

fabschoolino Connecting a USB connector

CODE / HACK / PLAY

The following four steps will show you how to connect the USB connector so you can upload code onto your Fabschoolino. If you already know how to do this, just skip this section.

1



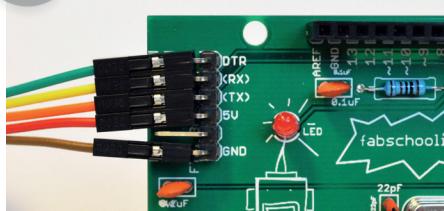
The colour of your cable may differ from those in the Instructable, but don't worry. The cables are exactly the same no matter the colour.

2



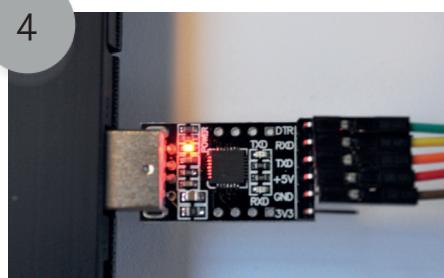
On your USB connector, you'll see a few letters behind each pin. Insert a wire from your cable into each of the pins except for the pin where 3v3 is written.

3



On your Fabschoolino, you'll see the same letters as you see on the USB connector. Insert the wires from the other end of the cable into the pins. Make sure the colours correspond to the USB connector.

4

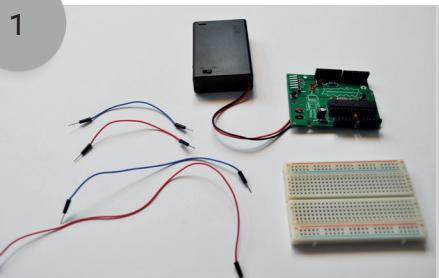


Take out the Fabschoolino's battery. Once you've done this, you can insert the USB connector into the USB port on your computer. Then the LED on the connector should light up.



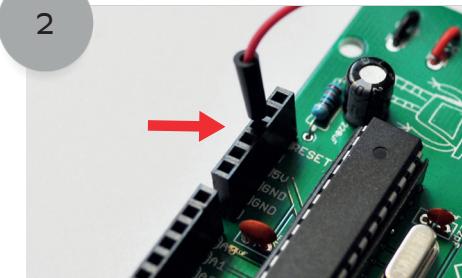
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1



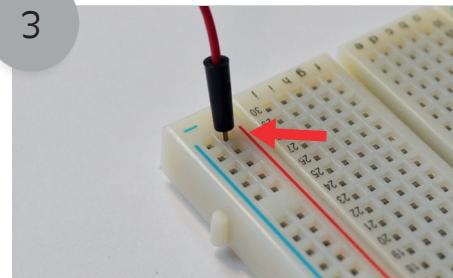
First, you'll need to connect Fabschoolino with the breadboard. For that, you'll need: a Fabschoolino, a breadboard, and 4 wires.

2



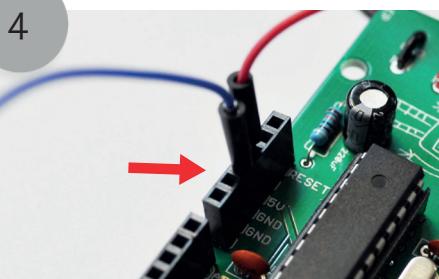
Grab a wire and insert the end of it into the header pin on the Fabschoolino where 5V is written.

3



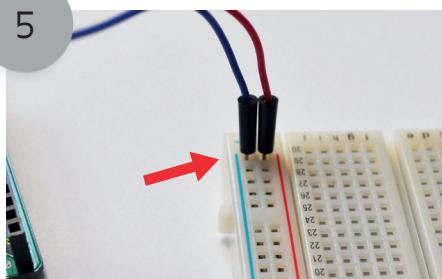
Insert the other end of the wire into the breadboard. Do this on the side where you see the red plus sign.

4



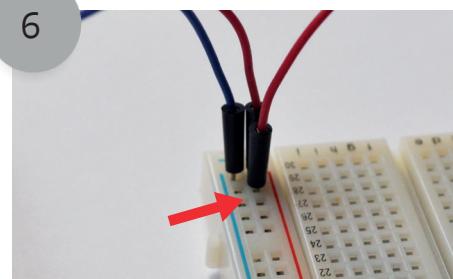
Take another wire and insert it into the header pin where GND is written on the Fabschoolino.

5



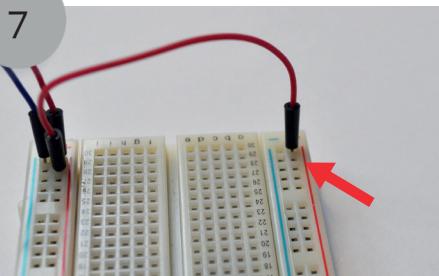
Plug the other end of this wire into the breadboard. Do this on the side where you see the blue minus sign.

6



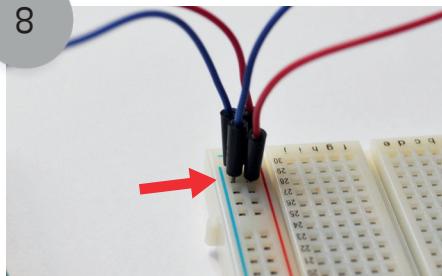
Grab a wire and insert it into the breadboard. Do this, just like with the first wire, on the side where you see the red plus sign.

7



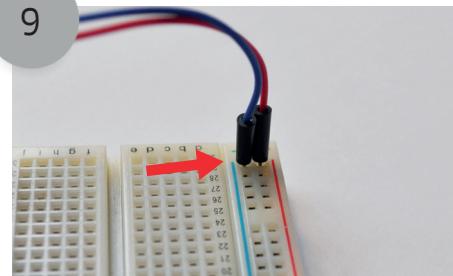
Insert the other end of this wire into the breadboard. Do this on the other side of the breadboard where you'll see another red plus sign.

8



Pick up another wire and insert it into the breadboard. Do this on the side where you see the blue minus sign.

9



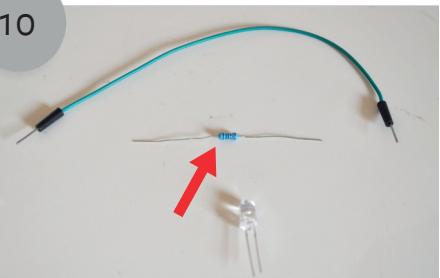
Plug the other end of this wire into the breadboard. Do this on the other side of the breadboard where you'll see another blue minus sign.



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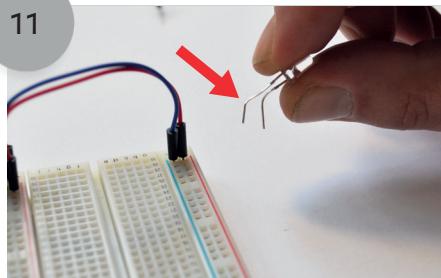
Make your own door alarm

10



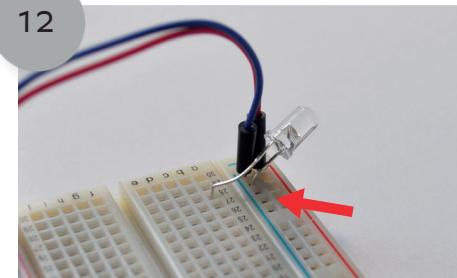
Now you're going to install your LED. You'll need: an LED, a 1K ohm resistor, and a wire.

11



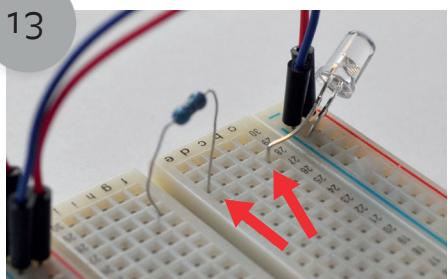
Start by bending the legs of the LED as you see in the picture above. Please note that an LED has both a short and a long leg. Make sure the long leg ends up in the same row as the resistor.

12



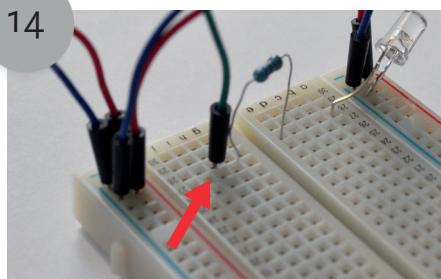
Insert the LED into the breadboard. Make sure you insert the short leg on the side with the blue minus sign. The long leg stays in a row with a letter beside it.

13



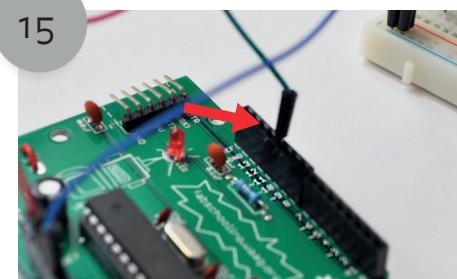
Now you'll install the resistor. Make sure you place the resistor in the same row as the LED.

14



Take the wire and insert it into the same row as the resistor and the LED.

15



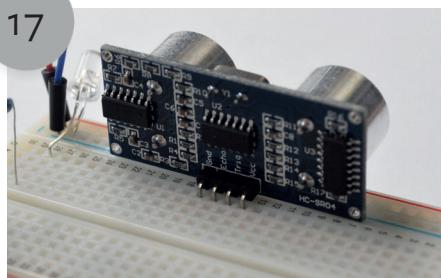
Insert the other end of the wire into header pin 11 on your Fabschoolino.

16



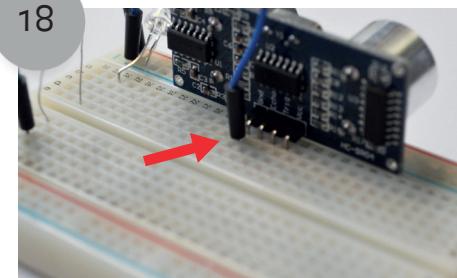
Now it's time to install the ultrasonic sensor. You'll need the following: the ultrasonic sensor and 4 wires.

17



Install the sensor on your breadboard by inserting the sensor's four pins into the breadboard. Do this as pictured above so that you have enough space.

18



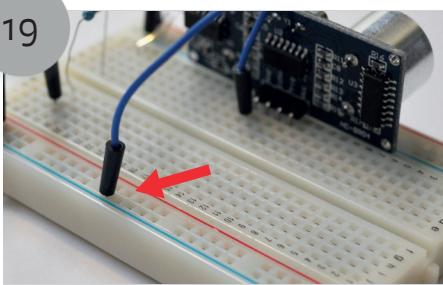
Grab a wire and insert it into the row below the sensor's pin where GND is written.



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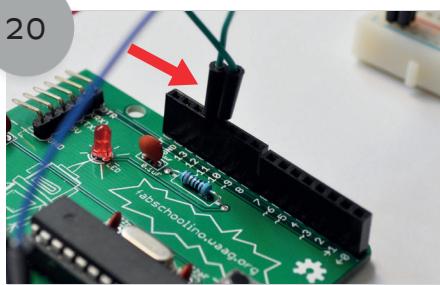
Make your own door alarm

19



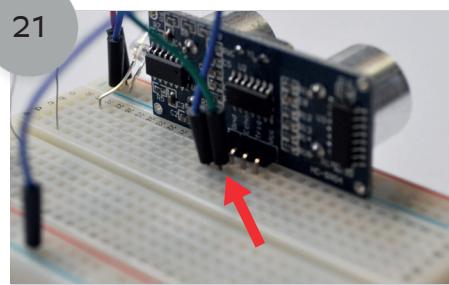
Insert the other end of this wire into the breadboard. Do this on the side where you see the blue minus sign.

20



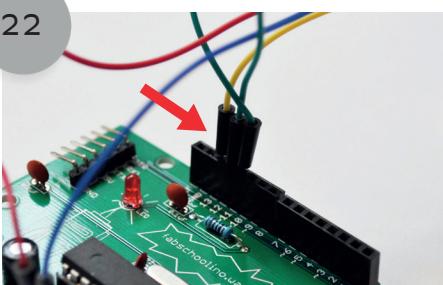
Take a wire and plug it into header pin 12 of your Fabschoolino.

21



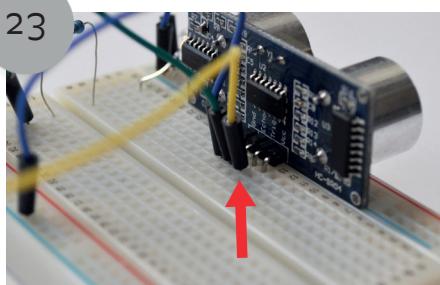
Plug the other end of the wire under the sensor's pin where you'll see "Echo" written.

22



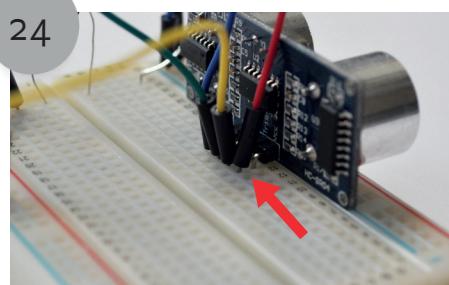
Now take another wire and plug it into header pin 13 of your Fabschoolino.

23



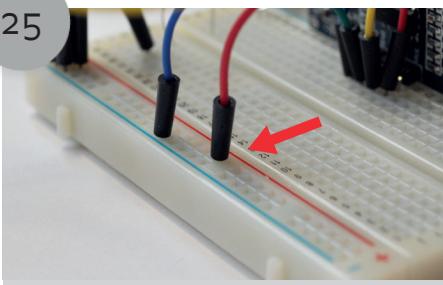
Plug the other end of the wire under the sensor's pin where you'll see "Trig" written.

24



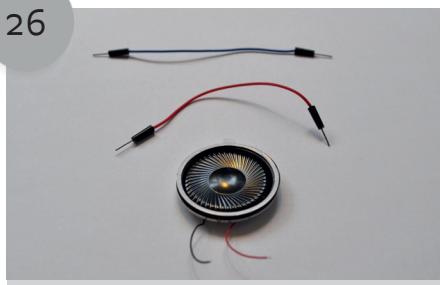
Grab a wire and insert it into the row below the sensor's pin where you'll see "Vcc" written.

25



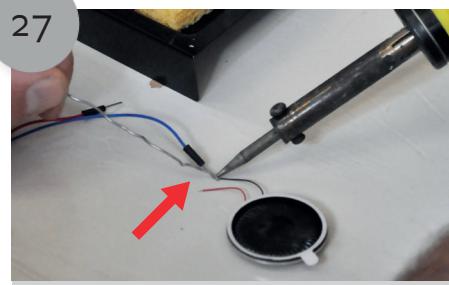
Plug the other end of this wire into the breadboard on the side where you see the red plus sign.

26



Now it's time to install the speaker. You will need the following items: the speaker, two wires, a soldering iron, and solder.

27

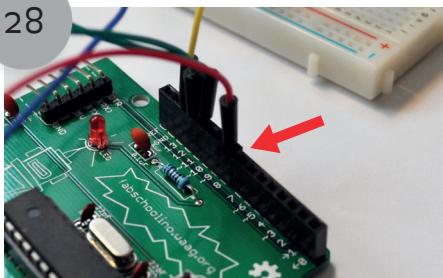


Solder the two wires attached to the speaker. It is convenient to make the wires from the speaker and the loose wires the same colour. That way, it's easier to keep them separate in the following steps.



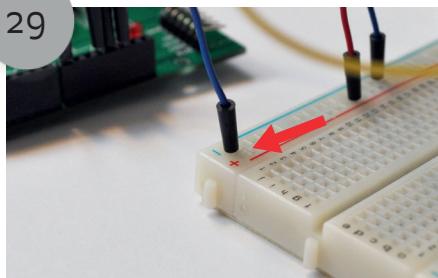
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Grab the wire attached to the red wire on the speaker and insert it into header pin 8 on your Fabschoolino.

29



Grab the wire attached to the black wire on the speaker and insert it into the breadboard. Do this on the side where you see the blue minus sign.

30



Now it's time to put some code onto your Fabschoolino. Follow the instructions in the attachment if you've forgotten how to connect the Fabschoolino to the computer.

31

The screenshot shows a Bitbucket repository page for 'Arduino New Tone' by Tim Eckel. The page includes a sidebar with actions like Clone, Compare, and Fork, and a navigation menu with Overview, Source, Commits, Branches, Pull requests, Pipelines, Issues, Wiki, and Downloads. The main content area displays the 'NewTone Library for Arduino' documentation, which includes an Index, Introduction, and Syntax sections. The introduction states: 'About 1,200 bytes smaller code size than the standard tone library. Faster execution time. Exclusive use of port registers for fastest and smallest code.'

Before you can start putting code onto the Fabschoolino, you'll need something called a "library". To get this, you'll need to go to the following website: <http://bit.ly/2hte8z6>



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Arduino New Tone

ACTIONS

- Clone
- Compare
- Fork

NAVIGATION

- Overview
- Source
- Commits
- Branches
- Pull requests
- Pipelines **NEW**
- Issues
- Wiki
- Downloads

Introduction

About 1,200 bytes smaller code size than the standard tone library. Faster execution time. Exclusive use of port registers for fastest and smallest code. Higher quality sound output than tone library. Plug-in replacement for Tone. Uses timer 1 which may free up conflicts with the tone library.

Download & Install

v1.0 Released

Save the .zip file to your desktop, then use the [Importing a .zip Library](#) instructions to import the library into the Arduino IDE.
(6,355 downloads on Google Code before being closed)

If you wish to fork this library, please create a private repository as to not confuse others trying to download the latest official version.

Show Your Appreciation

Help future development by making a small donation (the teckel@bex.net payee is correct).

[Donate](#)

Syntax

`NewTone(pin, frequency [, length])` - Play a note on pin at frequency in Hz.

Once you're on the site, click on the "v1.0 Released" button.

33

Arduino New Tone

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NAVIGATION

- Overview
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- Pull requests
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Introduction

NewTone_v1.0.zip openen

U hebt gekozen om het volgende bestand te openen:
NewTone_v1.0.zip

Dit is: Compressed (zipped) Folder (2,5 KB)
van: <https://bbuseruploads.s3.amazonaws.com>

Wat moet Firefox met dit bestand doen?

Save as... Bestand opslaan
(6,355 downloads)

If you want to automatically do this for all files of this type:

Dit vanaf nu automatisch doen voor dit type bestanden

Show **OK** Annuleren

Help future development by making a small donation (the teckel@bex.net payee is correct).

[Donate](#)

Syntax

`NewTone(pin, frequency [, length])` - Play a note on pin at frequency in Hz.

After you've done this, it should open a ZIP program that you'll run on your computer. Select "Save File" and click OK.

34

Atlassian, Inc. (US) | https://bitbucket.org/teckel12/arduino-new-tone/wiki/Home

Actions

- Clone
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Navigation

- Overview
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Introduction

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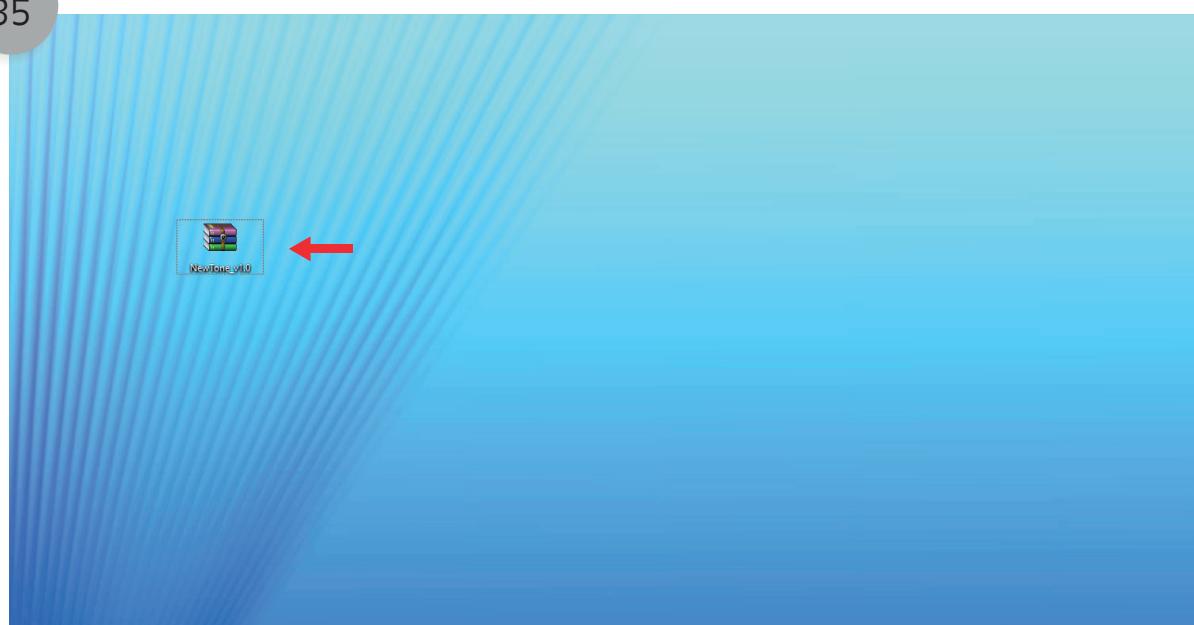
[Donate](#)

Syntax

`NewTone(pin, frequency [, length])` - Play a note on pin at frequency in Hz.

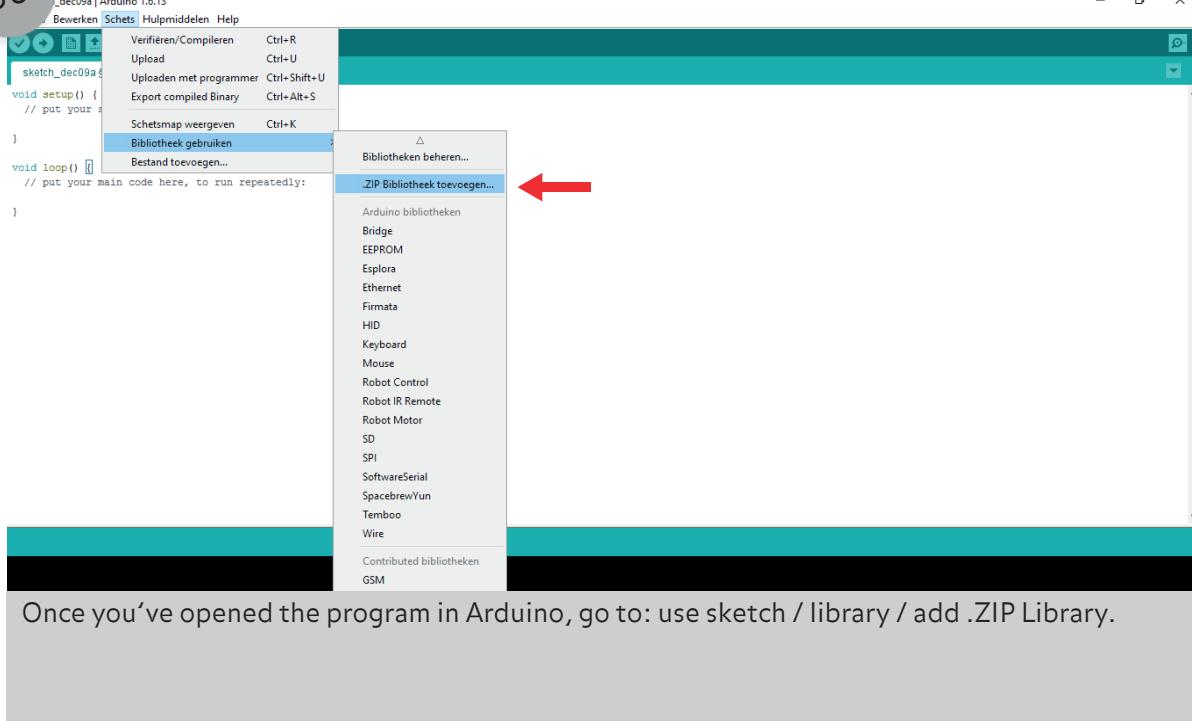
Click the folder icon to enter the directory where your file is stored.

35

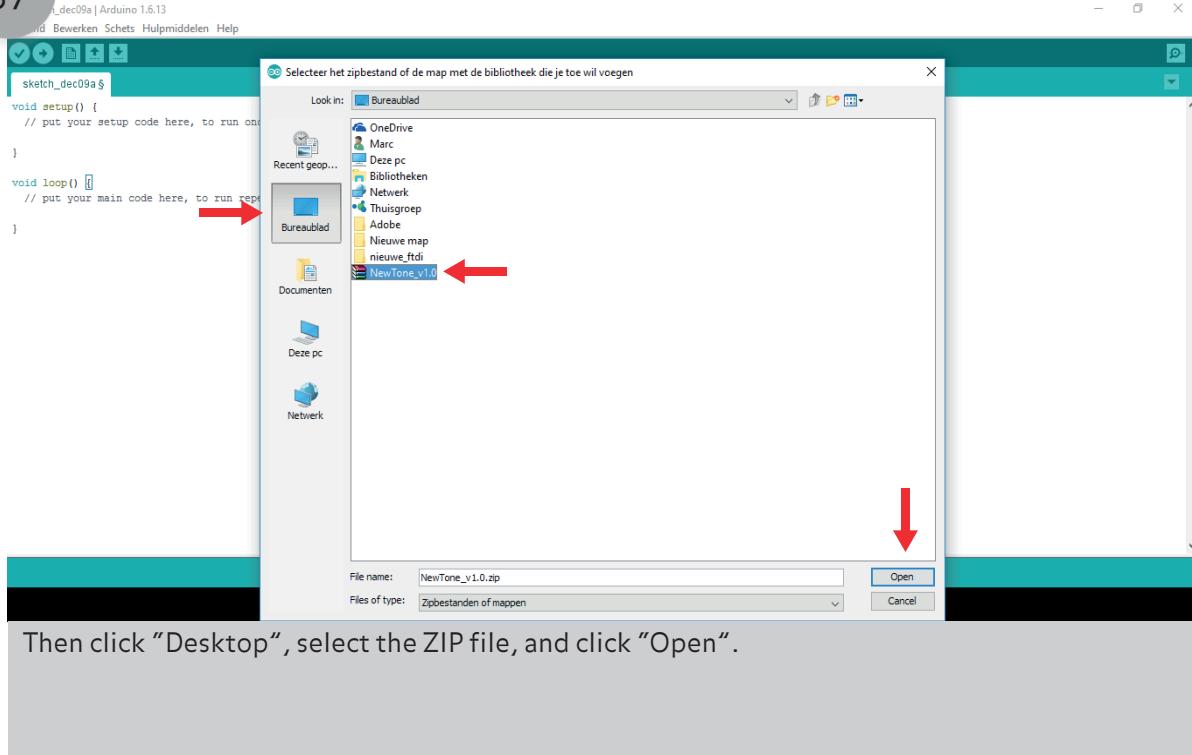


Once you're in the folder, you can move the ZIP file and place it on your desktop. Then open your "Arduino" program. (Do you have an Arduino compiler installed, yet? If not, go to fabschoolino.waag.org to download our "Programming" Instructable. Here, you'll learn step by step how to download the compiler.)

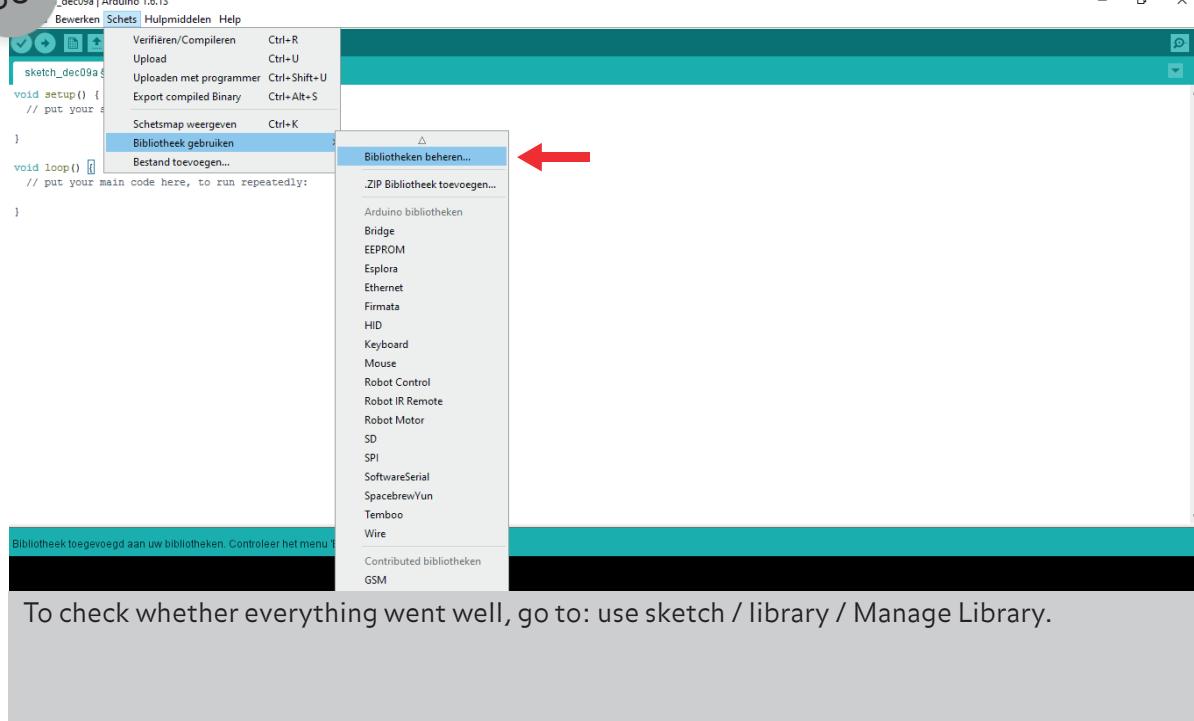
36



37

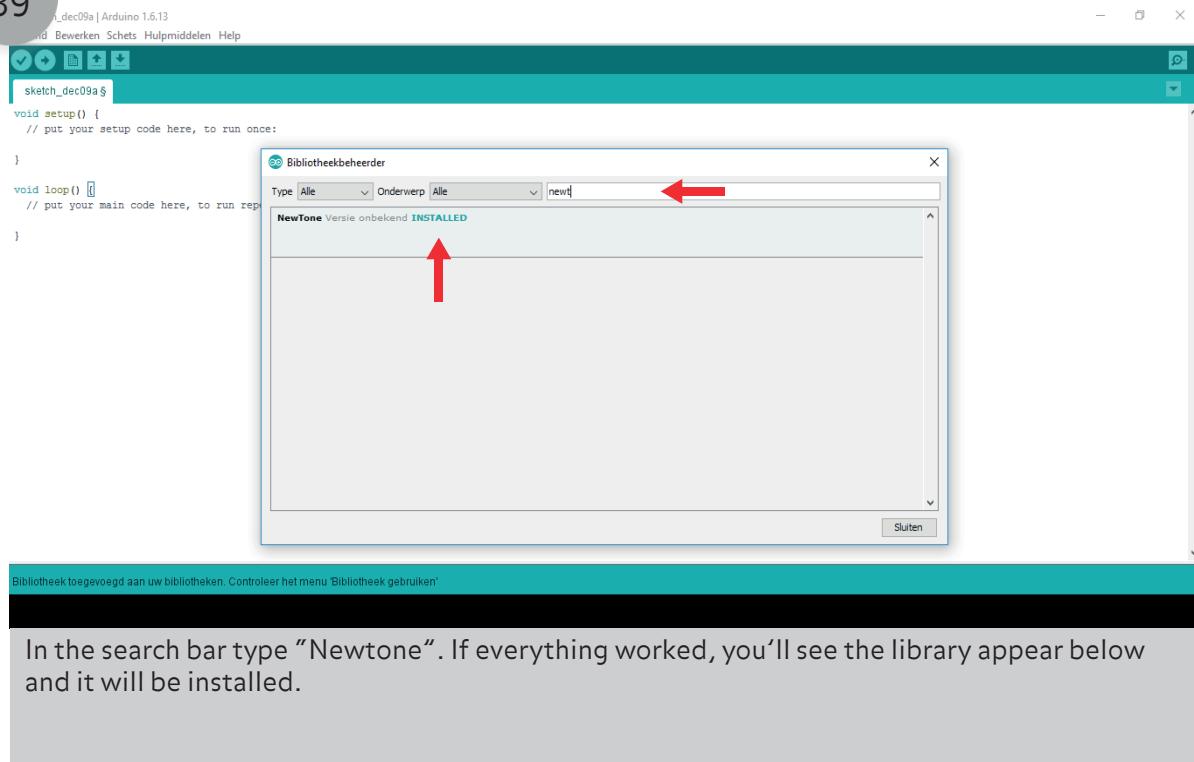


38



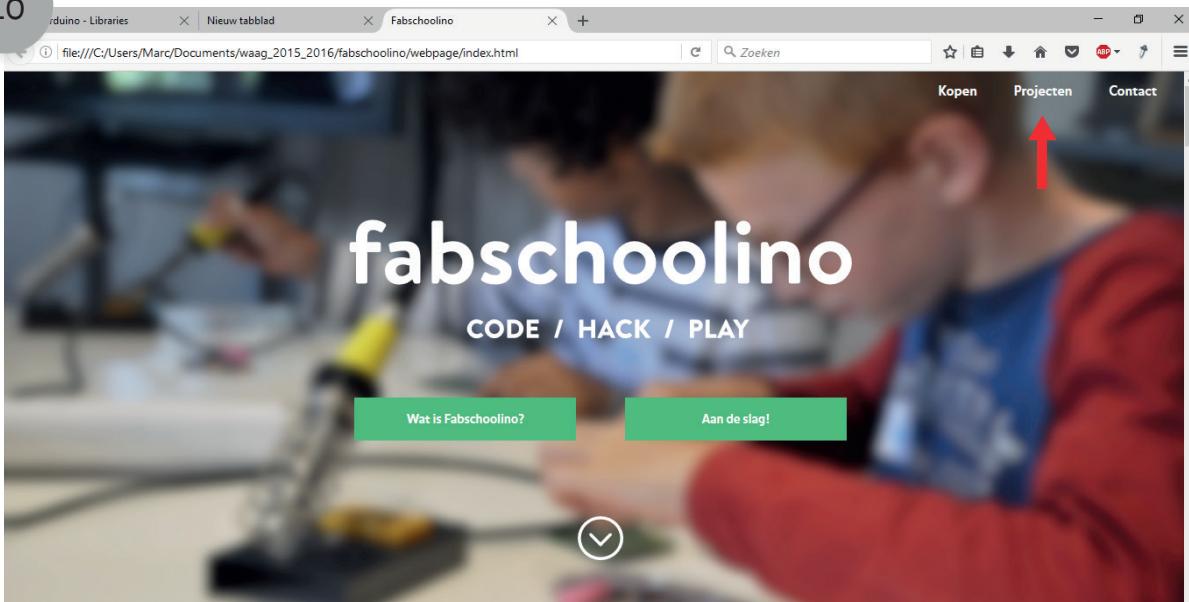
To check whether everything went well, go to: use sketch / library / Manage Library.

39



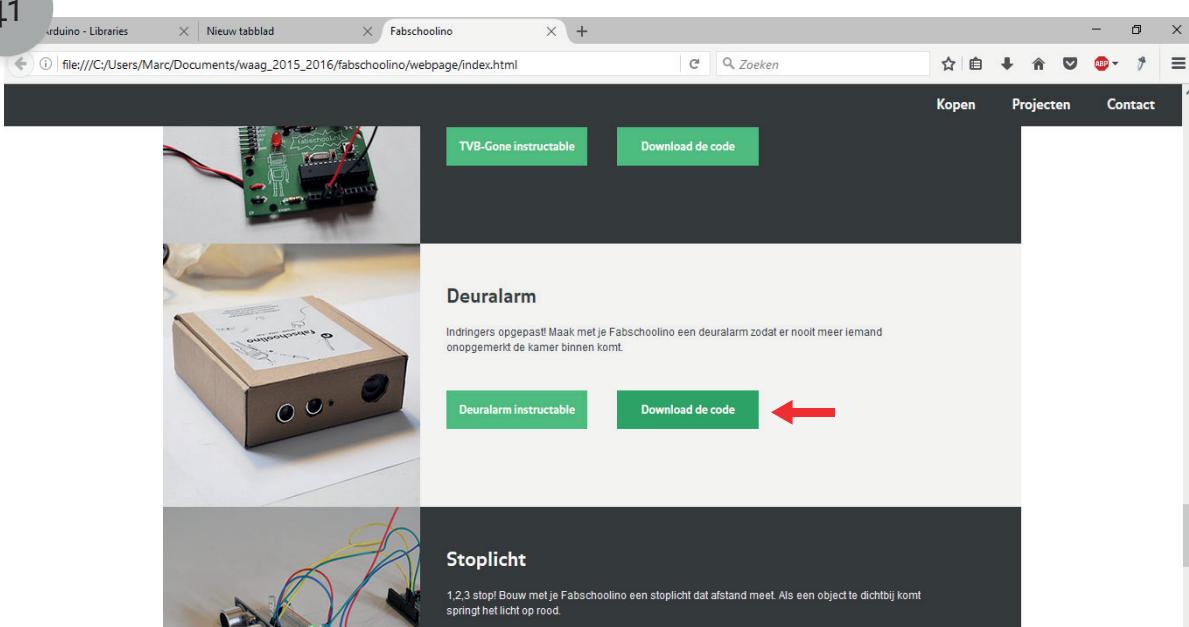
In the search bar type "Newtone". If everything worked, you'll see the library appear below and it will be installed.

40



Now you're going to put the code on the Fabschoolino. Go to fabschoolino.waag.org and click on "Projects."

41

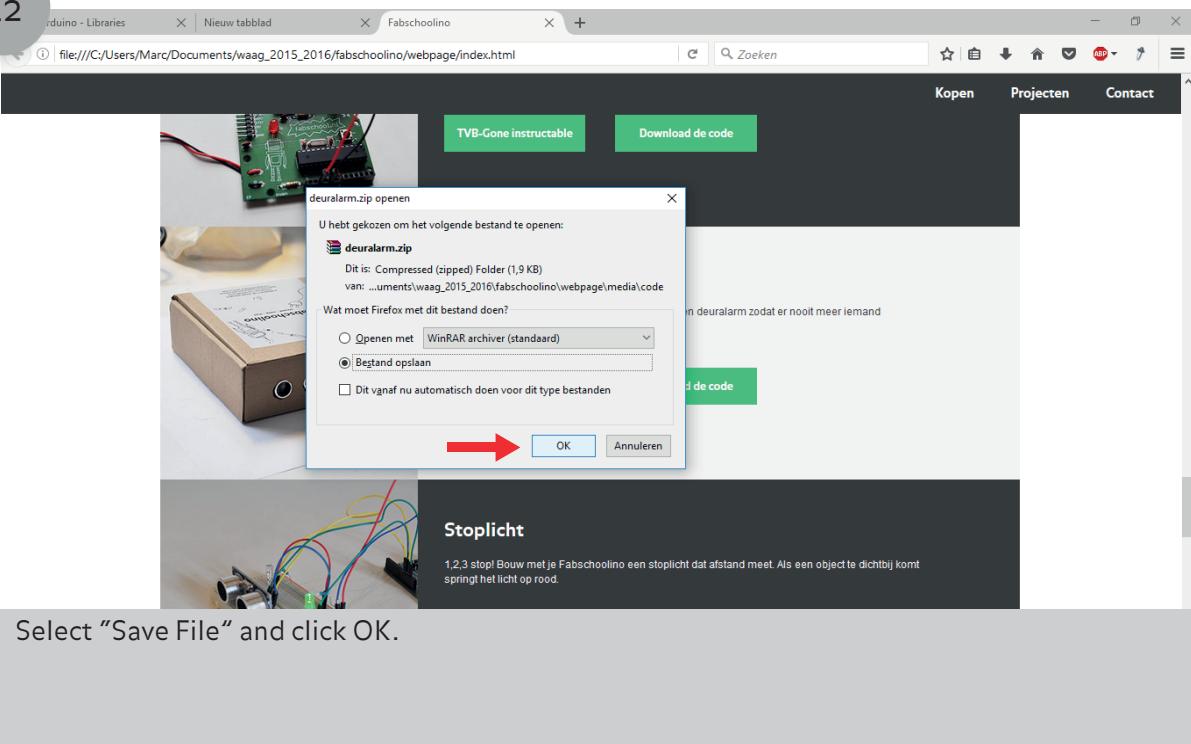


Find the door alarm project (Deuralarm). To download the code, click "Download de code".



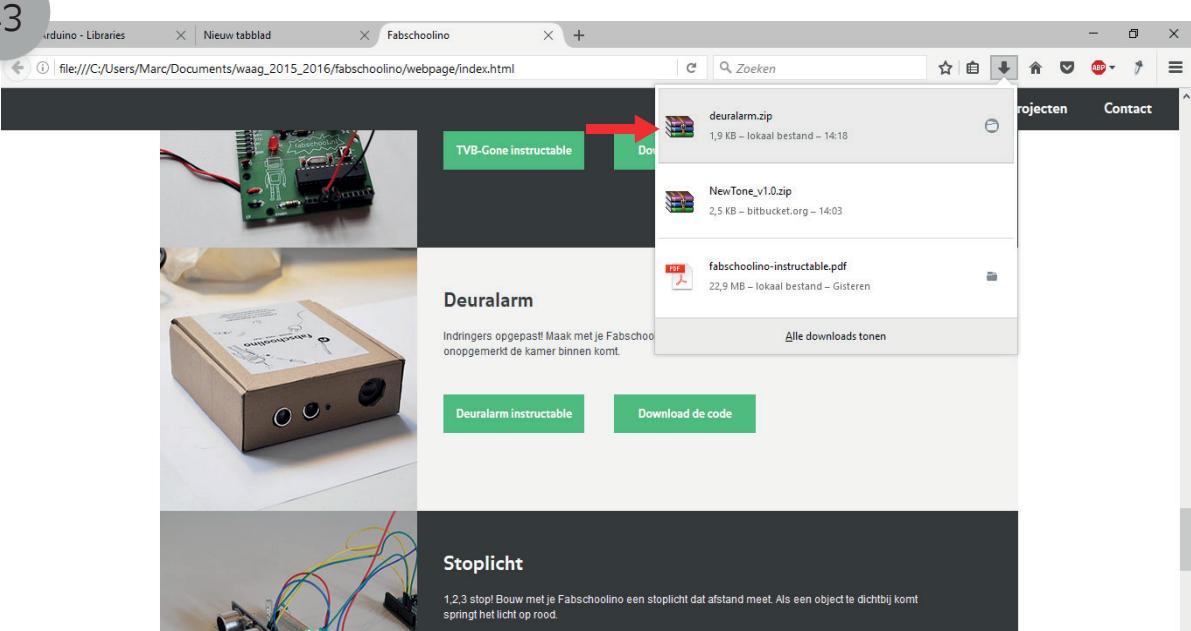
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Select "Save File" and click OK.

43

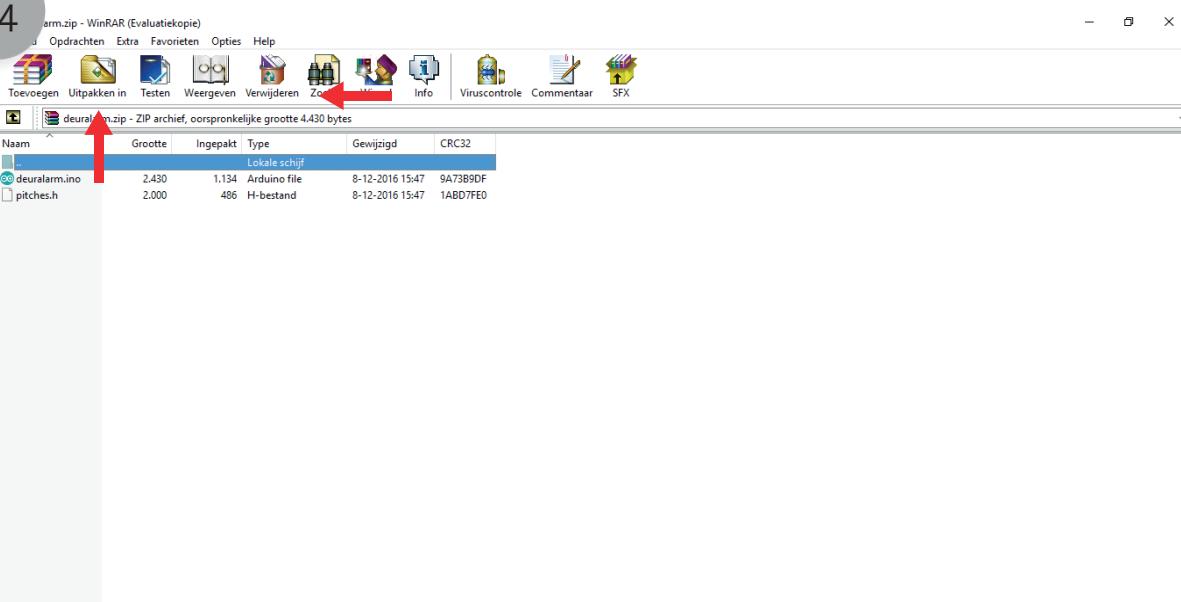


Click "deurlarm.zip" in the Download List on your browser.



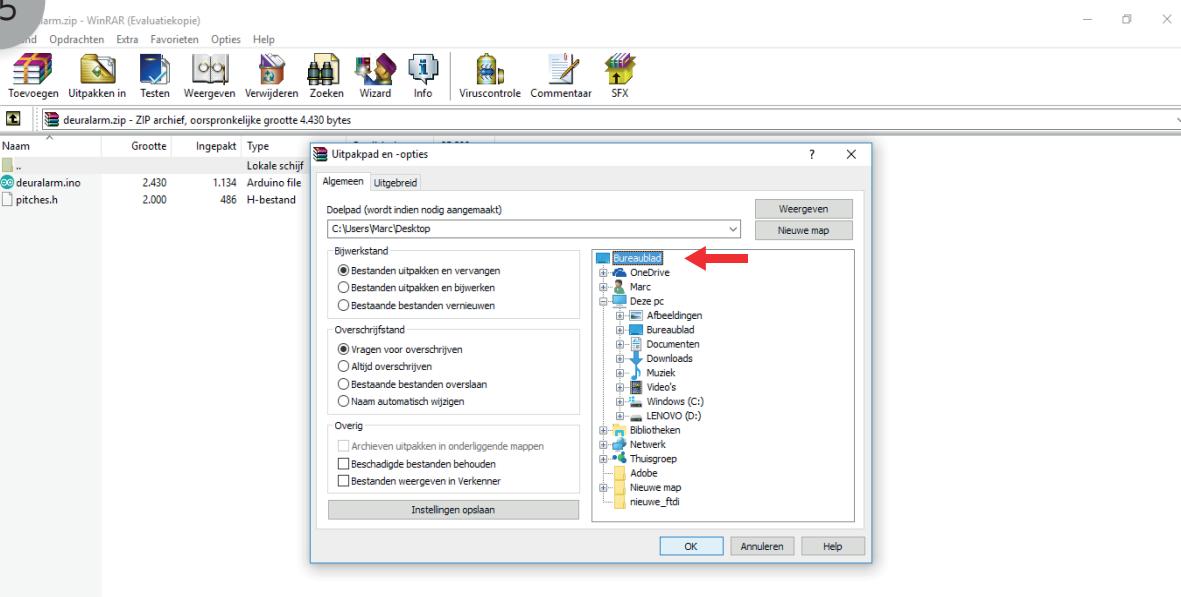
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44



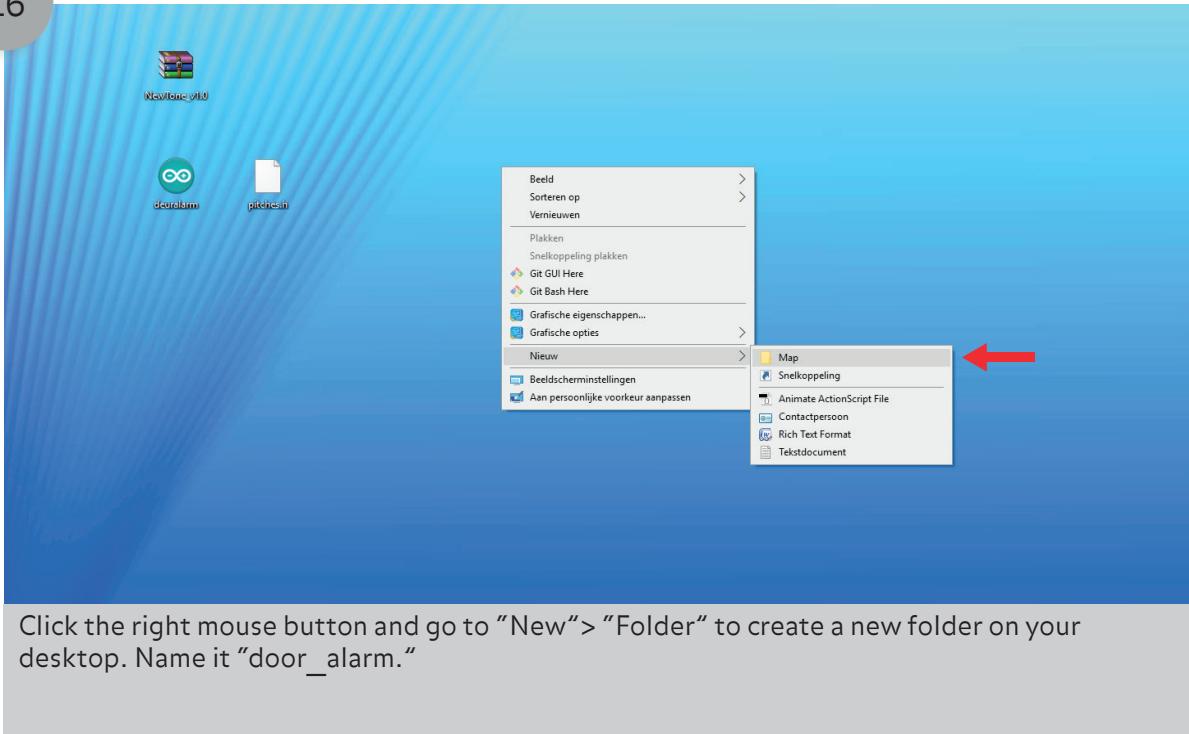
This opens your ZIP program. Click "Extract" to retrieve the documents from the zip file.

45



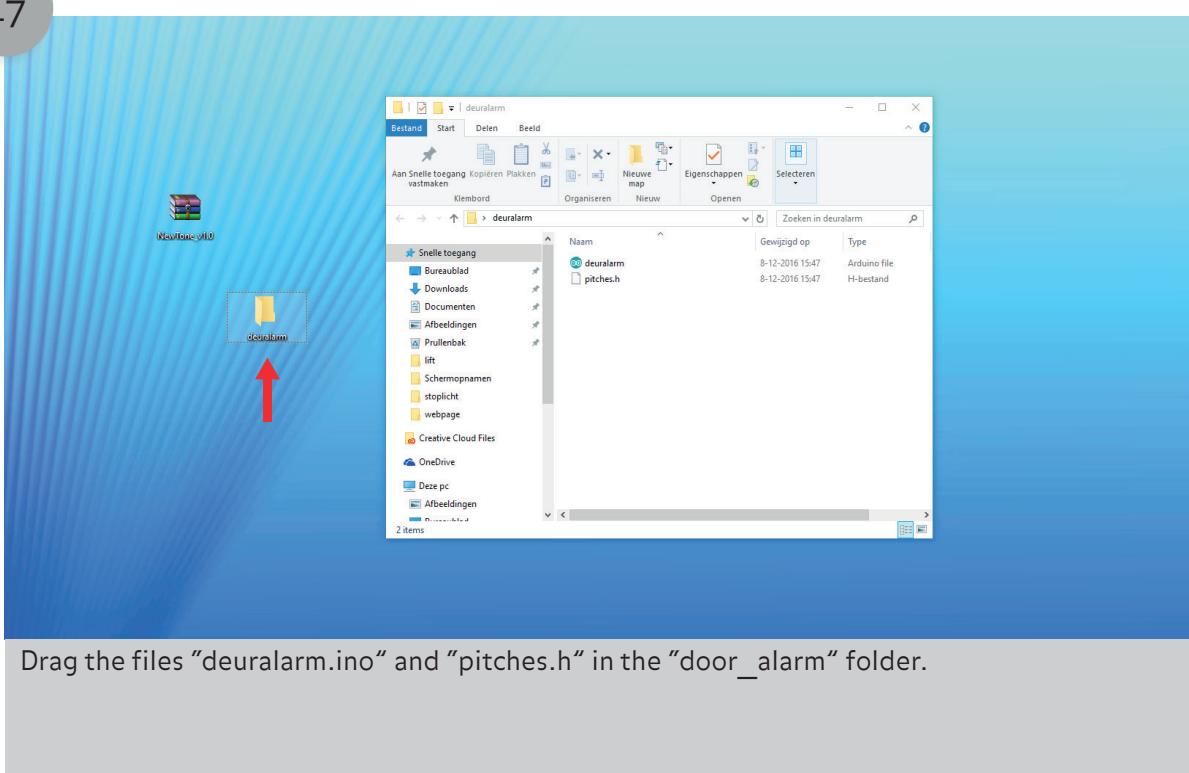
The program should ask where you want to unpack the projects. For this example, we'll choose the desktop. Click OK.

46



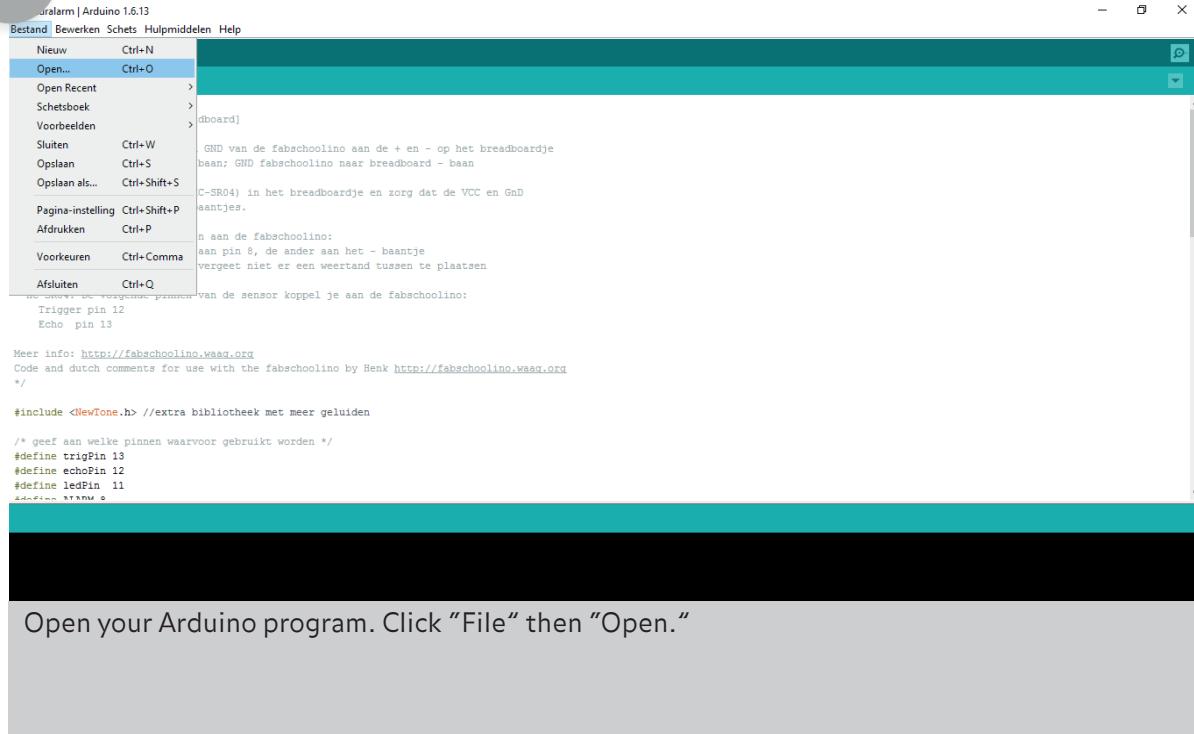
Click the right mouse button and go to "New">>"Folder" to create a new folder on your desktop. Name it "door_alarm."

47



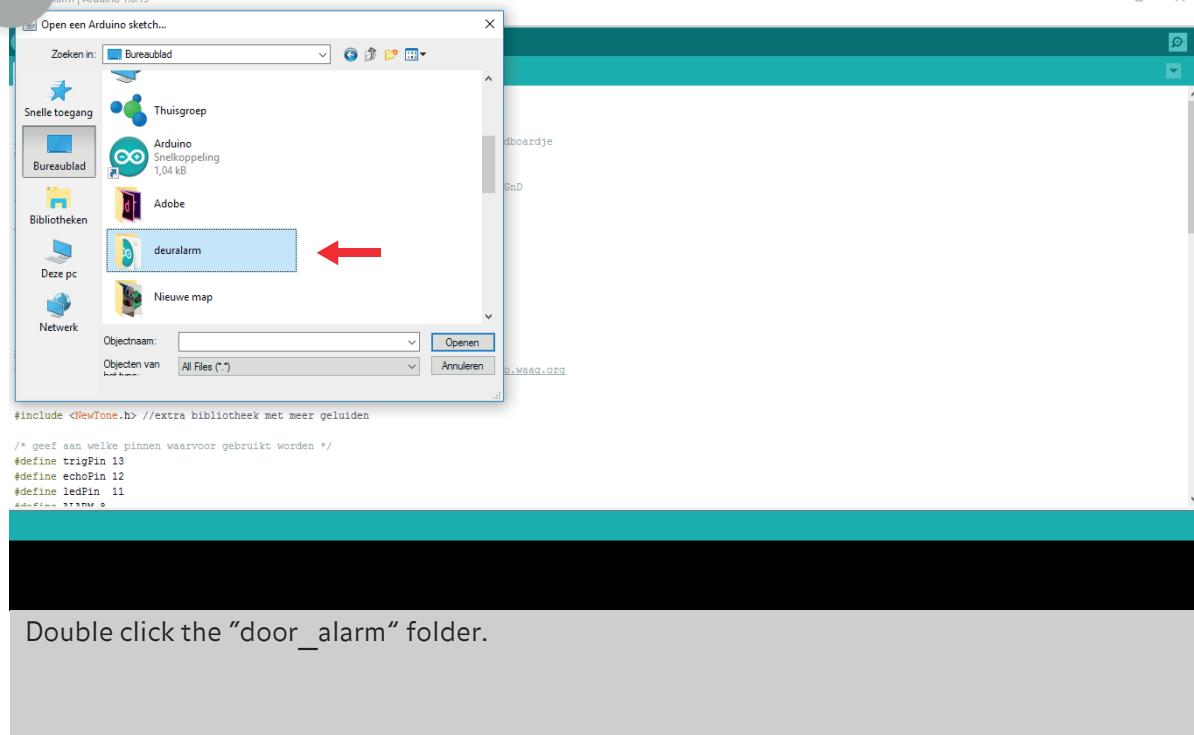
Drag the files "deuralarm.ino" and "pitches.h" in the "door_alarm" folder.

48



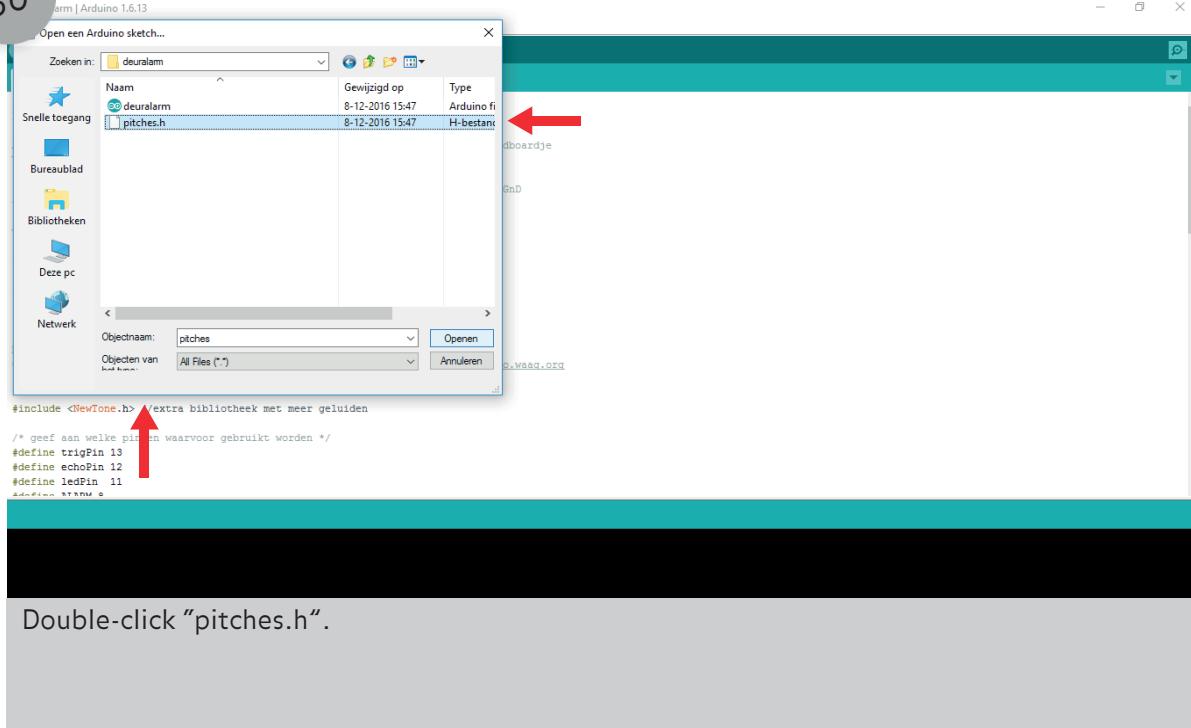
Open your Arduino program. Click “File” then “Open.”

49



Double click the “door_alarm” folder.

50



51



52

```

alarm | Arduino 1.6.13
Bewerken Schets Hulpmiddelen Help
deualarm pitches.h
HC-SR04 Deur alarm op een breadboard
Alle eerst koppel je de VCC en GND van de fabschoolino aan de + en - op het breadboardje
VCC arduino naar breadboard + aan; GND fabschoolino naar breadboard - aan
Prik de Ultrasonic sensor (de HC-SR04) in het breadboardje en zorg dat de VCC en GND
verbonden zijn met de + en - baantjes.

Verbind de volgende componenten aan de fabschoolino:
- Speaker/Boxje: rode draadje aan pin 8, de ander aan het - baantje
- led: lange poot aan pin 11 (vergeet niet er een weerstand tussen te plaatsen
korte poot aan de -
- HC-SR04: De volgende pinnen van de sensor koppel je aan de fabschoolino:
Trigger pin 12
Echo pin 13

Meer info: http://fabschoolino.waag.org
Code and dutch comments for use with the fabschoolino by Henk http://fabschoolino.waag.org
*/
#include <NewTone.h> //extra bibliotheek met meer geluiden

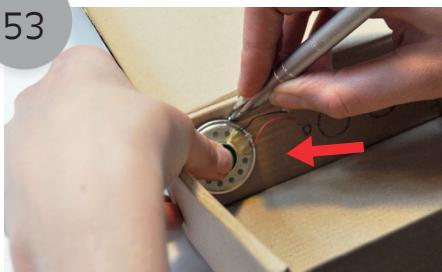
/* geef aan welke pinnen waarvoor gebruikt worden */
#define trigPin 13
#define echoPin 12
#define ledPin 11
#define ALARM 8
float sinVal;
int toneVal;

Sketch aan het compileren...
"C:\Program Files (x86)\Arduino\hardware\tools\avr\bin\avr-gcc-ar" rcs "C:\Users\Marc\AppData\Local\Temp\arduino_build_799466\core\core.a" "C:\Users\Marc\AppData\Local\Temp\arduino_build_799466\core\core.a" "C:\Program Files (x86)\Arduino\hardware\tools\avr\bin\avr-gcc-ar" rcs "C:\Users\Marc\AppData\Local\Temp\arduino_build_799466\core\core.a" "C:\Users\Marc\AppData\Local\Temp\arduino_build_799466\core\core.a"

```

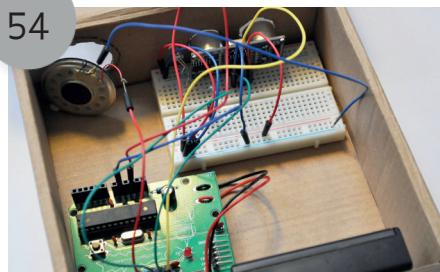
Then click on the button with the arrow to upload the code onto your Fabschoolino.

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Your Door Alarm is almost finished! Now you simply have to place it in its box. Make sure you cut little holes in the box so that your sensor and LED light are visible.

54



Place the Fabschoolino along with the breadboard and all other parts in your box.

55



Congratulations! You've made your very own door alarm. Go ahead and decorate your box to make your door alarm extra cool.



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