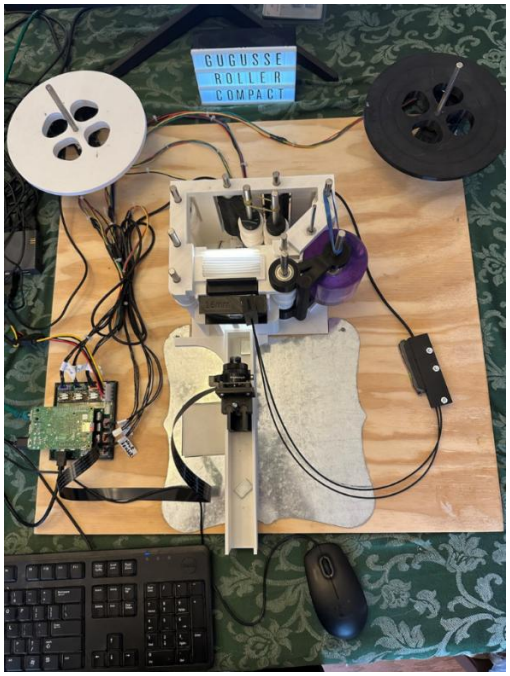
Gugusse Compact Usage Guide

This document will explain how to use your Gugusse Roller Compact to scan various gauge films. Post processing will be covered elsewhere. You will need your system to be functioning properly and be using the equipment shown for all of this to work. You may find a better way to do what we are showing here but this should get you started.

Assemblies and Purchased Parts

ITEM	QTY	NOTES
Gugusse Compact fully configured	1	You'll need eight rollers and a gate/hole detector for each size film you are scanning. Super 8 and Standard 8 share the same rollers but have different gates.
Gugusse 3.1 PCB / Raspberry Pi 4 Model B Combo	1	Also, A Monitor, Keyboard, and Mouse. Must use a 4GB-8GB Raspberry Pi 4 Model B. The software is only available for the 4 Model B (not the 5).
Raspberry Pi HQ Camera with Lens, Extended Cable, and Adapters.	1	Lens options: • Edmunds Optics 17.5mm FL f/5.6, Blue Series M12 Lens - #83-943 / C-Mount to M12 Adapter for UCi Lens - #12-879 for mostly 16mm/8mm scans and some 35mm scans. • Optional: Edmund Optics 25mm DG Series Fixed Focal Length Lens - #55-326 for high quality 35mm Scans.
5mm C-Mount Extension Tube	5	Amazon B09B6Y29QC - Choose size
2mm C-Mount Extension Tube	1	Amazon B09B6Y29QC - Choose size
Configured EX-DN10 Hole Sensor	1	
Neodymium Magnets	8	Ours are 2.2 x 1.5cm – Anything around that size will work.



Initial Set-Up – 1st Time Use Configurations

These steps only need to be done once but you have to get it right before anything else will work.

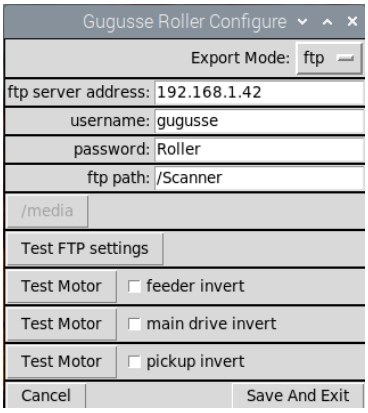
Setting up the FTP connection and Motor Directions

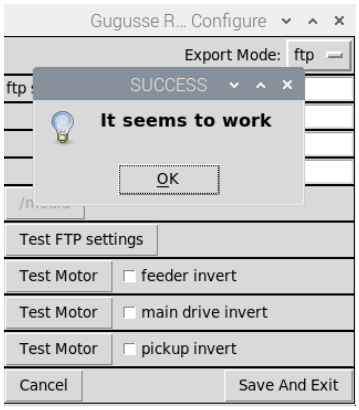
The Gugusse Compact software was designed to send the captured pictures directly to a FTP server of your choice. A FTP server could easily be configured on your main workstation or on any type of file server. Shared storage systems like the Netgear ReadyNAS, Synology DS, and Drobo N editions provide a way to configure an FTP service. There are literally thousands of ways to install a FTP server at home. Windows 10 offers it natively as described here.

Once you have configured your FTP server you will need to figure out its IP address (or hostname), the credentials (user and password) and the file path that the Gugusse Compact should use. Open a Terminal Window on your Raspberry Pi and execute the following commands:

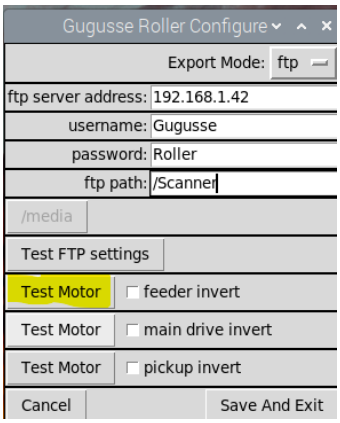
```
cd ~/GugusseRoller
python3 MotorsAndFtpSetup.py
```

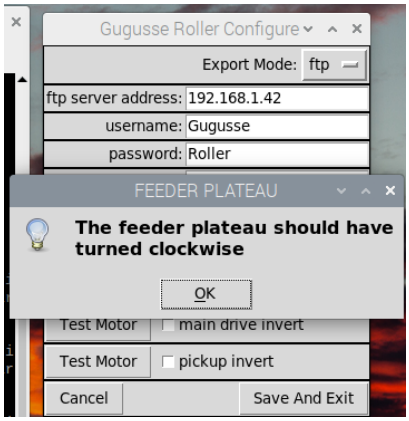
Change the information in the GUI to your information and click *Test FTP settings* to test it. You should get a "It Seems To Work" message when everything is set up correctly.

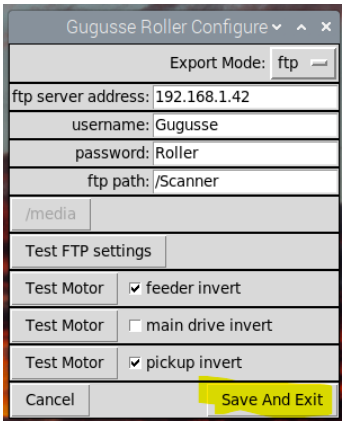




Next we will configure the three motors. Click on [Test Motor] for each and you will get a message about the direction the devices should be moving. If they are wrong, click the Invert checkbox and test again. When they are all working properly, click [Save And Exit].







Format Configurations

These steps only need to be done whenever you change the film gauge that you are scanning.

Setting up the Camera

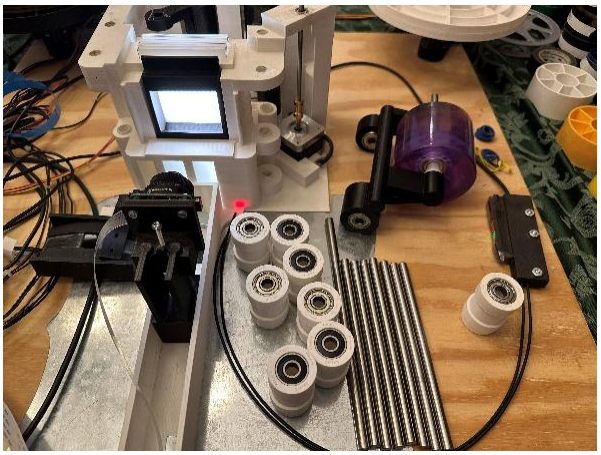
The Edmunds Optics 17.5mm FL f/5.6, Blue Series M12 Lens can be used with all film formats that the Gugusse supports. The focal distance is adjusted by adding or subtracting extension tubes to the lens to put it closer or further from the sensor. The smaller the film gauge, the more Extension tubes you'll need.

Start by screwing the lens about ½ way in the adapter.

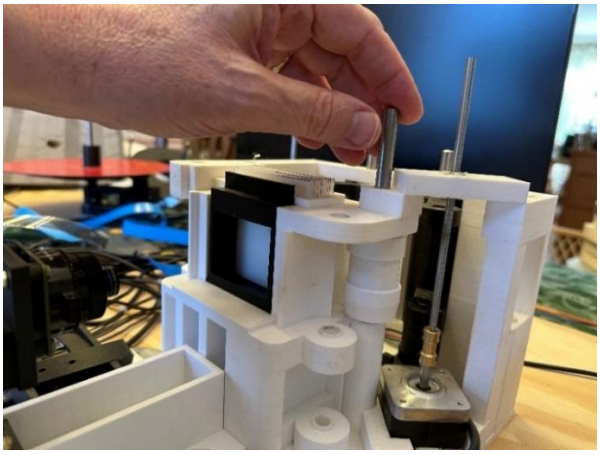
If you are scanning a 16mm Film, start with a 5mm Extension. If you are doing 8mm, try two of them. 35mm might not need any extensions. Use the magnets to hold the Glissade to the metal plate and to hold the camera in place at the bottom.

Setting up the Rollers

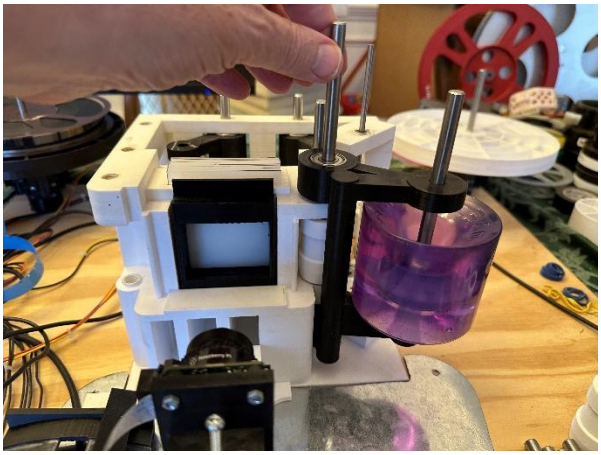
There are eight rollers for each of the formats required. Clean the rollers with alcohol or some other cleaner if they have gotten dirty. Each roller requires two bearings each. Make sure your bearings are well lubricated. If you put the roller on a metal rod it should spin for a second or two after you spin it to test.



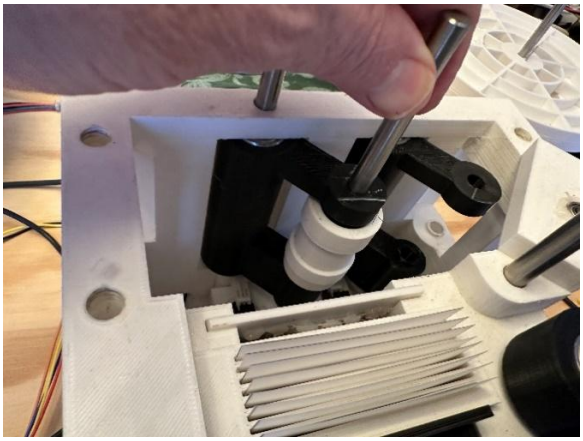
Place an 8mm rod through the top of the holes, then through the rollers to install. The taper on the rollers go down. Do the easy rollers first like the outside ones and the interior one shown below.

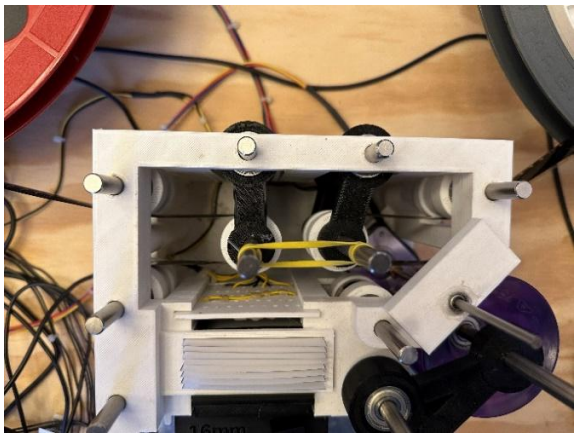


Place a long rod through the top of the skate arm and through a roller and then through the bottom of the skate arm and into the base. This is a little tricky to install, especially if your bearings fit loosely into the rollers, just jiggle the rod and it should go through.

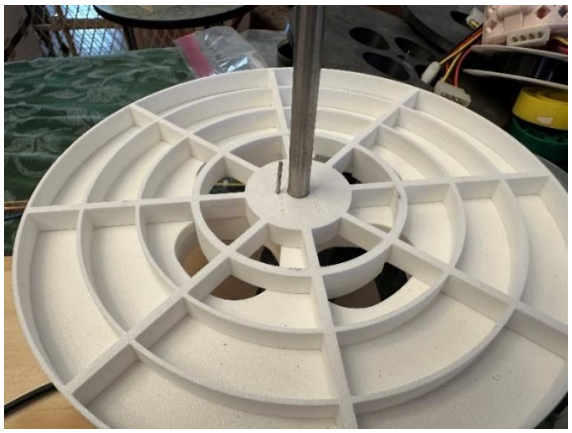


Install rollers in the two swing arms in the back of the unit. Put a rubber band between the two swing arms. You might have to experiment with the tension on this but it doesn't seem to be all that critical as long as the film can be kept tight on the reels.





There is no official way to set up the turntables to move the film. A small hole can be drilled near the center shaft and a pin can be inserted. This will work for the reel risers as well as the base. You can also wrap wire through the holes and the reel to secure it.

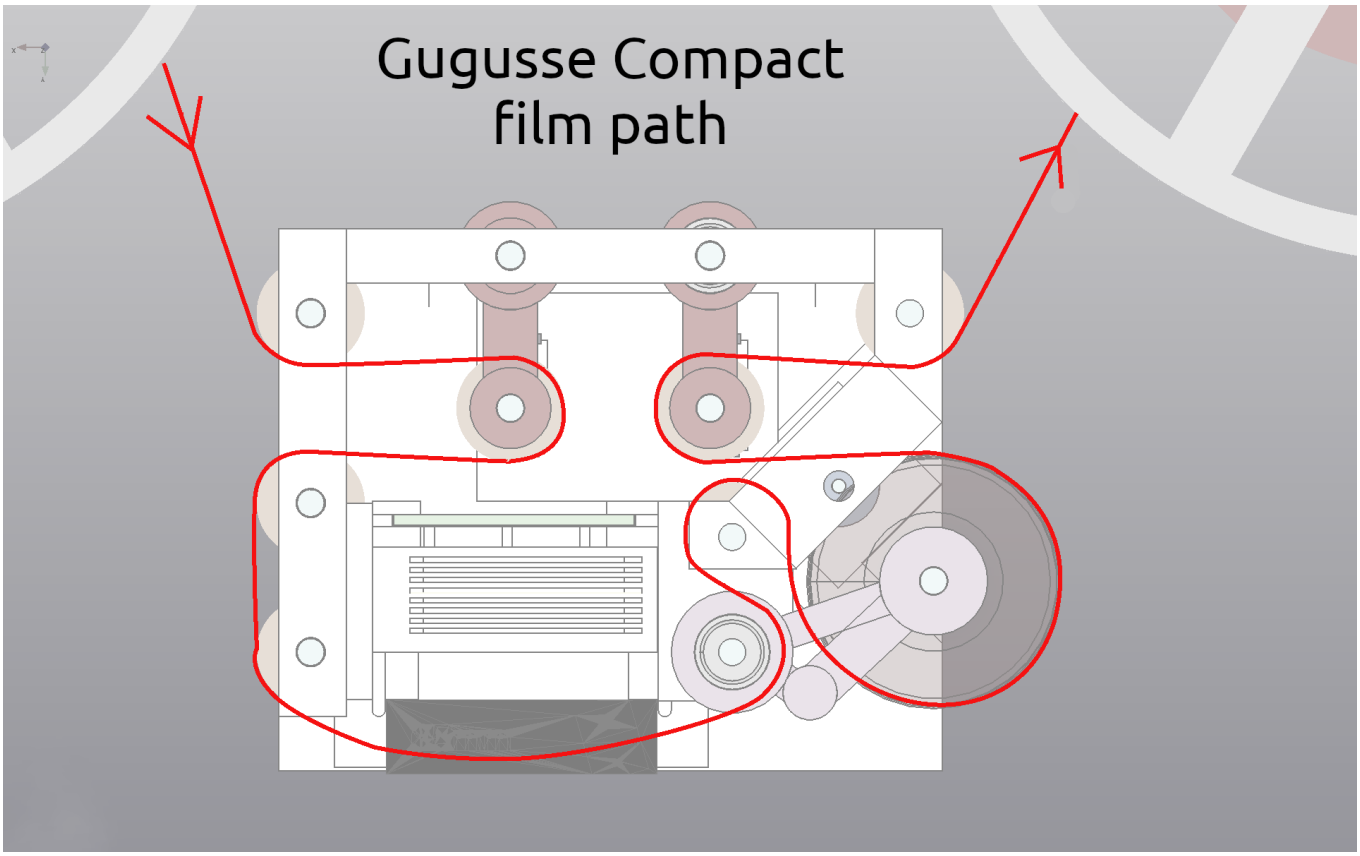


You might need to change films to reels that are keyed on both sides (as below) to make this work with the pin method.

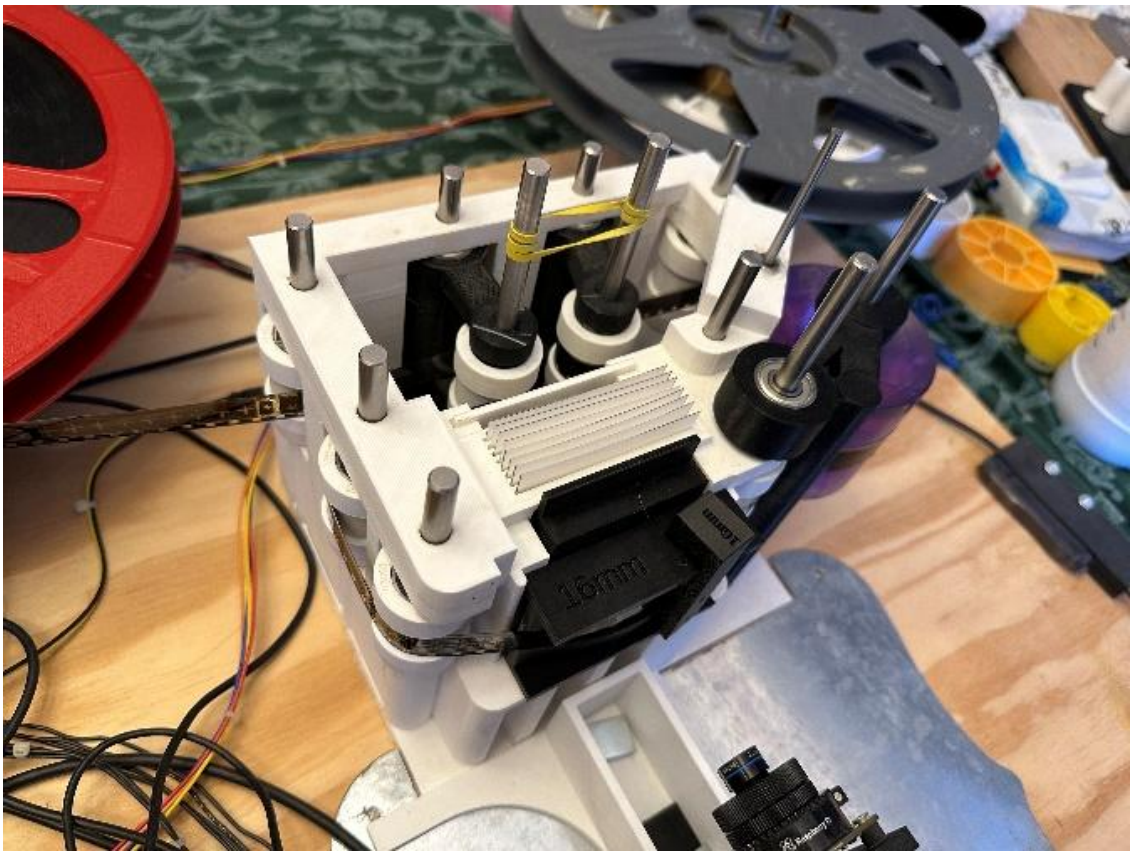
Load the Film

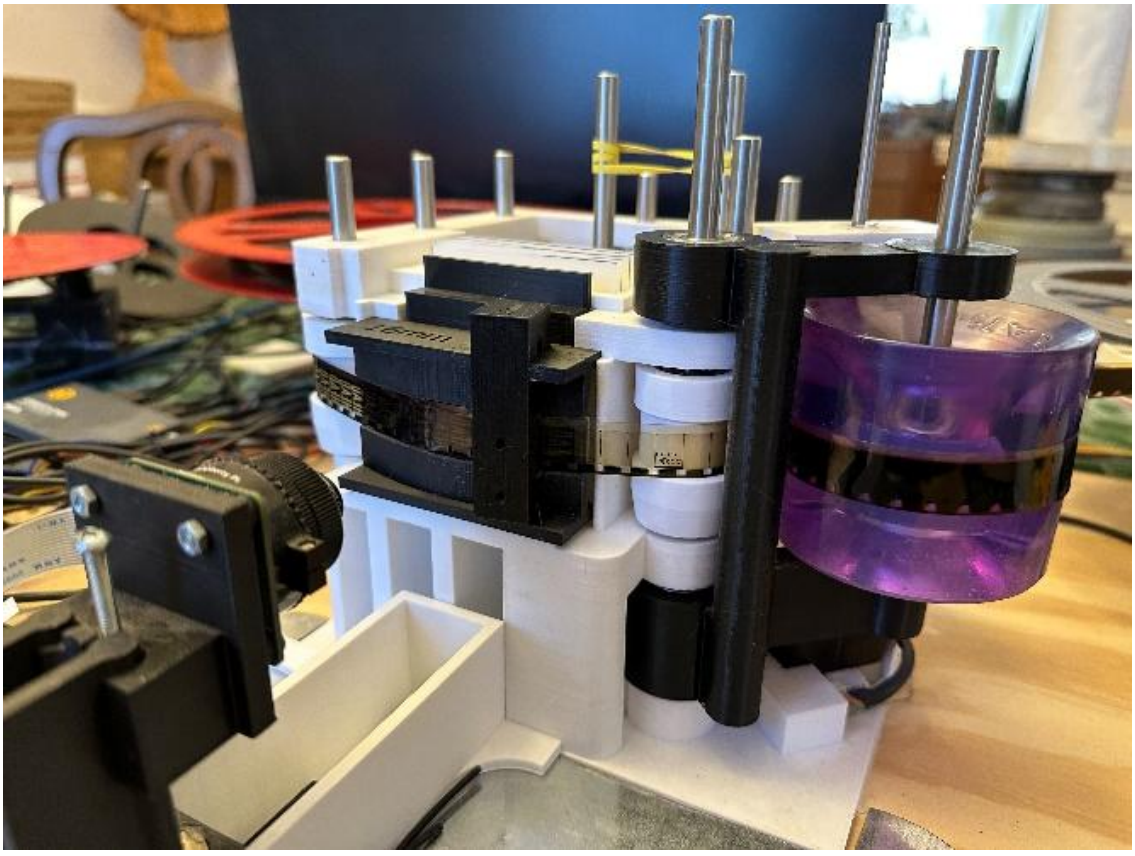
The film follows the same path no matter how it is put on the platters. The film needs to be mounted on the platters with the holes facing down for 16mm and up for 8mm. 35mm doesn't matter but you should try to thread the film though the gate with the emulsion facing out to reduce the chance of scratching the film. The film should be loaded on the take up reel in the same direction that the feed reel is outputting the film.

This is the film path to load the Gugusse Compact:



The gate is held in by the film and the hole sensor is placed over the film with the light pipe holes facing out.





Attach the Light Pipes

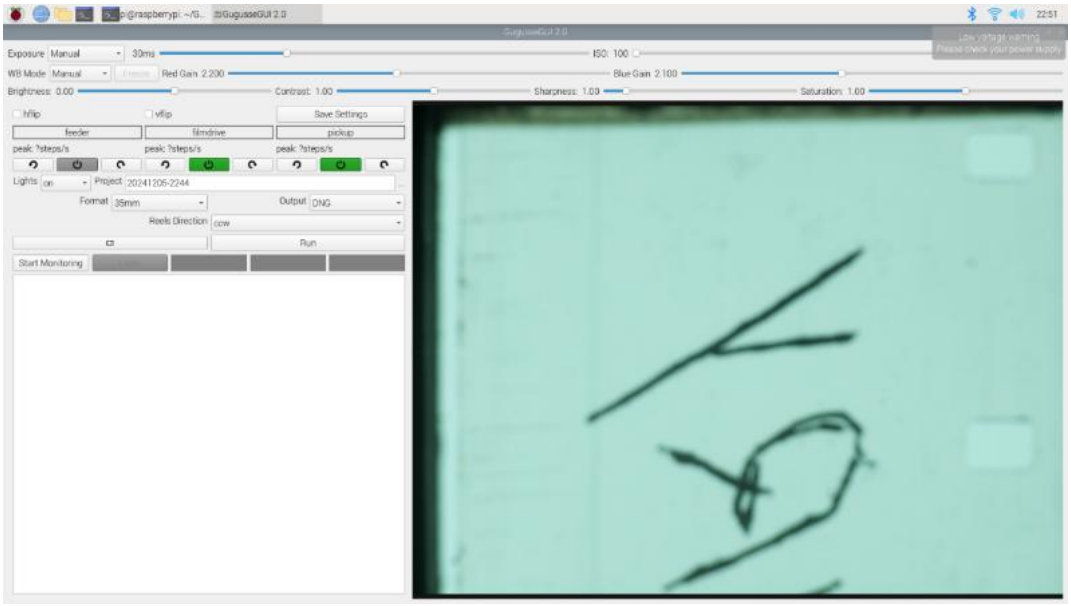
Put the “lit” light pipe in the bottom hole of the sensor. With film in the scanner, you should be able to see a reflection of the light looking into the top hole. If you can’t, try moving the film a bit. Put the other light pipe in the top hole of the sensor.

Load the software

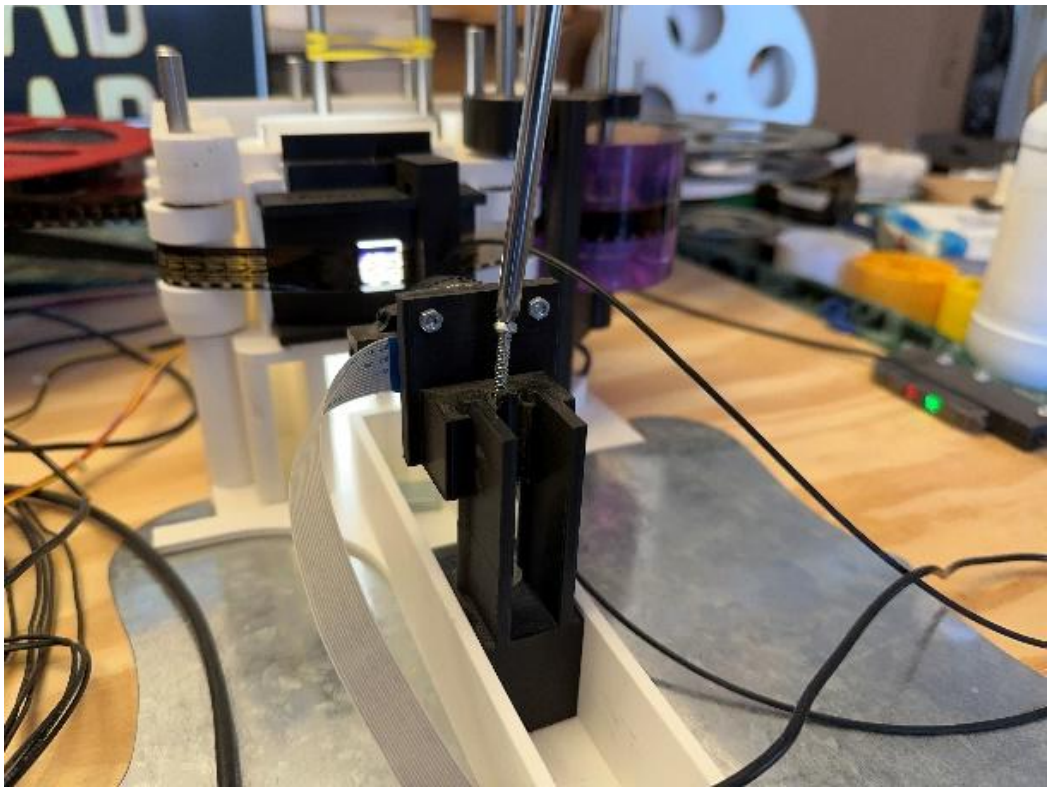
Load the Gugusse Roller Software by running these commands in a terminal window:

```
cd ~/GugusseRoller
python3 GugusseGUI.py
```

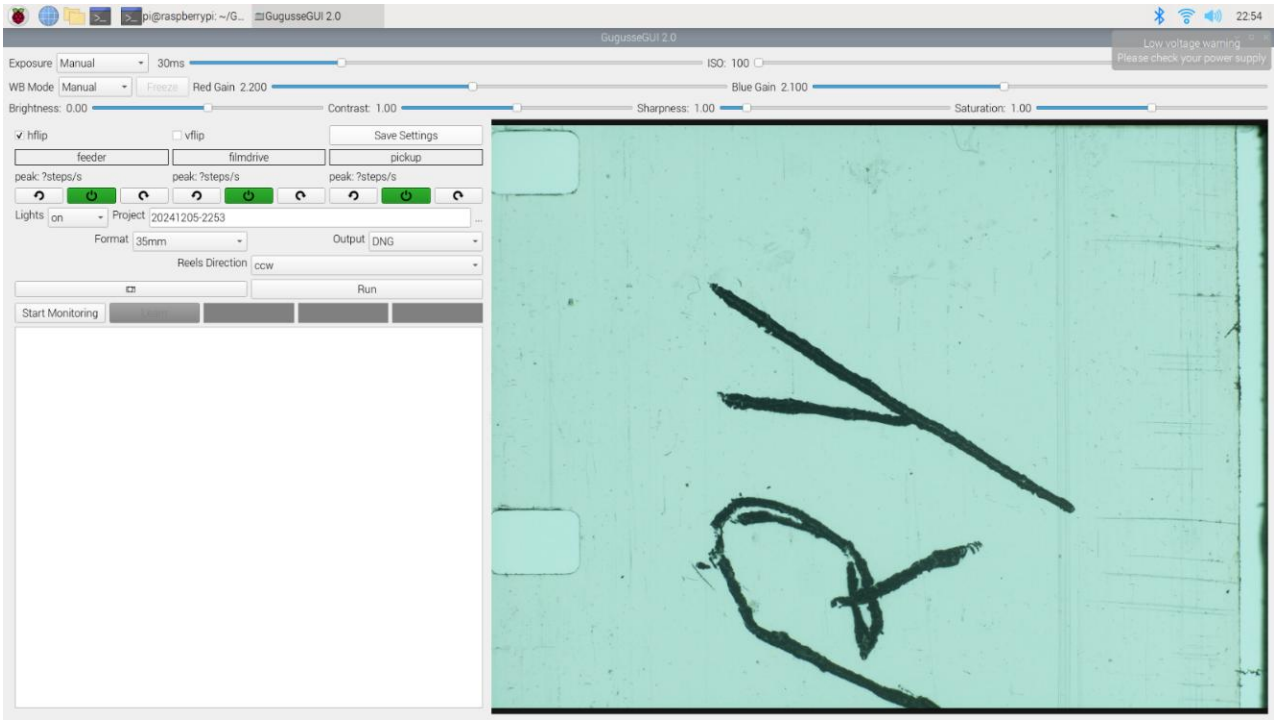
When the software loads, you’ll see a window with your camera and all of the controls required to scan your film. Your camera window will probably be WAY out of focus and probably not close to being set to the proper location.



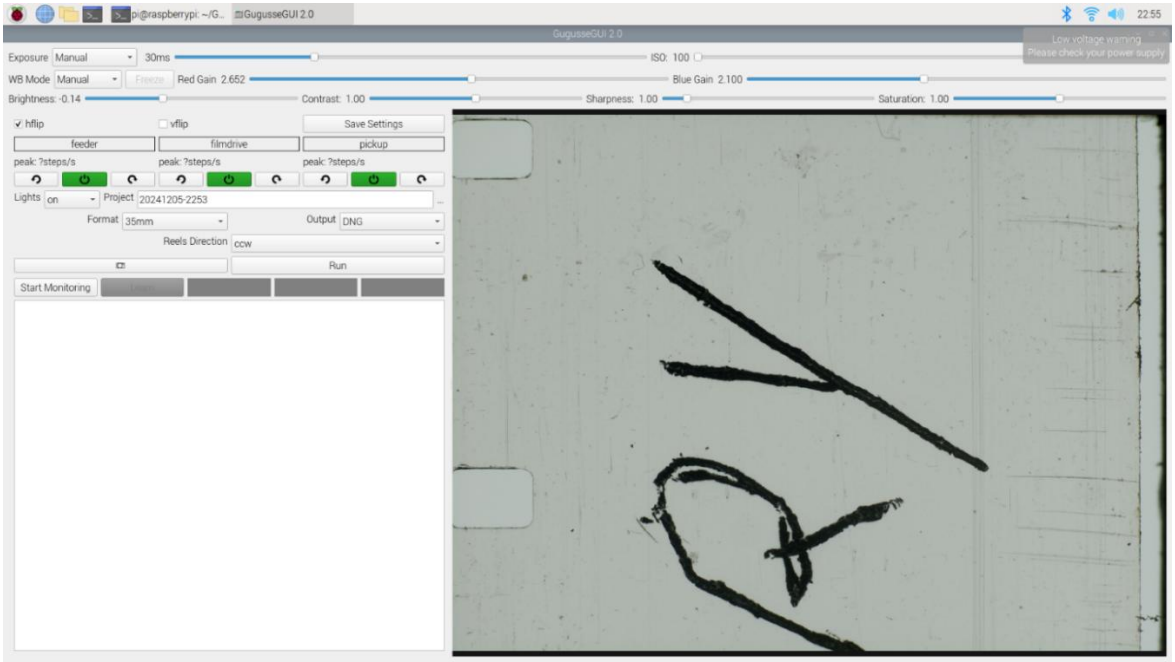
Adjust the left/right position of the film with the adjustment screw on the camera mount.



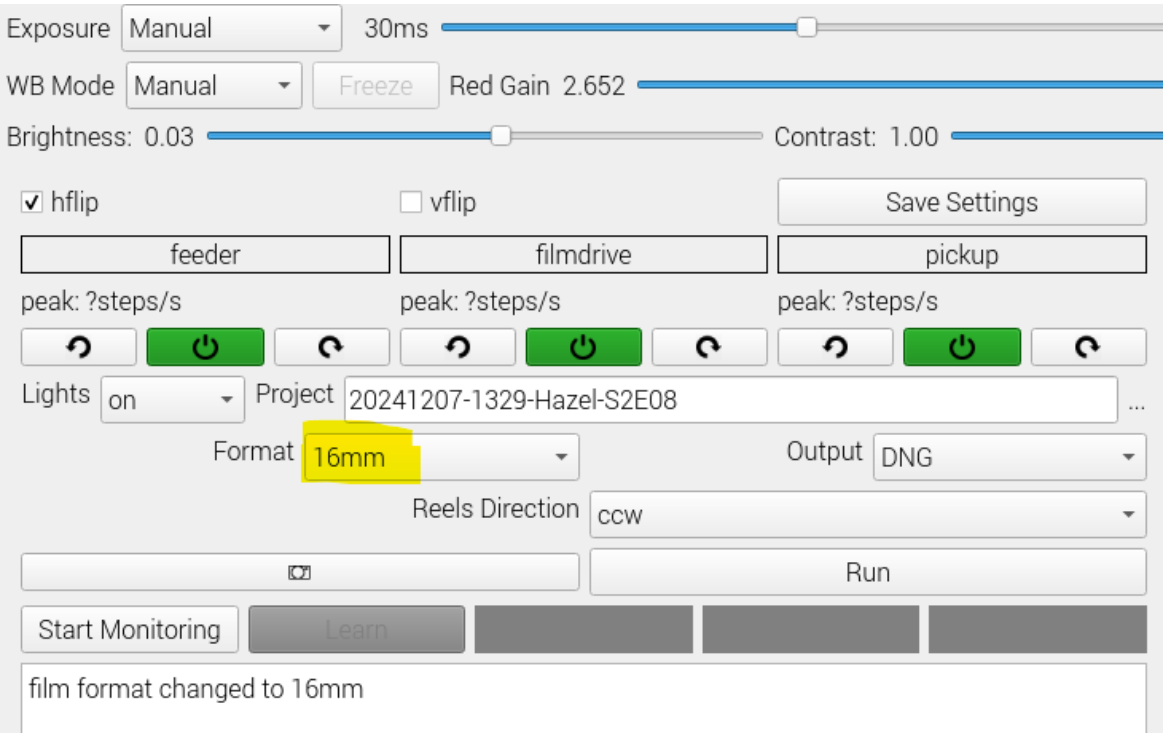
Move and adjust the camera to get a clear picture. 16mm soundtracks are on the right and 35mm soundtracks are on the left. Click on the "**hflip**" box to reverse it (you'll have to restart the software to see the results). Move the camera closer/further from the gate to focus. You also can click anywhere on the picture to zoom in and set your focus better. If the image is too big, or too small, add or remove extension rings on your camera lens to get the picture as big as possible without wasting any of your resolution. Click [Save Settings] after making any changes.



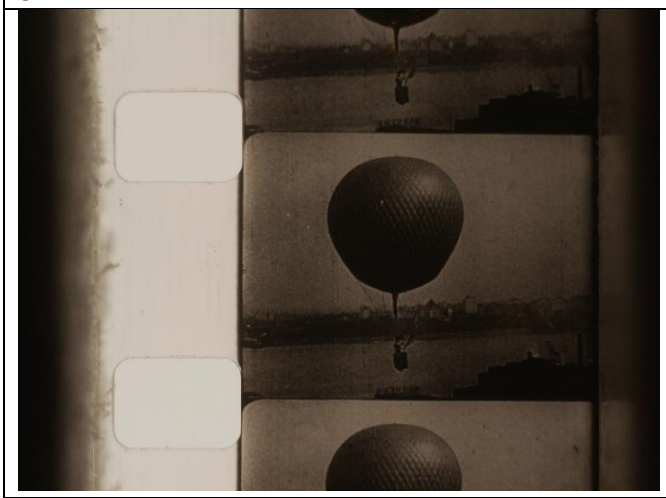
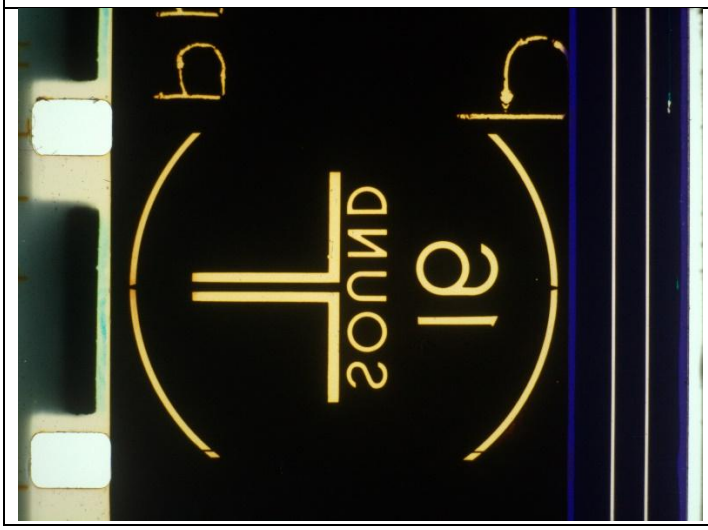
Adjust the Red Gain and the Blue Gain to get the color as close to the original film as you can. Adjust the brightness controls so the picture is just a little dark. You want the sprocket holes to be the brightest part of the picture.



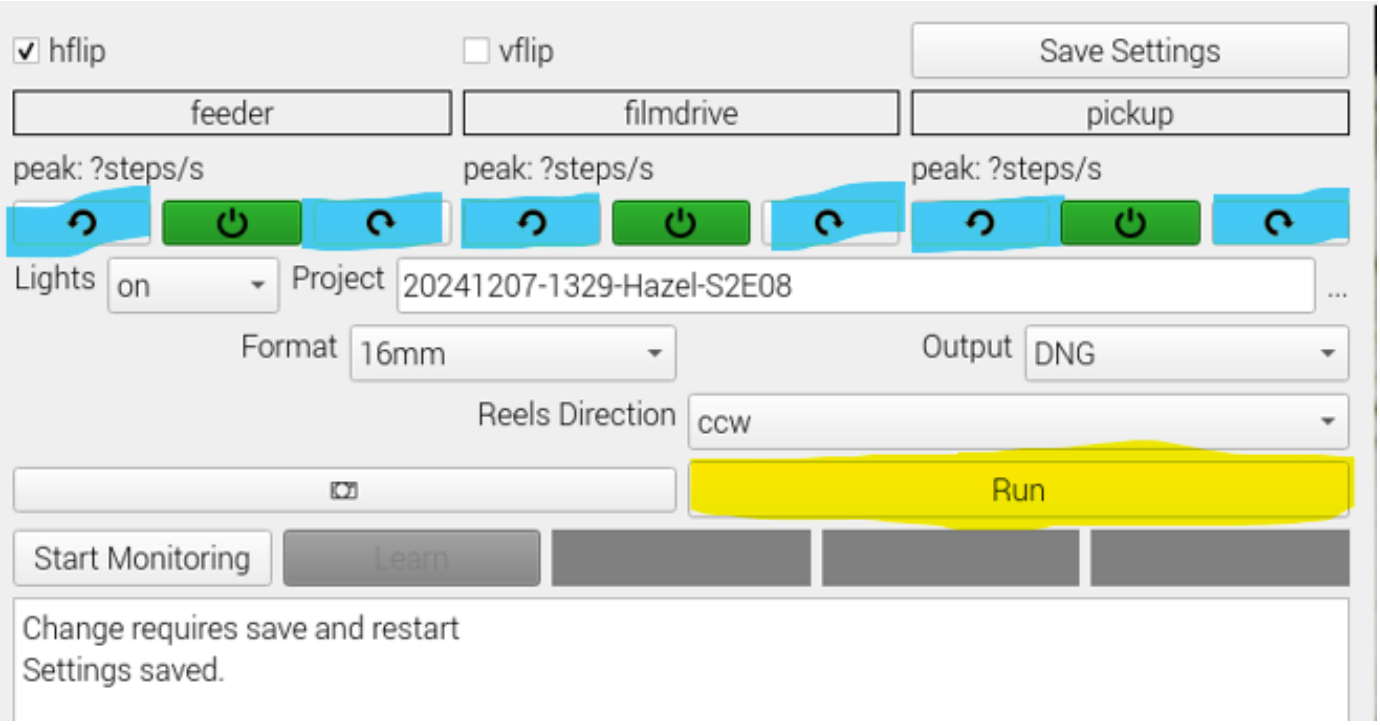
Set the Format to whatever gauge film you are scanning. The Output setting set the type of pictures that will be produced. DNG files are the best format to use because they contain the most color detail but are rather large. Single JPG can also be used if you need to save space. It also works well for Black & White films. Set the reels direction to whatever way the film is coming into the unit, either clockwise (cw) or Counter Clockwise (ccw). Click [Save Settings].



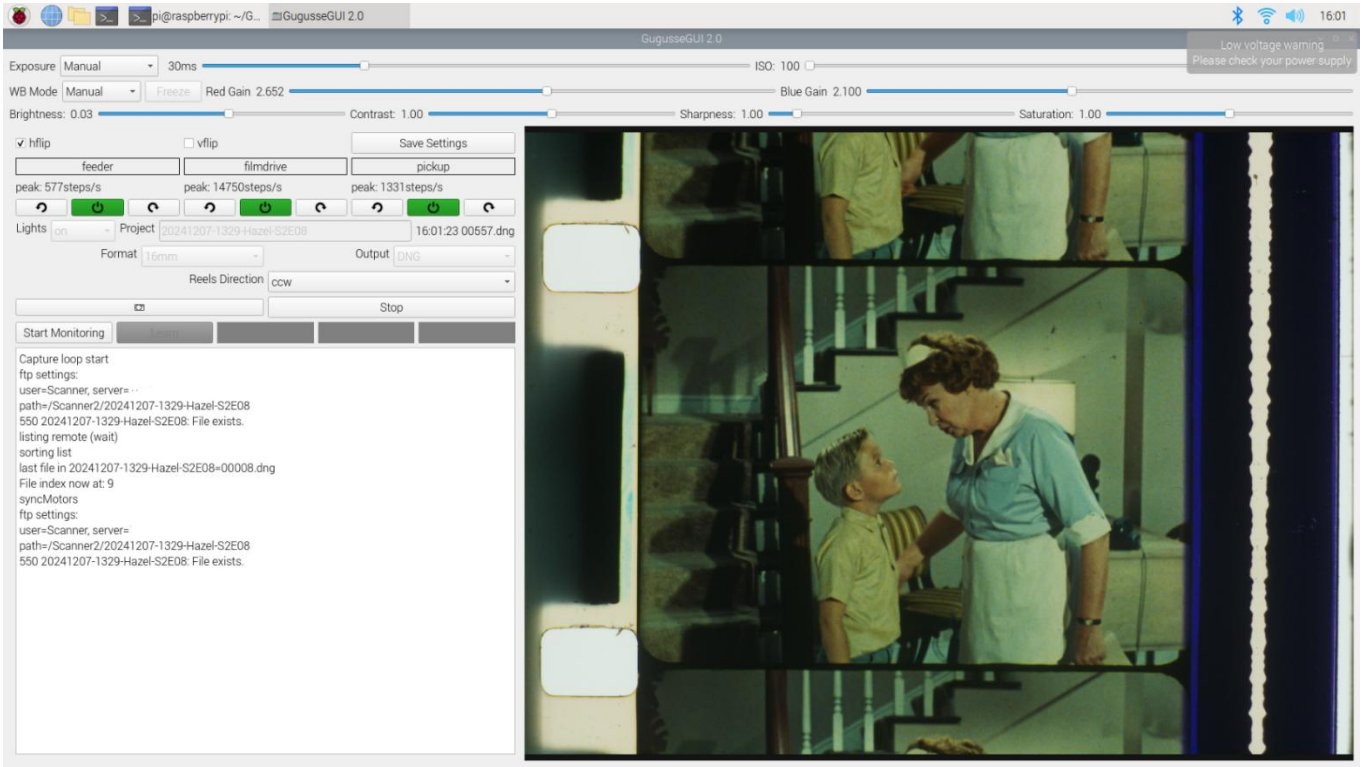
Frame the picture so that you get the most use of the resolution. It's a good idea to make the area where the holes shine through the brightest part of the picture so you should be fine to scan it a little dark. This will help a lot when you stabilize the film in post. Try to make the picture as straight in the frame as you can and focusing on the scratches and imperfections on the film will help a lot. Make sure you don't cut off holes because you'll need them for stabilization. After experimenting in post processing, you might want to reduce some of the wasted space used by the holes and zoom in closer to get better resolution on the picture.

8mm	Super 8
	
16mm	**35mm**
	

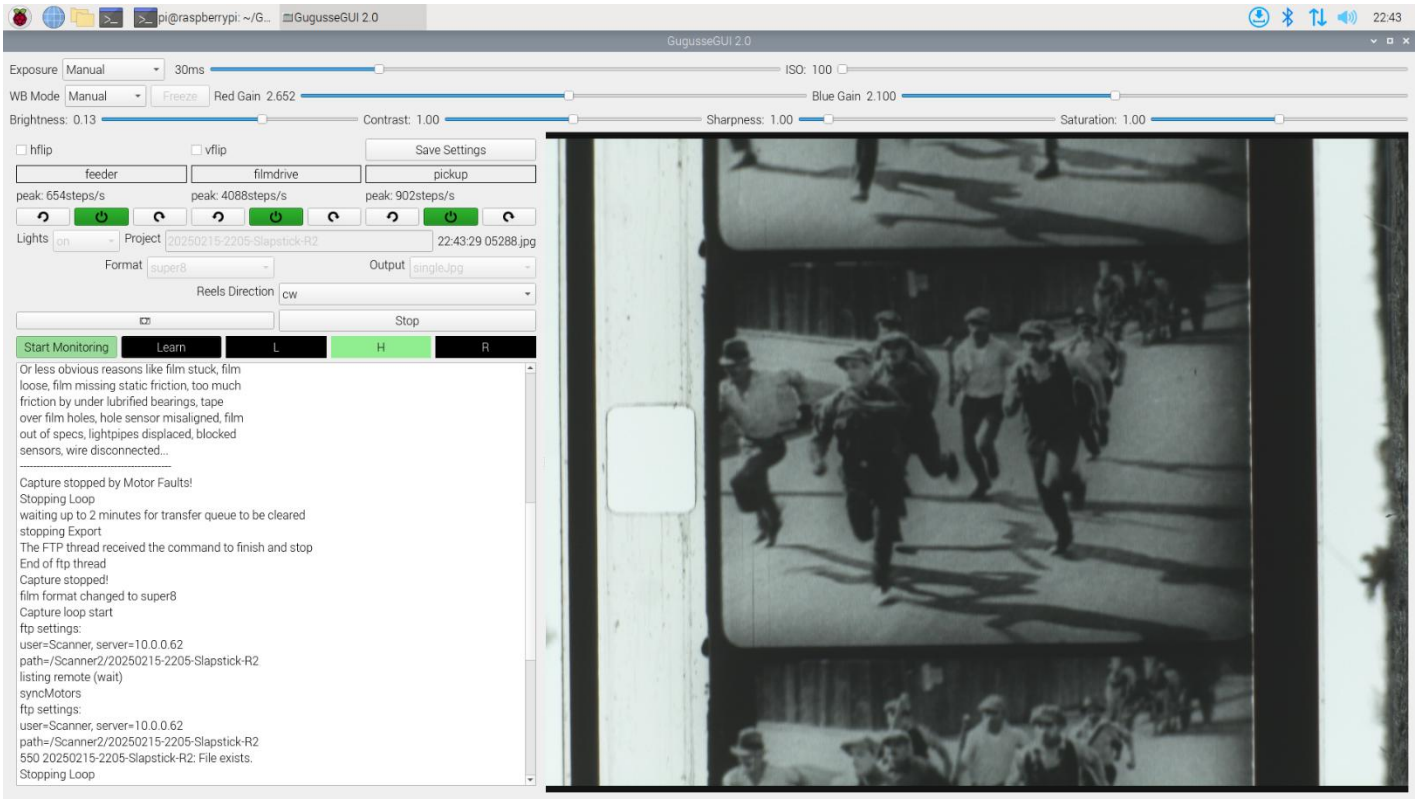
Use the turntable motion buttons (Highlighted in Blue) to center the picture in the frame and position the tensioner arms facing dead center. Add to the Default name that is generated in the Project Field (the date) to remind you what this film is. Click on [Run].



As the frames are scanned, the frame count will increase (next to the Project Name). If you need to stop the scan, simply click the [Stop] button. If you restart the scan and haven't changed the filename, the scan will pick up where it left off. It might take a moment to restart due to the software determining what the next frame number should be.



The [Start Monitoring] button will turn on the sensor monitors. These will flash when a hole is detected or the tensioner sensors are tripped. They are a great way to troubleshoot sensor problems.



The [Lights] button turns off and on the Stage (gate) lighting. It will be turned on automatically when starting the software or starting a scan. It gets turned off at the end of a scan as well.

If the film gets stuck, broken, or the end of the reel, scanning will stop. This is determined by the tensioners position.

Have fun scanning treasures from the past. The fun has just begun!

Details about the Gugusse Compact can be found at: https://www.deniscarl.com/dokuwiki/doku.php?id=start