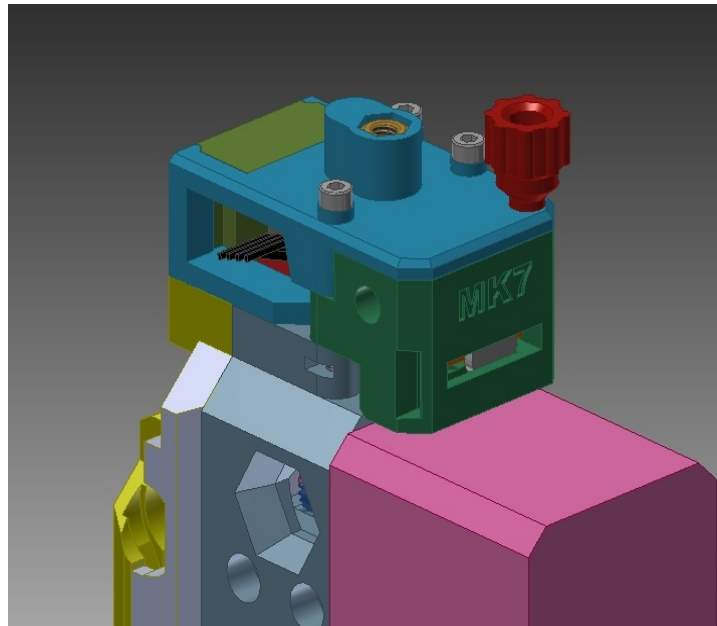


\*\*\*\*\*Download the PDF to get access to the links\*\*\*\*\*

## TheFrog

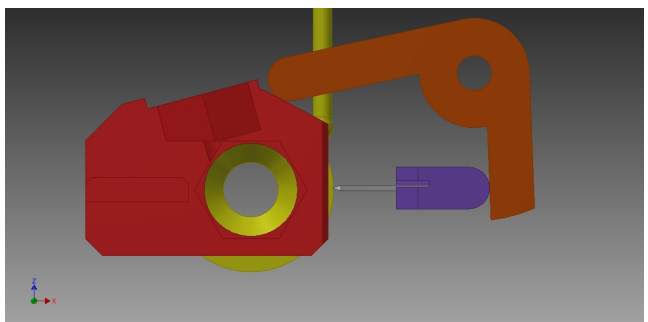
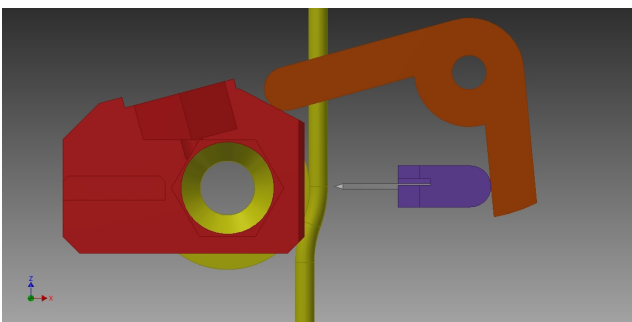
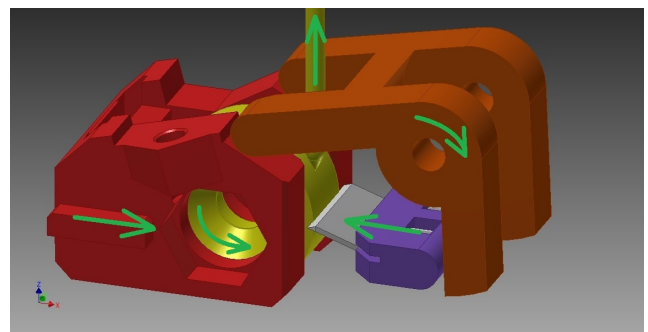
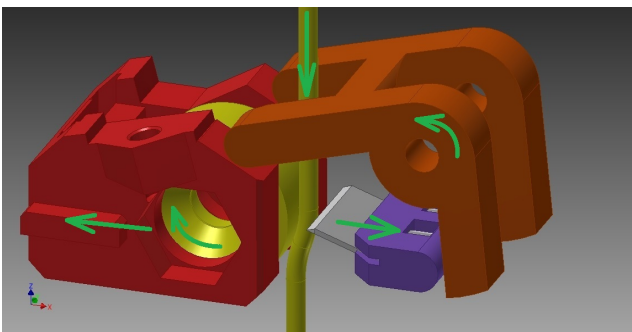
### What is TheFrog

TheFrog is the first extruder body designed specially to work with the PRUSA's MMU2. Its design simplify filament tip settings quite a lot, adding reliability to the machine.



### How does TheFrog work?

TheFrog features a blade that does not cut the tips, but gets in the middle of the way when the filament retracts thus preventing the filament from pulling any long string from the hot end.



## Where is TheFrog?

TheFrog can be downloaded from [CGTrader](#) [1].

Also, there's a [Github repository](#) [2] with the following documentation:

- Parts List
- Bill of materials
- Instructions for printing and preparation of the parts
- Assembly guide
- Printing with TheFrog

## Does installing TheFrog will end completely with the strings?

No, it will not. TheFrog is a mechanism with moving parts and must be built and assembled with care and love to perform properly. A small detail like a not lubricated bearing, an angled or tilted blade or a hidden ball of fluff might cause TheFrog not to perform correctly..

Also, the material you are printing in, and your settings have a say on what you get, but even if the material is very stringy, cleaning and resetting the machine with TheFrog is fast and easy. It can usually be done with no tools and it doesn't mean a lost print but only a pause in the printing.

## Does TheFrog alone solve the MK3 + MMU2 issue?

No, it does not. With the PRUSA firmware as it is now (3,5,1) you can still get skipped layers with TheFrog. Therefore I recommend using TheFrog with [TheZeroBeast firmware](#) [3] that recognizes jams through the clever use of the optical filament sensor. TheFrog features an indirect reading sensor mod which improves the reliability in the sensor's readings and works well with filaments of all colors, even transparent.

## Will TheFrog improve?

I have run and pressed hard to upload the design as soon as I have been reasonably confident with it because I know that many people want some solution for their MMU2, so TheFrog's design is very young. Tests take so long that testing has been limited, but results have been spectacular though. This is the reason I am not waiting six months to go public, I would like to test my device six more months before doing so, but you also have probably waited long enough since you ordered your MMU2 to get it going too.

The device has been designed so that the replacement of a few small parts can modify its performance (forces exerted, distances travelled, etc.), so yes, TheFrog might improve, but I don't expect it to need a mayor overhaul.

## So if it says MK7 on top, why is it TheFrog?

The project was created with one aim in mind: no hairs.

## How was TheFrog born?

TheFrog has been crafted after some months of intense testing and prototyping ,and many hours of work by one very disgusted PRUSA customer who wanted the machine he had bought to work.

TheFrog could not be true without some other people. Special thanks for helping me make my machine finally work (that was the only objective) to TheZeroBeast for his fantastic firmware.

## NO PAYMENT POLICY

Before you read about the no payment policy, let me to tell you a little story in just one paragraph:

I was once in one of those scandinavian countries where you can leave an unlocked bicycle in the street in the city all day long and nobody will touch it. In the subway, I noticed that apart from the normal turnstile where you cancel your ticket, there was another gate for handicapped people and also another gate more with no cancelling machine.

I asked my native host what was this third gate for, and he told me that it was meant for people with no money, so they could also get on the subway and go home. So I asked him what was stopping the people that in fact had the money, from using this gate and not paying. He looked at me completely puzzled and said:

-So if they have the money to pay, and the deal is fair, why wouldn't they want to do it?

And the lesson I learnt that day is that justice, in my opinion, is not about giving or asking everybody the same thing, but giving everyone what they need and asking everyone for a fair deal.

Now read about the **NO PAYMENT POLICY**:

TheFrog can be [downloaded from CGTrader](#) [1] for about 10€. Additionally, you'll have to spend about 7€ more in parts. You can make an offer for less money though. Minimum payment in CGTrader is two dollars.

If you want TheFrog and you have any reason that makes you think that you should not pay me for my work, you can still get it and not pay me. Just make an offer for the design and mail me ([gcon114@gmail.com](mailto:gcon114@gmail.com)) [4] a very brief note (SUBJECT: **I AM NOT PAYING TheFrog**) with the reason that you have not to pay for it. Nearly every motive will be accepted without questioning (please also state where you are from. I am just curious). Whatever your offer for the design was, it will be accepted and (CGTrader 30% commission discounted) it will be donated to the charity of your election (Greenpeace, UNICEF, whatever) please provide a URL for your donation in the mail)

If you do not have a preferred charity, it will be donated to Paul Watson's Sea Shepherd's (just because that's the one I like, and now more than ever, as the japanese fleet have started hunting whales again).

All donations (identified by the email address) will be listed in an open spreadsheet in TheFrog's Github repository, and the records of these donations will be kept open for public inspection.

All the NON PRUSA firmware and hardware developers, infortunate PRUSA customers like me, that have become unwillingly unpaid beta testers and have tried doing something (other than complaining and wasting filament and time) just because they wanted their machines to work, are invited to download my device for free (same email, same method, SUBJECT: **DEVELOPER WANTS TheFrog FREE**, please provide also a charity webpage for your donation).

You can also buy a kit with all the relevant parts: (bearing, blade, magnets and bolts for 50€ [here](#) [5]. There is another kit that includes also the plastic parts with the all sub-assemblies already prepared for 150€ [here](#) [5], If you want my [arabian sheik bonus service](#) [5], I will personally travel to your house, install TheFrog in your printer and perform the first unassisted print. The fee for this service is 4.000€ anywhere in the world except the Faroe Islands, where it is unavailable.

# FIRMWARE

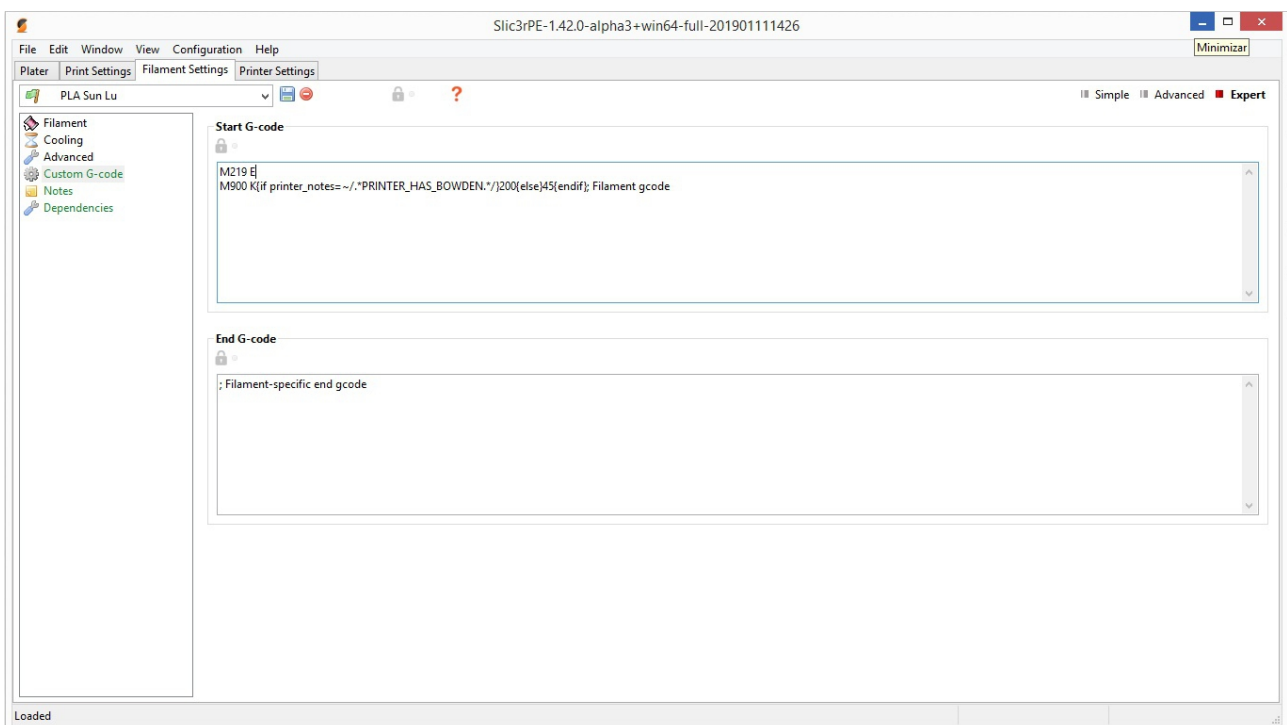
TheFrog will work with all PRUSA's firmware, because it does not condition anyhow the works of the machine. However, in my experience the best results and higher reliability were obtained using [TheZeroBeast firmware](#) [3]

TheZeroBeast firmare is, in my opinion, just great. Not only loads and unloads are much faster, but it also, making use of the crash detection, recovers well from jams and problems like grinded filament, a thick tip (in or out) or balls of fluff cheating the PINDA.

TheZeroBeast firmware requires the gcode files to be generated by [Slic3r 1.42 Alpha-3](#). You'll get all sort of strange circunstances printing if you use older versions of Slic3r.

Due to the mechanics of the induced sensor reading (the filament has to move a roll, not just pass through a point to be detected), I've found that it is necessary to adjust the bowden lenght longer than specified by the firmware documentation. How much will depend also on the size of your pulley gears. It should be adjusted for the smallest. Mine is adjusted about 22 mm longer than reccomended. As calibration is only performed in channel one, try all of them and if any of the five doesn't load correctly, just adjust the bowden lenght to a longer fit. Adjust bondtech gear lenth just as TheZeroBeast says.

Follow TheZeroBeasts guides for a correct filament and printer setup, otherwise you'll end up with filament grinds. Also, to avoid skipped layers, it is necessary to activate the jam detection introducing the command `M219 E` at the beginning of the filament gcode. Just like this:



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## LINKS

1- TheFrog in CGTrader: <https://www.cgtrader.com/3d-print-models/hobby-diy/other/the-frog-the-prusas-mm2-hairless-extruder-fix>

2- TheFrog in Github: <https://github.com/raavhimsel/The-Frog>

3- TheZeroBeast firmware: <https://github.com/TheZeroBeast/MM-control-01>

4- Personal contact: [gcon114@gmail.com](mailto:gcon114@gmail.com)

5- Website contact: <https://www.prometec.net/contact/>