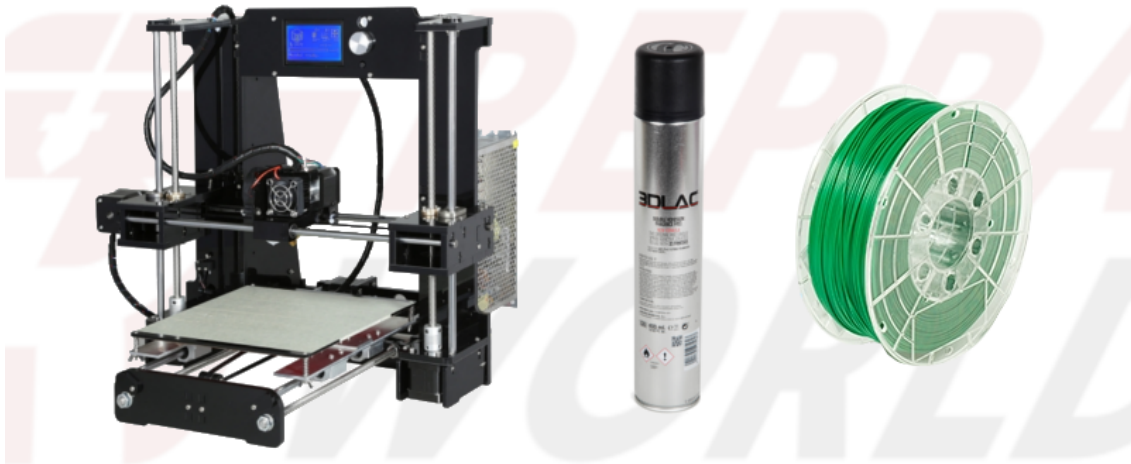


REPRAPWORLD

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- [Our new Sales colleague introduces himself](#)
- [Ben Kemp talks about his Kosstock printer](#)
- [The filament run-out sensor by Henk Diepeveen](#)
- [Blender workshop: Splitting models for 3D printing by Bart Meijer](#)

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New colleague

Just started in April 2017 is Jaap van Wietmarschen. Jaap will be joining the sales team at RepRapWorld.

Introducing myself

As some of you might have seen on the Facebook page, RepRapWorld was looking for a new account manager and they found that person in me. My name is Jaap (a typical Dutch name) and I have been involved in 3D printing for a few years. My background is in computer IT products, as a sales executive and in product development. Using that technical view I got invited to join XYZprinting and join the 3D printing community. Without any experience in 3D printing and a small 2 day introduction on how to disassemble and assemble the 3D printers XYZ sold, I just started like so many people; Sitting a few hours in front of a 3D printer watching the machine move and objects appear out of thin air.

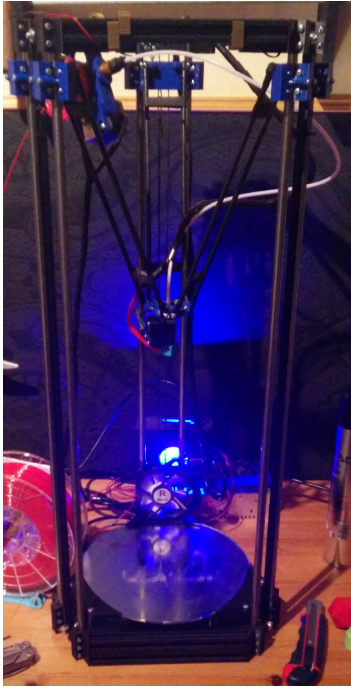


XYZprinting is at the opposite side of the 3D printing community having DRM protected filament, etc. But in their defense it did create a machine which can easily print objects. But designing, building and tweaking your 3D printer is so much fun that I am really glad to have found this position at RepRapWorld. This allows me to be more actively involved in the community which is evolving every day. So when visiting RepRapWorld in Nootdorp or on exhibitions you can expect to see me around. Please come up and introduce yourself! I would also like to encourage everyone to share their projects, topics of interest, etc. etc. on our channels (you can find them at the bottom of the newsletter)!

The Kosstock Amalgamation or Revolution...

By: Ben Kemp

As a new 3D-Printer owner, I'm quite new to the community but had a great start. The printer I'm using is a hybrid between the Mini Kossel and the Rostock Mini, hence the name Kosstock. The original Rostock is a sturdy, well working machine made of steel bars holding up the carriages and wooden panes to keep it all together. Whereas the Kossel is made of Mizumi bars (AKA aluminum profiles) making the Kossel a beast of a printer that you can throw bricks at without even flinching.



In comes the Kosstock, a machine that is horizontally like the Kossel with its Mizumi bars, although in my case they are printed as well, and vertically like the Rostock with its tough steel bars of 10mm in diameter and custom printed carriages.

For results, the Kosstock remains true to its origins with its reliability of the Kossel and quality of the Rostock. As well as, a very minor positive point, it has the looks of both making it also pleasing to the eye.

Personally I'm really stoked to see that my creation came to life, I've been working on the Kosstock for three weeks day in, day out, and have been printing with it for lots of hours now, and no willingness to stop.

Personally I'm really stoked to see that my creation came to life, I've been working on the Kosstock for three weeks day in, day out, and have been printing with it for lots of hours now, and no willingness to stop.

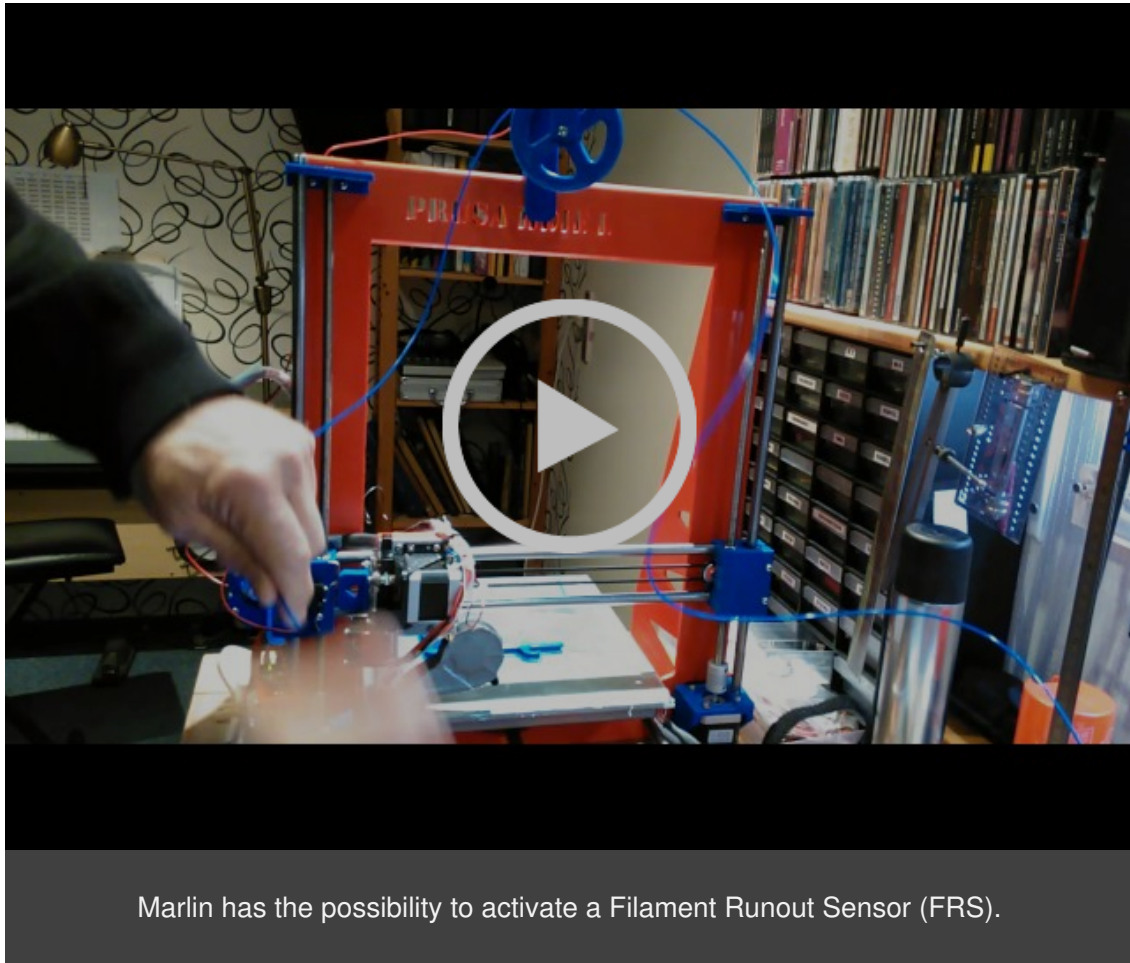
The reason I chose to make the Kosstock came from the fact that I had the chance to build a Rostock mini, as stated the Rostock comprises of wooden parts being laser-cut to shape, one problem came when we heard that the laser-cutter broke down so we started thinking of other ways to connect the three arms and settled on the design of the mini Kossel. I've poured my soul into the machine and the struggle was paid off. I'm really happy about it and would always recommend a delta 3D-printer to anyone who asks.

all in all, the Kosstock provides quality products while being so hypnotizing at the same time.

Thus Ben Kemp about his machine, the Kosstock.

Filament Run-Out Sensor

By: Henk Diepeveen



Marlin has the possibility to activate a Filament Runout Sensor (FRS).

If the FRS in Marlin is activated the printing process goes into PAUSE-position, the extruder-motor runs a little back, the printer-head is 10 mm lifted away from the product and is brought to zero X-Y position. Then the extruder-motor is running further backwards bringing out the filament totally.

After bringing in the new filament you can resume the printing process by pressing the upper-right key on the keyboard. Now the printer-head goes back to last position and continues the printing process. You can hardly see that there has been an interruption.

It is a perfect solution for changing the filament, due to blocked spool, finished spool, changing color or any other reason.

To activate the FRS you have to make some changes in Marlin:

1. define a PIN for the commando. We chose the Z-max signalpin for this purpose.
In Marlin go to the sheet: PINS MEGATRONICS 3, and first define Z-max not active anymore, by defining: `#define Z_MAX_PIN -1//19//put to -1 to disable`
define now below the line `#ifdef FILAMENT_RUNOUT_SENSOR`
// define digital pin 4 for the filament runouot sensor. Use the RAMPS 1.4 digital inpout 4 on the servos connector:
`#define FILRUNOUT_PIN 19`

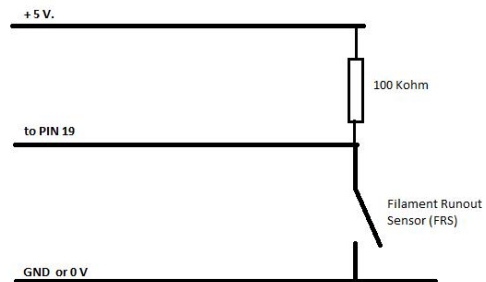
2. In Configuration.h: you have to uncomment the lines for the Filament Runout Sensor. It should look like:

```
#define FILAMENT_RUNOUT_SENSOR
const bool FIL_RUNOUT_INVERTING = false
#define ENDSTOPPULLUP_FIL_RUNOUT
```

3. In Configuration_adv.h: in the part:

```
//Add support for experimental filament exchange support M600
you have to uncomment the line:
#define FILAMENTCHANGEENABLE
```

The FRS has to be connected to PIN 19 which we have defined as the signal pin from Z+ end stop. When the FRS is activated it should connect PIN 19 to GND or -. In some case when the wires to the FRS are long it might give a wrong interference signal. This can be cured by adding a 100K resistor between PIN 19

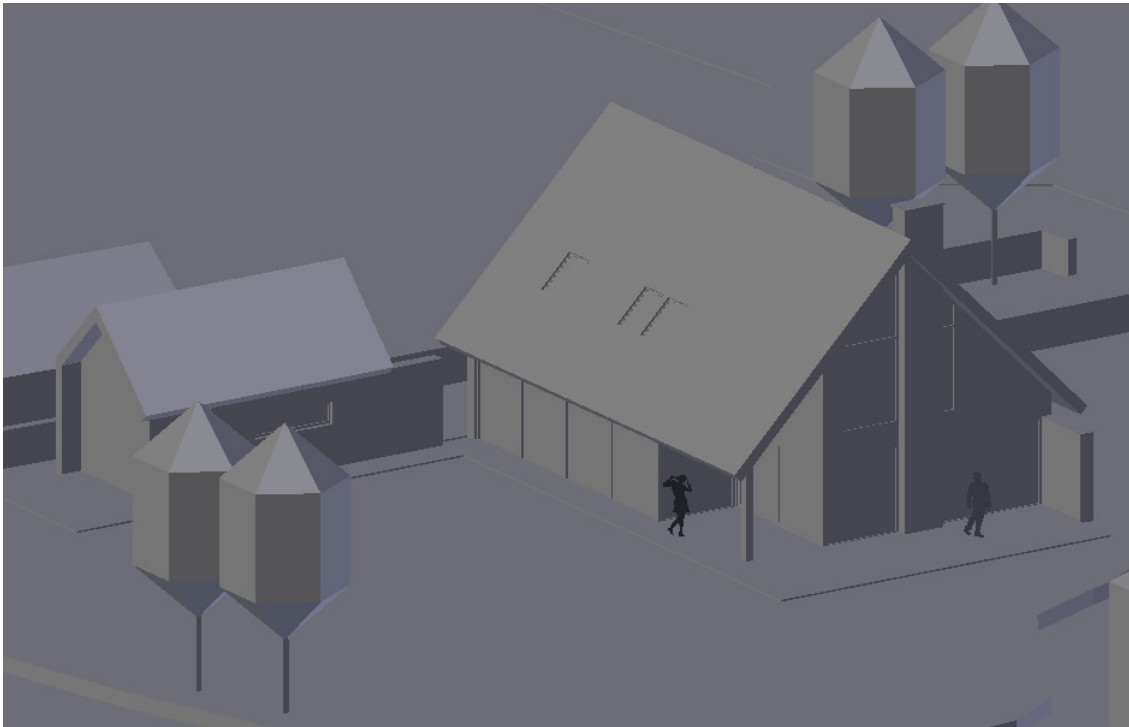


**Did you print something for one of our products?
Let us know and we will put it in our next
newsletter**

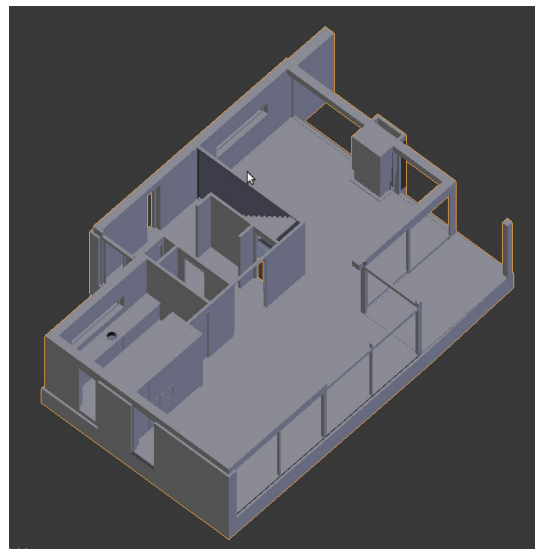
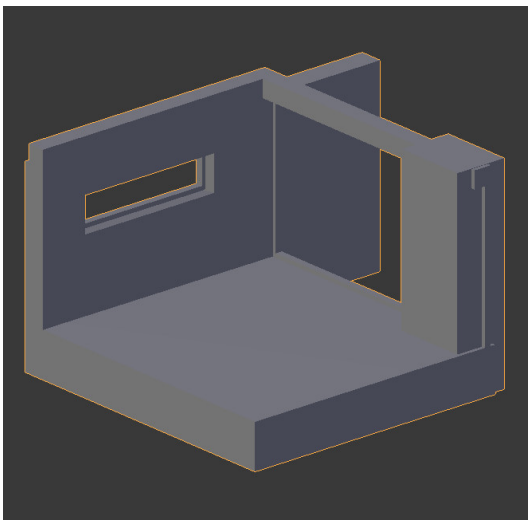
Blender workshop: Cutting objects into multiple parts

By: Bart Meijer

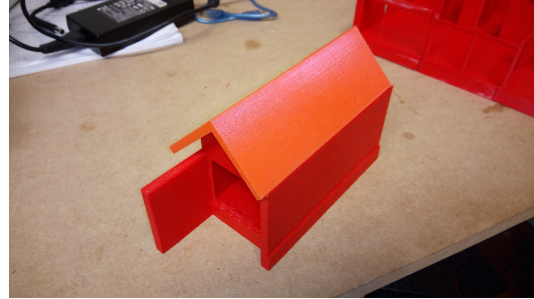
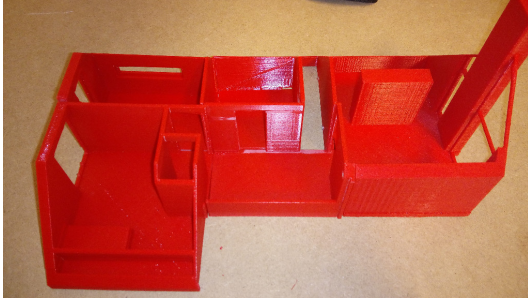
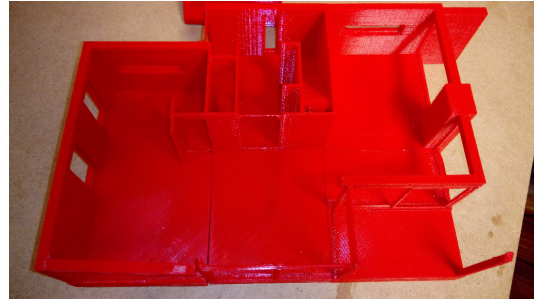
An architect asked us to try and print a house with a 3D printer as a demo for him. The software he uses can export to STL, so that couldn't be too hard right? He wanted the print to be around 30cm in length, so there was no way to fit it as single piece on the Beagle. So instead I opted to cut the stl files into smaller pieces, which can be printed on the delta printer. Afterwards I could then glue/screw everything together. I choose to use PLA as material, with support at many places where there was much overhang. Another benefit of citing the object into multiple pieces is that you don't have to use support for the entire object.



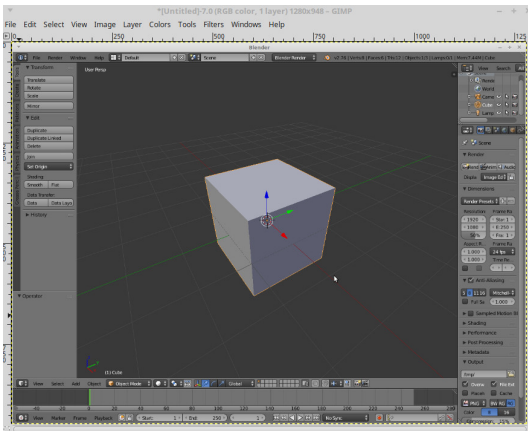
First I had to remove a lot of unnecessary objects and faces from the STL export, like ground, windows, furniture etc. This is fairly easy, by selecting an object and deleting it. When the model was cleaned up and scaled to size, first I cut the house into three separate objects, per story one so I didn't have the overhang of the next floor to worry about.



Finally I cut each story along the walls into printable sized objects. Making the ground floor into six separate pieces, first floor into five and the attic in one. While rendering in Slic3r I noticed a lot of error in the design. This was a result of the STL export from the CAD program, which did have a lot of manifold errors. I had to clean out each model to make it slicable and verify the end result. This was quite a lot of work and I think without making this easier the costs of printing these kind of STL files will be very costly in man hours. But finally the house was completed and it shows in great detail the layout of the building, still in a better time frame than making a model with cardboard or laser-cutted pieces would have.

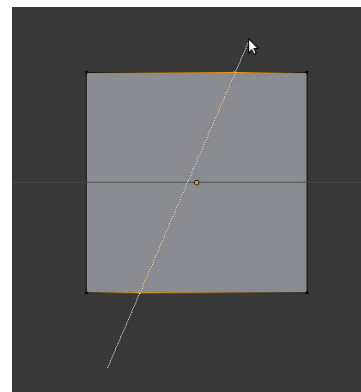


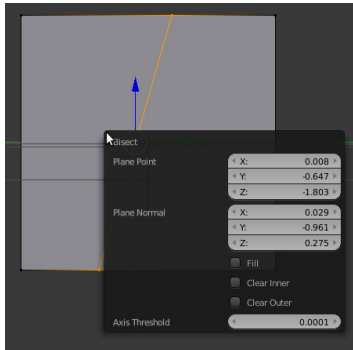
Steps within Blender



So, how to do this cutting of the mesh within Blender? In the following steps I will go into the steps involved, using a cube as example. First open a new Blender file, which will give you the familiar cube from the standard demo file. If not, you have to add a cube to the scene yourself. Blender should be in object mode now, showing the contours of the cube when you select it. Press numpad-3 to view the cube from the side. We will make a diagonal cut across the cube from this direction.

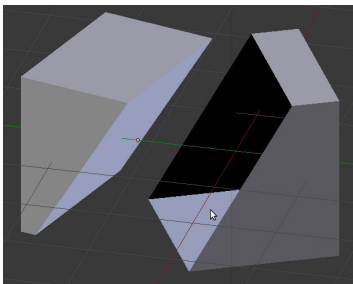
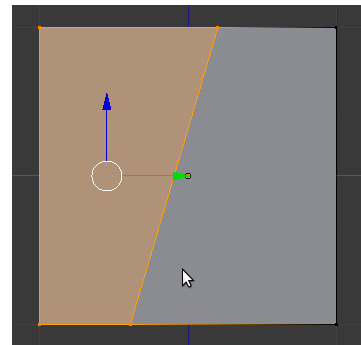
Go into Edit mode by pressing the tab key. The view should change and show you the cube with it's vertices highlighted, make sure that all vertices are selected.





From the Tools menu find the bisect tool and click. The cursor will change, after which you can draw a diagonal line across the object. Releasing the mouse will make the cut showing a line through the object which will be selected automatically.

By pressing F6 you can set additional options for the tool. Fill will create a face at the cut, resulting in a solid object. You can also choose to remove either side by selecting the clear inner/outer options. As for this example I choose to just select the fill option.



By selecting all the vertices on the left side (also the ones at the back of the object) and pressing P and then P again, the object is separated into two objects.

Thingiverse updates

Thingiverse

On Thingiverse you can find a lot of cool stuff to print. From guitar picks to Pokemon. You can also find handy stuff to cover up electronics.

Filament Run-Out Sensor

Henk Diepeveen designed a Filament Run-Out Sensor as mentioned in the earlier article.

You can find more designs of filament run-out sensors [here](#).

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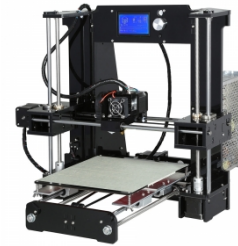
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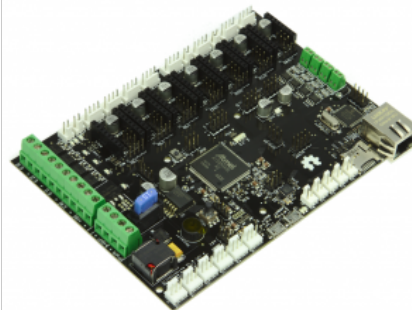


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