

Prepare the file for milling

ARCHIVE

- Submitted by Federico_Vanzati on Mon, 19/12/2011 - 11:44

Introduction / Objectives:

Learn how to create a file that can be read by the iModela controller for milling a circuit

Part list:

- Fritzing
- Inkscape

Instructions:

in theory, any vector file can be used to control the cutter. If you want, then you could draw the file using Illustrator or Inkscape. In fact, the optimization of the arrangement of electronic components is an automated process in many software, which saves a lot of time.

In this tutorial we will use only free software and available online. There are of course alternatives even more professional, but will not discuss.

Download and install inkscape and fritzing

- connect to <u>www.fritzing.com (/page/1047328/2012-12-23/http://www.fritziong.com/)</u>
- download the software
- follow the installation instructions



Ω

Prepare the file for milling | arduino education

- connect to www.inkscape.org (/page/1047328/2012-12-23/http://www.inkscape.org)
- download the software
- follow the installation instructions

Open Fritzing

Modifica componenti maunizza rinezha Auto				
	La Visita Brandbaued (a prosta por assungtions ad one brandbaued por prostage water Bold insurandad on any prostage water Bold insurandad on any prostage water assessment ball in angement, and a train transport, angementation dan insurando and a port temperature assessment in terrated and a strain transport.	Papertor Receivered enter set of the set set of the set of the set set of the set of the set of the set of the set of the	* H	
	A statistical search and a statistical search and a statistical search and a statistical search and the statistical search and	TH Breakland Connection Series Series Series	H	

The structure is quite simple:

on the top there is the **Menu Bar**

Navigator on the right (allow to switch between views of the circuit)

Workplace in the center

Bottom bar on the bottom

Open the sample file

For first try we will create a shield for Arduino with two proximity sensors to measure distance of an object, or a parking sensor.

It is a circuit complex enough to be interesting

Open the sample file:

file \ Open Example \ arduino \ sensors \ proximity \ parking assistant (infrared)



Prepare the file for milling | arduino education

choose display PCB

on the right of the screen, the last of the three possible views of the Navigator



verify that the tracks design is correct:

tracks \ design rules check



in this case, the software finds an error: two tracks are too close together, the risk is that they are not milled or difficult it is to solder the components



Tracks correction:

clicking on the trail you can drag and reposition them. Holding down the <u>Shift</u> key, the software tries to keep a portion of the track vertical, horizontal or 45 °. This makes it more homogeneous distribution.



Auto Routing

Fritzing has a self routing algorithm (ie, optimization of the tracks on the PCB), but not fully optimized. To check you can try to auto route the circuit that we have done to correct generated by the sample.

Begin Auto-Routing

Track / Auto-Routing

An error message tells us that some tracks are not self-routable. This is a choice to reduce the number of variables, such as plugging in a meaningful way the Ground and +5 V. We decide to make all the tracks self-routable.

Tracks / not self route this track



Despite the **auto routing** is done on a circuit Fritzing has generated a circuit with several errors (tracks too close together) and a link to do later (as indicated in blue)



Export PDF

From the bottom bar you can export the pdf for etching circuit. This file is designed for etching, and must be reprocessed to extract the cutter paths.



RE-ARRANGEMENT OF TRACKS OF MILLING

open the pdf generated by Fritzing with Inkscape, the default import settings are fine.

S S S S S S S S S S S S S S S S S S S	an Denn De Rom De Presse Barge	
un Manuel Monard Monard Monard M		na Ban Ban Ban Ban Ban Ban Ban Ban Ban B
-		16

The lines that we see are the paths of the cutter, so where the tip removes material. To have a conductive trace we need two paths at the sides or edges of the line thickness that we see

As soon as the tracks are imported we need to divide the tracks, this will probably be repeated several times, until you can select each individual line. The circuit should look like this:



the outer edge is the only track that we do not care to have as a runway. Then select the rest and combine the tracks.

Path \ Combine (Ctrl + K)

At this point it looks like:



now is needed to extract the two edges on the sides of the line. Choosing the width style contour can decide the width of the tracks. The example chosen is <u>0.8 mm</u>. Now you can convert to a path.

select the inside with the track

track \ line-to-track (Ctrl+Alt+C)

Deformer Deformer	Consultant	 Ca gopetto a tracciato Ca grasa a tracciato Vegorizza bionap 	Manage-Child D I p Chil-Milec Manage-Alte-B P.P.	 Papers 3339 Papers 2011 (2011) 	1R	confilment and the Planet	te e contoriol (Malusi - Cel - P	
Islandi Chris Protessore citegata Chris Protessore citegata Chris Protessore citegata Chris Segunta Chris Delimitatore mit Name-Chris Chris Chri Chris Chris Chris Chris Chris Chris		Discree Difference Difference Discrete Discrete	Cat++ Cat++ Cat+* Cat+* Cat+* Cat+A Cat+A Cat+A Cat+A Matan: Cat+A		I IIIX			
		jonul prostore diregice Prostore diregice Prostore copejate Seguifica Jineti Editor effetti su traccato.	Carles) Optical Carles Alles Carles Alles Manages - Optica?	1111	ITITI	Deiman Deiman	re metà Nessavo ore fine Ressario	
		Renuel gfirth si tuccato Renuel gfirth si tuccato		111				(

to verify that the file is ready is needed display the paths without fills

select all

Object \ Fill and Stroke (Shift + Ctrl + F)

At this point you open a panel on the right, where you can track the action on three aspects:

Filling: Click on X (no fill)

Outline Color: click the second button (**uniform color**)

border-style: Choose a narrow width (eg. 0.2 px)

now the file should show the contours of each track

Root Root Root Root Root Root	Read Read Road Walls Walls Prove Prove Press Read	1	I IT (1) Ditempimente e cantorni (Mausc + Chr	10 IO R
			Cherroratoria Consecutione Consecutione Consecution Consecutione Consecution C	

is very important that the software that will perform the incision is clear what is to be preserved (inside) and take off (external). At this time the circuit is formed by two overlapping paths but not connected to each other. Subtract the area of the tab area of the tracks.

Select both paths

path \ difference

1444 F 444	 Ca gapatte a tracciato Ca presa tracciato Vetorizza bitmas. 	Maluse=ChinC ChinAltinC Maluse=AltinC	1 p + house 3333	 	Diservariante e conterne Marco +Cel+F	
	al vegetas benes. di Unice di Dinore di Dinore di Dinoresi di Dinoresi di Dinoresi di Dinore di Dinore	Master-Alfred Cities Ci			Response Concession Co	
	Romani gfirti in Taxoate					U 1003 2

From fill and outline

Filling: click the second button (**uniform color**)

Outline Color Click on X (**no color**)

Burnell Burnell and Burnell Burnell Burnell Burnell	Bene March Harris Place Place Place March Real Street Place Place	TT THE Disreptante & cantante (Mause +Cat+A) II III
		Managamaning, C'concer contenno (Dispace contenno)
		00004948 0 60 2 Dpaces 5 0 1000 2

the only two formats are importable from iModela are $\underline{.eps}$ and $\underline{.ai}$

Inkscape can export to eps but the software fails to open normally Roland.

The conversion must be done with other software.



Comments

Main Site Blog Playground Forum Labs Store

<u>Help</u>

Sign in or Register