



Fashion Pet Name Band with QR Code. Attaches to pet's collar.

 JoelG

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Summary

This is an attractive, fashionable and easily adaptable, ornamental name band that you can attach to the collar of...



10.47 hrs



1 pcs



0.05 mm



0.25 mm



N/A



11 g



Prusa MINI /
MINI+

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Tags: [dog](#) [pet](#) [collar](#) [dogtag](#) [cat](#) [tpu](#) [flex](#) [qrcode](#)
[name](#) [contest](#) [nametag](#)

This is an attractive, fashionable and easily adaptable, ornamental name band that you can attach to the collar of your pet, and that includes your pet's name, a contact phone number, and an embedded SMS QR code. It slips on you pet's collar and is made from layers of different colored TPU flexible filaments. This print is parametric in that the name and number will change as will size and the QR code depending on your pet.

Print instructions

I made this name band for my dog (and fashion model), Lucy. Lucy's collar is 5/8 inches (15.88 mm) wide, which I think is about the smallest this print will work for with a readable QR code. [This](#) (from amazon.com) is the collar I used. The band is smooth and light enough that it does not bother her in the least and was also an attractive way to add a little pizzazz to her collar.

NOTE: This is not a replacement for your pet's tags or for a chip. I do not yet know how long it will last with wear and tear, so please be aware.

Layering of Colors:

This is a 5 color, layered print that I made on an [Original Prusa MINI](#) using a **0.25 mm brass nozzle**. I am sure it could be printed on other units with 0.25 mm nozzles. Of course, you need not use the colors I have modeled except perhaps for the white and black used for the QR component.

I start with the band which is created with orange TPU (flexible) filament. I used [Overture brand](#). It needed to be flexible because that is the only way that I could print multi-colored layers and then wrap it around Lucy's collar, which is about 13 inches in circumference (33 cm). It is also less abrasive than stiff filaments, so would minimize any potential discomfort. If your pet still finds the band bothersome, you may want to apply some adhesive felt to the back.

Using [PrusaSlicer](#), I set 4 points where the filament is changed, each corresponding to upper layers of important elements of the band. The first change goes from TPU orange to white, which served as the background for the QR code. Next, I changed the filament color to black. Black with a white background seemed to be the best combination for easy-read QR code. NOTE that in the case of the **black, switch to PLA filament** since TPU does a poor job of rendering the QR code. You can either leave the extruder temperature as it is (which is what I did) since PLA's high temperature specification is pretty close to the temperature set for the TPU, or you can modify the temperature at the console manually, or you can insert G-codes at the filament color change (e.g. - "M104 S210" to set the hotend to 210°C. To do this, right click on the "+" sign of the color change slider bar when you add the new color, and "add custom G-code". I have not tried this yet, but am pretty sure it will work.). Don't forget to set it back with the next filament change after the two black layers are printed. Also, this setting prints only 2 layers (0.1 mm) of QR code, since more QR layers causes shadowing and overspill that interferes with the reading. After that, I changed the color to red, which allows the phone number to be displayed in red, and finally, I changed to blue which allows the top layers of the "L U C Y" name and the ornamental diamond shapes in the corners to stand out. The exact mm settings for these changes are listed later in these instructions.

QR Code Creation:

I created the QR code and resultant .stl part at the web site <https://printer.tools/qrcode2stl/> using the SMS Code Option, 7% redundant and minimal characters in the phone number and message. The phone number I used was "8885551212", and the message was "Dog found". Here are the other specific settings.

Base: Rectangle shape, Width=19 mm, Depth 0.20 mm, Border=Yes, Border width=0.3 mm, Border Depth=0.1 mm

QR Code: Depth=0.1, Margin=0.25, Block size=90%

Download the stl file (top right) as binary, and "no" for "separate parts".

Import the part into PrusaSlicer after the band is imported. To do this, right click on the band, "Add part", and "Load" the stl QR file. Place it at **x=31 mm, y=0 mm, z=1.8 mm** relative to the band. I rotated the Z axis of the QR part 270 degrees just so it lined up with the QR code graphic made on the web, but that is not really necessary.

Slicing:

Slice using ULTRADETAIL (**0.05 mm layers**). I slowed it down to **speed=20 mm/sec** for all extrusion speed settings except for ironing, which I set to 10mm/s. I slowed it even more for the QR code part by selecting the part and using Add setting -> speed and adjusting parameters there. Also, use **100% fill** for the entire model, and **rectilinear for fill pattern and for top fill pattern, and monotonic for bottom fill pattern**. Neither supports nor a brim are needed. Some other settings are listed below, but these seemed to be the most critical.

You may have to play around with some other parameters such as flow rates, retraction length, temperature and speed depending on what filament manufacturer you use. The QR code rendering is probably the most sensitive part, so pay extra attention when that is printing. You may want to do some real-time tuning then.

The entire band may also take over a half day to print, and you will have to attend to filament changes, but it is worth it!

Special Settings

Print Settings

Layers and Perimeters/Vertical Shells/Perimeters=1

Quality/Detect bridging perimeters=yes

Infill/Enable Ironing=yes

Speed: 20 mm/s for all print moves

Filament Settings

Extruder Temperature for first layer 225°C, Other layers 220°C

Advanced: Filament Type: Flex

Max Volumetric Speed: 2mm³/s

Printer Settings

Extruder 1/Retraction/Length: 4mm

Extruder 1/Retraction/Lift Z: 0.1 mm

Extruder 1/Retraction/Retraction amount before wipe: 80%

Filament Change Settings:

Set the M600 filament changes as follows:

1. TPU **orange to start**,
2. TPU **white at 5.05 mm**,
3. PLA (that's correct - TPU does not render the QR code clearly enough)**black at 5.35 mm**,
4. TPU **red at 5.45 mm**,
5. TPU **blue at 6.10 mm**.

A few tips when using TPU flexible filament.

1. Make sure there is minimal tension pulling the filament off the spool. I gently pulled off a couple of meters at a time and let it hang in a way that it would not tangle as it is being fed into the line.
2. Absolutely make sure you trim the tip so it is as pointed as possible, and feed it in gently into the extruder. Put a little pressure on it to help feed it in when you "CONTINUE" the feed, and do not depend on the extruder to simply grab it. Similarly, be prepared to help the extruder by **very gently** pulling during the unload process.
3. Minimize tension on the idler screw (see https://help.prusa3d.com/en/article/idler-screw-tension_177367). My screw was about 3 or 4 mm inside the housing, and the filament kept jamming inside the extruder. Once I loosened the screw so it was just about flush with the housing, it behaved properly and did not seem to adversely affect the management of any other filament types I used.
4. Flexible filaments can be very difficult to pull from a PEI tray. To pull the completed model off of the tray, there are several "tricks" I've read such as using a glue stick, using isopropyl alcohol/water combination sprays, and using talc. The glue stick method worked fine for me, so I recommend going with that.
5. While the band comes off the tray flat, it will easily curve to your pet's collar once slipped on. One thing I did so that it fit to the curve a tad more readily was I rubber-banded it to the outside of a duct tape roll about the same circumference as Lucy's neck and left it there for about a day. This "trained" the band so that it was a better fit to the collar.
6. Once you pull the band off the tray, I suggest using a tooth brush or a soft brass brush to clean off any stringing that occurred. There was very little on my prints, but using the brush made it look even better.

Collar Fitting:

The band fits snugly around the collar. Gently work the collar first into one side of the opening on the bottom of the band, and then gently work the collar into the other side. Your experience may differ depending on the depth of the collar, but the band is pliable enough so that I don't think it will be too much of a problem. If it is, you can make adjustments in the included files and take it from there. The same goes for the width of the band, which can easily be adjusted in PrusaSlicer, or can be adjusted when you change the lettering in Fusion 360 or another CAD program.

Files:

I have included the Fusion 360 file along with the .3mf and .stl files so that you can more readily customize it to your needs. I've also included some photos of Lucy who is modeling her new collar jewelry.

Prusa Printers and PrusaSlicer:

Before I had my Prusa MINI and my Prusa i3 MK3S, I had a well-known competitor's printer which I have since donated it to a local school. Honestly, it paled in comparison to the Prusas, which are utterly amazing not just for their quality, but also for the community of users who help make them better. That's not to mention PrusaSlicer, without which this model would have been nearly impossible for me to create. Thank you, Prusa!

I hope you like this print, and that these instructions and the accompanying photos have been helpful. Yes, there are a lot of steps. But they are pretty easy, and once you see the result I think you will agree that it was worth it.

Feel free to message me if you have questions, suggestions, comments or ideas for fashionable derivatives.

Sincerely,

Joel (and Lucy)

About Lucy:

Lucy is a 2-year old mixed-breed rescue dog who we adopted in June of 2019 from [MatchDog Rescue](#). She was transported to New Jersey from Texas where she had been impounded as a stray with a collar, but sadly, no tags. It is that which has inspired this project.

We met her first at a rescue gathering at a pet store in Marlton, New Jersey, where she immediately befriended us. There was no turning back. She is a very sweet, friendly, playful and energetic dog and is now part of our family.

Model files



lucy-name-band-combined-with-qr-code.f3d



lucy-flat-name-band.3mf



lucy-name-band-flat-qr-code.stl

Print files



lucy-flat-name-band_025n_005mm_flex_mini_10h28m.gcode

⚙ 0.25 mm ≡ 0.05 mm ⌚ 10.47 hrs ⚖ 11 g 🖨 Prusa MINI / MINI+

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