



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

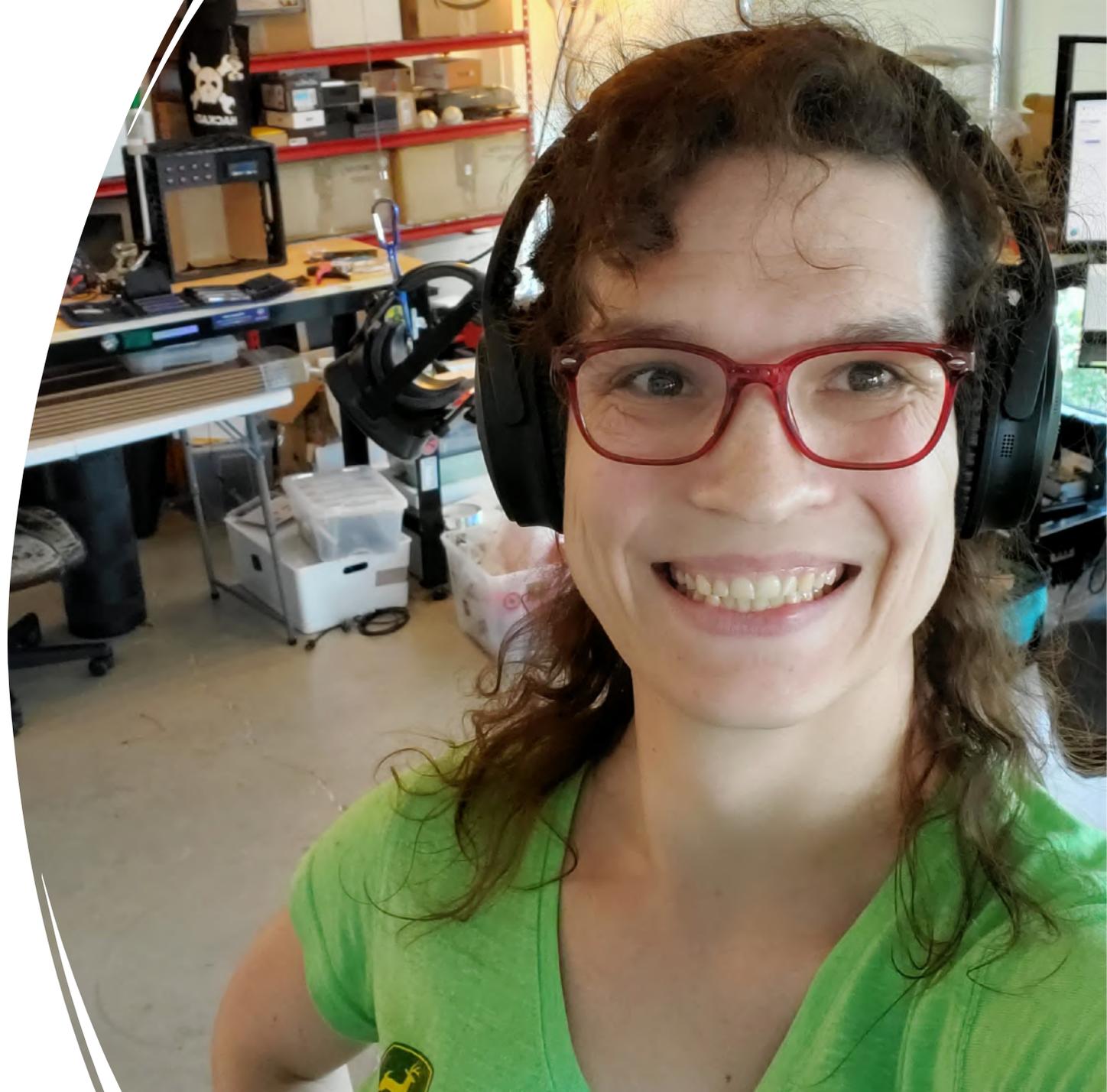
Maker, Breaker, Hacker

I chase muses and build cool things

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

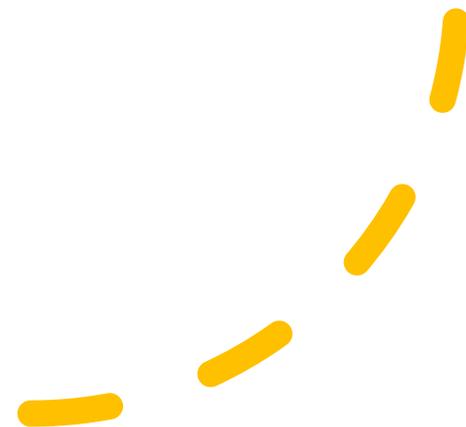
DEF CON Goon

Aask#0042



Boozin n' Hackin'

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



What did we make?

It's a robot...



(Fig. 1: Senior Drinkstein - allegedly)

That makes cocktails...



Poøurly...



With an annoying light + buzzer



In a (legally purchased) Milk Crate...

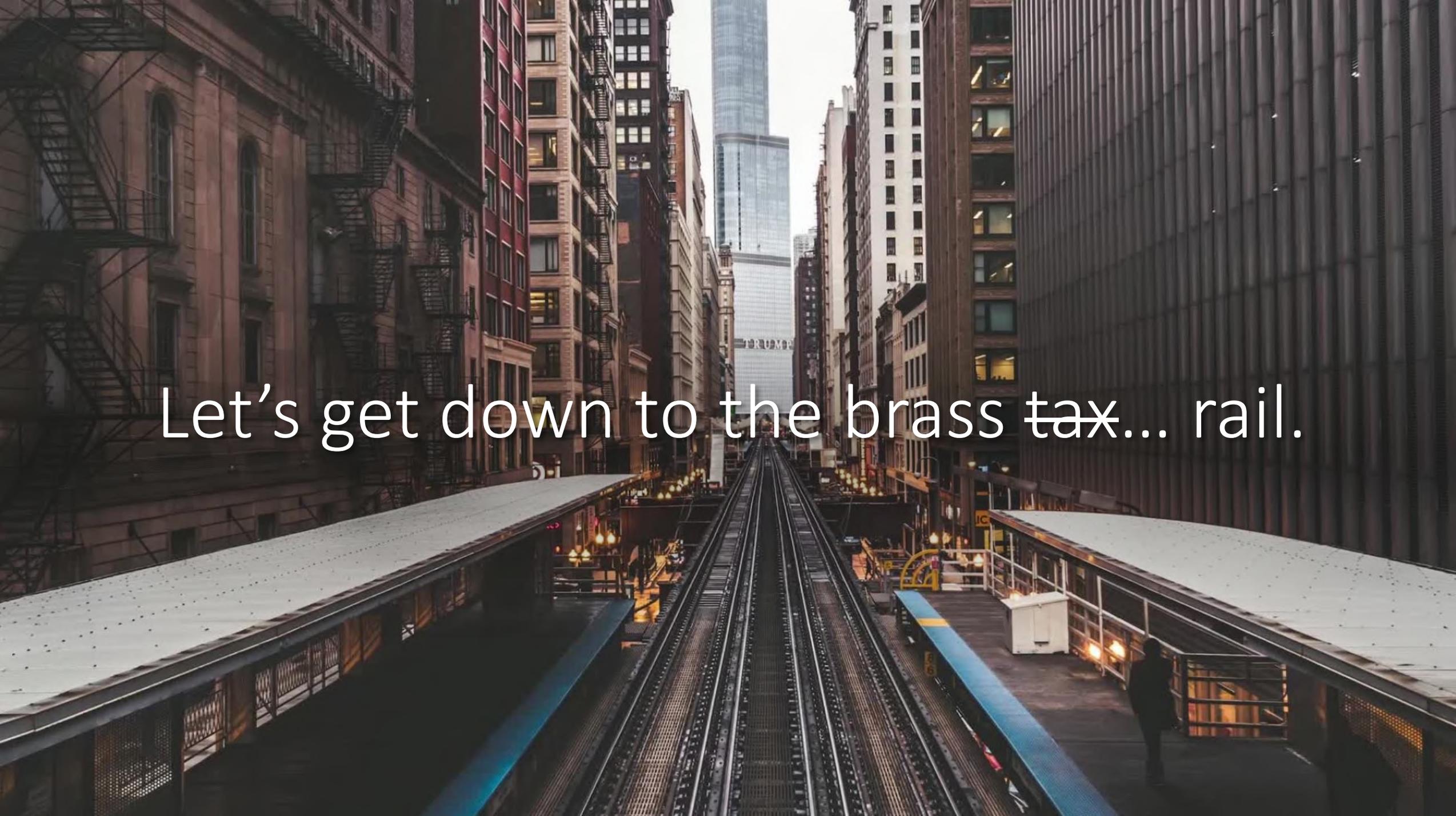


BEHOLD:

Señor Drinknstein!

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

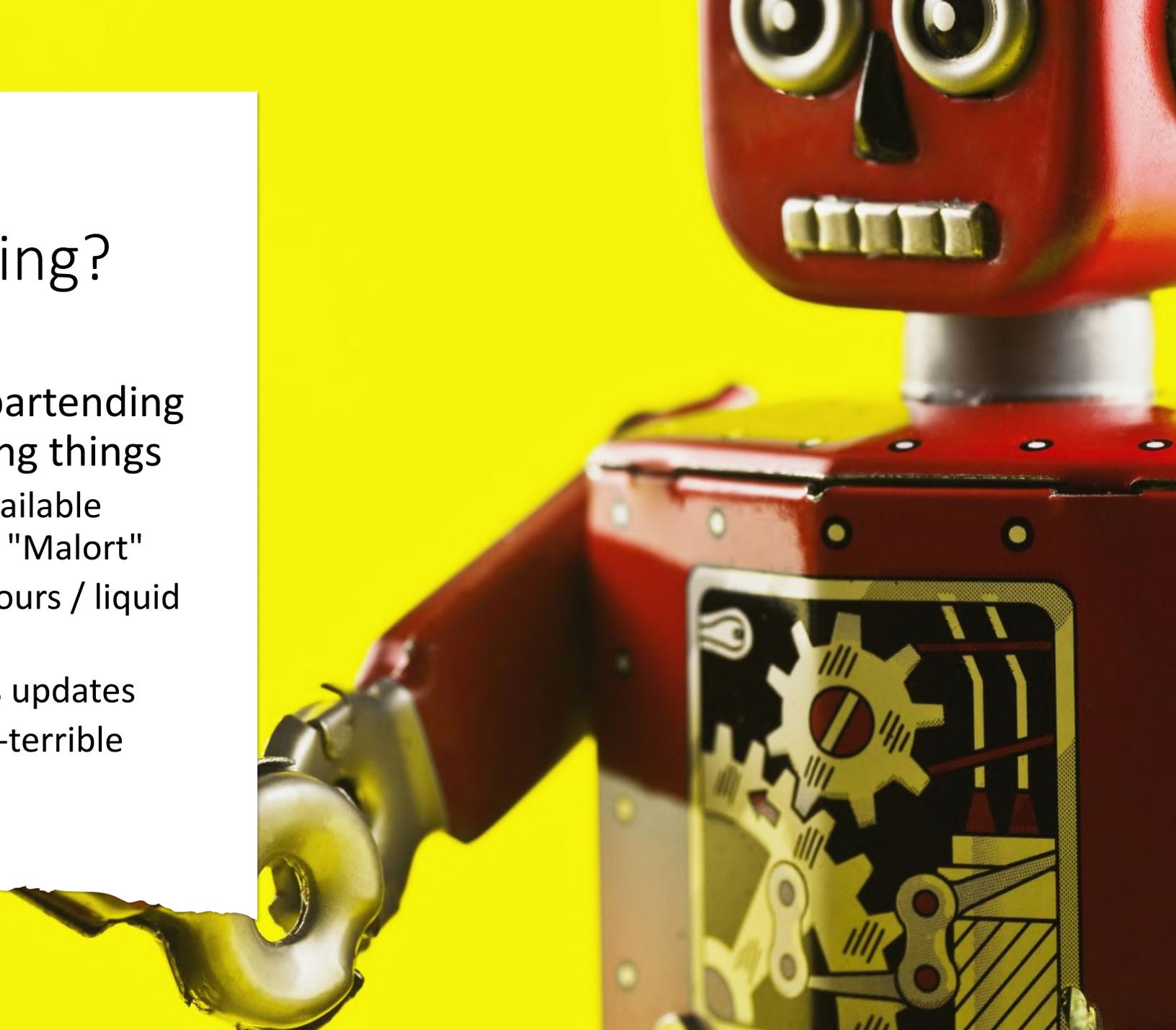


A perspective view of a city street with a subway track running down the center. Tall buildings line both sides, and a person is visible on the right platform.

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

What is this thing?

- Señor Drinkstein 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



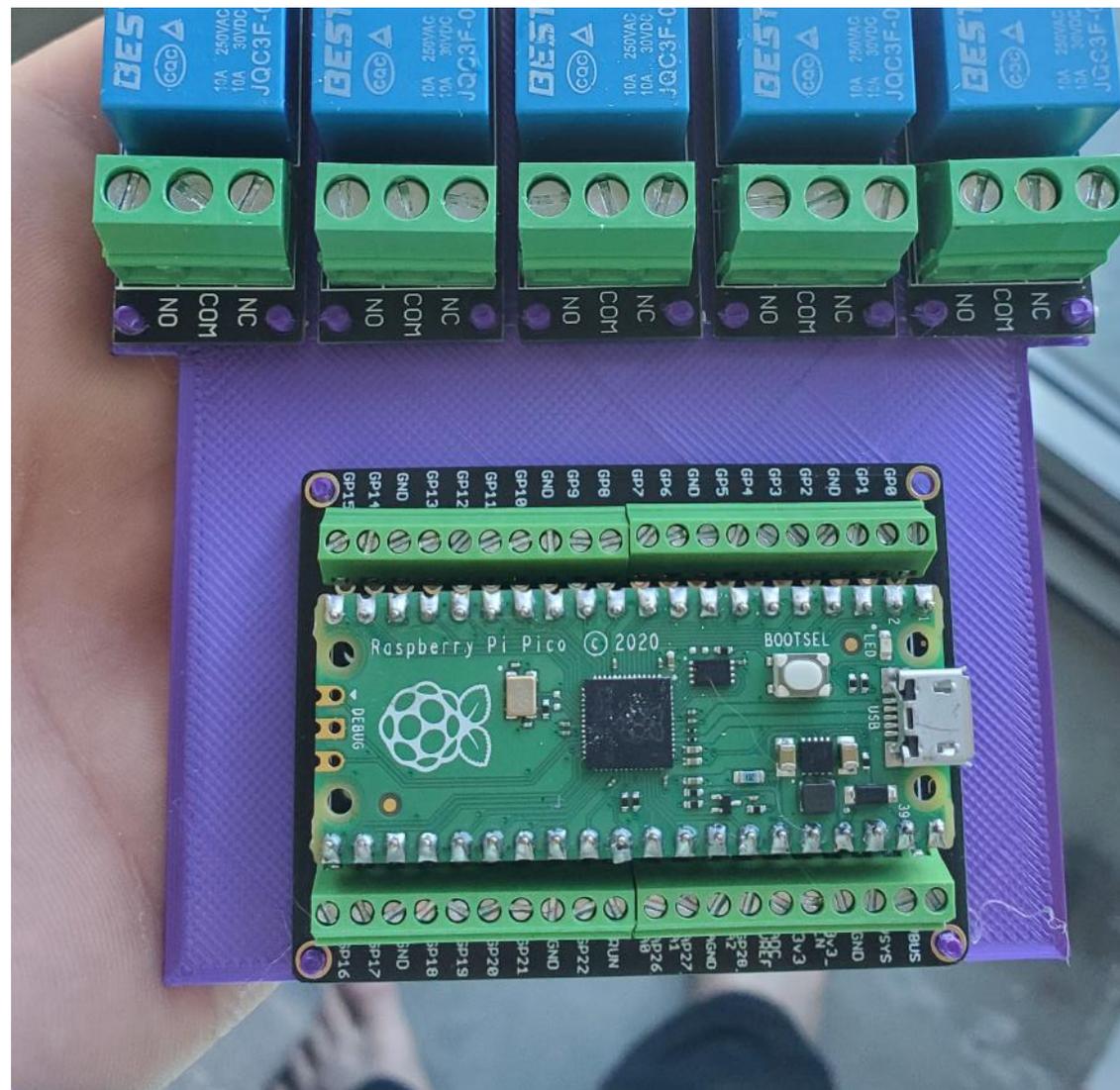
What makes it tick?

- 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"?

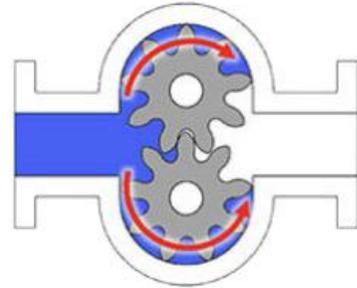
- Pumps? You want pumps?
 - It's got a lot of pumps
 - A LOT (NINE)
 - Expensive ones



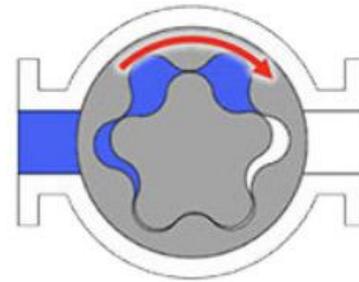
Keep Pumpin', Pumpin'.

- Pumps?

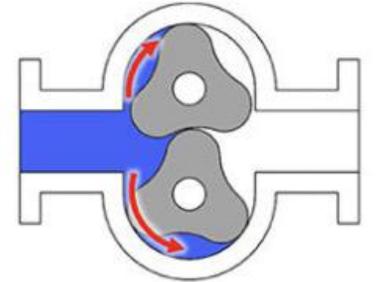
External Gear Pump



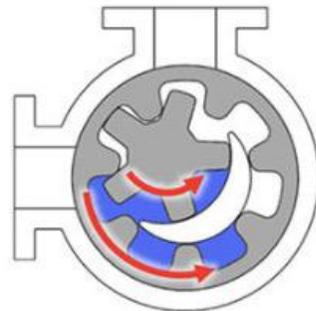
Gerotor Pump



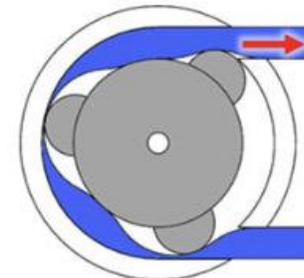
Lobe Pump



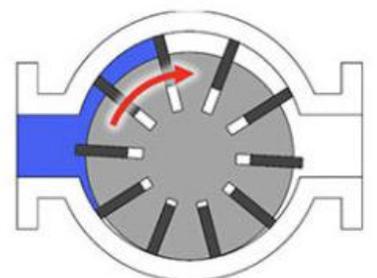
Internal Gear Pump



Peristaltic Pump

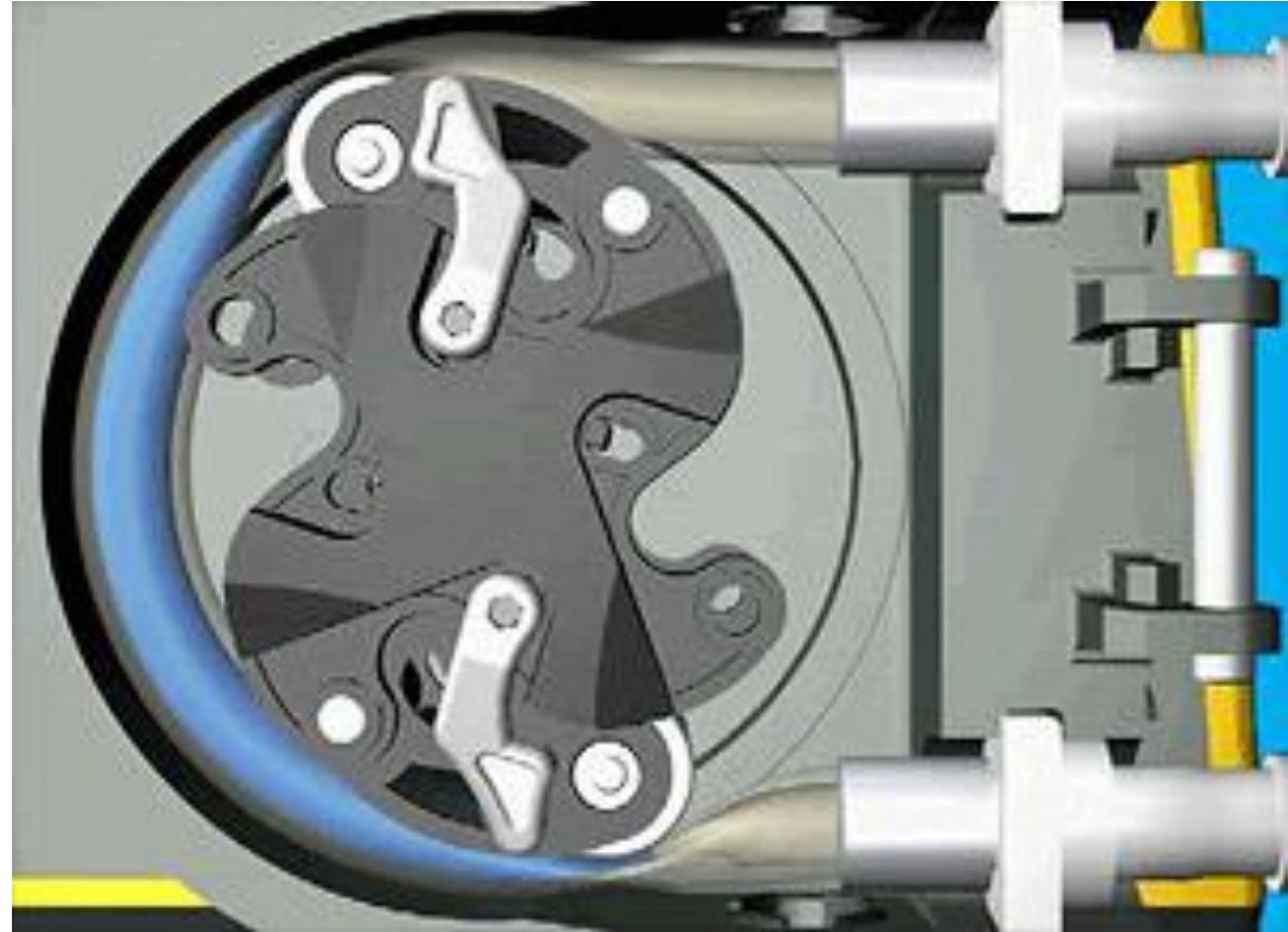


Vane Pump



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

CE View More

1 - 49 pieces	50 - 199 pieces	200 - 999 pieces	>= 1000 pieces
\$6.50	\$5.50	\$4.50	\$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](#)

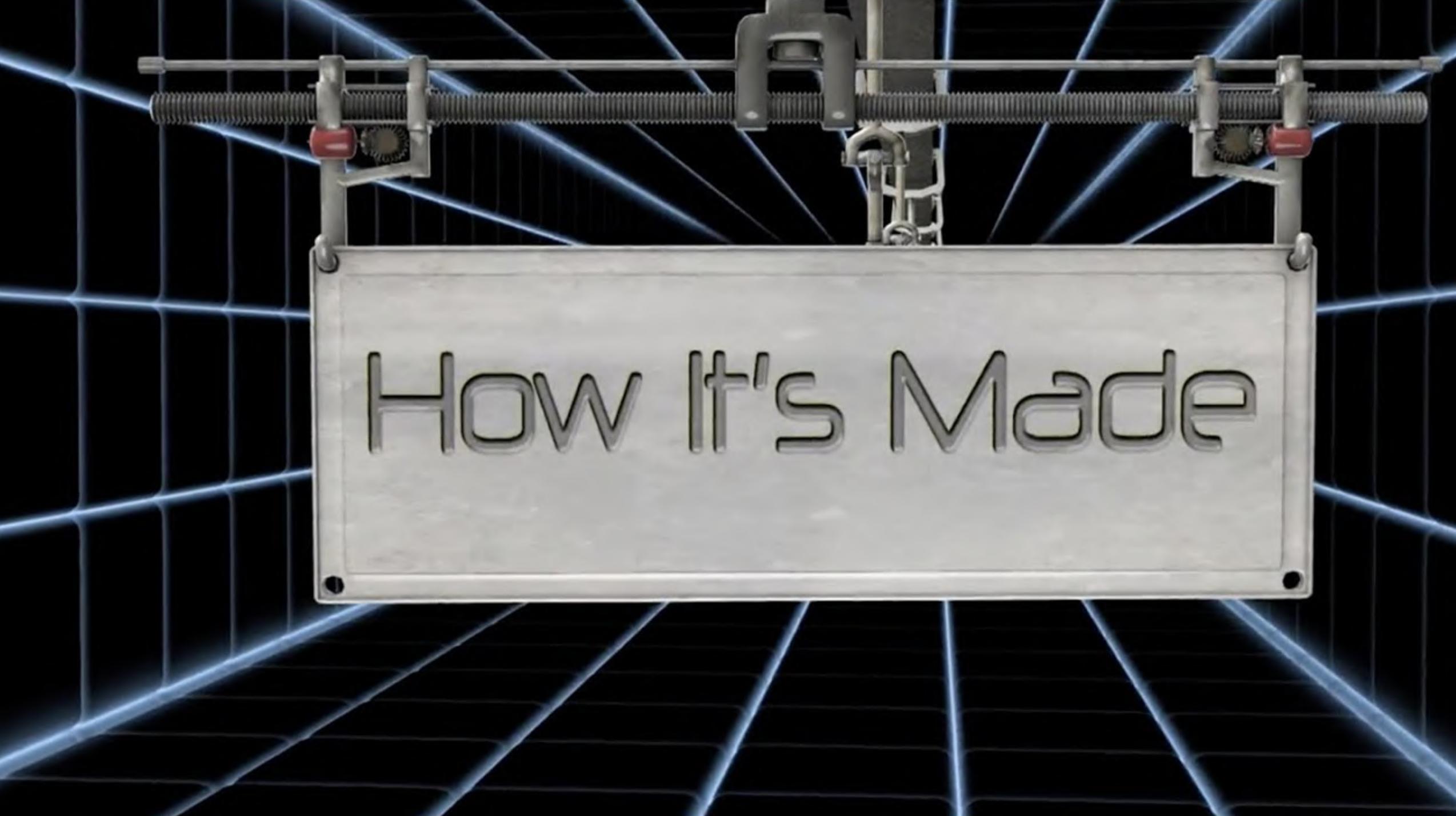
Guaranteed delivery **By May 9** ⓘ

Start order

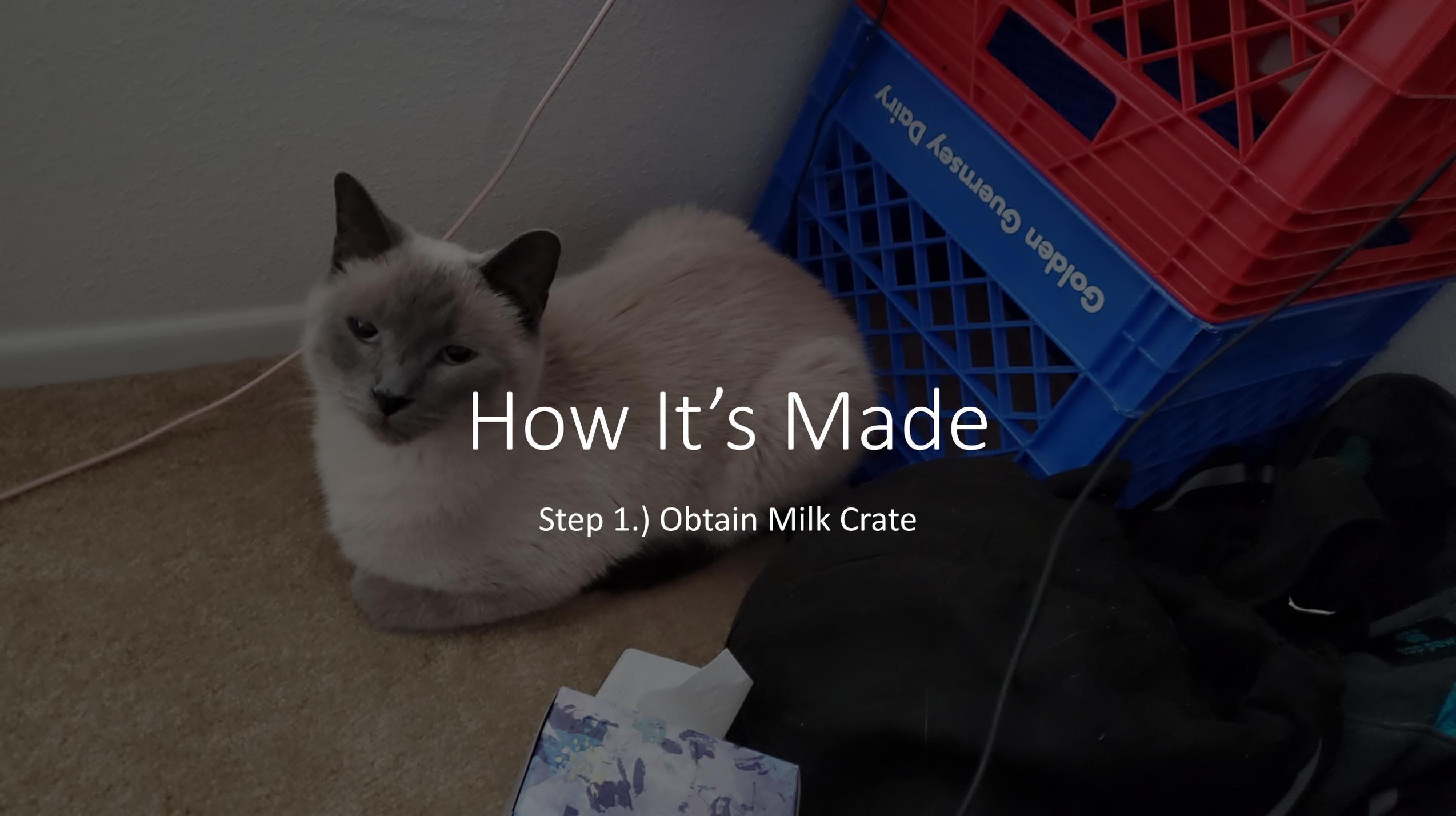
Contact supplier

Call us

Add to cart

A close-up photograph of a typewriter's carriage mechanism. The central focus is a rectangular metal plate with the words "How It's Made" embossed in a stylized, outlined font. The plate is mounted on a complex assembly of metal rods, gears, and springs. The background is a dark blue grid pattern with bright blue light rays emanating from the center, creating a futuristic or technical atmosphere.

How It's Made



How It's Made

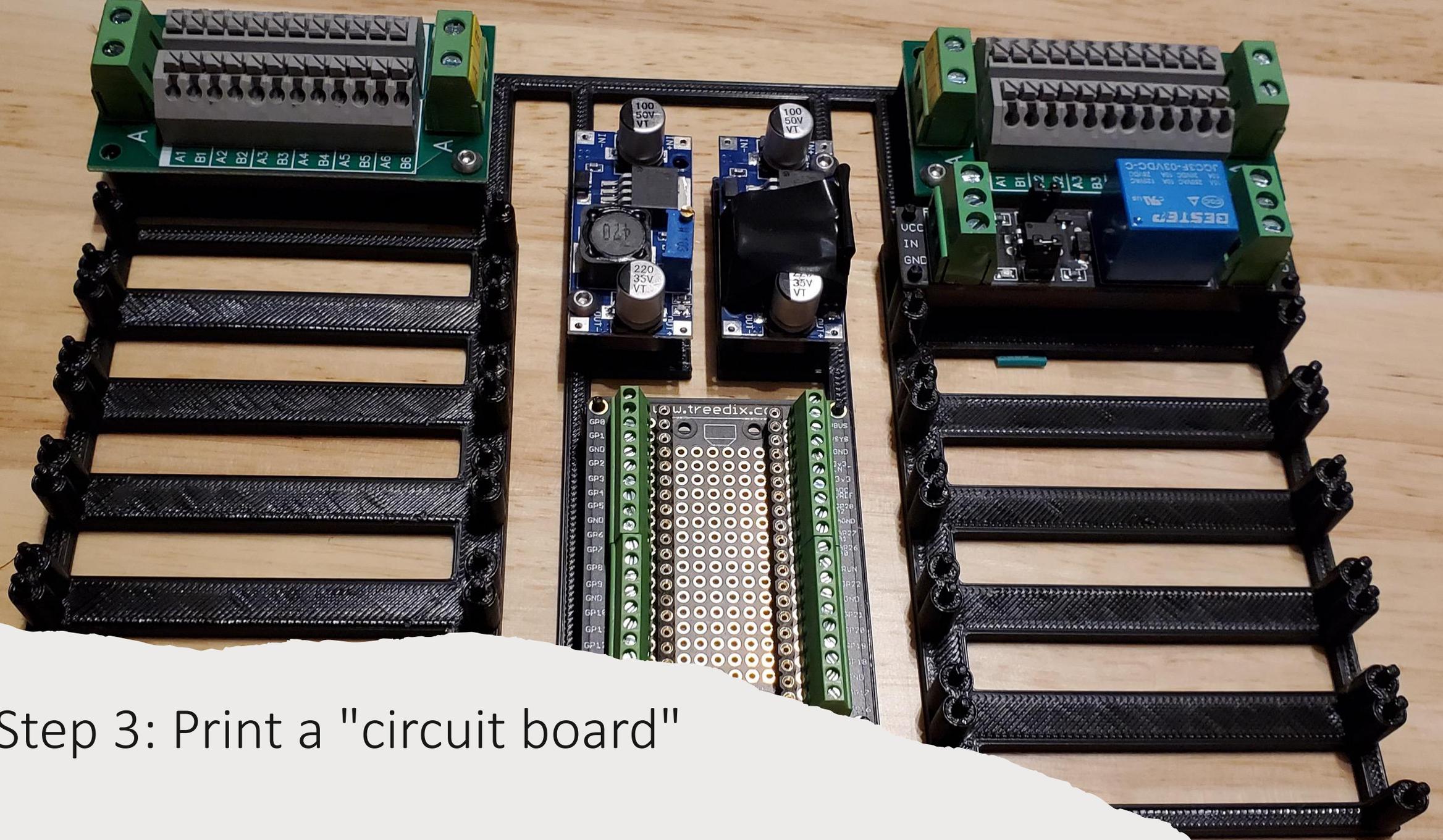
Step 1.) Obtain Milk Crate

How It's Made

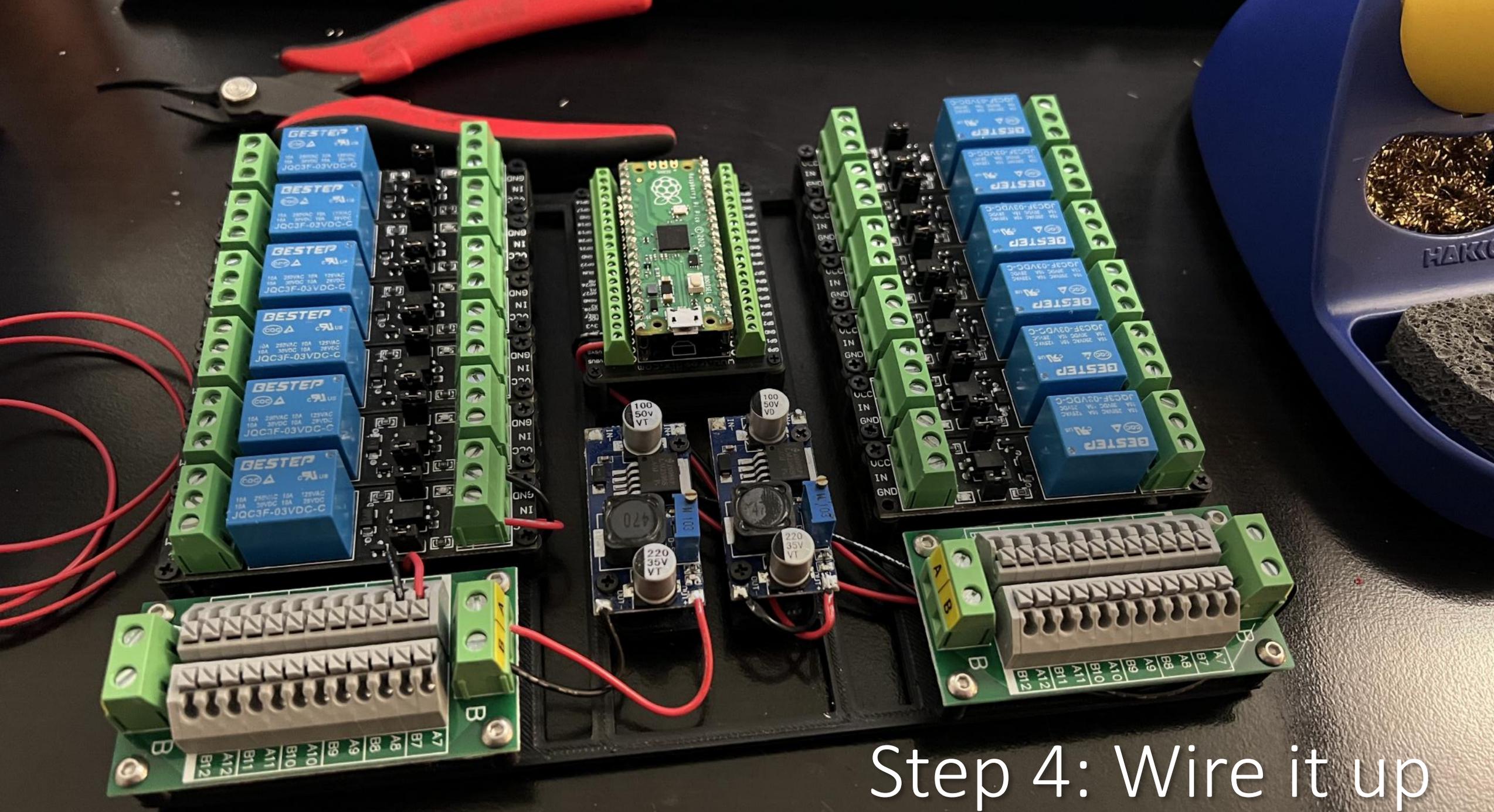
Step 1.) Obtain Milk Crate

Step 2.) Design & print a lot of things





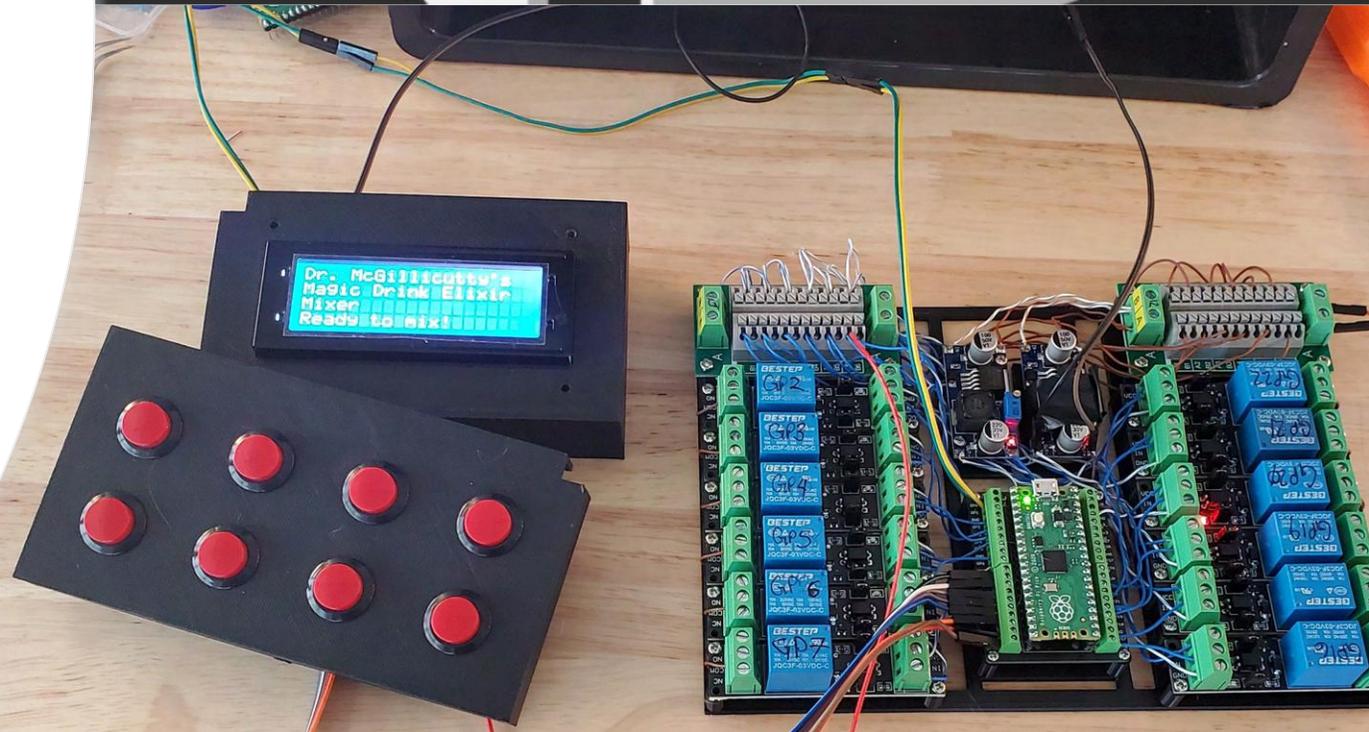
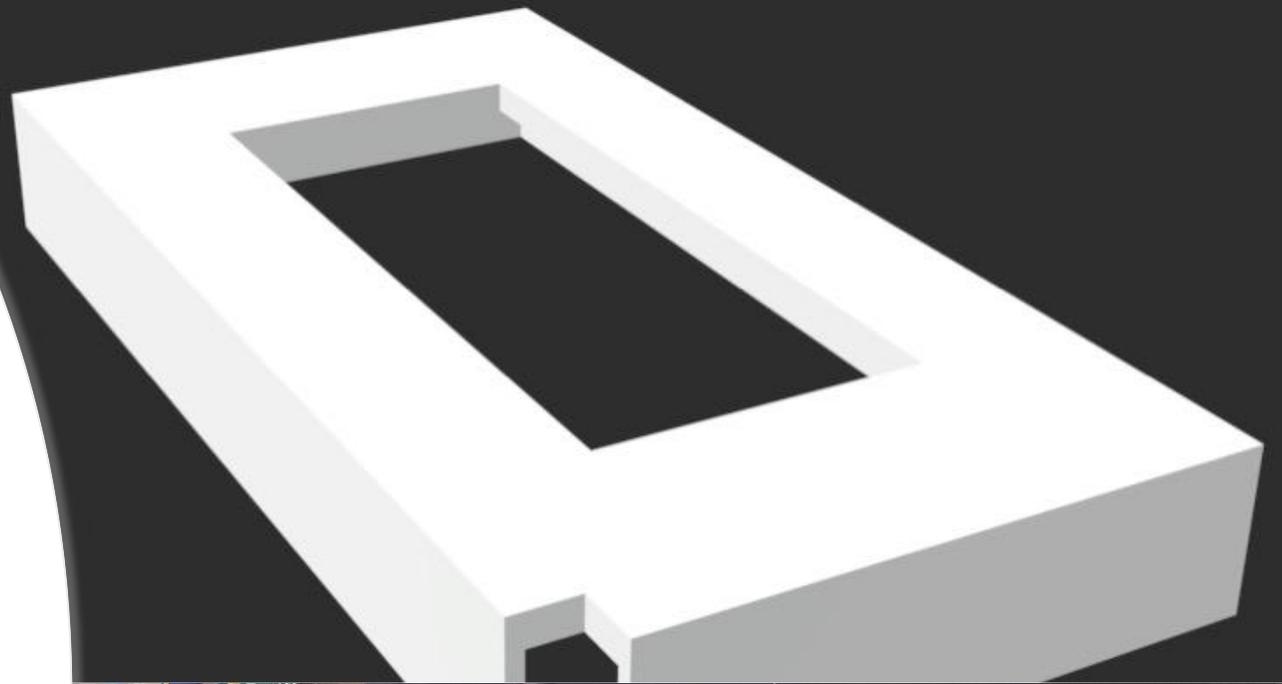
Step 3: Print a "circuit board"



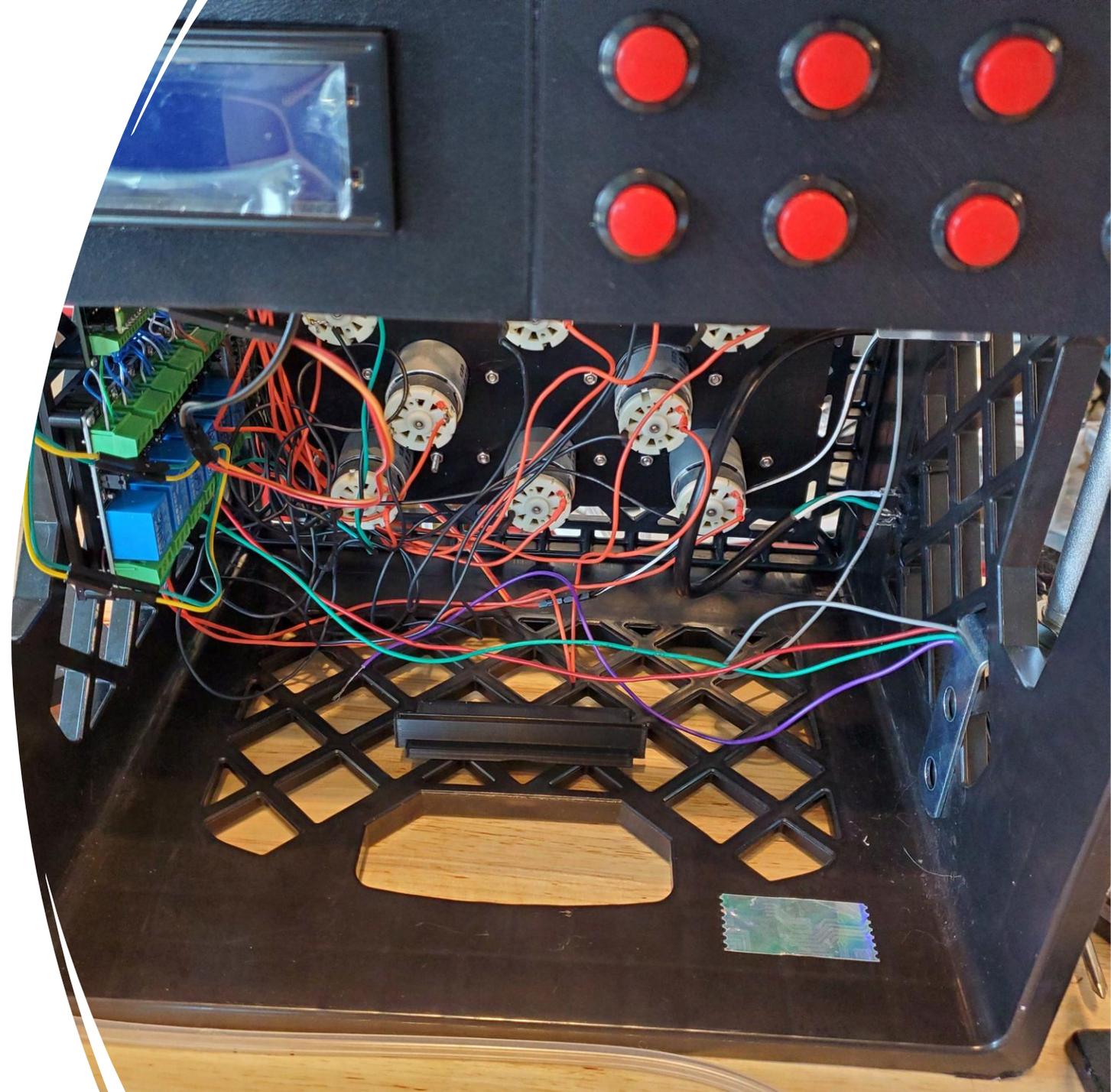
Step 4: Wire it up



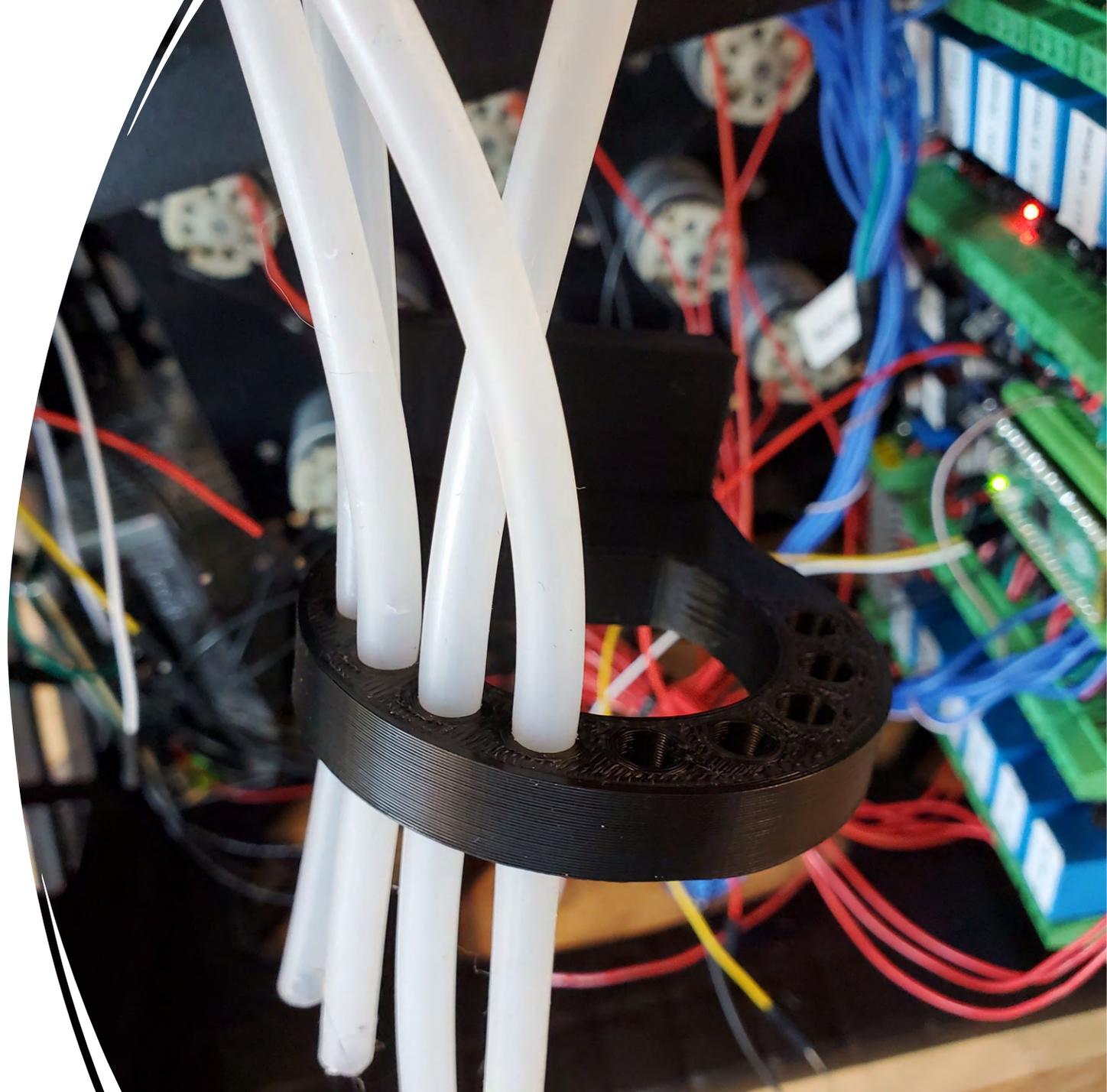
Step 5: PRINT!



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

```
main SeniorDrinknstein / src /
unknown READY FOR SERVICE. PORQE ES MUY RAPIDO
..
__pycache__ READY FOR SERVICE. PORQE ES MUY RAPIDO
barbot_go.py READY FOR SERVICE. PORQE ES MUY RAPIDO
configs.py easier to read with autopep8
gpio.py READY FOR SERVICE. PORQE ES MUY RAPIDO
```

```
ask:SeniorDrinknstein/ (main) $ cloc ./ [16:15:52]
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