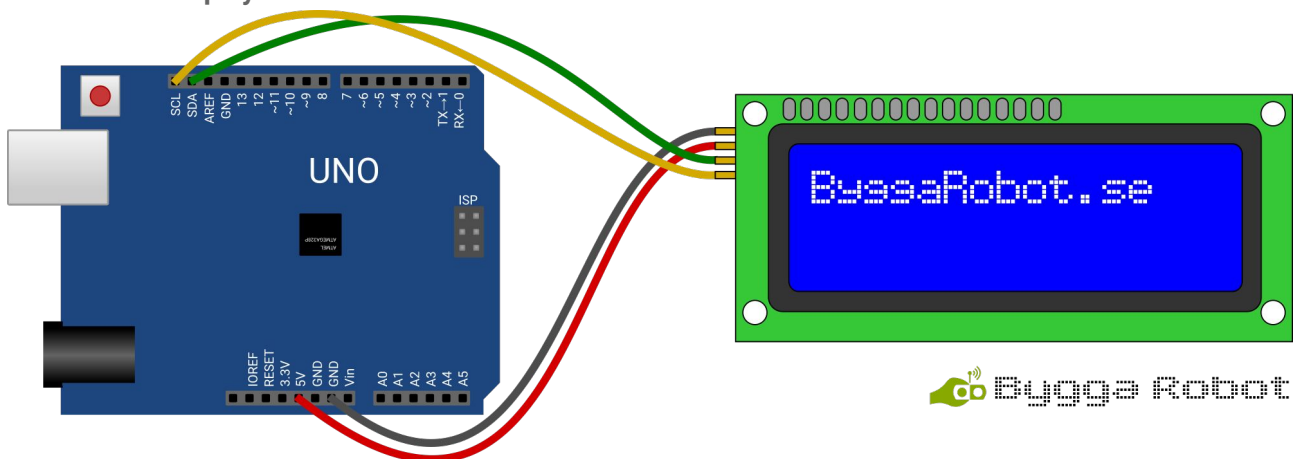
These **displays** can show text and very simple graphics. There are many different sizes and colors but the most common ones have **2 lines with 16 characters**, or **4 lines 20 characters** and are blue/white or green/black. Some also have built-in background light making it possible to read the display when it's dark. These displays usually have a large number of connectors for controlling them, but there exists very cheap modules with a PCF8574-chip that can be soldered to the back of the display giving you a I<sup>2</sup>C-interface instead so that the while display can be controlled using only to wires.

## Code library

In this example we use a **display with 16×2 characters and background light with a I<sup>2</sup>C-module**, but the code is easily adaptable for **other displays**. The only requirement is that the display uses a control chip that is compatible with the very popular **Hitachi HD44780**-chip. The **code library** we use is not included in the default **Arduino environment**, but it's very easy to install using only a few mouse clicks. Start the Arduino development environment program and go to the menu Sketch > Include library > Manage Libraries... This opens the library manager and here you can search for the library "LiquidCrystal\_PCF8574". Once you've found it you click on it and click the install button. Once the library has been downloaded and installed you can close the library manager. You only need to do this once, and the library will then always be available on this computer.

## The circuit

Connect the display to the **Arduino board** as below:



## Description of the code

The code doesn't contain any real surprises. First we include the **code library** for controlling the **display** and create an object for the **display** that keeps track of settings and provides all functions needed, such as write text, erase text and activating the backlight. In **setup()** we start the **display** and make all preparations, such as clearing the **display**, turning on the backlight and write a first line of



text. The main program consists of a **for-loop** that defines a variabel `i` that is set to 10. It then executes its code and decreases `i` with 1 (`i--`) and if `i` is still greater than zero the cde is executed once more. This means that the code inside the **for-loopen** will run 11 times and count from 10 to 0. Each time around the **for-loopen** we erase the second line on the **display** and print out the value of the counter, i.e. the `i` variable and then wait for one second. When the **for-loopen** is done we clear the **display** completely and print out a new message. The last thing happening is that we enter a **while-loop** with a constant true value and without any code. This is something of a special construction which makes the micro controller hang and prevents it from doing anything else until you reset it using the reset button or disconnect the power.