



Boozyhax – The Automation of Bartenders, now with ChatGPT and NFT Support



Overview

- Who we are
- Why we're here
- Why you should listen to us

Who are we?

We're DC Shenanigans

We do parties at DEF CON, like the Rent an Assassin Client Acquisition Event.

birdapp/dcshenanigans

<https://birdapp/rentanassassin>

defcon.social/dcshenanigans

github.com/DC-Shenanigans

dcshenanigans.com



whoami?

I'm Log

I do things with computers, allegedly.
I like to hit printers with baseball bats.
I love liquor.

DEF CON Goon

Discord: log#5254



whoami?

I'm Aask

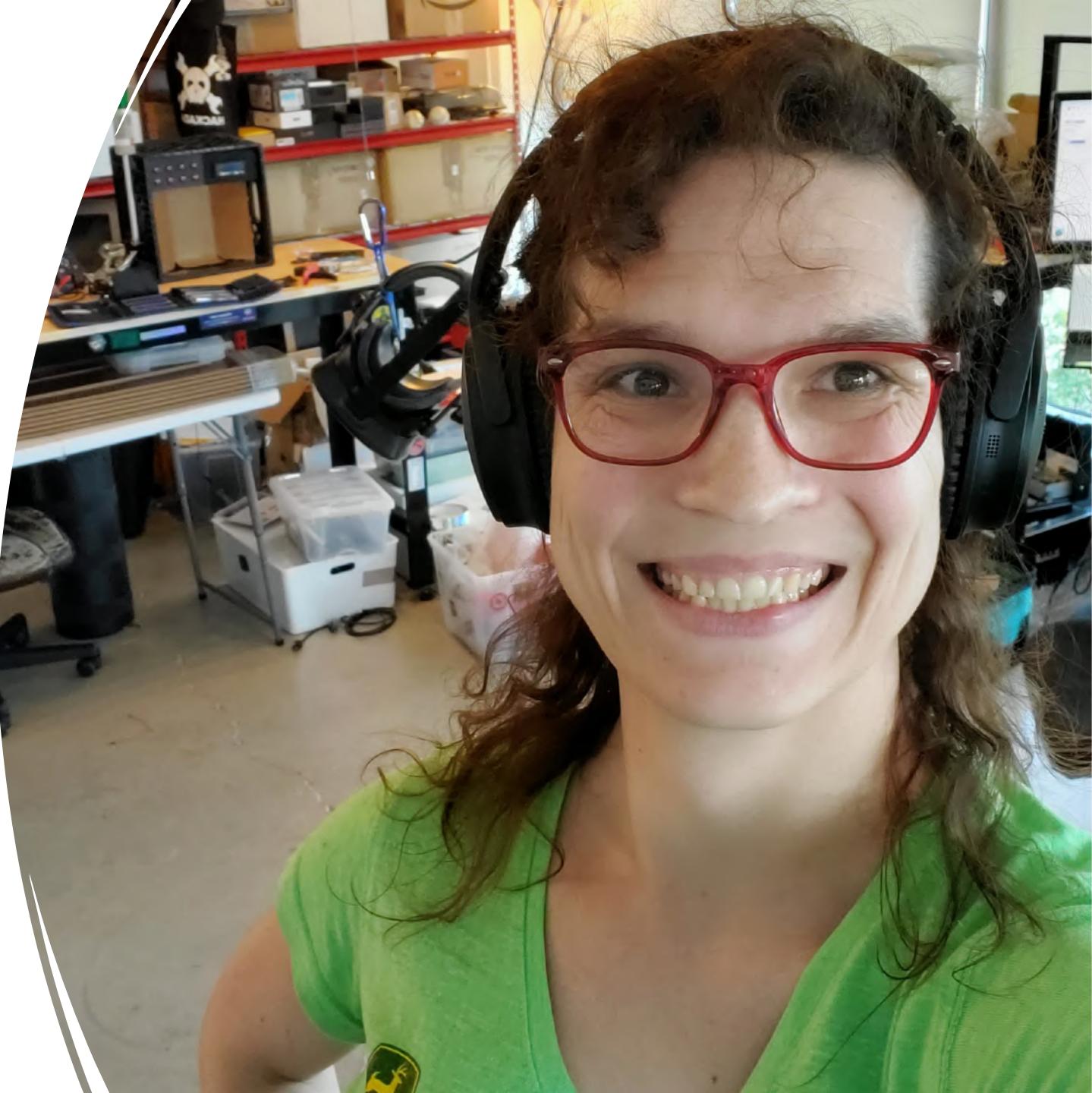
Maker, Breaker, Hacker

I chase muses and build cool things

"Don't break what you can't fix" - Aask

DEF CON Goon

Aask#0042





Boozin n'
Hackin'

- WHAT DID WE MAAAAAAAKE?!?!!111?!1



What did we make?

It's a robot...



(Fig. 1: Senior Drinknstein - allegedly)

That makes cocktails...



Poəurly...



With an annoying light + buzzer



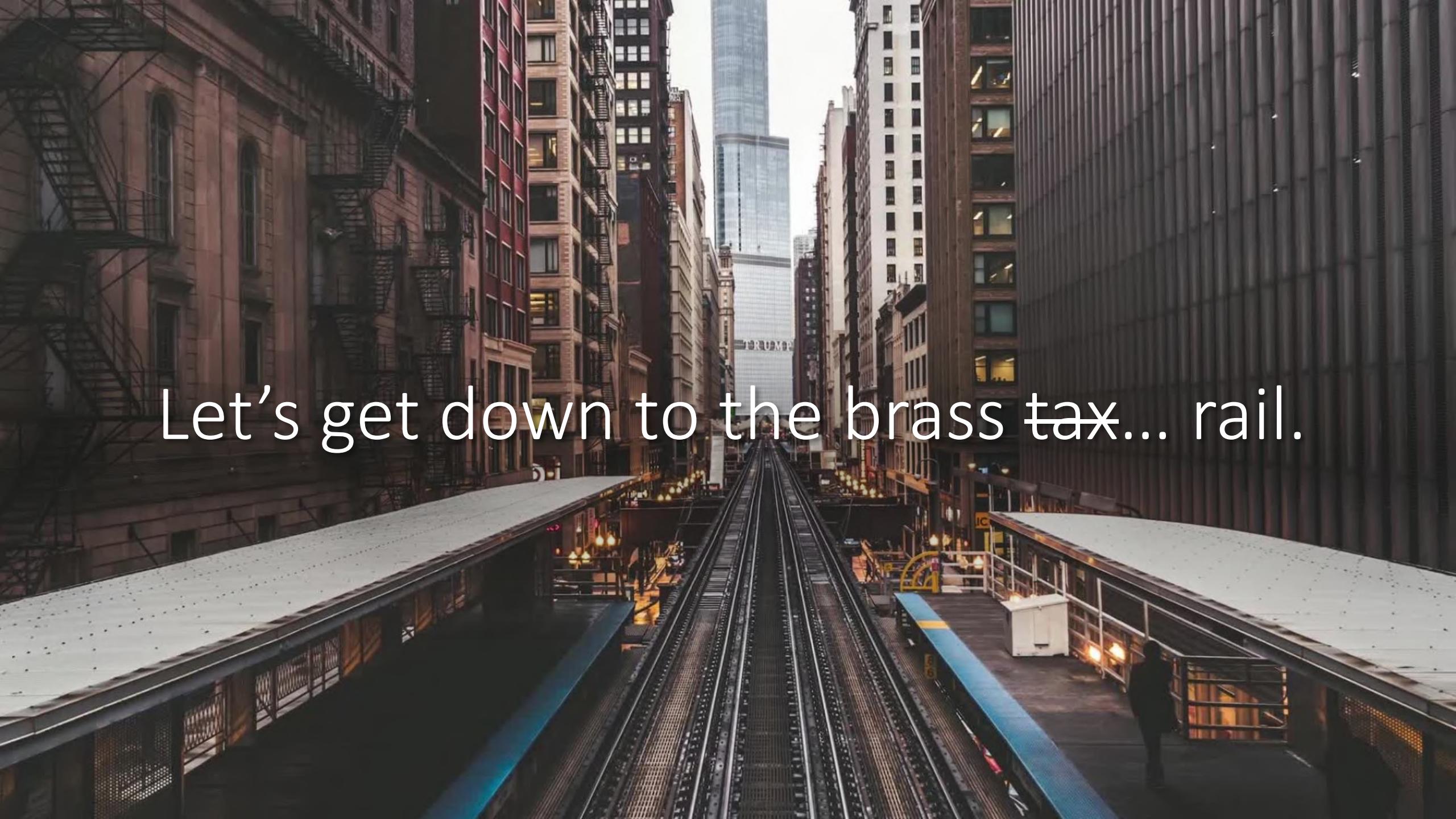
In a
(legally purchased) Milk Crate...



BEHOLD: Señor Drinknstein!

Otherwise known as Dr. McGillicutty's Magic Drink Elixir Mixer

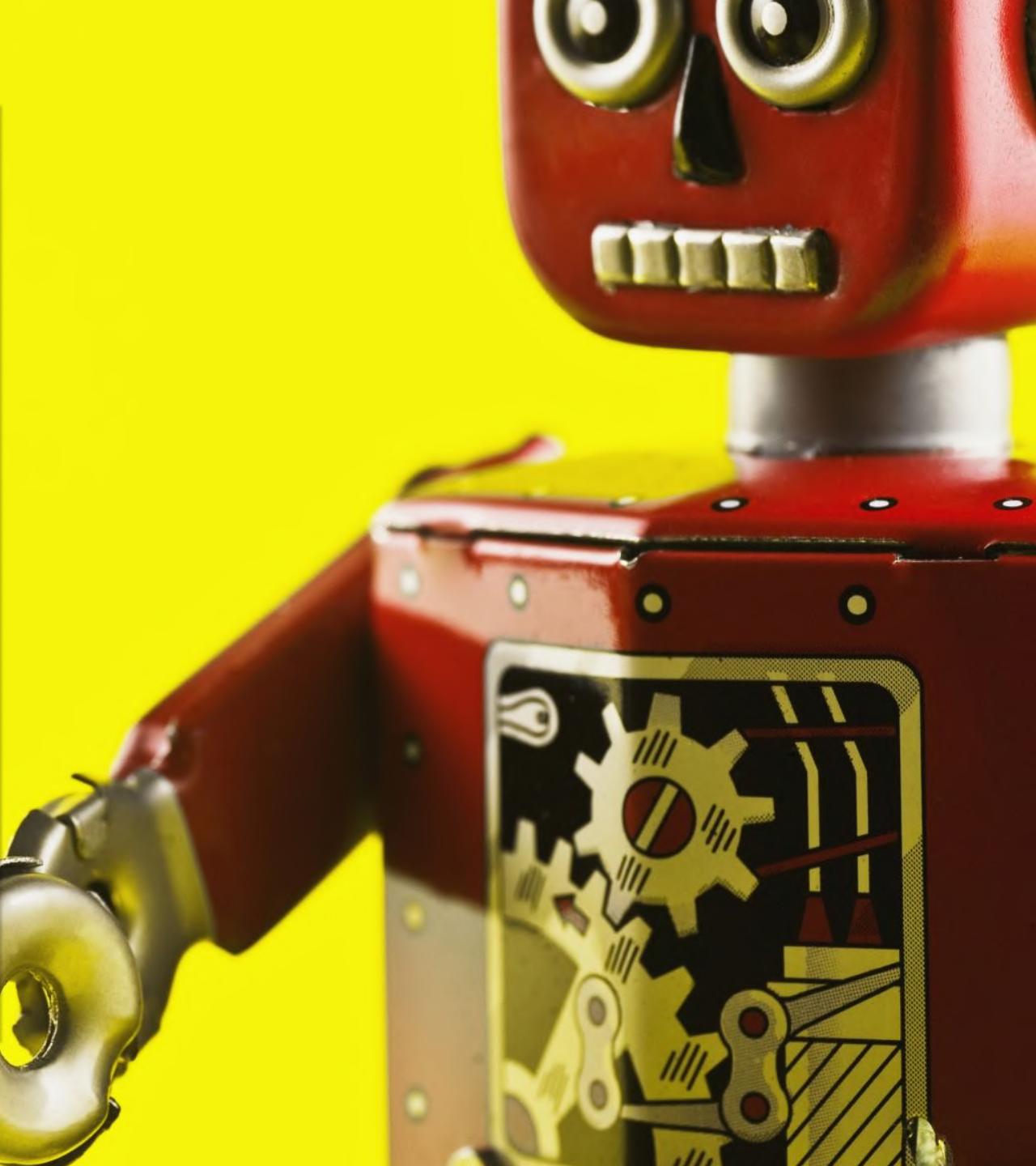




Let's get down to the brass ~~tax~~... rail.

What is this thing?

- Señor Drinknstein is a bartending robot doing the following things
 - Have an inventory of available liquor / mixers / Wine / "Malort"
 - Pour accurate shots / pours / liquid disgust
 - Provide end-user status updates
 - Make a semi-decent-ok-terrible cocktail



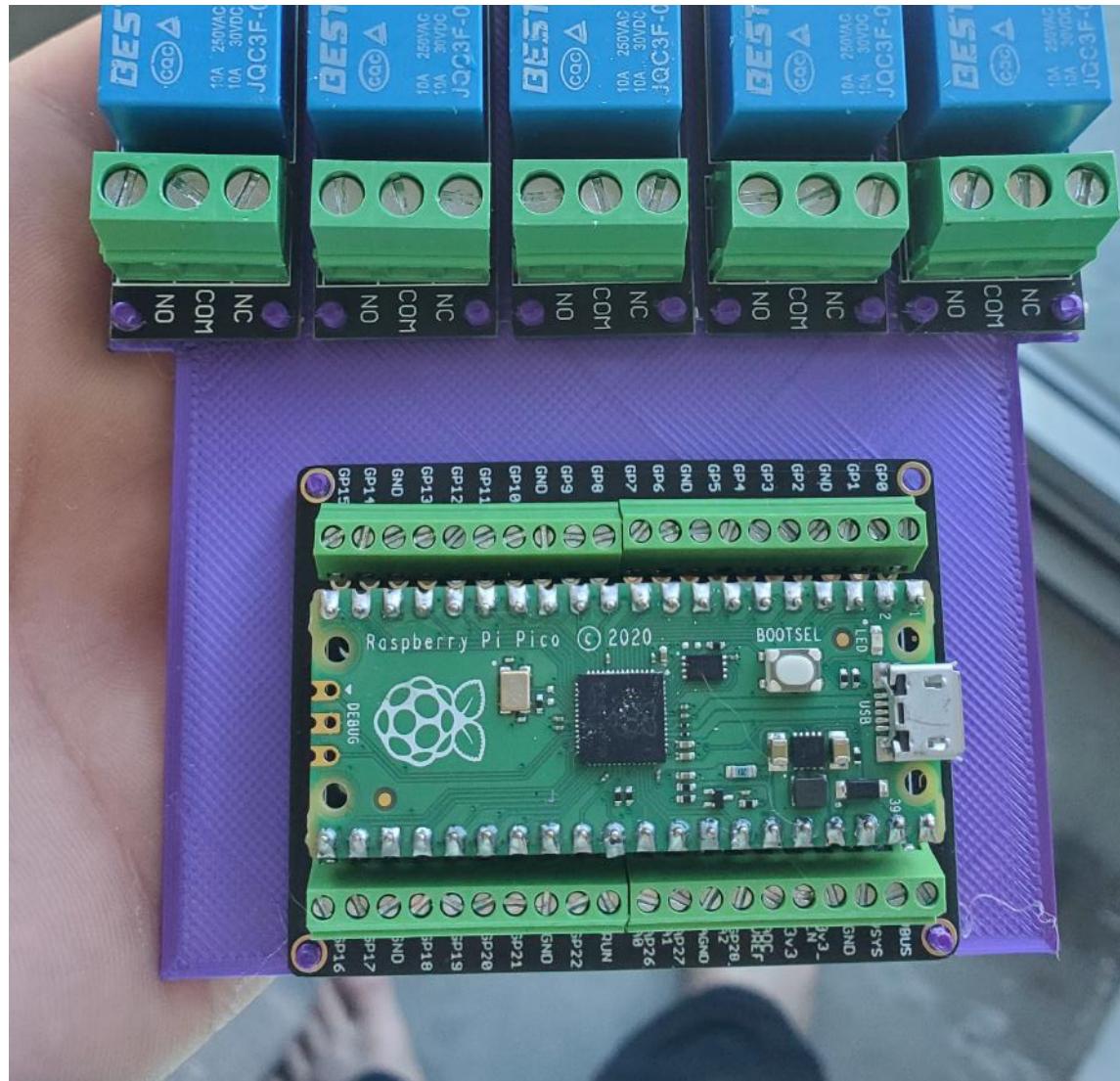
What makes it tick?

- Raspberry Pi RP2040 (Pico)
- 12 3.3v Relays
- I2C LED Screen
- 8 Buttons
- 9 Pumps
- Lots of (expensive) silicone tubing



A Pico you say?

- Pico = Cheap
- Pico = Procurable
- Pico = CircuitPython
- Pico = Priceless



How does it..."pump"?

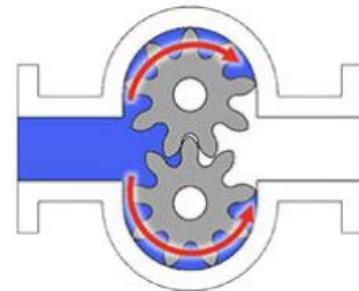
- Pumps? You want pumps?
 - It's got a lot of pumps
 - A LOT (NINE)
 - Expensive ones



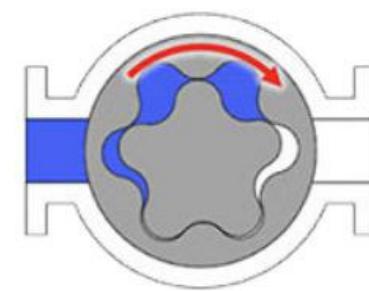
Keep Pumpin', Pumpin'.

- Pumps?

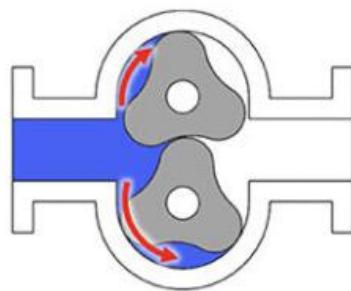
External Gear Pump



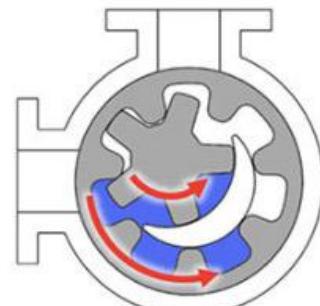
Gerotor Pump



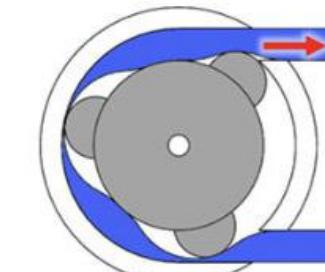
Lobe Pump



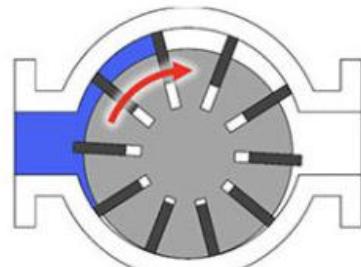
Internal Gear Pump



Peristaltic Pump

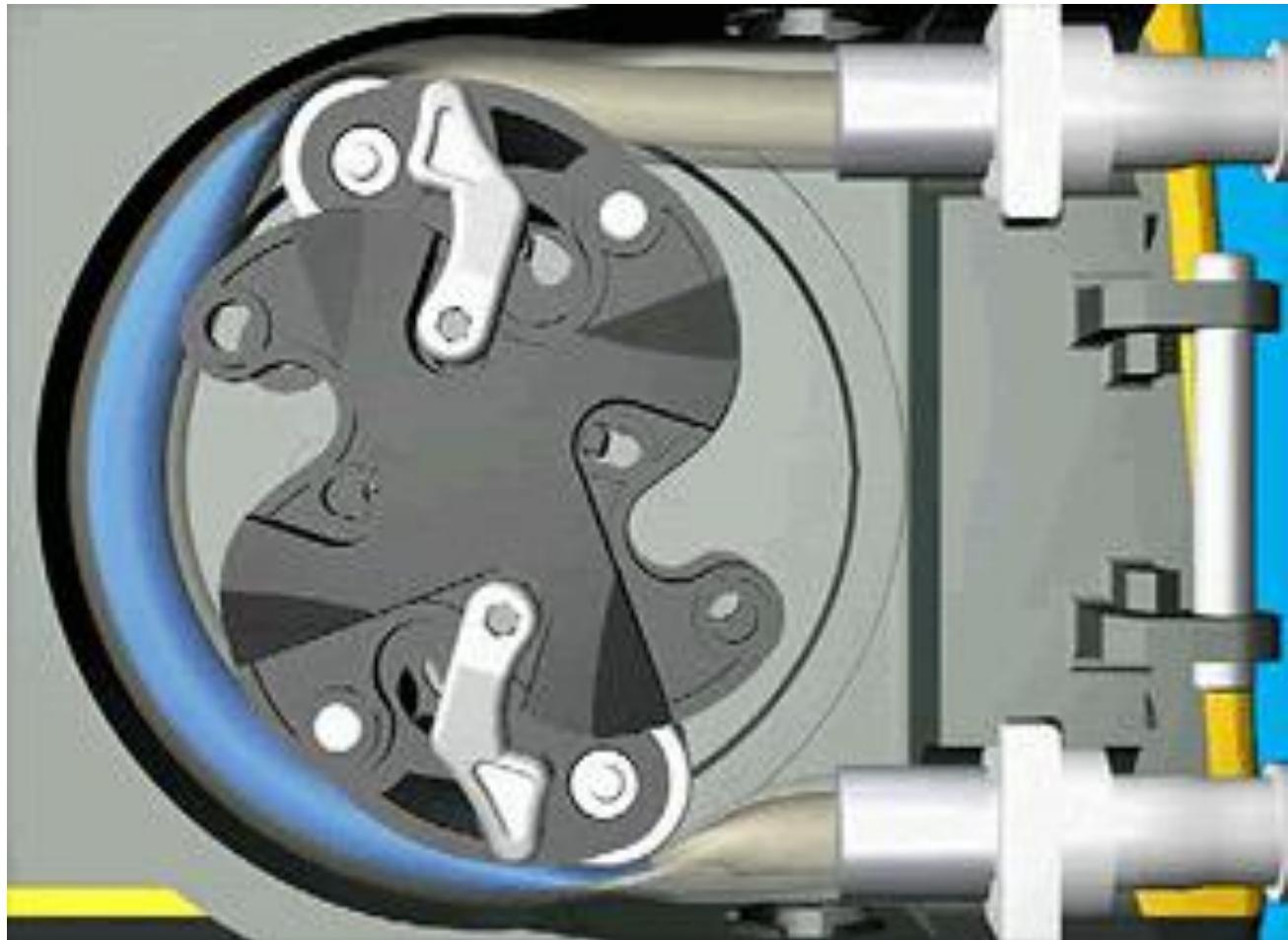


Vane Pump



What is this thing?

- Pumps?



Pros and Cons

- Benefits to Peristaltic Pumps
 - Self Priming
 - Interchangeable tubing
 - Long tubing runs
- Cons of Peristaltic Pumps
 - Slow flow rate
 - High RPMs
 - Likes to explode in your face if not properly secured
 - Difficult to silence
 - No Carbonated Liquids

What is this thing?

- Pumps?

Home / All Industries / Tools & Hardware / Pumps & Parts / Pumps



Ready to Ship In Stock Fast Dispatch

Kamoer Nkp 6v 12v 24v Dc Small Micro Mini Oem Dosing Metering Liquid Dispenser Transfer Peristaltic Pump Popular

5.0 6 Reviews 15 buyers

No.3 Most popular in [Peristaltic Pump For Family Homes](#)

View More

1 - 49 pieces

\$6.50

50 - 199 pieces

\$5.50

200 - 999 pieces

\$4.50

>= 1000 pieces

\$3.50

Benefits:

US \$10 off with a new supplier

[Claim now >](#)

Type

Peristaltic Pump

The minimum order quantity is 1 piece

0/1 piece from \$6.50

Lead time 10 days

Shipping from \$33.00

Seller's Shipping Method 1
(DHL) Change

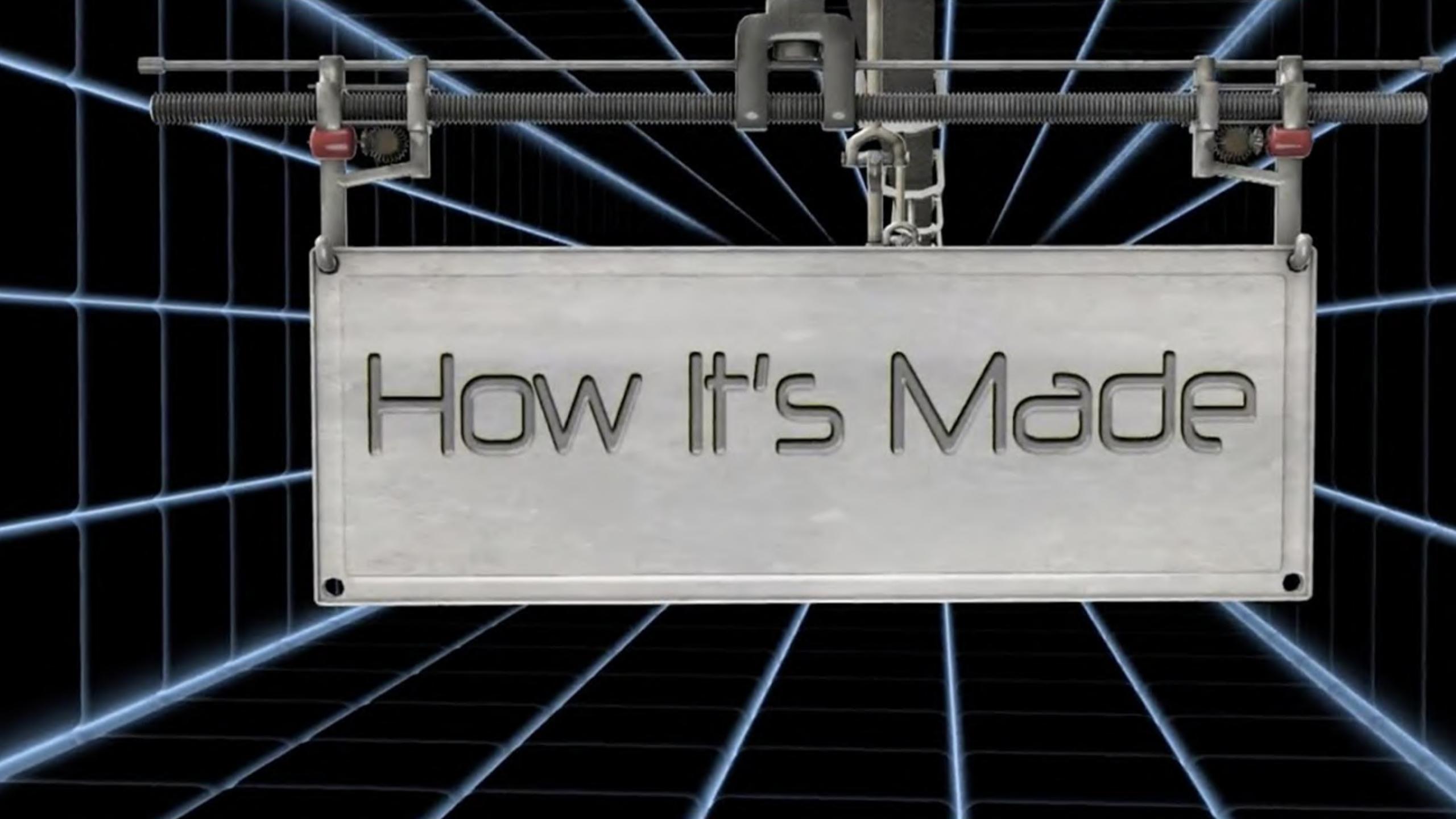
Guaranteed delivery By May 9

[Start order](#)

[Contact supplier](#)

[Call us](#)

[Add to cart](#)

A 3D printer is shown from a top-down perspective, printing a rectangular metal plate. The plate features the words "How It's Made" in a large, bold, sans-serif font. The printer's extruder arm is visible at the top, with two red knobs on the left and right sides. The background consists of a dark grid with glowing blue lines radiating from behind the plate.

How It's Made

How It's Made

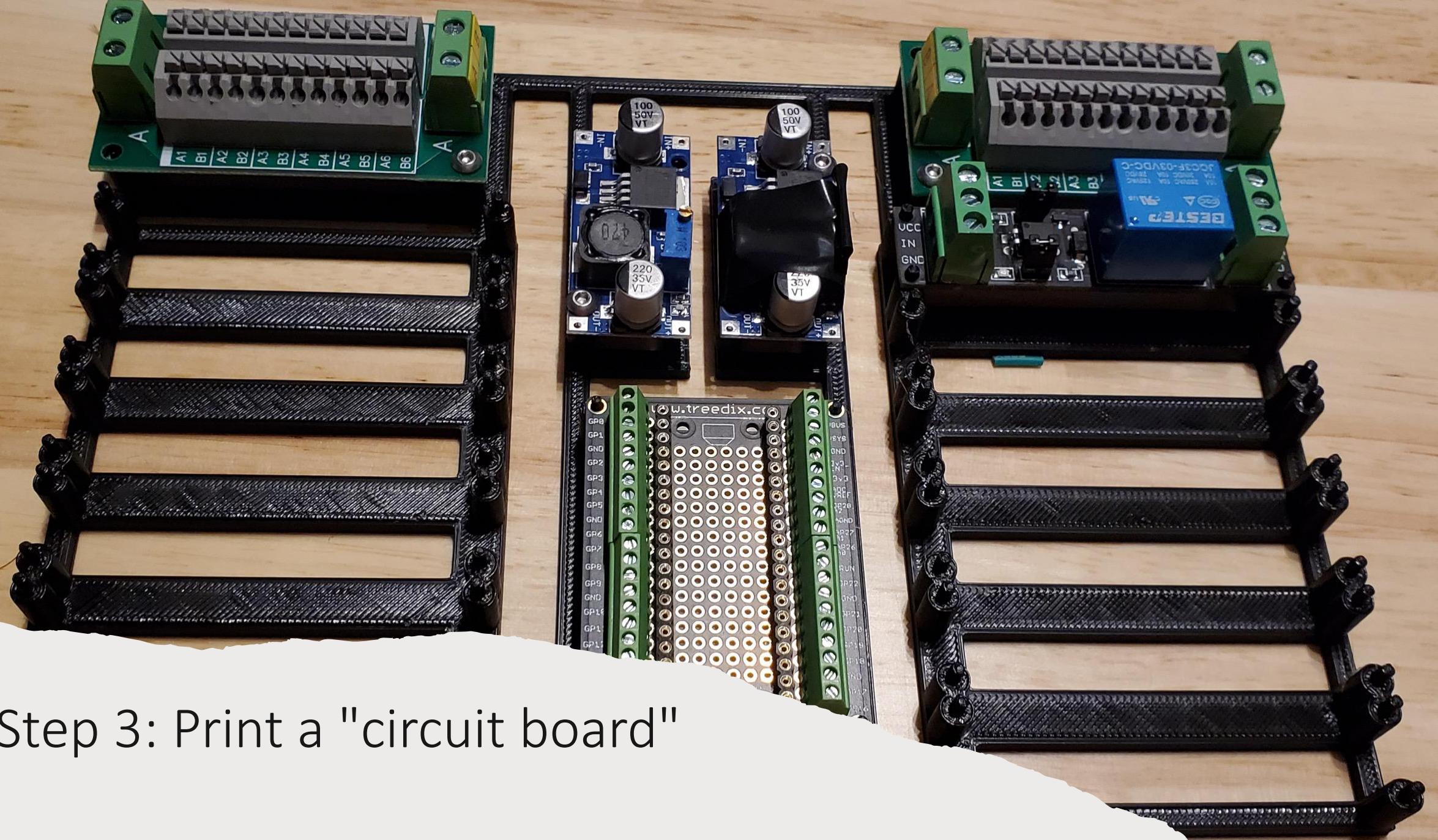
Step 1.) Obtain Milk Crate

How It's Made

Step 1.) Obtain Milk Crate

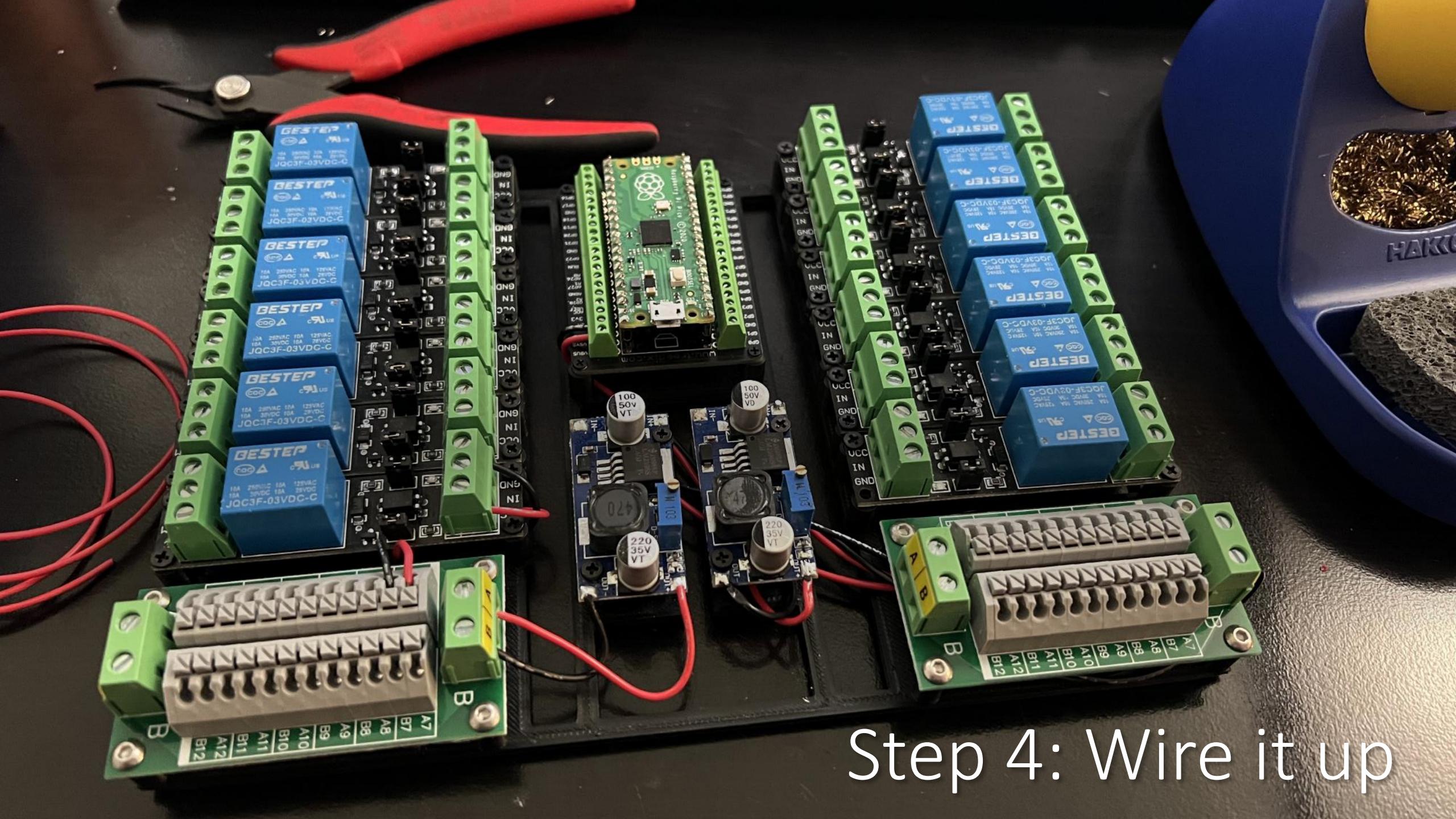
Step 2.) Design & print a lot of things



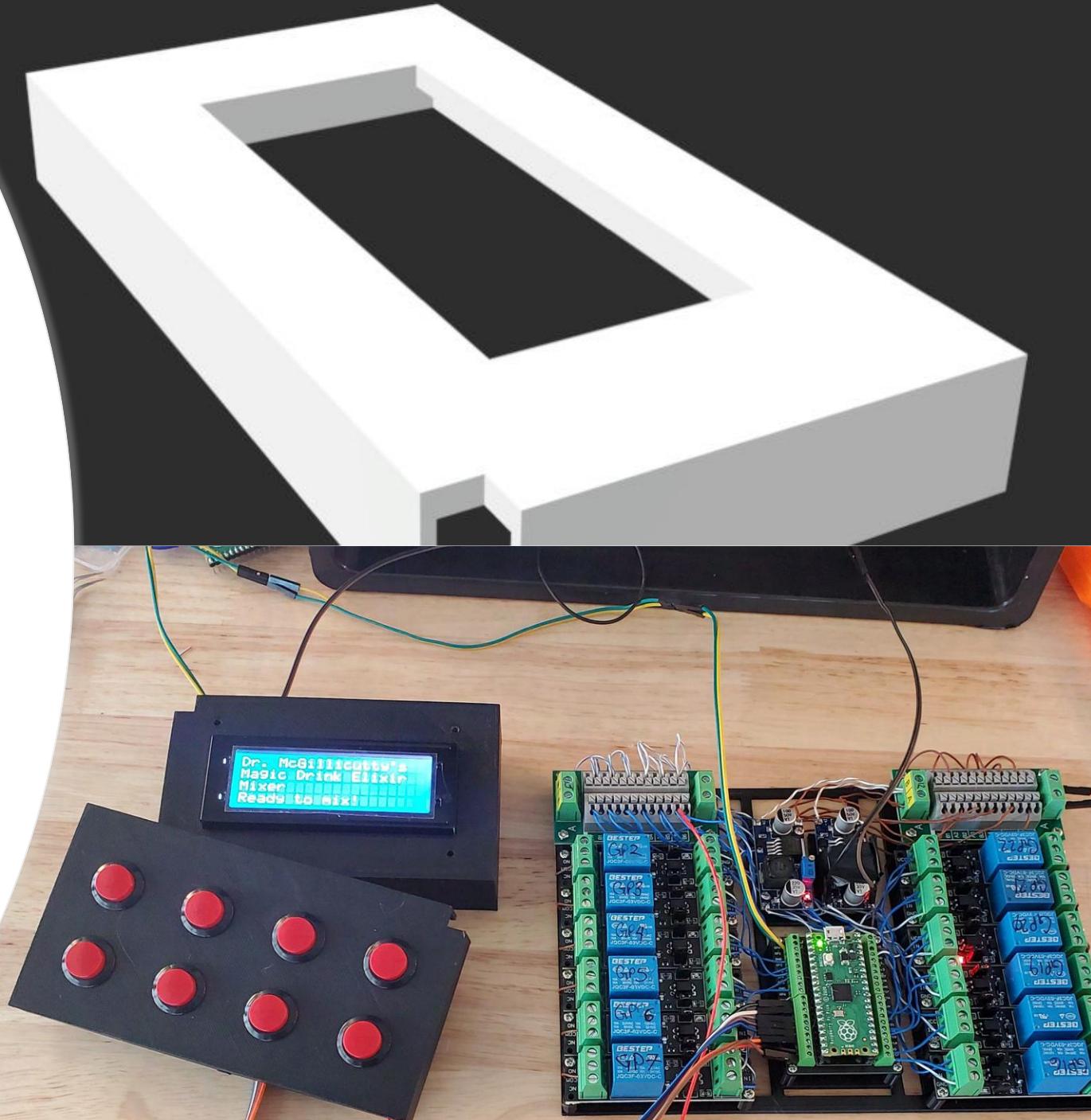


Step 3: Print a "circuit board"

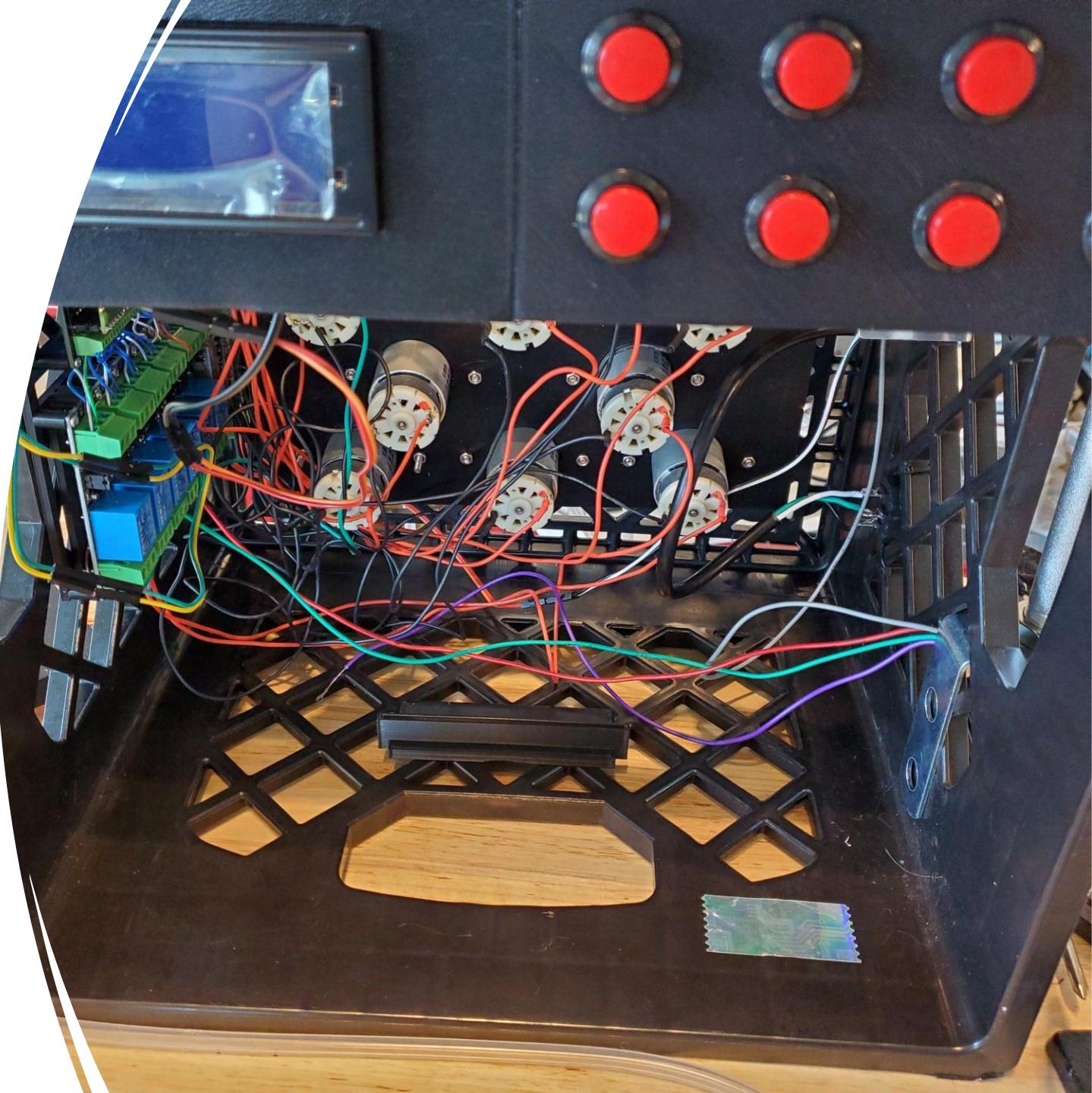
Step 4: Wire it up



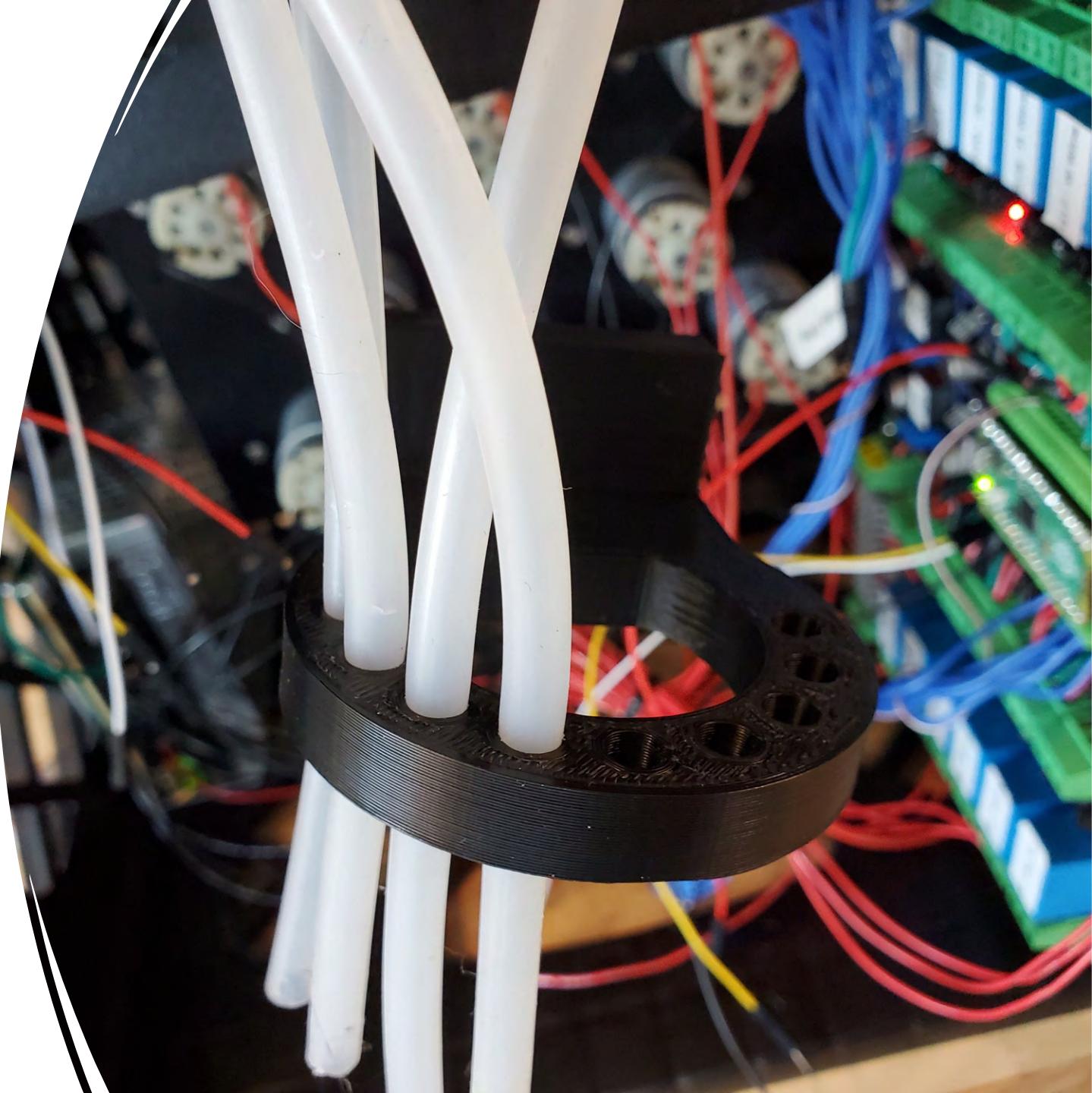
Step 5: PRINT!



Step 6: Bring things together



It's-a-me, your
friendly
neighborhood
pipe-wench
(Step 7)



Step 8:
What did we
serve?

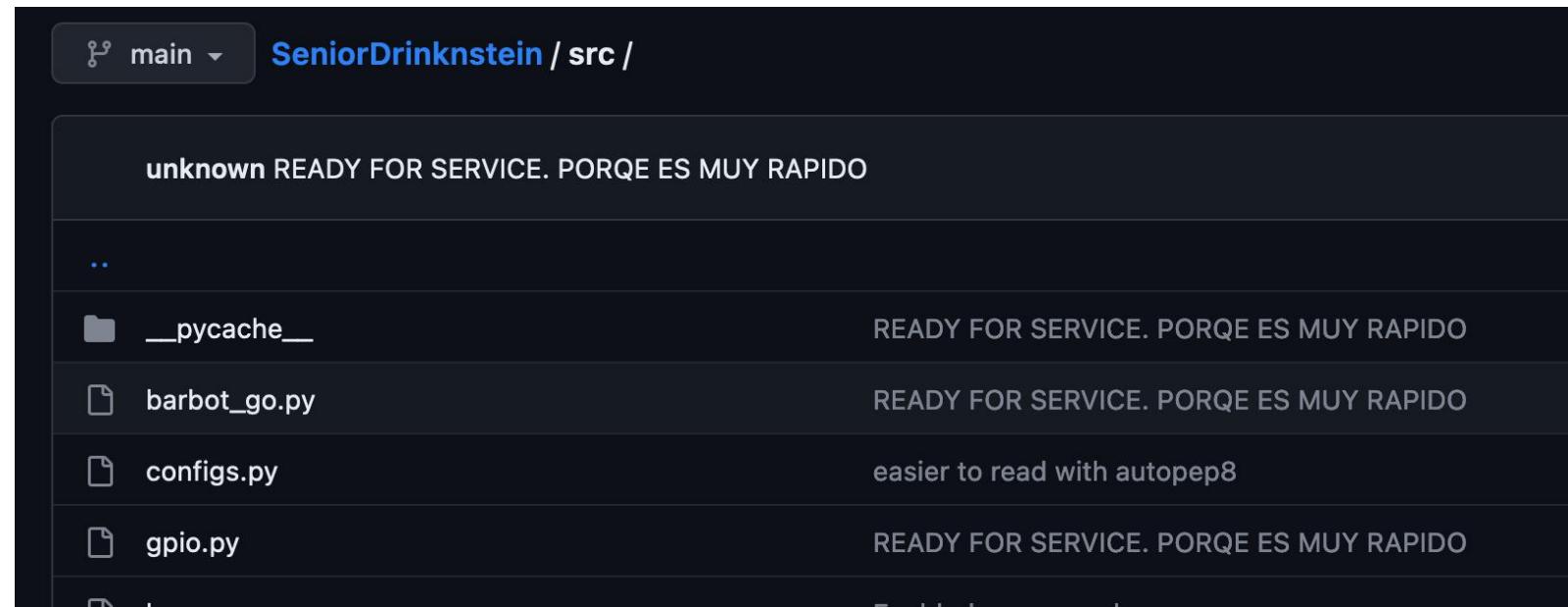


Tooling Used

- OpenSCAD
- CURA
- Inkscape
- Biqu B1 3d printer
- Circuitpython + VS Code
- TS100 Soldering Iron + Hakko Soldering Iron
- Cricut Explore Air 2 (RIP)

Programming

- OpenSCAD for 100% of models
- CircuitPython for 100% of functional code
- JSON config file for pump and drink customization
- ~1000 lines of code, >½ 3d models



```
[aask:SeniorDrinknstein/ (main) $ cloc ./
  27 text files.
  27 unique files.
  20 files ignored.

github.com/AlDanial/cloc v 1.96  T=0.01 s (2122.5 files/s, 138198.6 lines/s)
-----
Language           files      blank     comment      code
-----
OpenSCAD          16        187         50       484
Python            7         117         72       431
SVG               1            5         1         274
Markdown          2            21         0         67
JSON              1            0         0         49
-----
SUM:                27        330        123      1305
```

The Break-in



Conclusion

- Bar Robots GOOD
- Paying for DEF CON bartenders BAD
 - (bartenders are GOOD though!!!!)
- YOU should come to the DCShenanigans Party at DEF CON this year