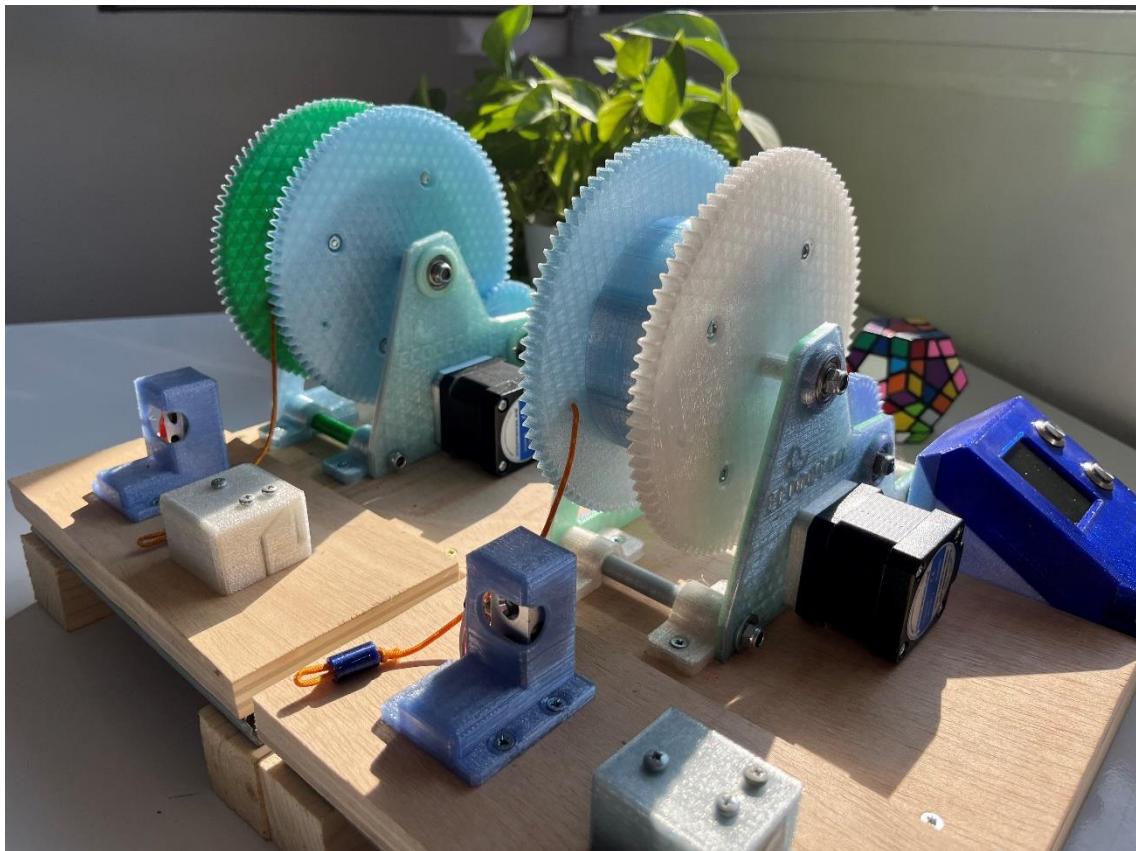


## FILAMAKER KIT INSTRUCTIONS



Contact: [ecodecatcontact@gmail.com](mailto:ecodecatcontact@gmail.com)

Website: <https://sites.google.com/view/ecodecat3d/inicio>

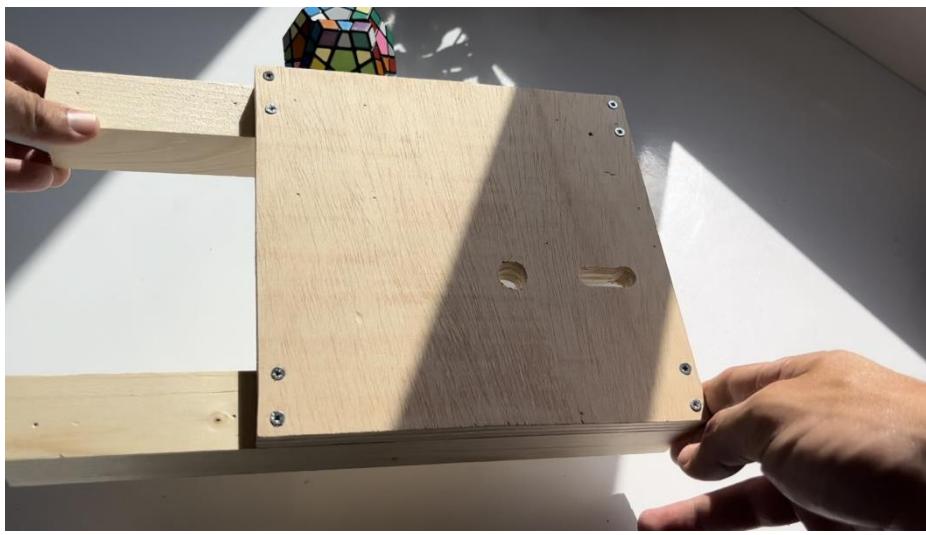
## INSTRUCTIONS

**Link to the video:** [https://youtu.be/f6\\_8Qdu9O-0](https://youtu.be/f6_8Qdu9O-0)

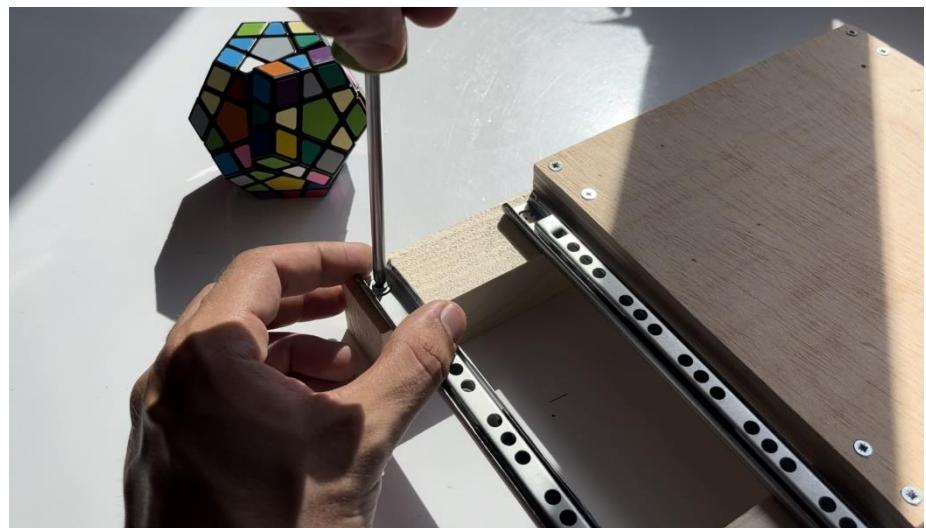
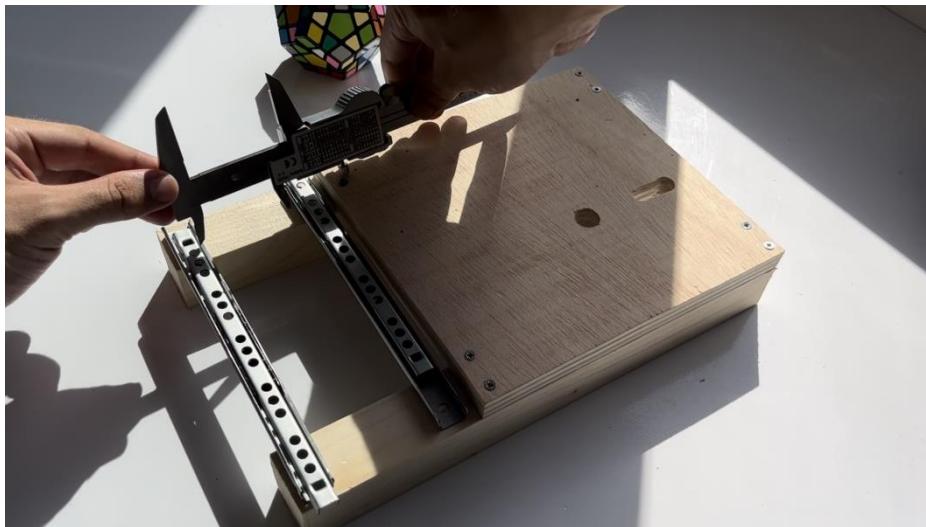
**STL files:** [FilaMaker V2 by ecodecat3d | Download free STL model | Printables.com](#)

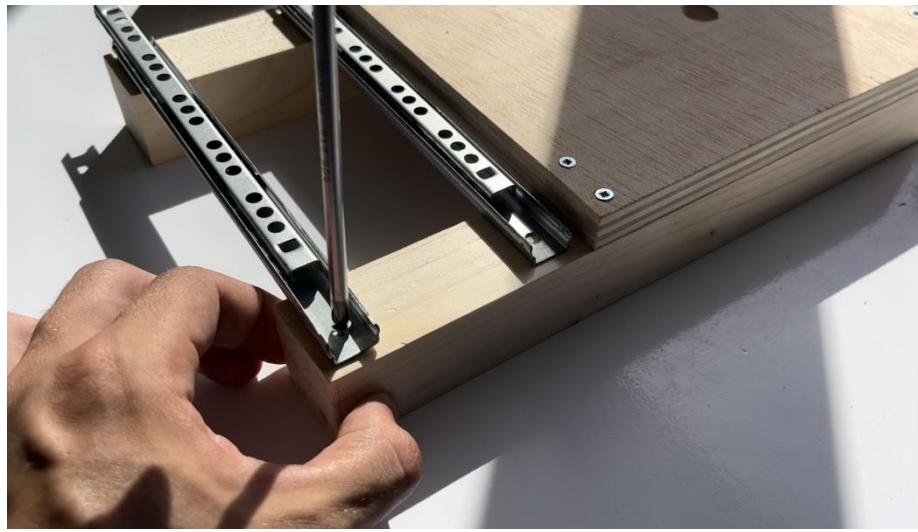
1. Screw the wooden board shown in the image using the 34x34x300mm wooden pieces with M3 x 25mm wooden screws.



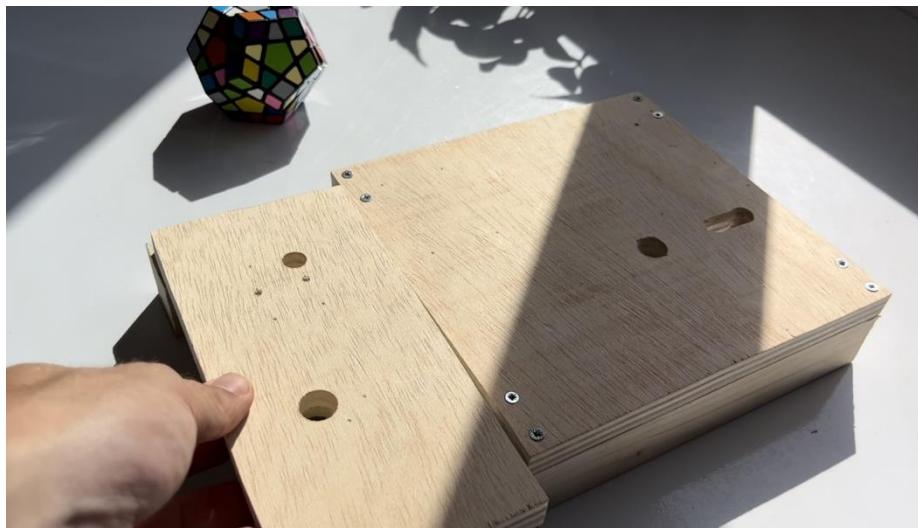


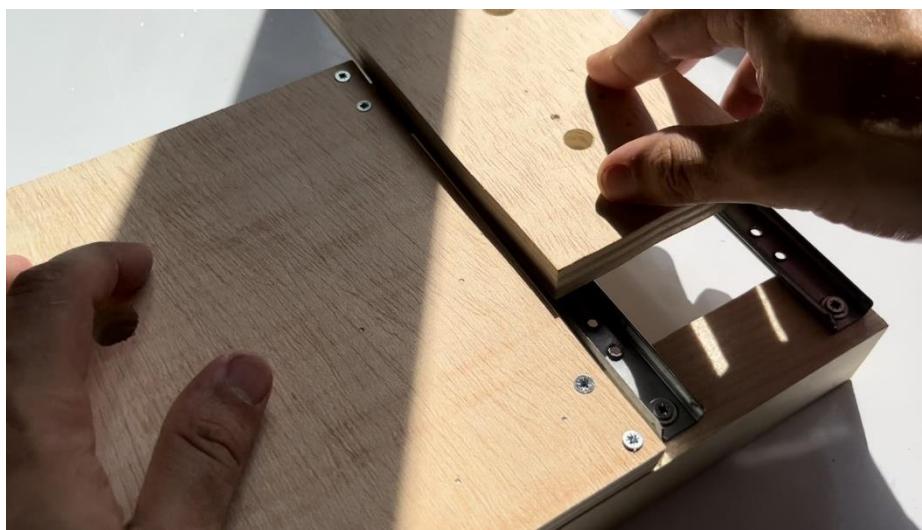
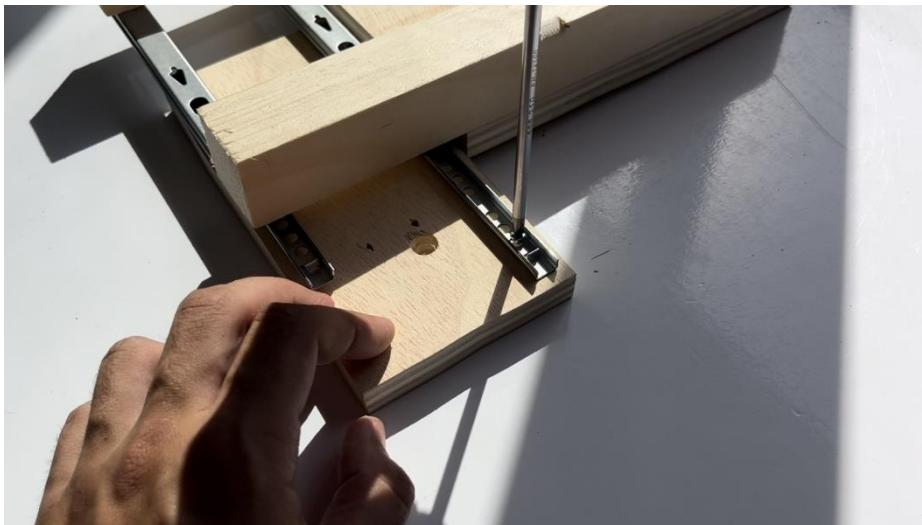
2. Screw the two linear guides with M3 x 16mm wooden screws as shown in the figure. Make sure they are parallel.



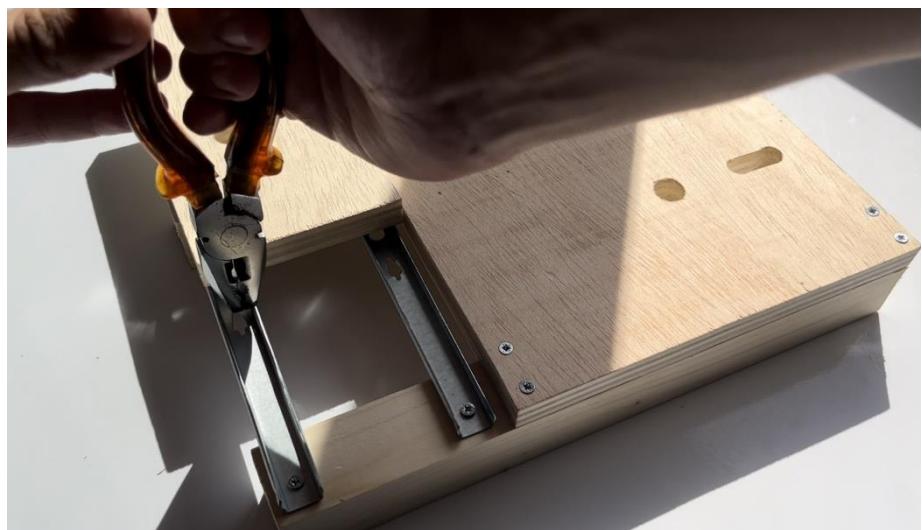


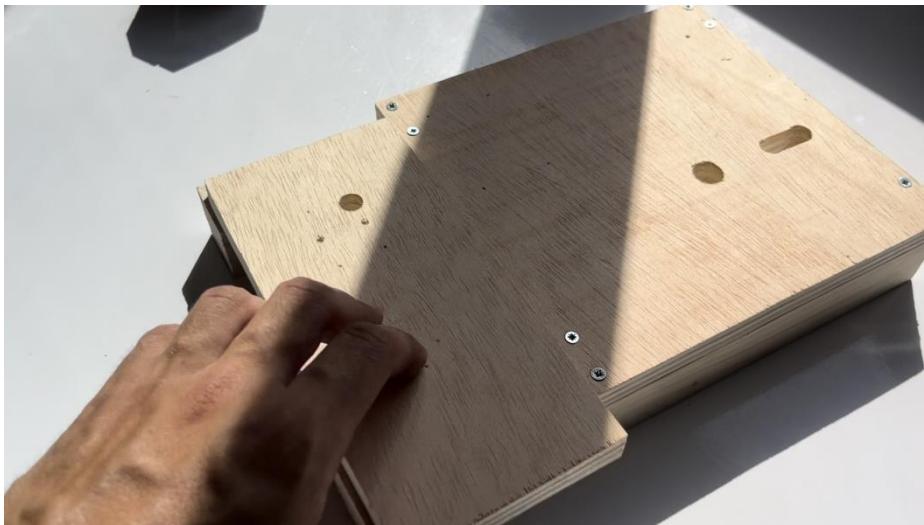
3. Screw the other wooden plank with M3 x 16mm wooden screws as shown in the figure. Make sure the wooden plank moves correctly.



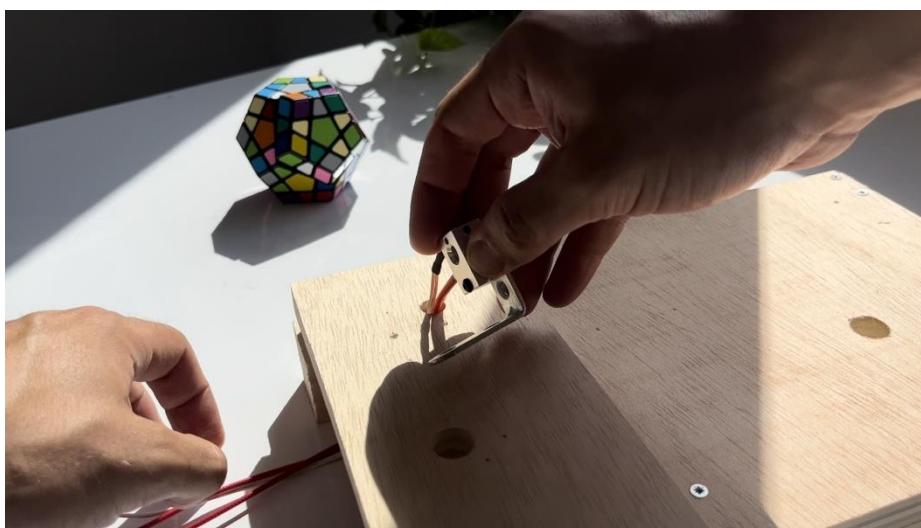
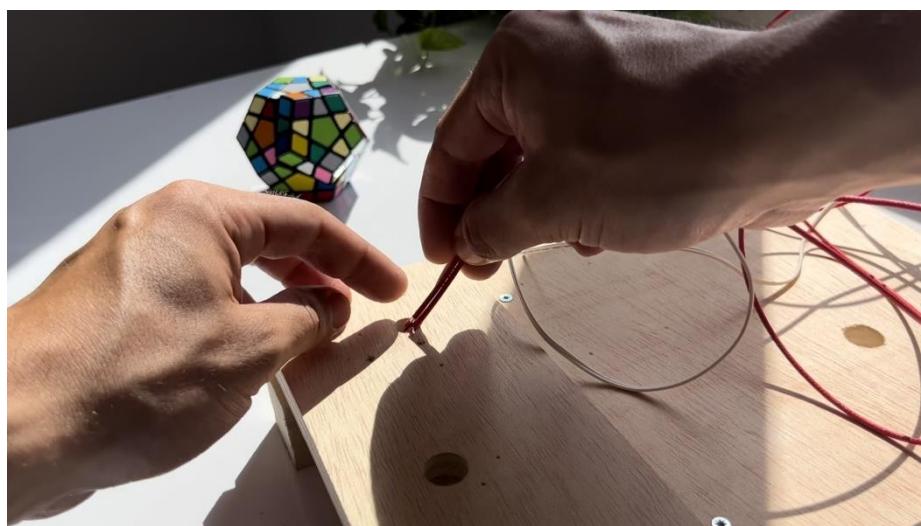


4. If the linear guides are too tight, loosen them slightly with pliers as shown in the video. Afterward, check that they move correctly.

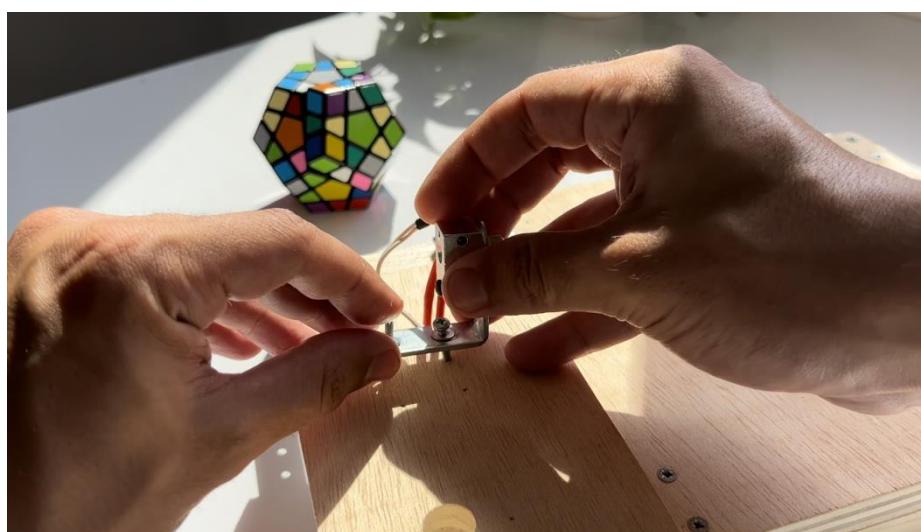
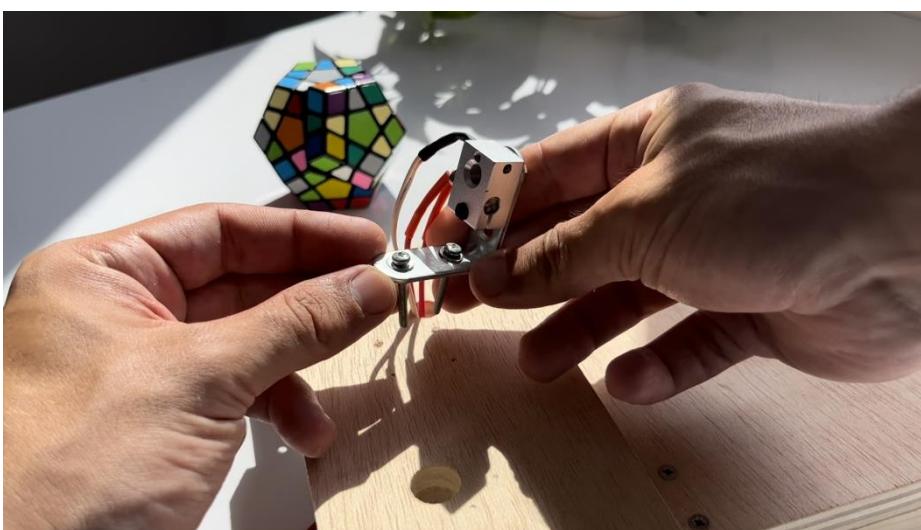
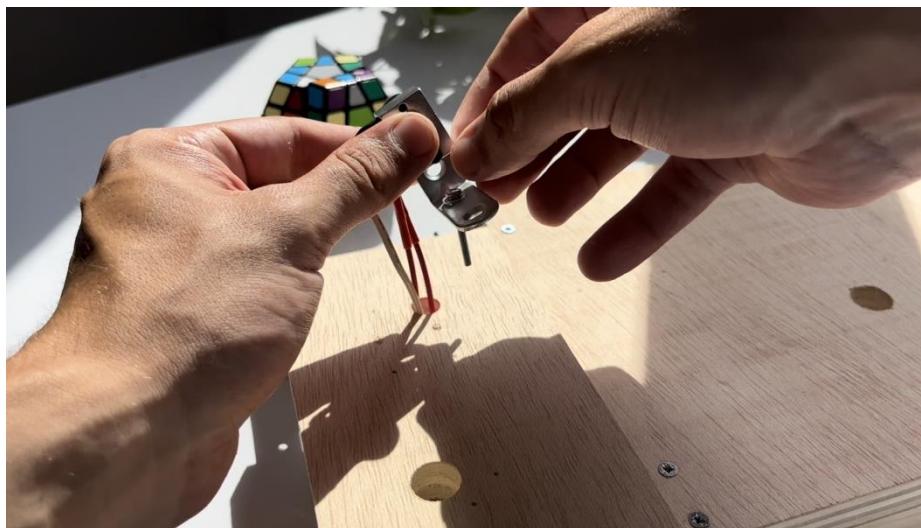


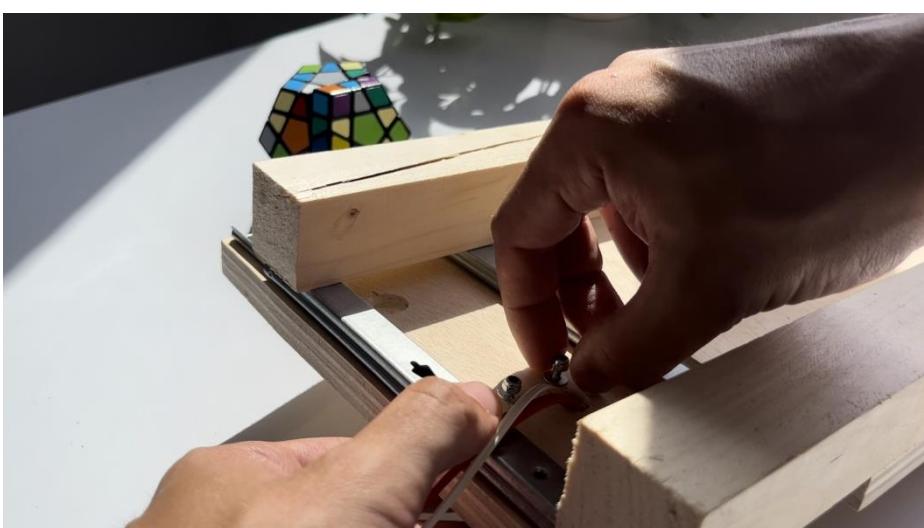
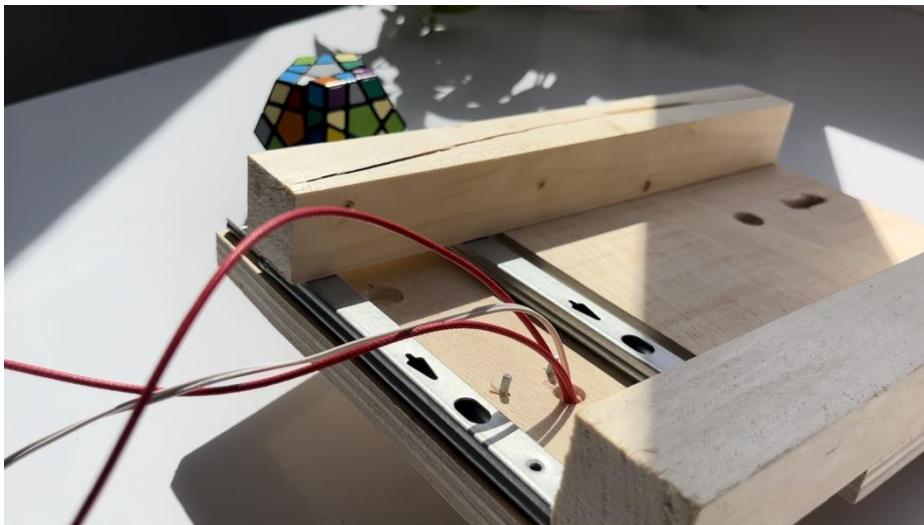


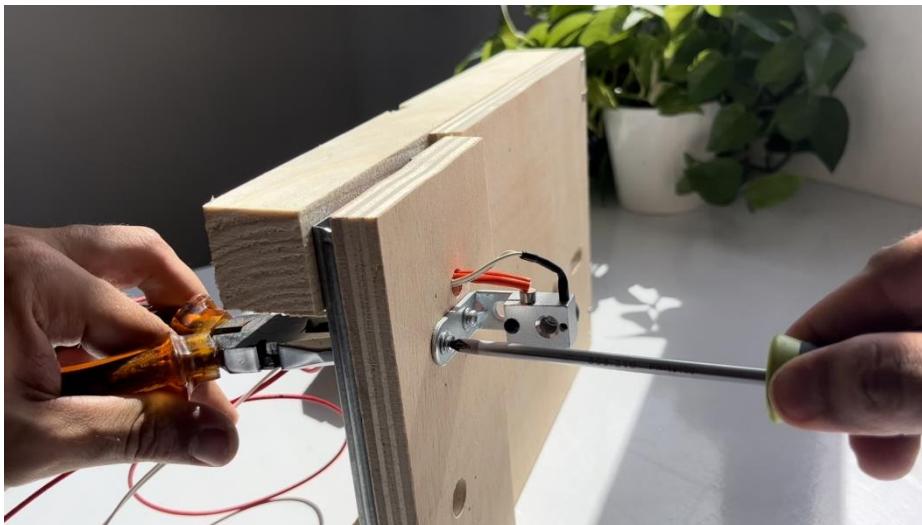
7. Insert the extruder cables through the slot as shown in the image.



5. Tightly screw the extruder with 2 M3 x 20mm screws, 2 M3 washers, and 2 M3 nylon nuts as shown in the figure. Tighten the screws using pliers.

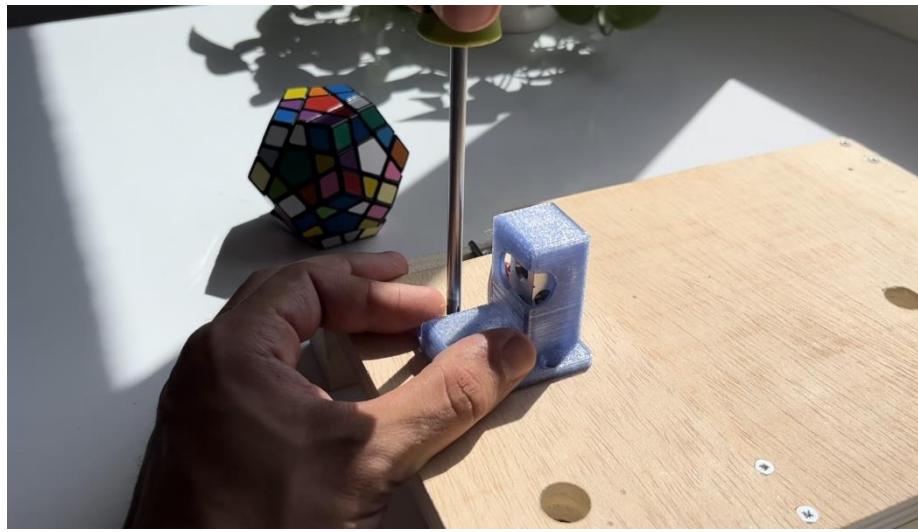






6. Insert the extruder protector. It may be a tight fit, but it will eventually go in.

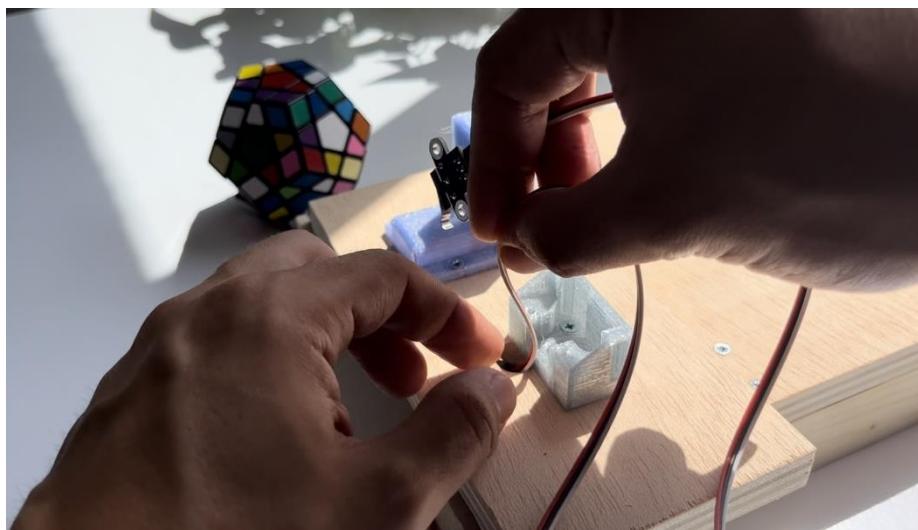




7. Screw the sensor piece shown in the image with 2 M3 x 16mm wooden screws.



8. Insert the limit switch sensor cable through the hole as shown.



9. Bend the limit switch as shown.



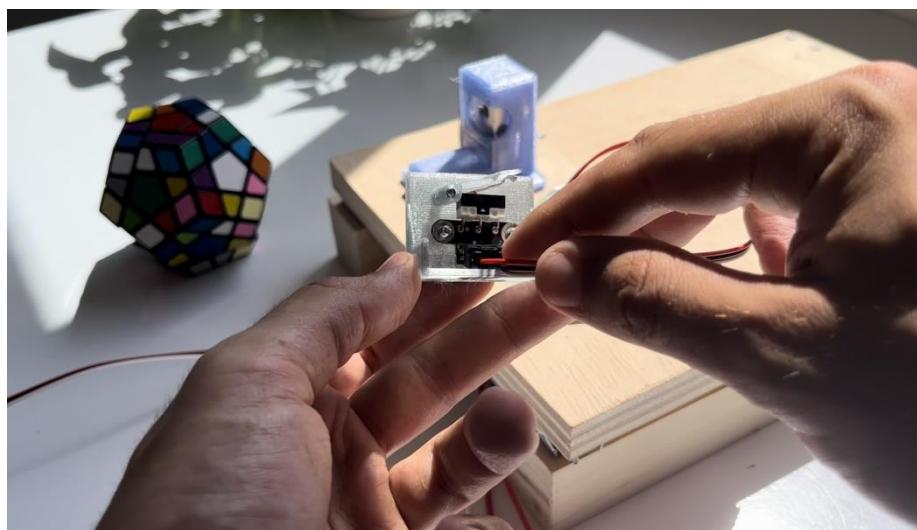
10. Insert the 25mm screw at the top of the sensor piece shown and two 20mm screws at the bottom.



11. Insert the remaining sensor piece through the 25mm screw, as shown in the image.



12. Insert the limit switch through the 2 20mm screws.



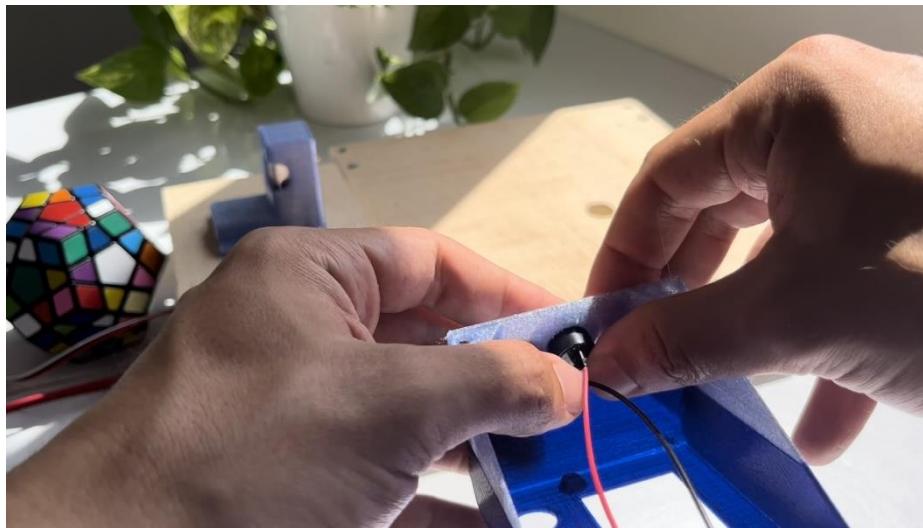
13. Screw the two sensor parts together as shown.



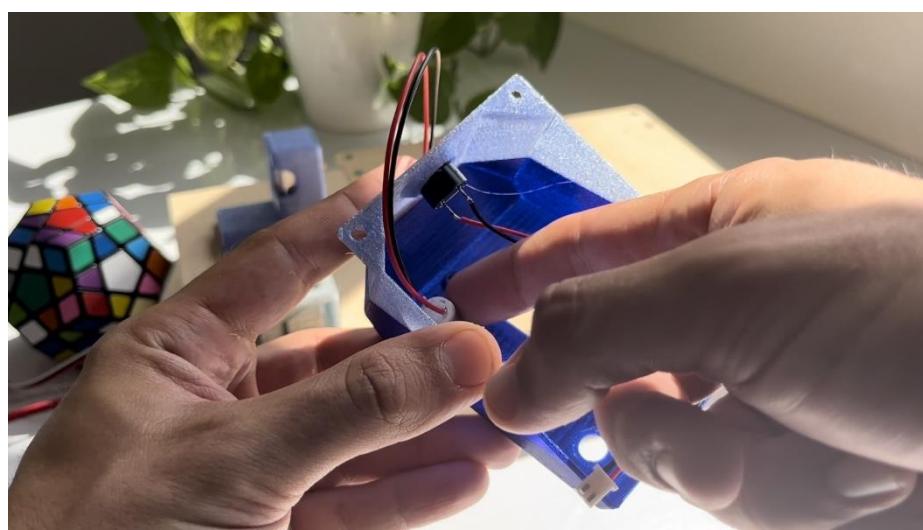
14. Check that when you pass a bottle strip, the sensor makes a "click" sound.



15. Insert the alarm into the printed part as shown. If it remains loose, you can secure it with glue.



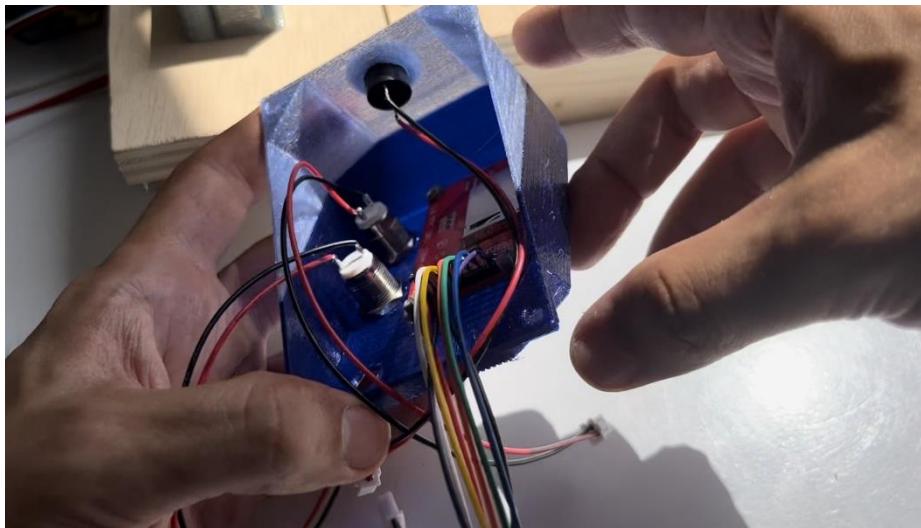
16. Insert the push buttons and tighten them with their respective nuts. The one with the two black lines in the red wire must be the one of the top.



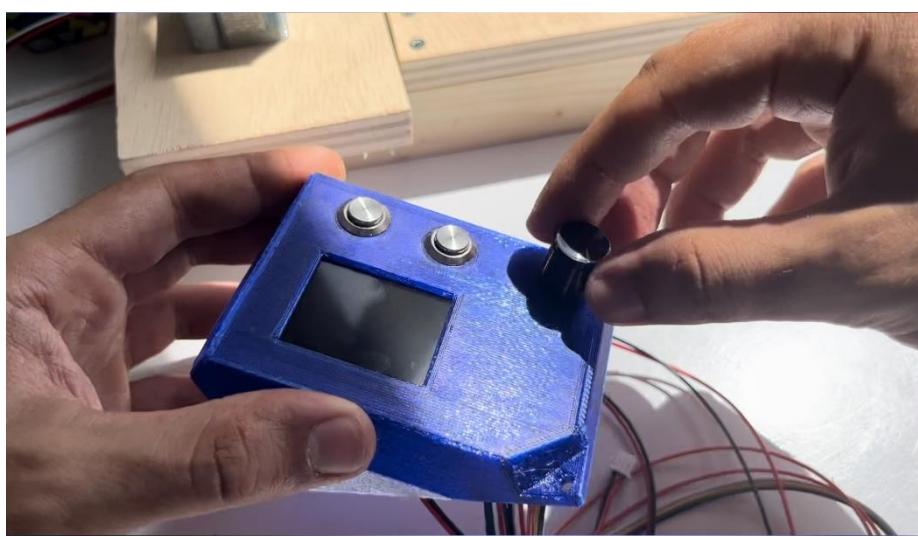
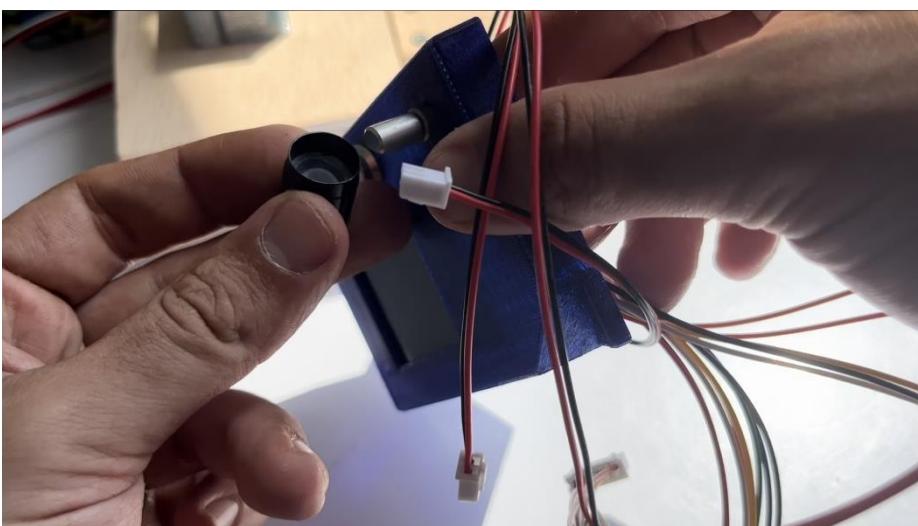
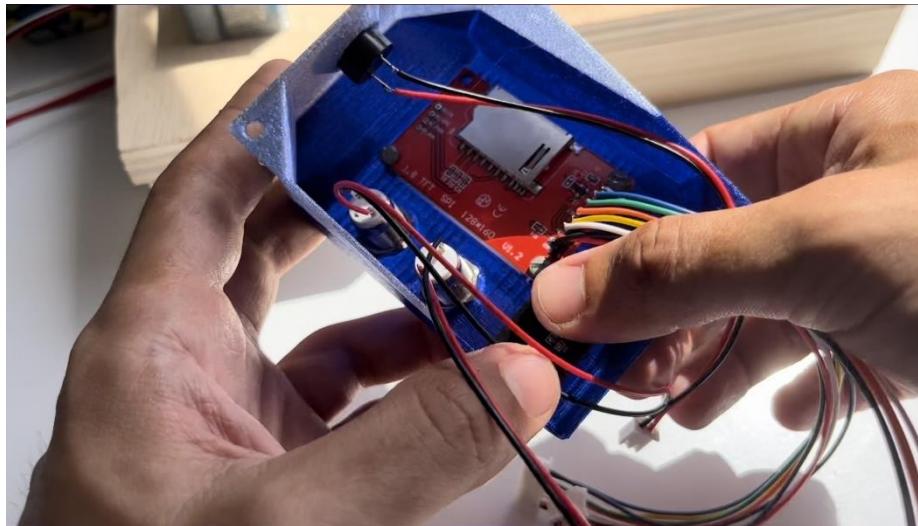
17. Remove the screen protector.



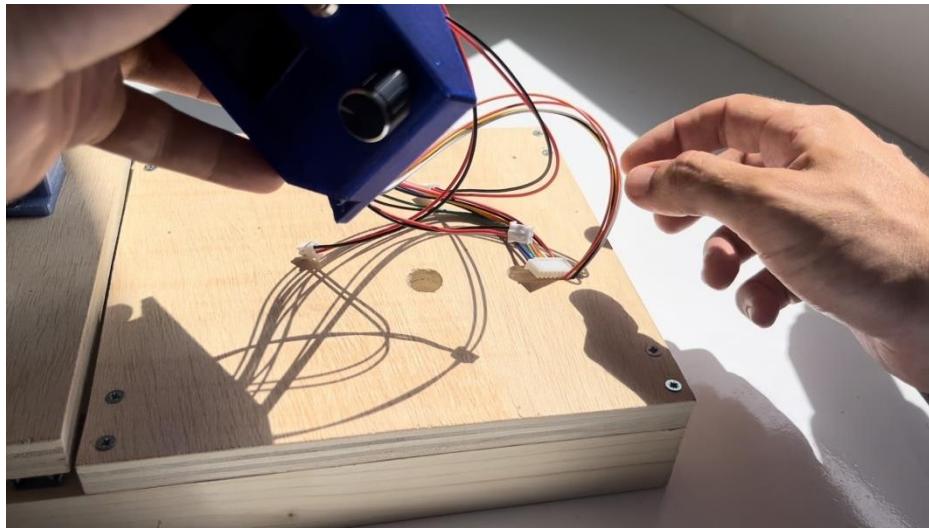
18. Screw the TFT screen with 3 M3 x 4mm screws. Pay attention to the orientation of the cables.



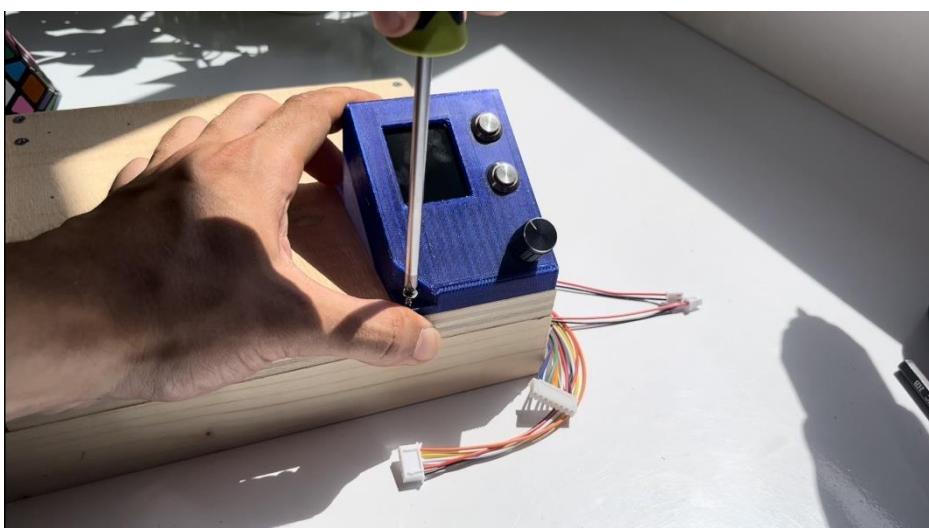
19. Insert the encoder and tighten it with their respective nut.



20. Insert the wires through the hole as seen in the image.



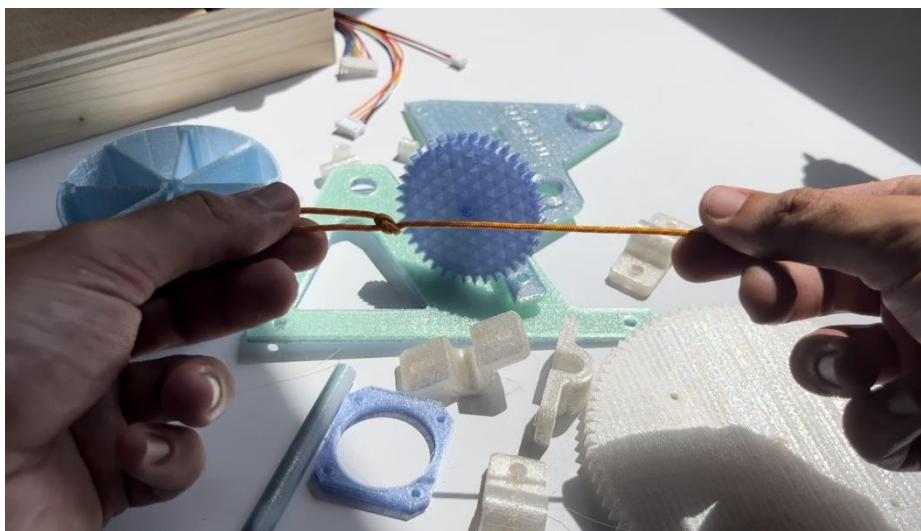
21. Screw the control screen to the wooden plank with 3 M3 x 16mm wooden screws.

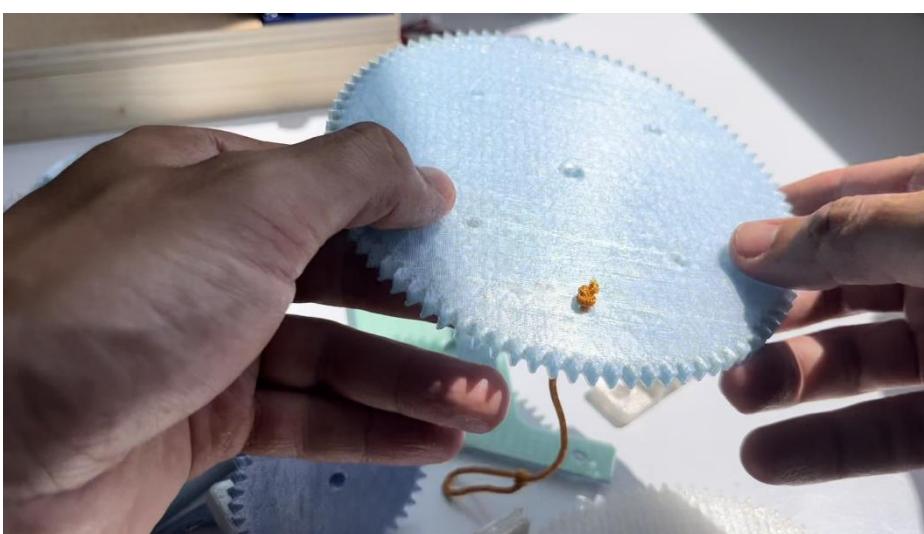




22. In the large gear that has the same holes, insert a rope through the shown hole, tie a knot to prevent it from slipping out from one end, and tie the following knot on the other end:

Knot Tutorial: <https://youtu.be/yLxisOKD2ho>

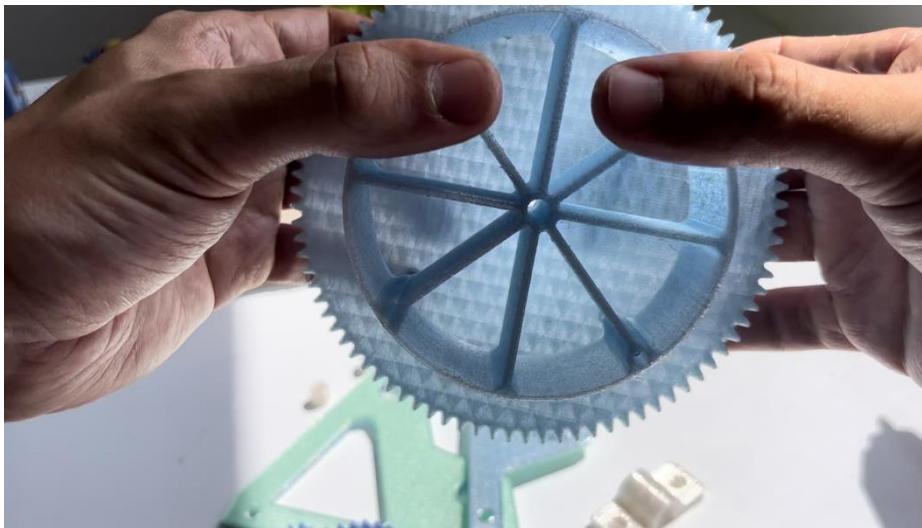




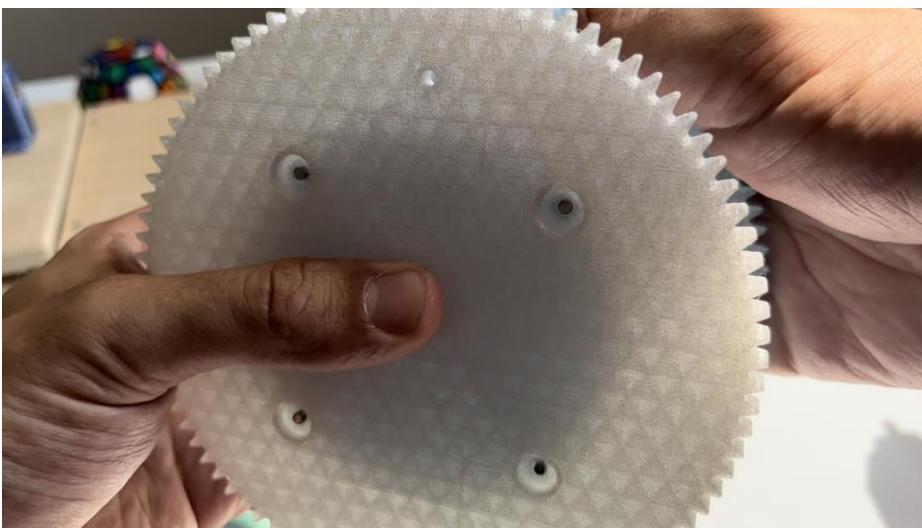
23. Insert 4 M3 x 50mm screws.



24. Insert the printed part as shown in the figure.



25. Insert the other big gear as shown in the figure. Make sure the hole of the rope of the first gear is aligned with the hole of the second gear.



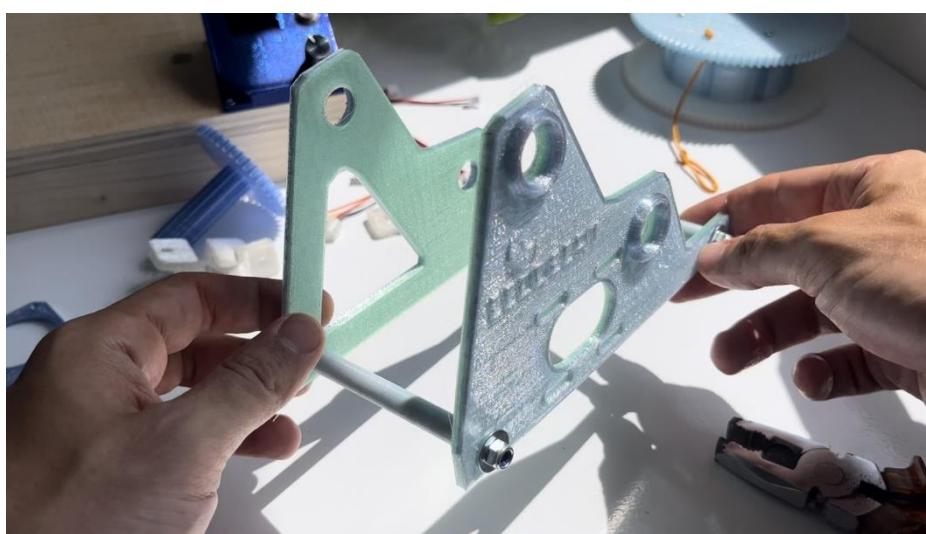
26. Tighten it with M3 nuts.



27. Insert the medium gear with a threaded M5 x 96mm rod, the two identical small spacers. Ensure that everything is tightly secured with 4 nylon nuts and M5 washers.



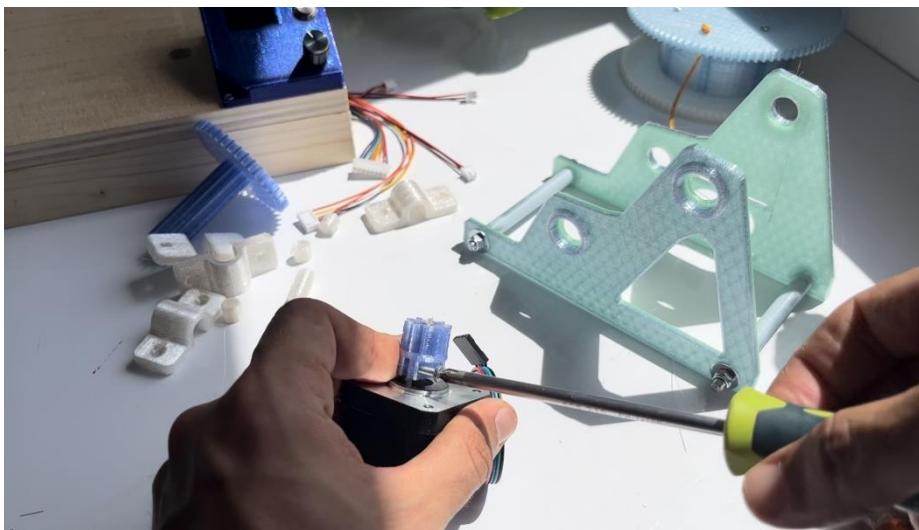




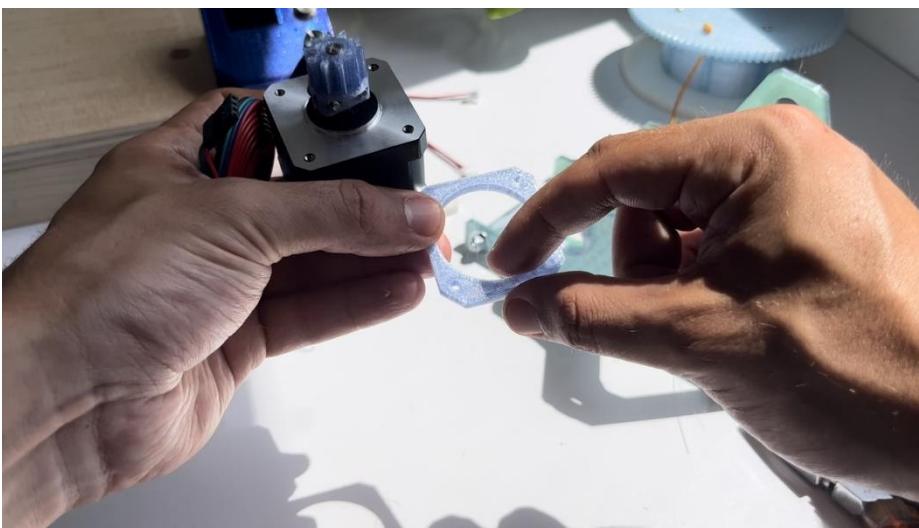
28. Insert the gear into the motor.



29. Screw in two M3 x 12mm screws



30. Assemble the shown piece with the motor. Note that one part of the piece is wider. This should be positioned as shown in the image.

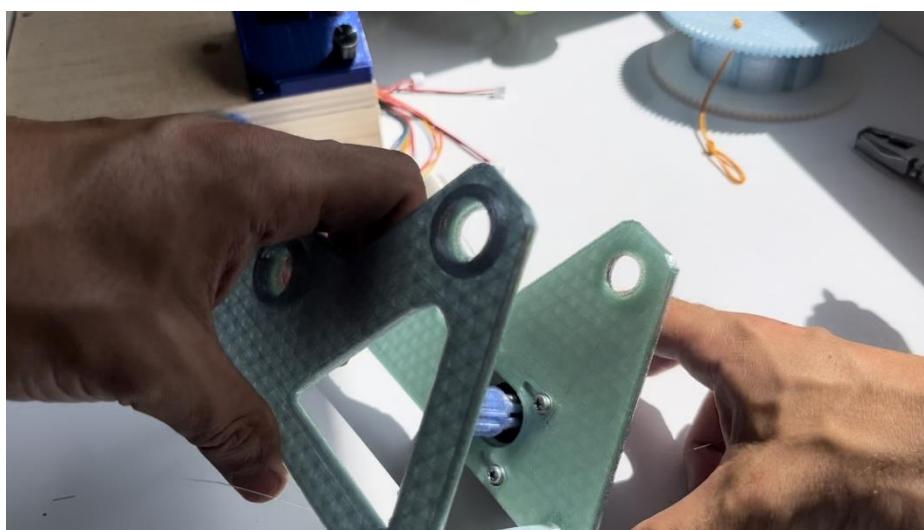
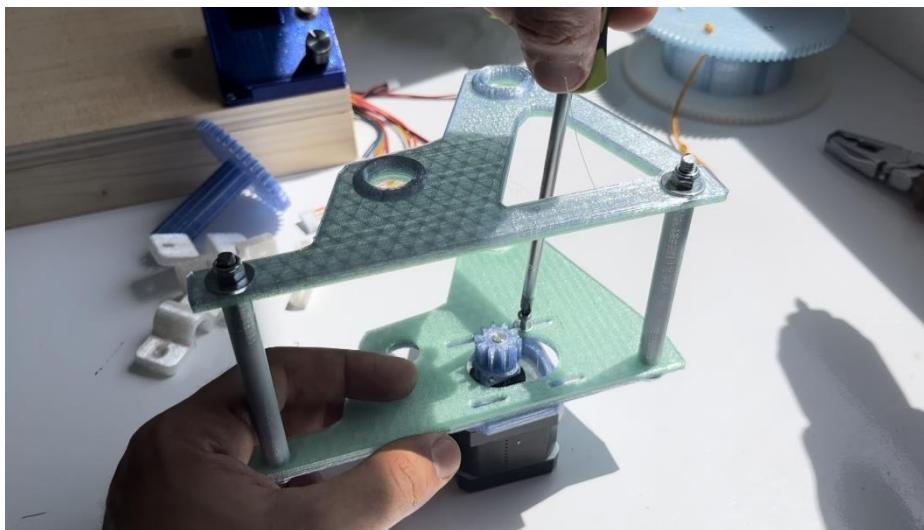




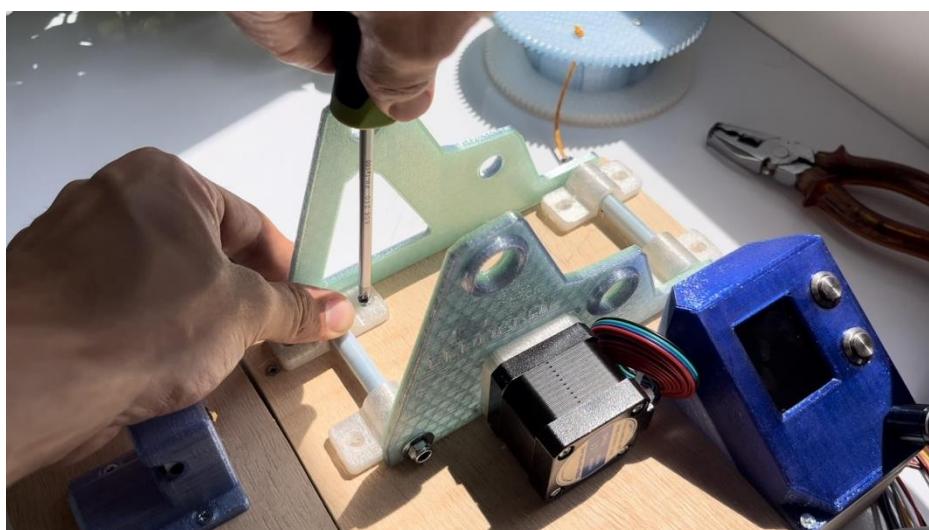
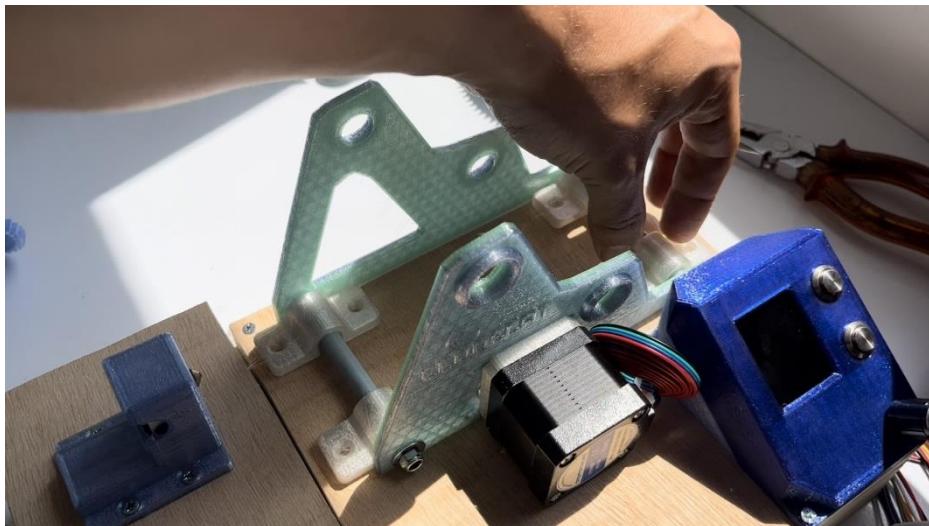
31. Attach the assembled motor to the piece shown in the figure. Ensure that the cable is oriented correctly.



32. Securely screw the assembled motor to the piece using 4 M3 x 16mm screws and 4 M3 washers. Ensure that the motor can move freely to the right and left.



33. Screw the structure onto the wooden board as shown in the image using 8 M3 x 16mm wood screws.



34. Insert a 625zz bearing into one of the 97mm threaded rods.



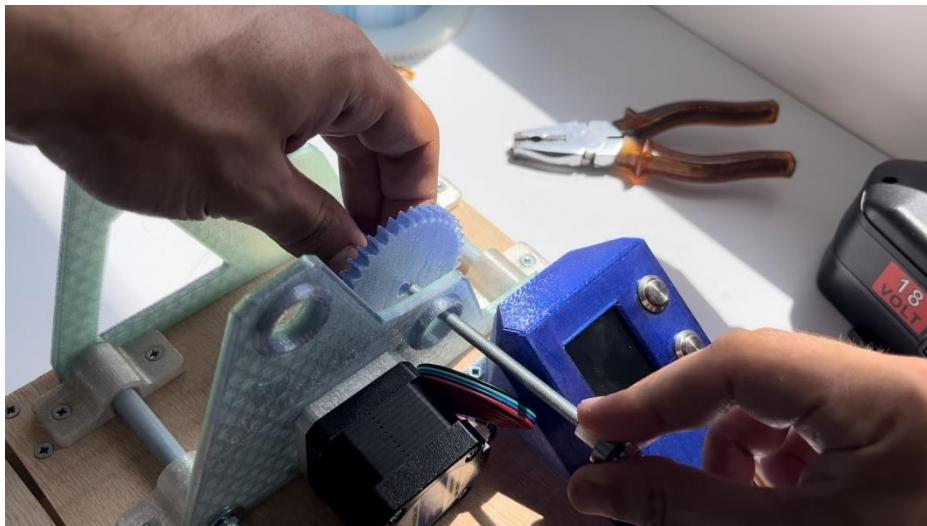
35. Screw a nylon M5 female nut onto the right end.



36. Insert one of the three identical spacers.



37. Insert the medium gear onto the assembled rod as shown in the image.



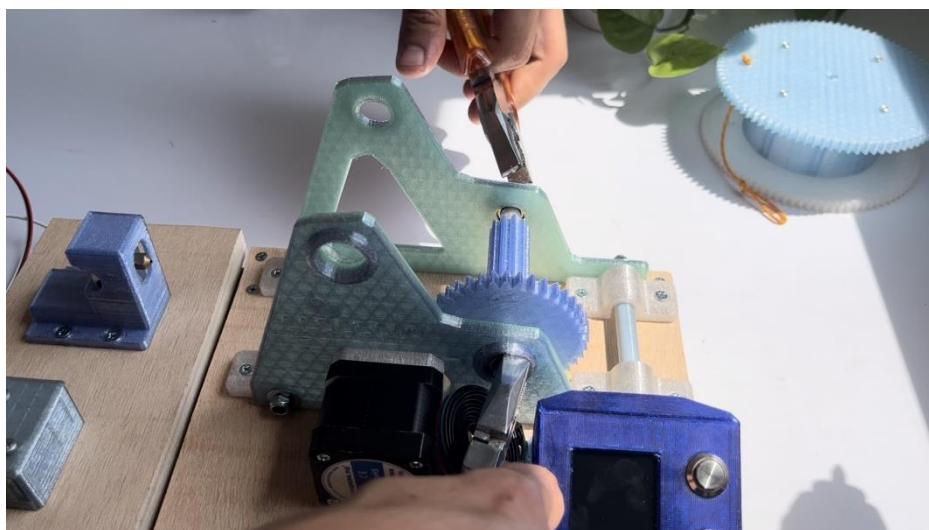
38. Insert one of the three identical spacers.



39. Insert one 625zz bearing.



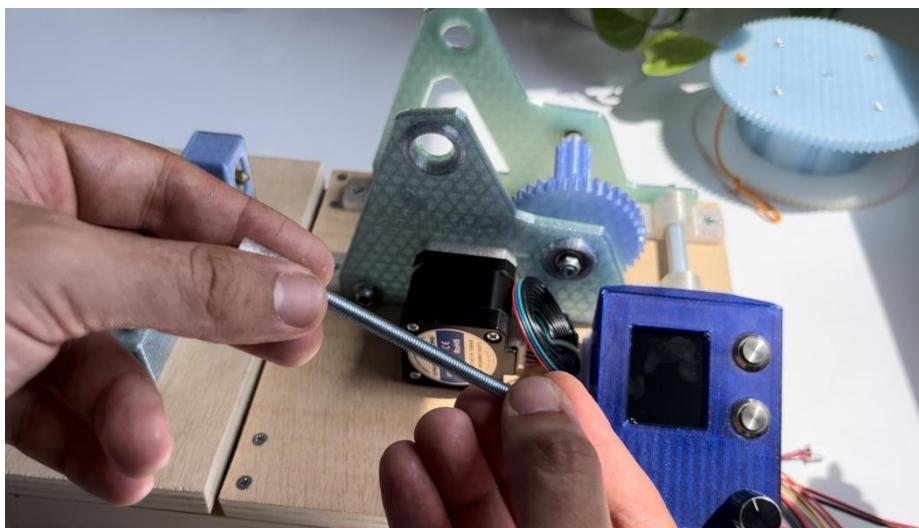
40. Insert an M5 nylon female connector and tighten it with pliers.



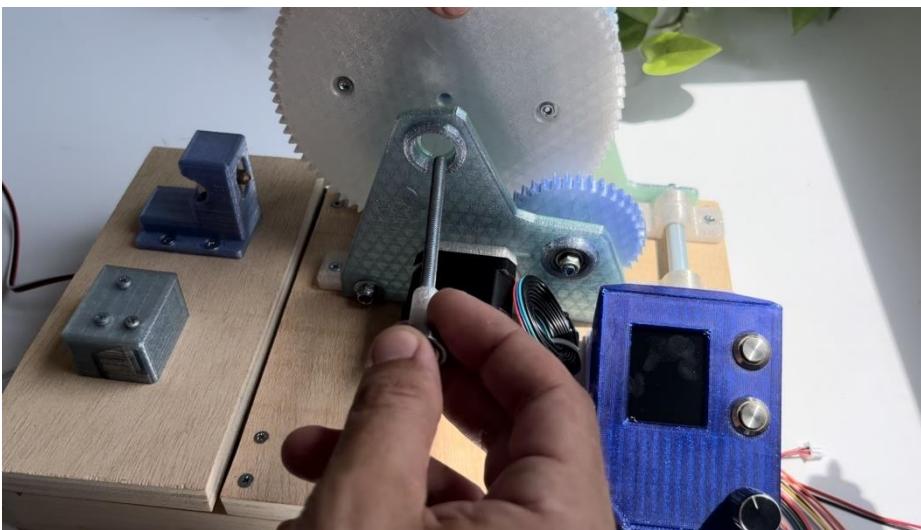
41. Screw a nylon M5 female nut onto the right end. Then, screw a nylon M5 female nut onto the right end.



42. Insert one of the three identical spacers.



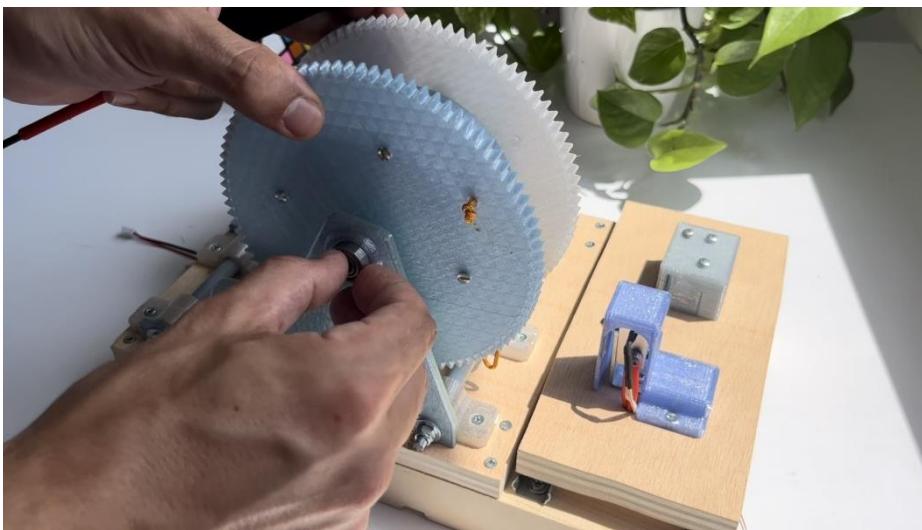
43. Insert the big gear onto the assembled rod as shown in the image.



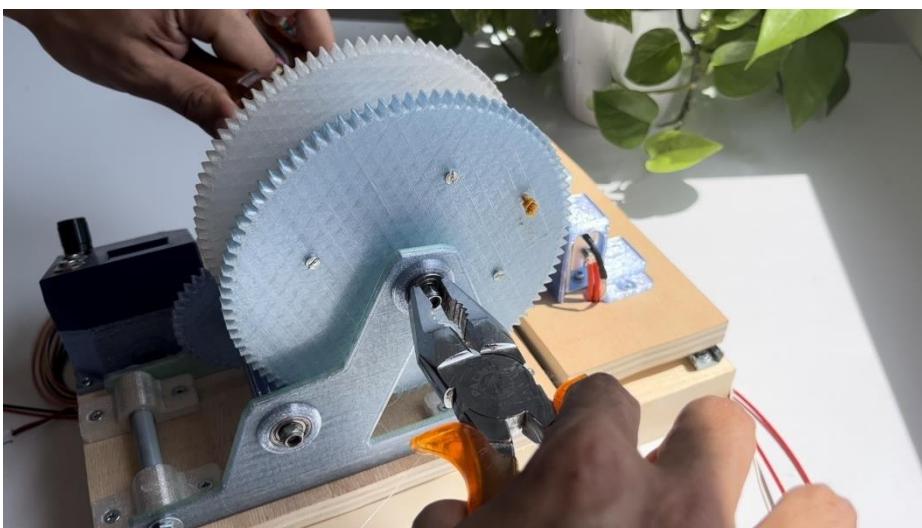
44. Insert one of the three identical spacers.



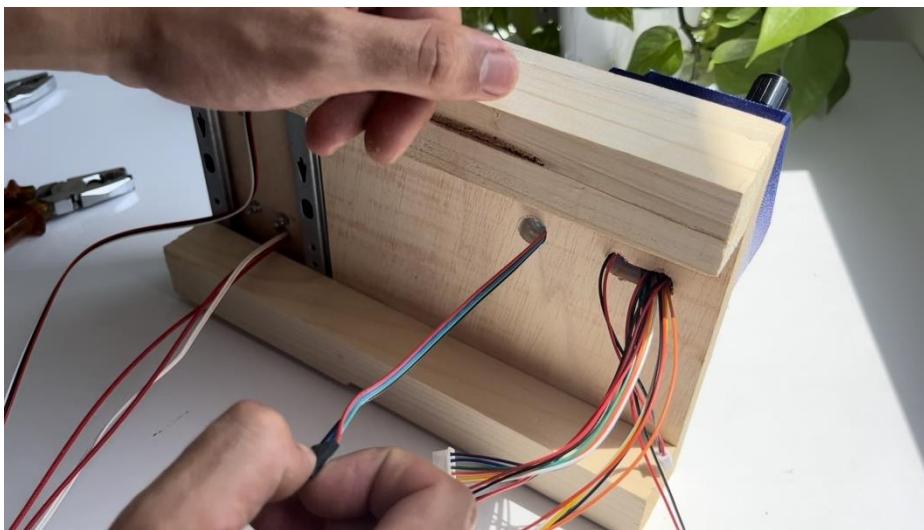
45. Insert one 625zz bearing.



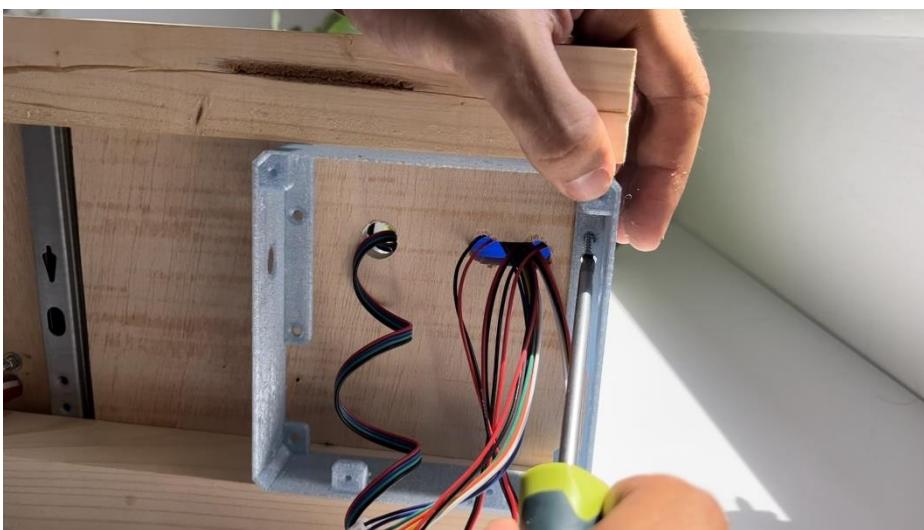
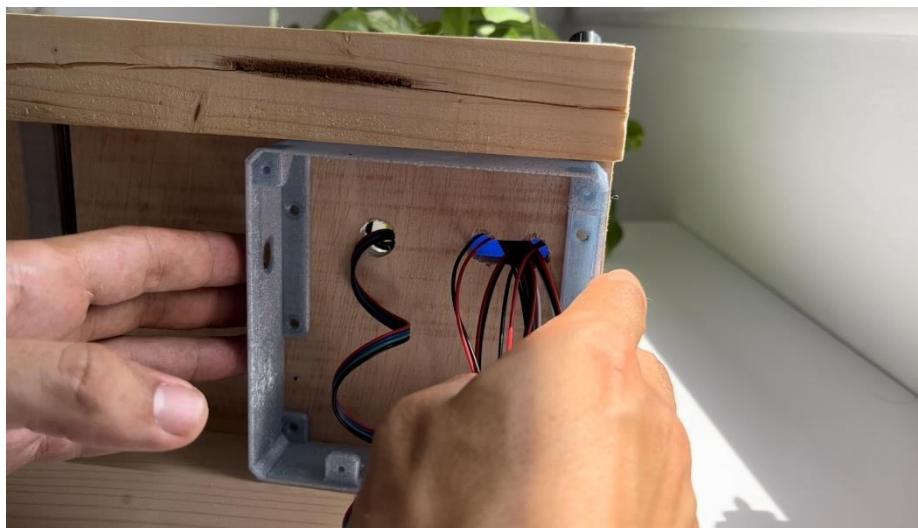
46. Insert an M5 nylon female connector and tighten it with pliers.



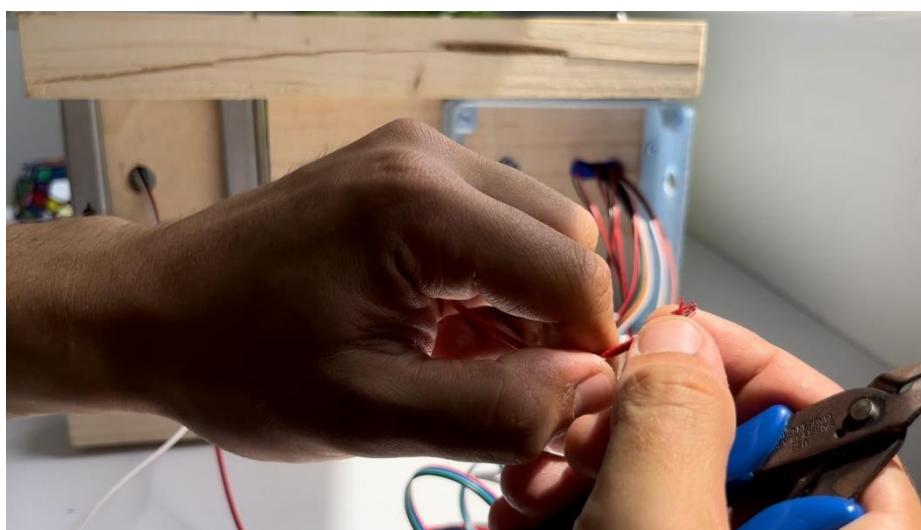
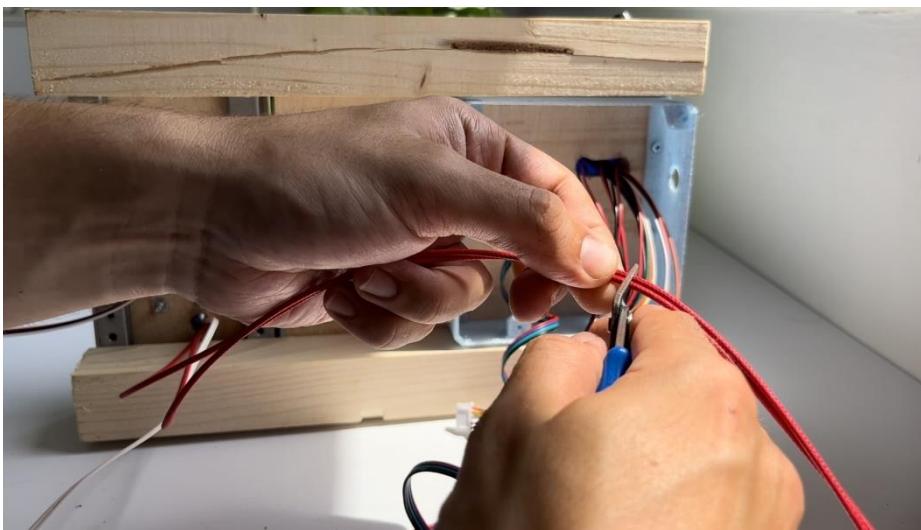
47. Insert the motor wire through the whole as shown in the image.



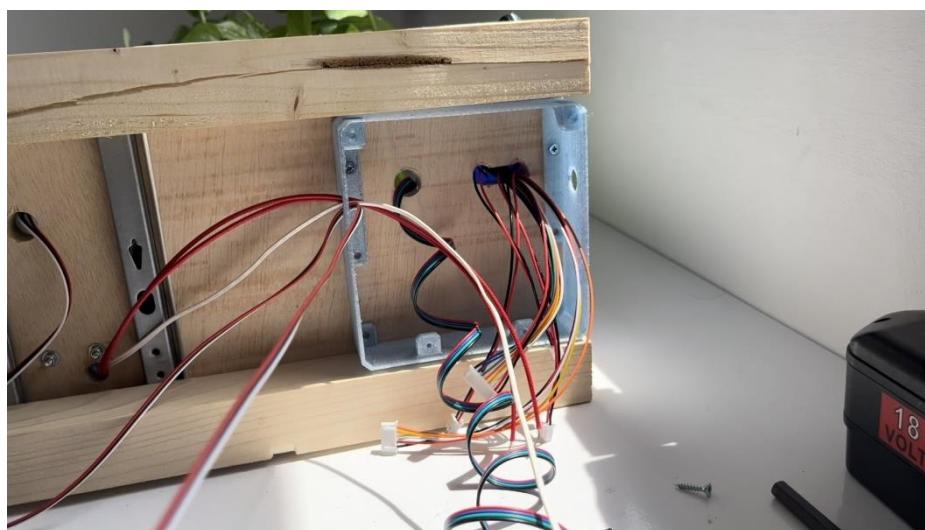
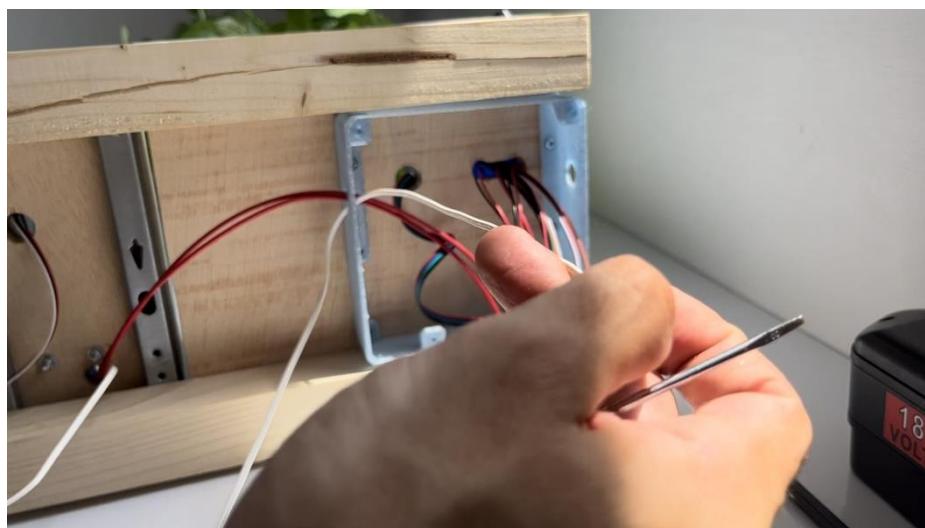
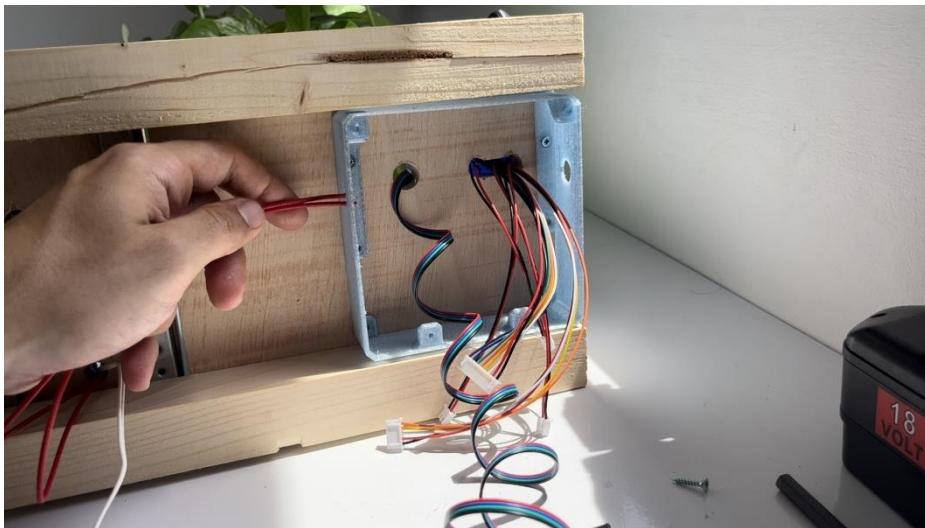
48. Screw the printed part shown with 2 M3 x 16mm screws.



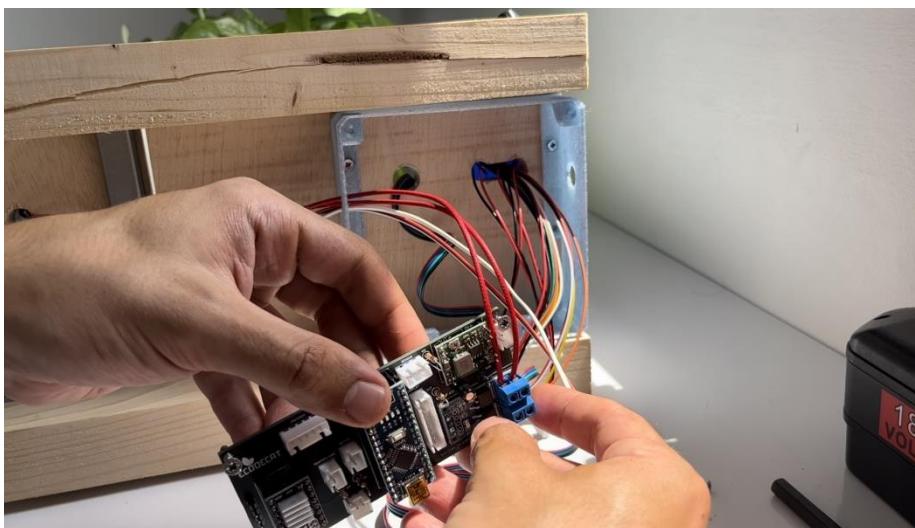
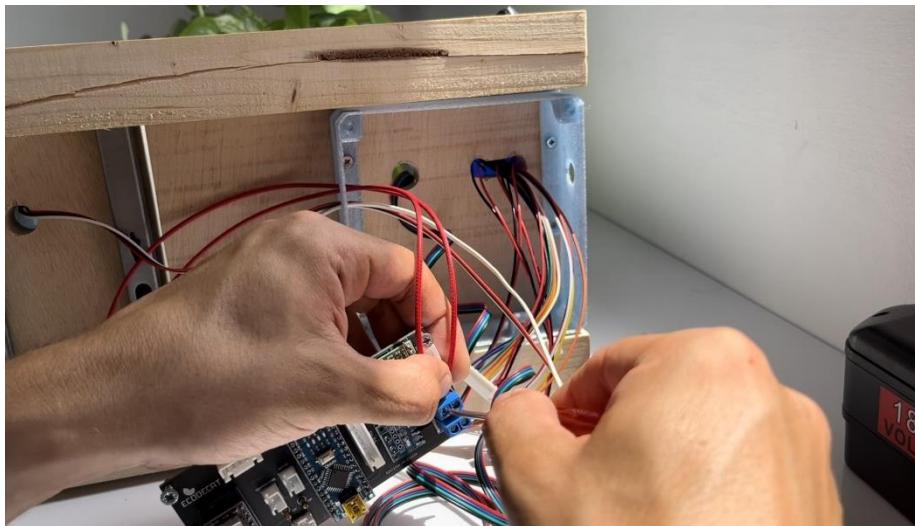
49. Cut the resistors at a similar distance as shown in the video and remove the tips to expose the wire.



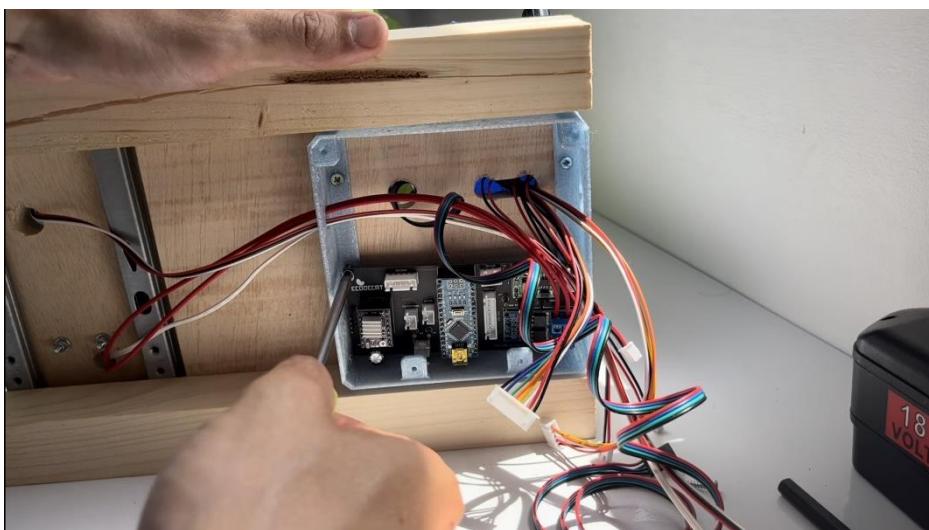
50. Thread the wires from the resistors, temperature sensor, and limit switch through the hole in the printed piece.



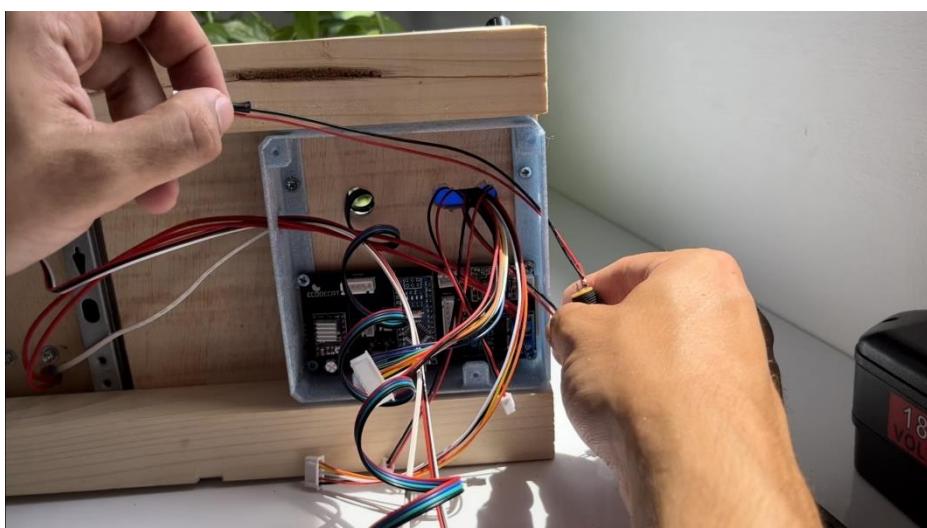
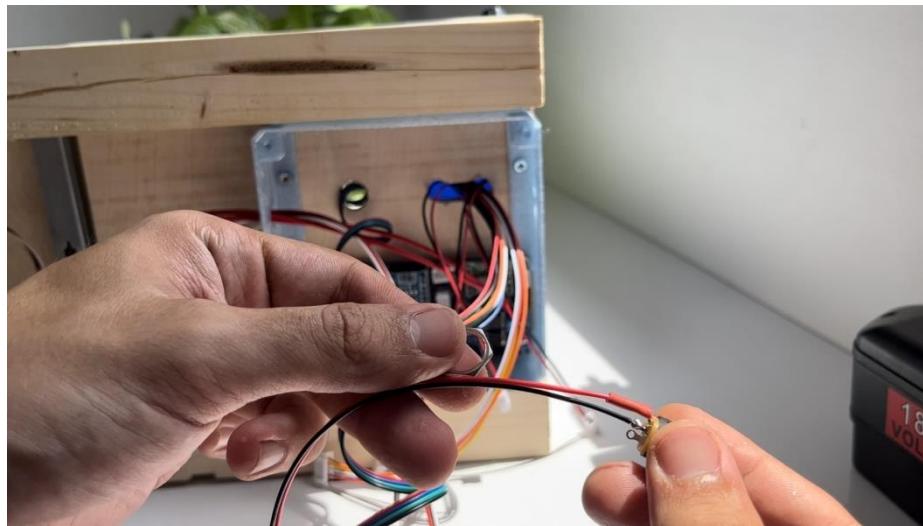
51. Tight the 24V resistance to the Mosfet of the PCB as shown in the image.



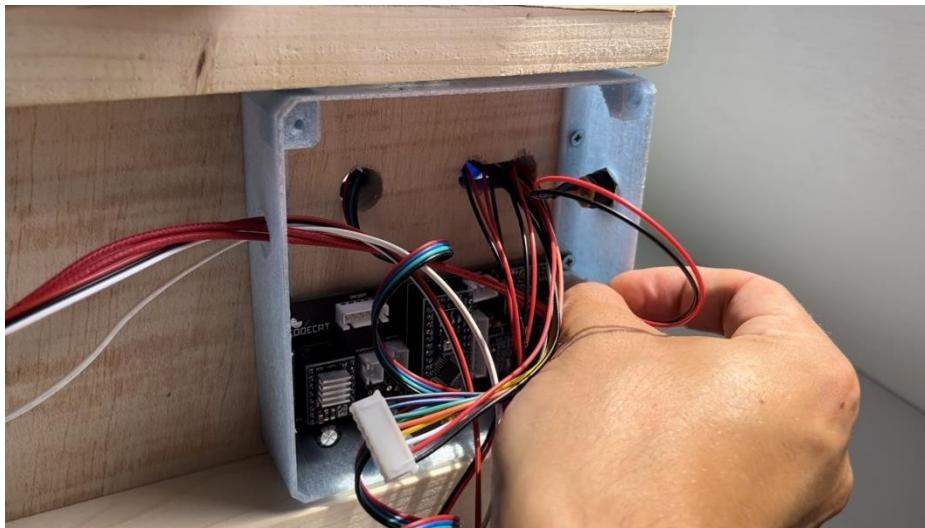
52. Screw the PCB in the orientation shown with 4 M3 x 16mm wooden screws.



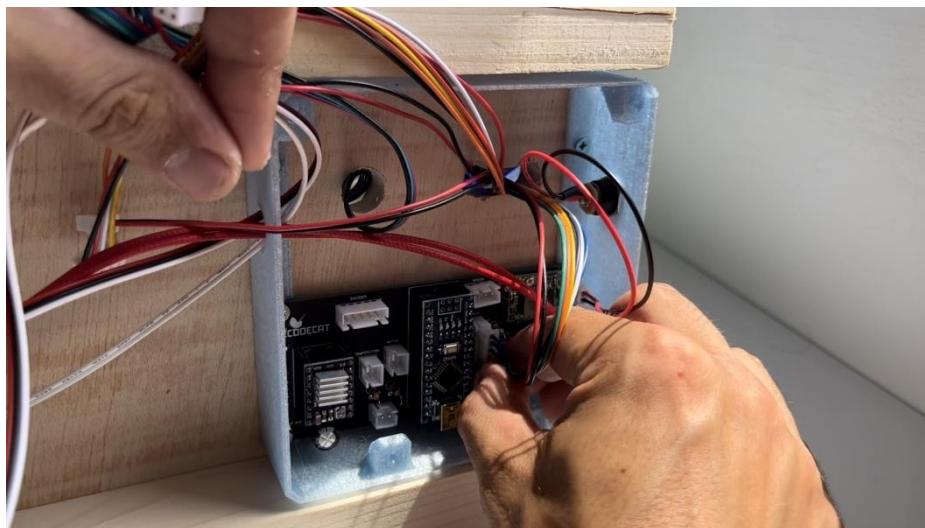
53. Insert the power supply connector into the printed part and tighten it with its corresponding nut.



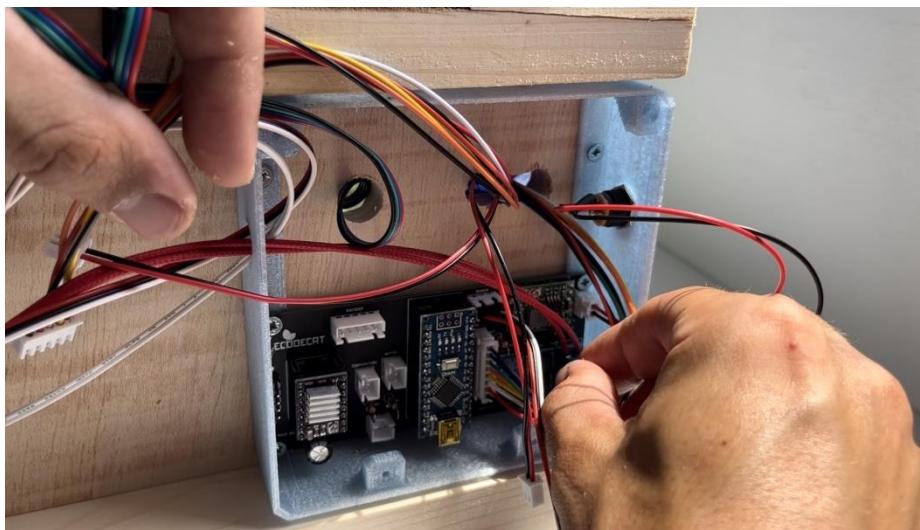
54. Plug the power supply connector to the PCB.



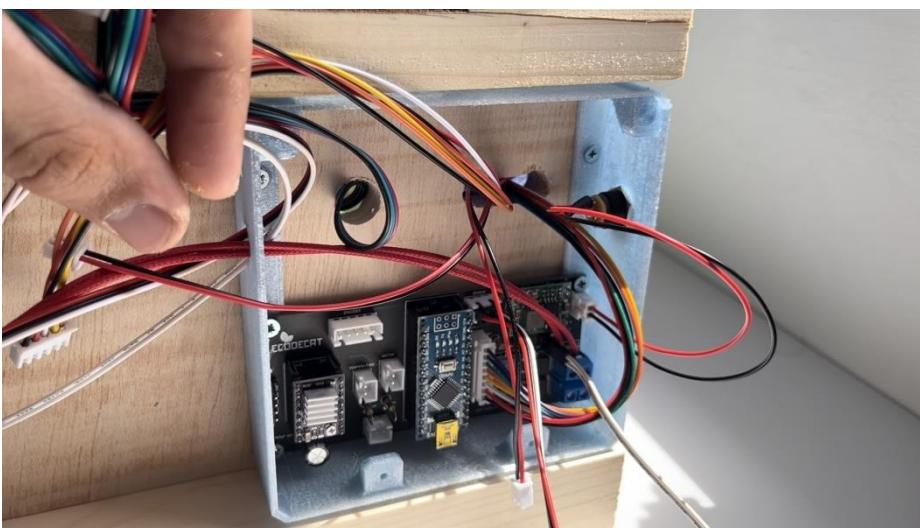
55. Plug the 8-pin screen connector to the PCB.



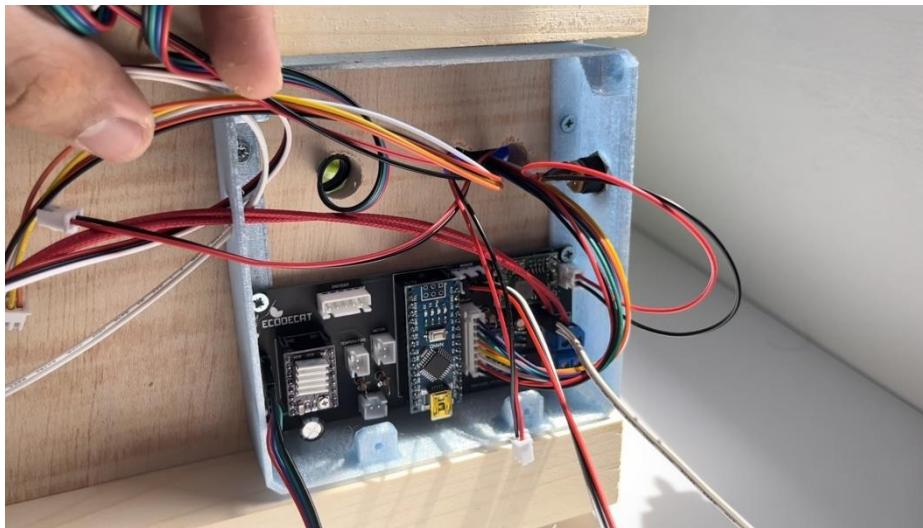
56. Plug the 3-pin limit switch to the PCB.



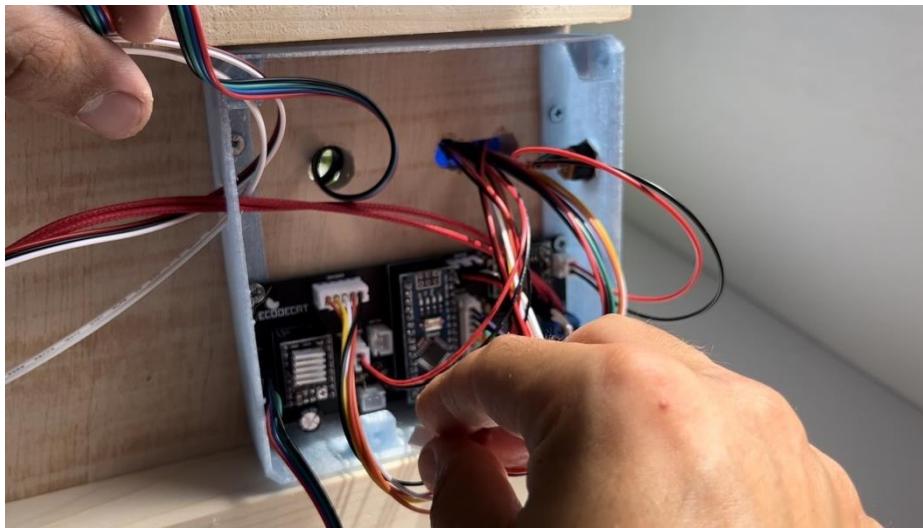
57. Plug the thermistor to the PCB (The orientation doesn't matter)



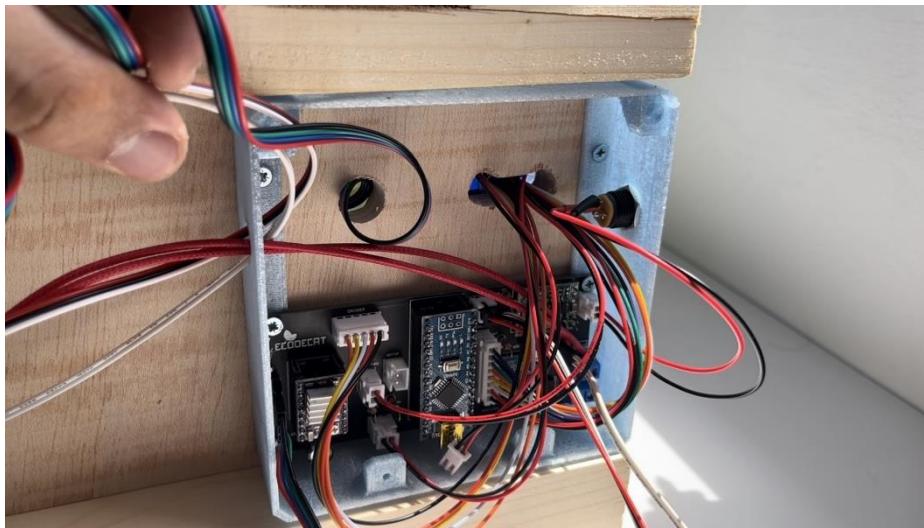
58. Plug the motor to the PCB (The orientation for now doesn't matter)



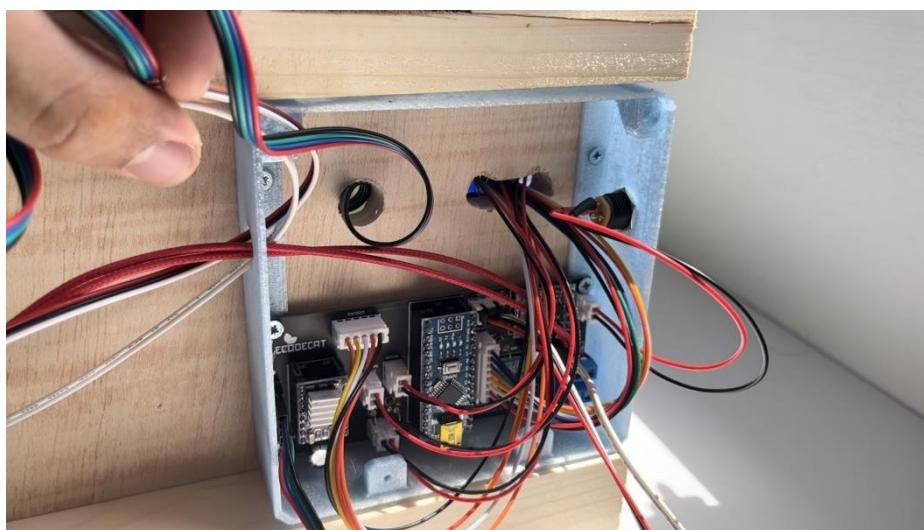
59. Plug the temperature push button (The one with two black lines in the red wire) to the 2-pin female connector where it says "TEMPERATURE".



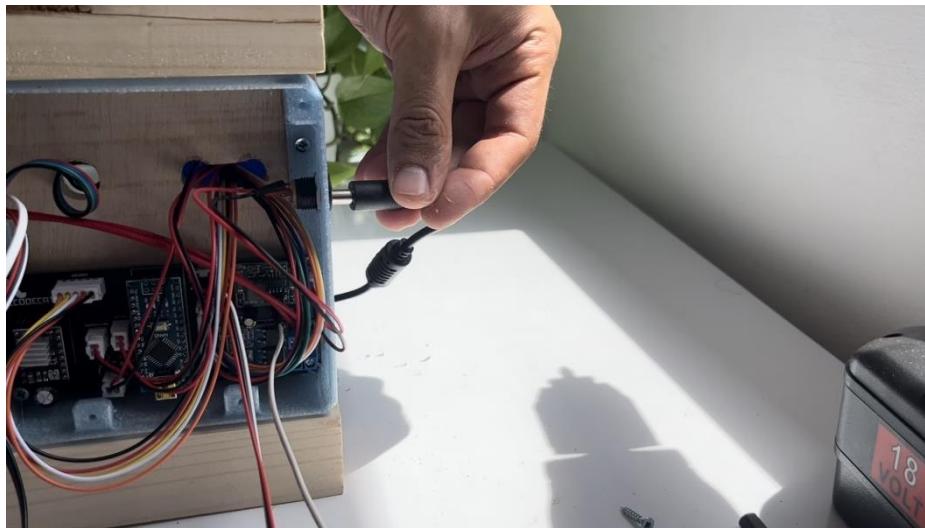
60. Plug the alarm buzzer to the (The one with one black line in the red wire) to the 2-pin female connector where it says “BUZZER”.



61. Plug the motor push button (The one with any black lines in the red wire) to the 2-pin female connector where it says “MOTOR”.

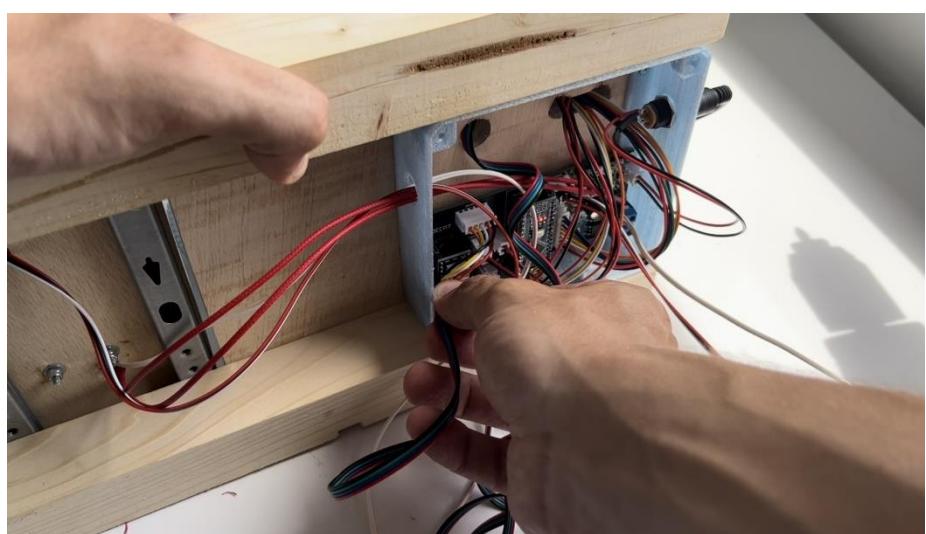
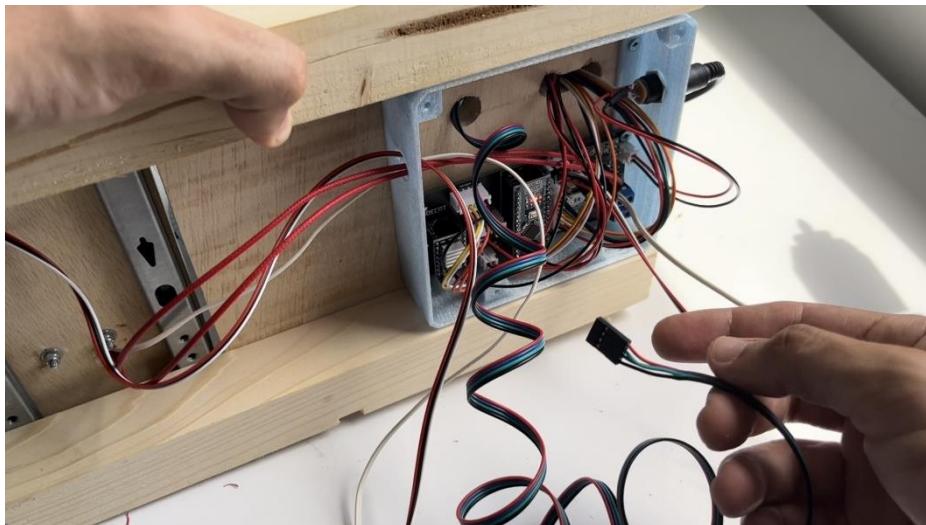


62. Check several times that everything is the same and then connect the 24V 3A power supply.



63. When you press the button below, the gear system should move counterclockwise. If it doesn't, change the direction of the motor connector.

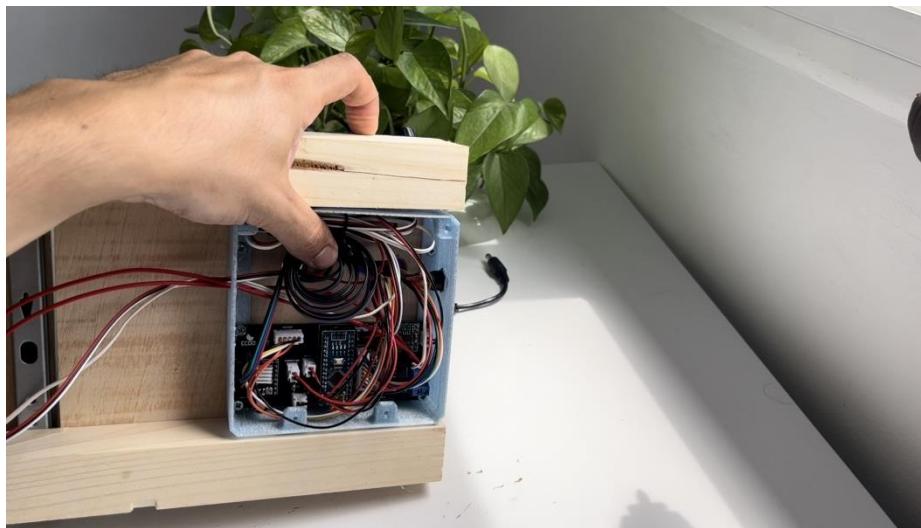
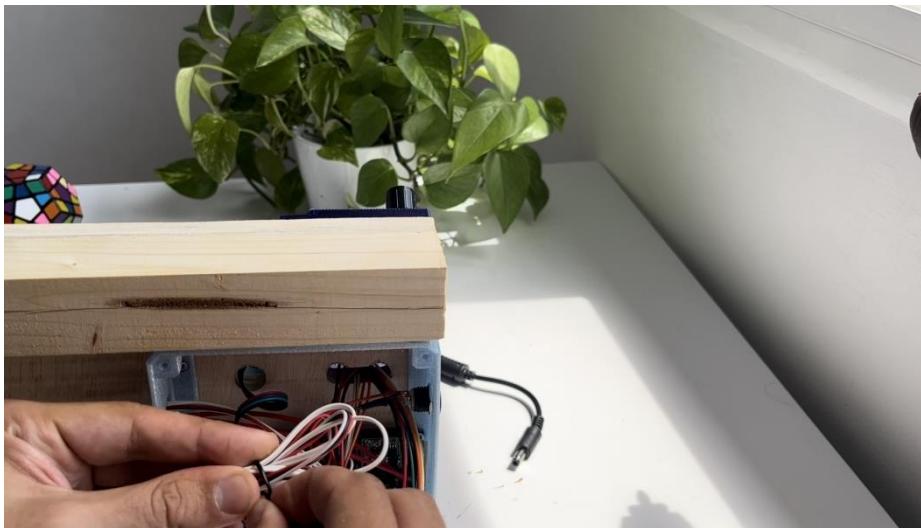




64. Verify that now the gear system rotates counterclockwise.



65. Organize the cable neatly as shown in the video.



66. Close the box with the lid and fix it with 4 M3 x 10mm screws

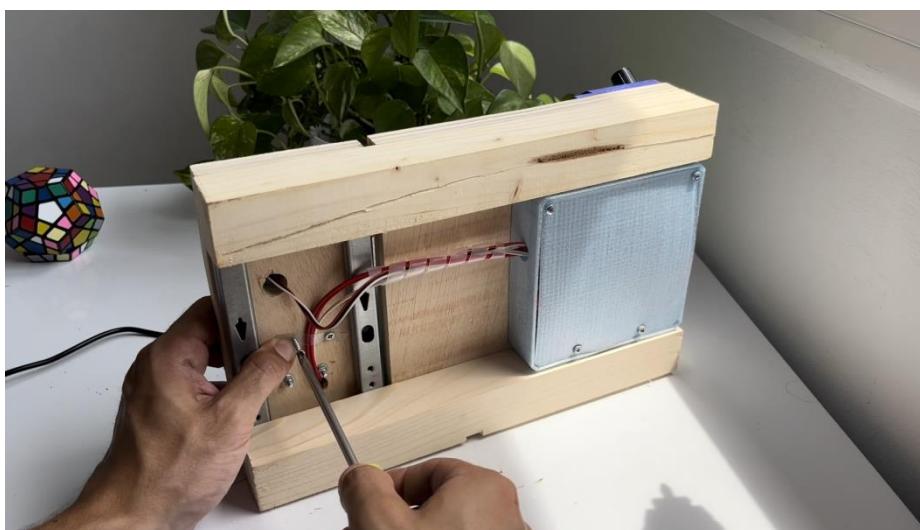




67. Use the tube to hold the filament to tidy up the wire.



68. Use a piece of plastic bottle strip and two M3 x 16mm wooden screws to hold the extruder wires.



69. Insert the rope inside the piece shown in the figure (Tube)



70. Congratulations, you have made your own FilaMaker!



1. Insert the two prepared hexagonal screws to the printed part as shown. Make sure the cut of the screws is aligned with the hole where the bottle will pass.

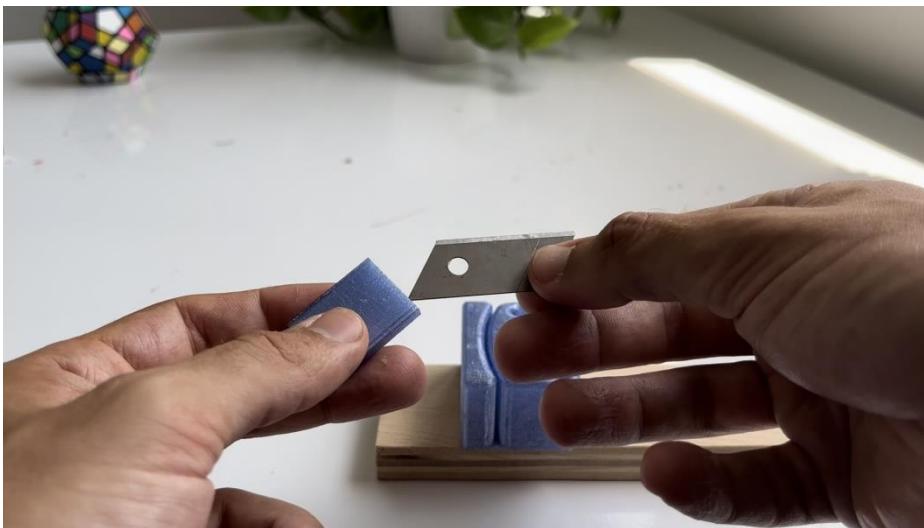


2. Fix the printed part to a piece of wood with wooden screws.





3. The blade is not included in the KIT as it can be dangerous. You can use a cutter or make your own blade as shown.





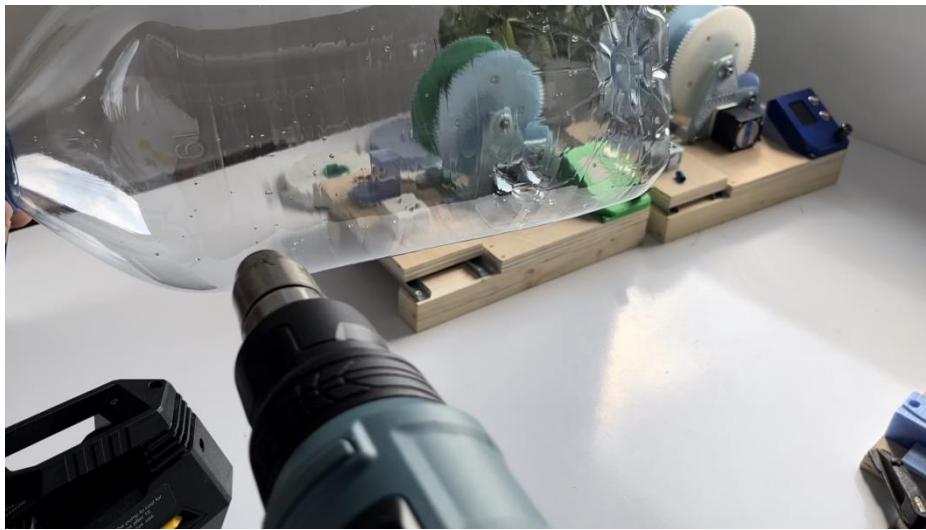
4. Secure the cutter to a sturdy table or surface using two clamps.



## HOW TO USE IT

1. Pick up one bottle. If the bottle's profile is irregular, apply pressure inside the bottle and apply heat to the sides. You can use a compressor or an air pump to apply pressure and a heat gun to apply heat to the sides.



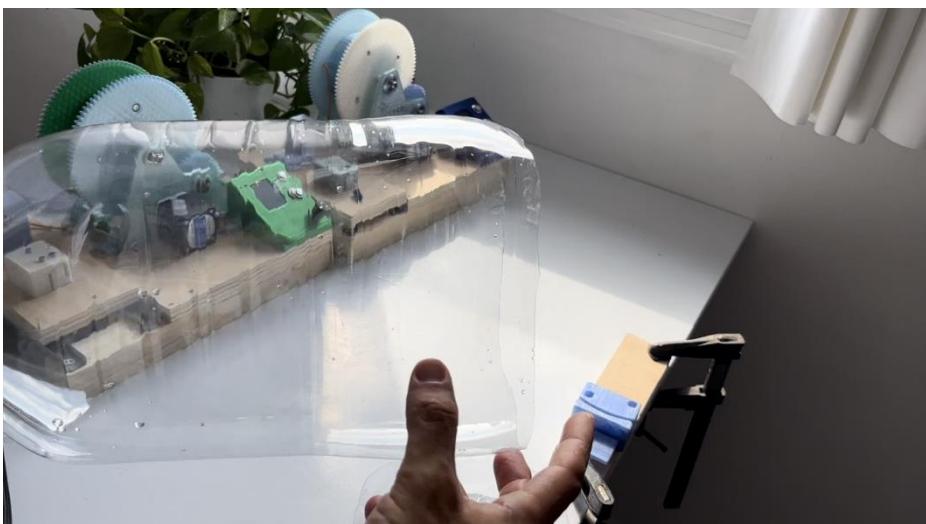


2. To remove the labels, you can apply heat and easily remove the label. To clean the bottle and remove the adhesive, we recommend using a little bit of oil.





3. Cut the bottom of the bottle with a cutter



4. Cut a strip as shown in the image



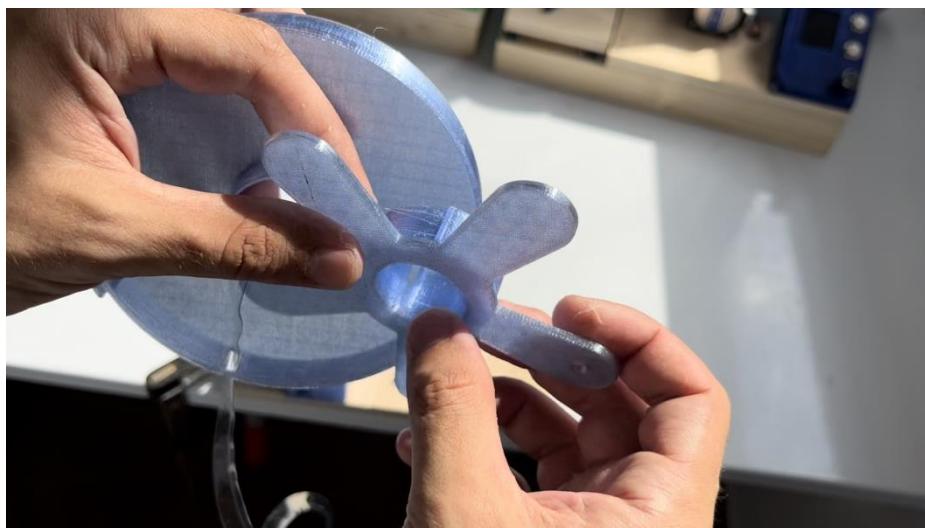
5. Insert the bottle into the bottle cutter. Make sure that the strip of tape is positioned below the blade.



6. Pull on the strip of tape. Try to pull it as perpendicular as possible. You can also use your other hand to hold the bottle for additional support.

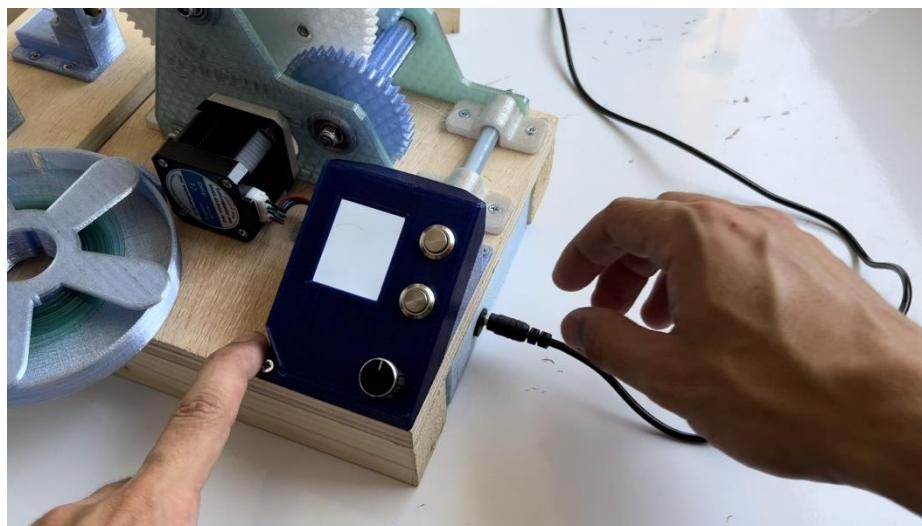


7. Collect the bottle strip on the spool. This design is by Miroslav Batek. You can find the STL files at the following link: <https://www.printables.com/model/309053-pet-strip-spooler-and-spool-holder>

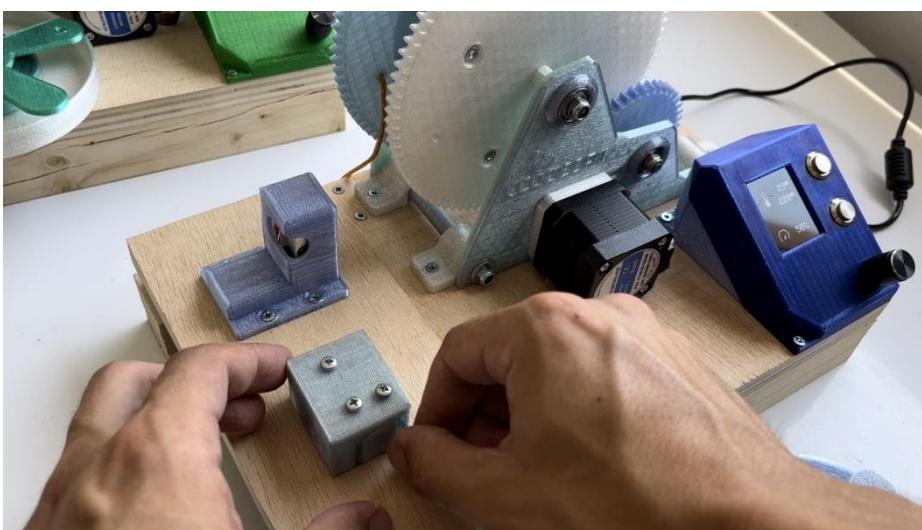




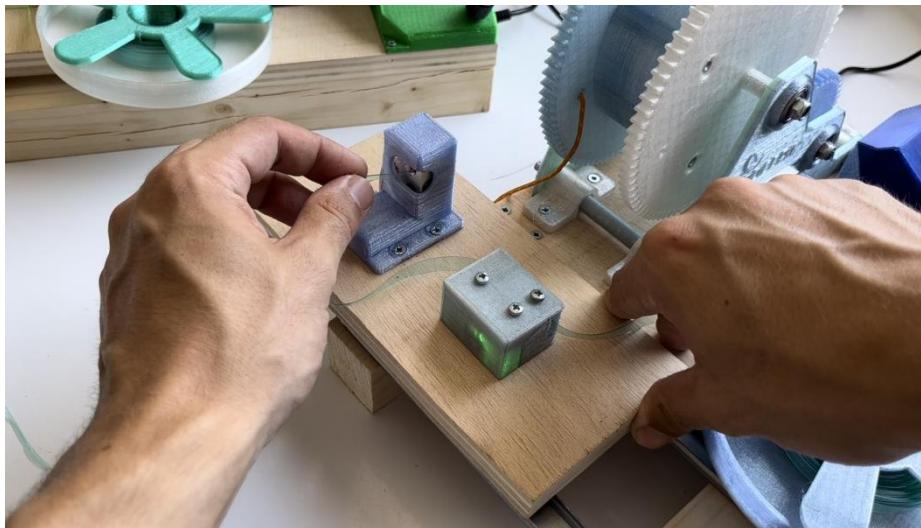
8. Plug the 24V 3A Power supply.



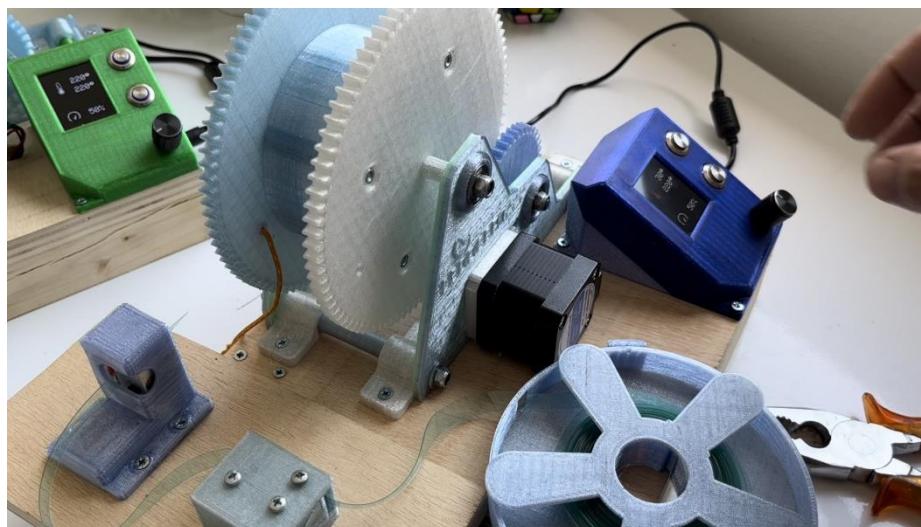
9. Insert the bottle strip through the sensor. The light of the sensor should turn on.



10. Insert the bottle strip through the extruder. This process it's a bit complicated and requires some practice. We recommend cleaning the nozzle occasionally with an Allen key and not feeding the filament when the extruder is too hot.



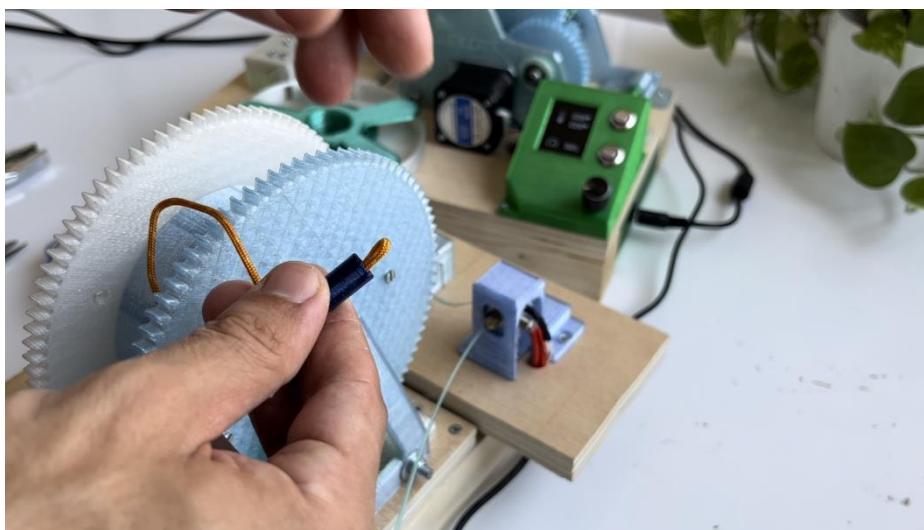
11. Once you have done it, you can press the temperature button.

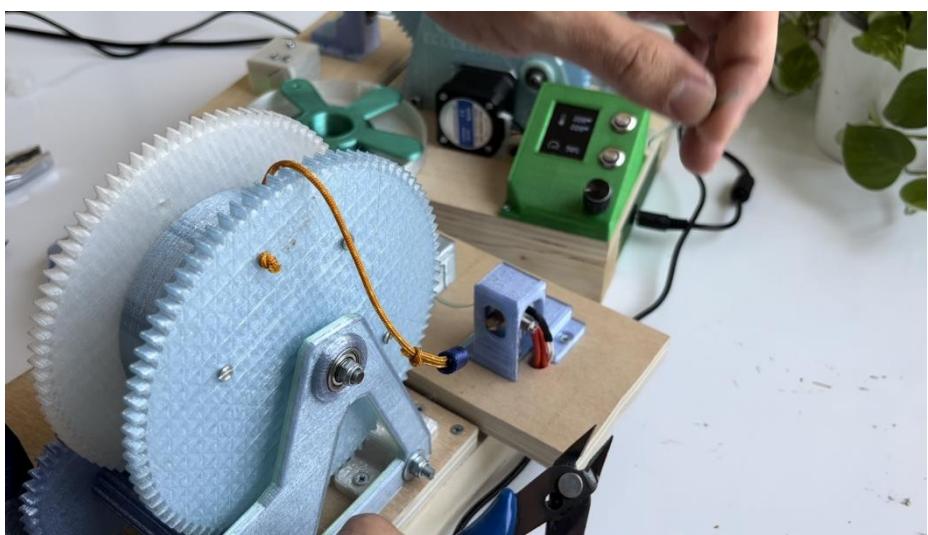


12. Pull the filament until you reach a piece of the approximate length shown in the video.

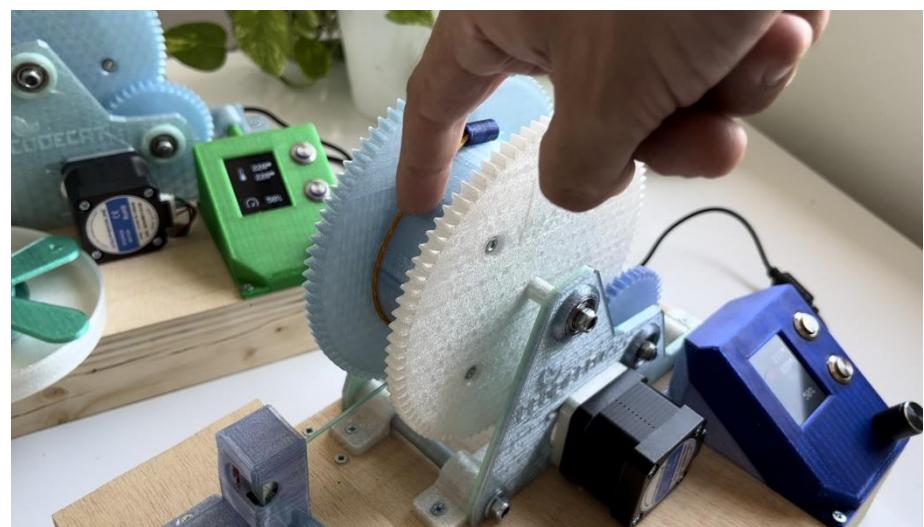
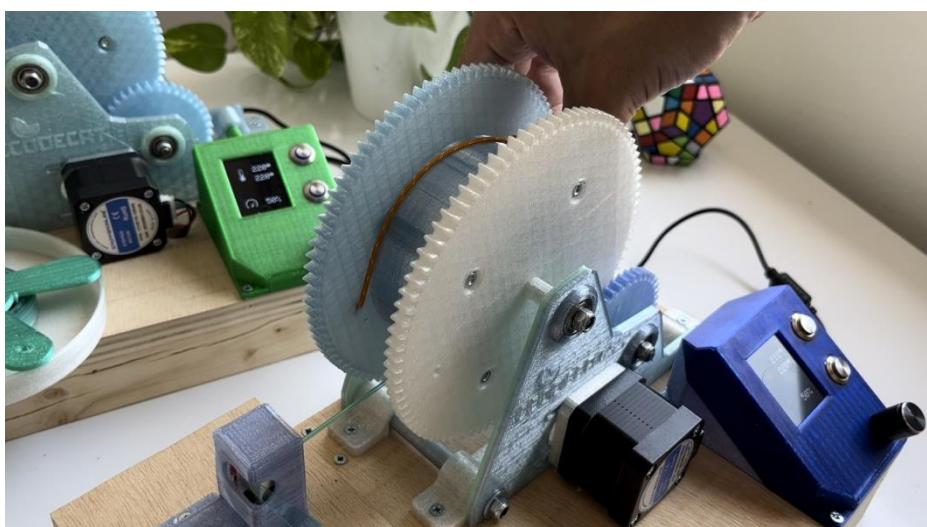


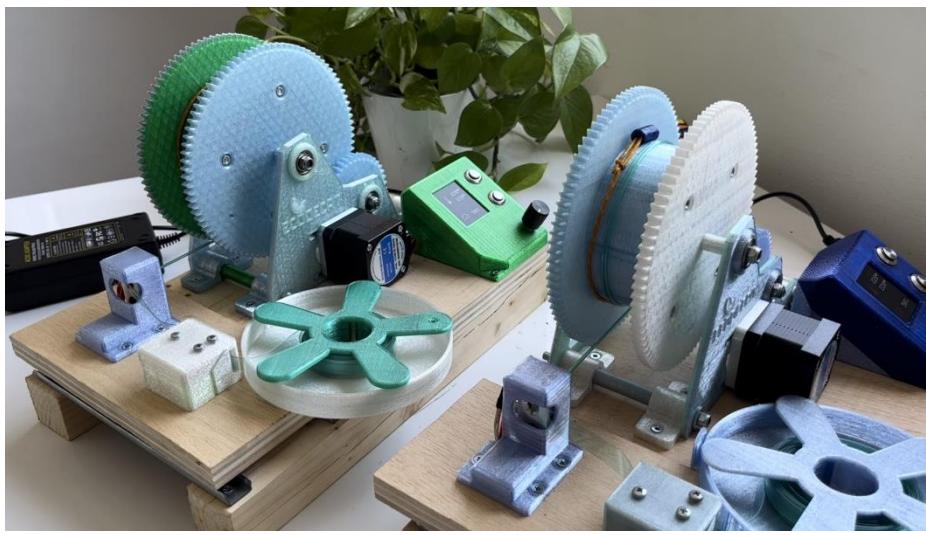
13. Attach the plastic strip to the coil string as shown in the video.





14. Move the filament inside the spool, move the motor to the right, and turn on the motor as shown in the video. Make sure the filament is placed to the right of the string.





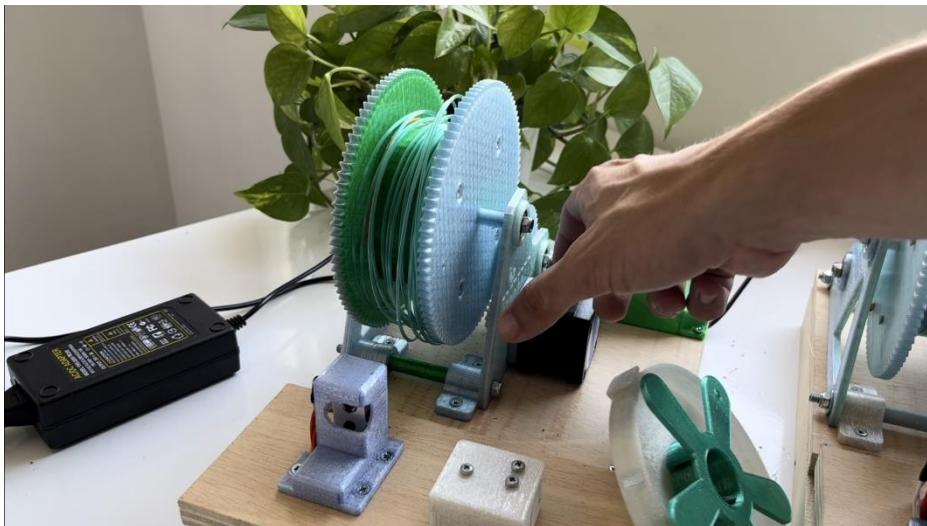
15. The encoder should not be used initially; it's only for some tests. The default settings are optimal.



16. Once the filament extrusion is complete and the alarm sounds, hold down the button below (the motor button) until the strip finishes passing completely through the extruder.



17. Disengage the motor and pick up the PET filament.



18. Cut a piece off the ends.



19. Enjoy the resulting filament!

