I want to tell you about my adventures designing my first keyboard from scratch, and some lessons I learned.

I'm Matt. also known as eightbitraptor

And my keyboard journey, starts with Kyuu.

Well, actually, it stars with back pain. I was looking around to try and find something more ergonomic to replace my aging Filco.

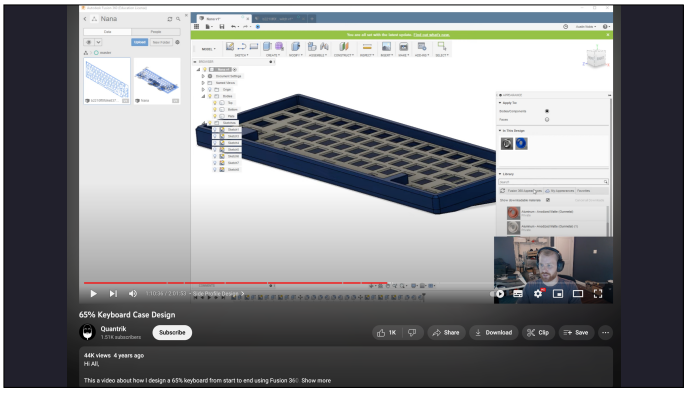
I eventually settled on a Redox, an open source remix of the Ergodox with fewer keys and more ergonomic thumb clusters.

But during my search, I found Kyuu

Kyuu was a 65%, sandwich mount keyboard with a brass plate, It was released by a designer called Quantrik, as a group buy in 2019. The internet tells me it was a fairly mid keyboard, the brass plate and the sandwich mount made it unforgiving to type on, and hollow sounding.

But I fell in love with this keyboard, I coveted it. It was very hard to get hold of, and really expensive.

So I did what any hubristic software developer would do. I thought "Making a keyboard can't be that hard, right".



I googled around and found a Youtube tutorial from Quantrik, where he shows, step by step how he designed keyboards.
So I downloaded Fusion360, and got to work.

I used the keyboard layout editor, to put a layout together that I was happy with. It was basically an HHKB, but with winkey blockers and and arrow cluster

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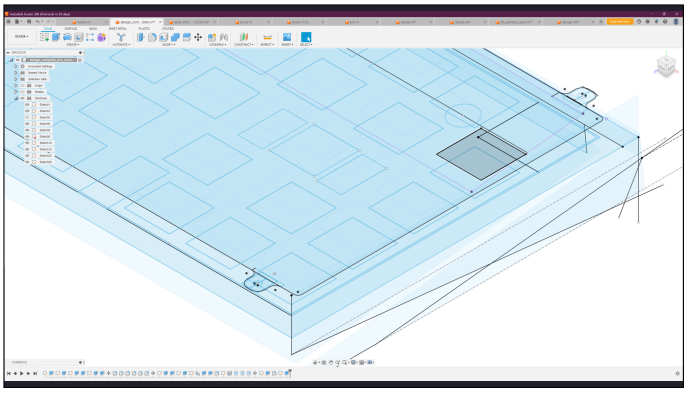
because I had been using HHKB's for a while and was really enjoying that layout.

I loaded that into ai03's plate generator to build a dxf file for a plate. This is the file format you'd normally use for a laser cutter.



Loaded that into Fusion and set about following Quantriks video.

It took me basically a whole summer to learn Fusion.

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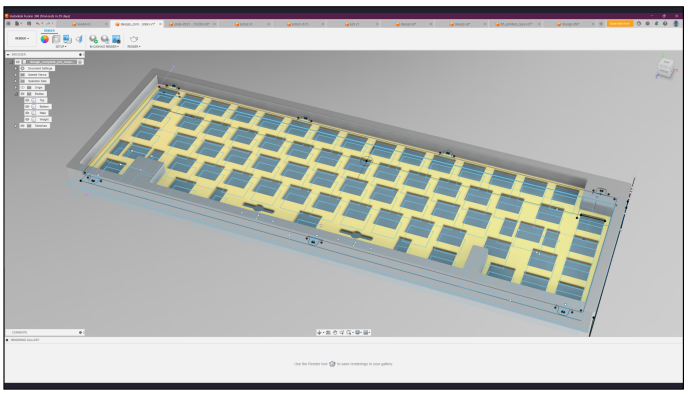
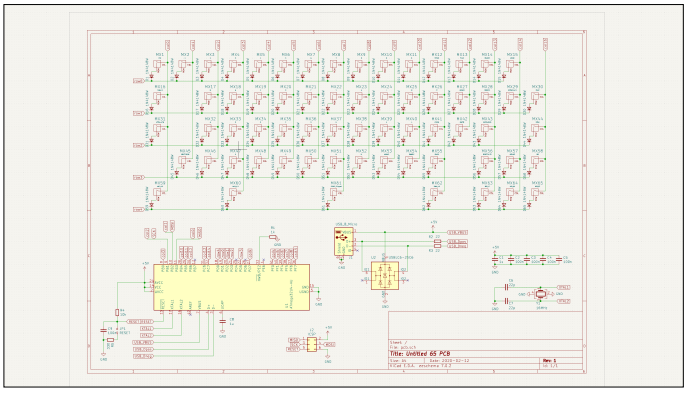
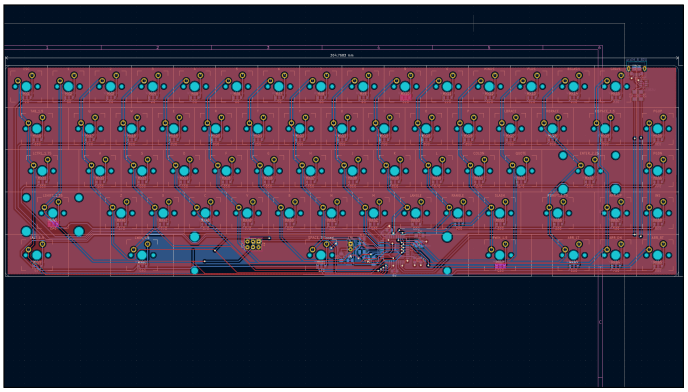


But I finally had something that I was happy with, although my laptop really struggled to render anything.

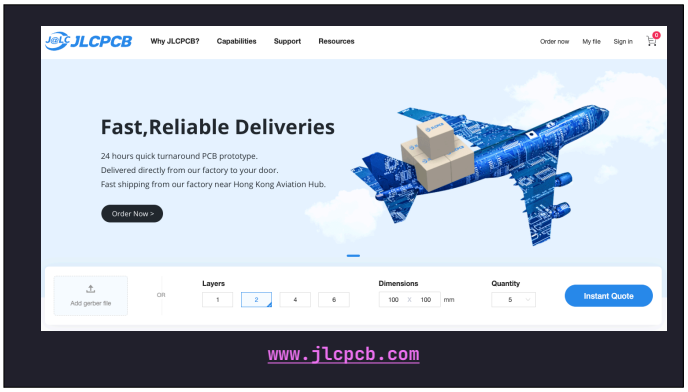


I loaded the DXF again into Kicad, and spent the winter re-learning how to build circuits.

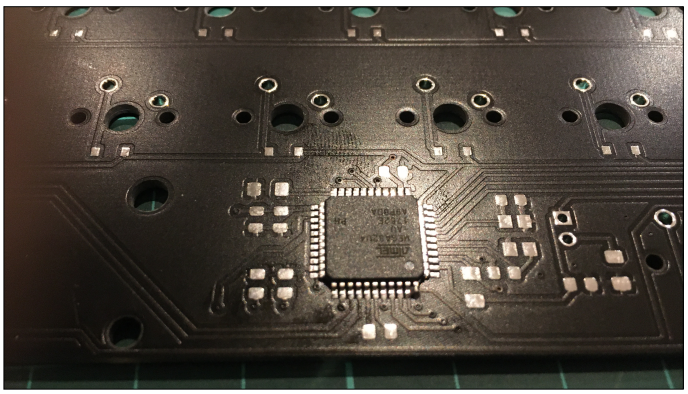
I have a university degree in electronics, but at this point in my life I hadn't done anything with it for 15 years. So I was a bit rusty.



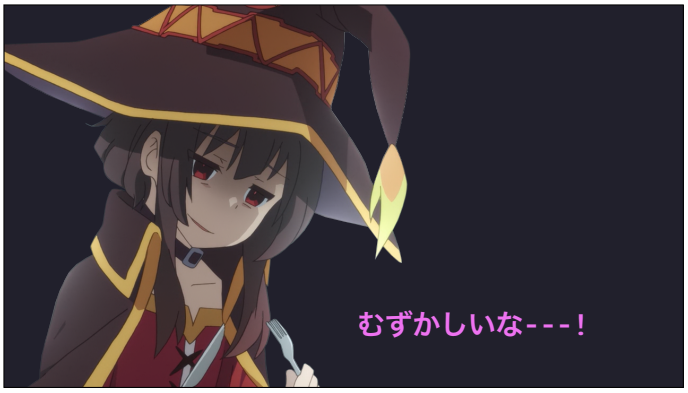
It took me most of Autumn and into Winter, around work and family, but I finally had something I was confident in sending off to get fabricated.



I used JLCPCB because they're fast, and cheap.

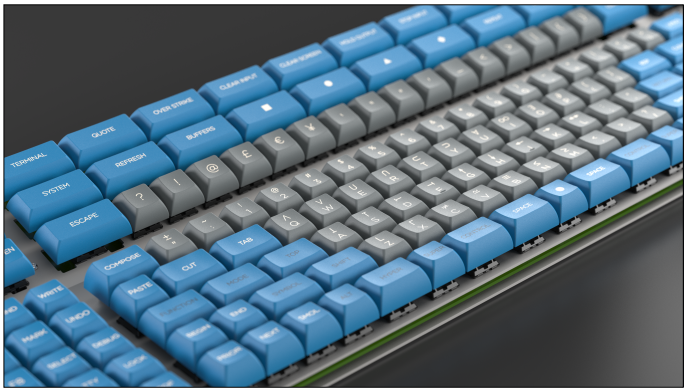


And this is where my hubris caught up with me.
It was my first electronics project in over 15 years, and I had built it around an Atmega, with everything surface mounted instead of starting with something simpler.
And well. I messed up. A lot.
I wasted a couple of pcb's trying to get everything soldered down, I didn't and still don't have hot air, or a solder oven so I was doing everything by hand.
And when I did finally get a board where I was confident of the soldering, I couldn't get anything to work.



So I shelved the project. and went back to the drawing board.

Now alongside all this, I was exploring the ergo keyboard scene.



And my Redox was starting to feel like it had too many keys...

I found the Corne.

and I loved it. So much so, I just couldn't stop building them. I had this one, with Cherry Blacks

a 5 column version using the Miryoku layout.

a super thin one using Kailh choc v2's which I built after seeing

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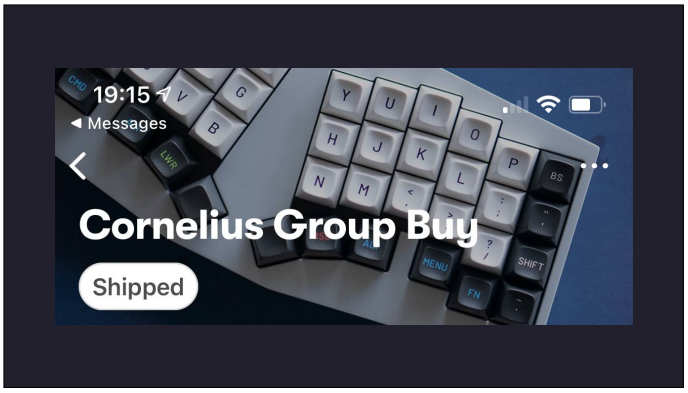
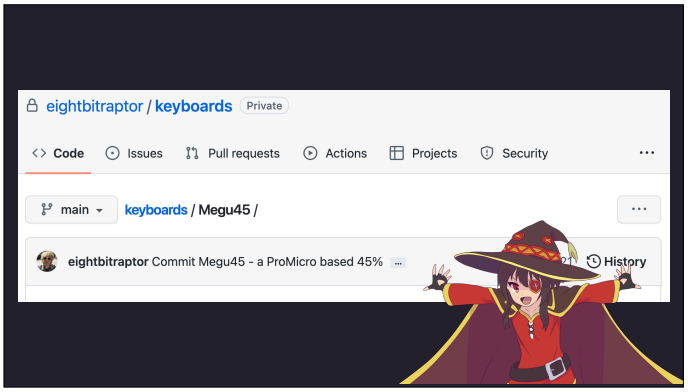
this tweet from Kodachi san.

And I have my daily driver, which I've brought with me today - which is using Kailh Choc red's, lubed with krytox 205g0, is fitted with some foam sound dampening, and MBK Legend Keycaps.



I had also bought a Cornelius

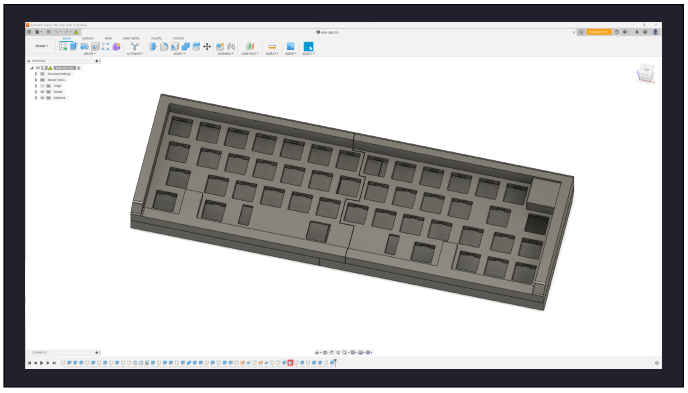
And some sweet Konosuba themed keycaps



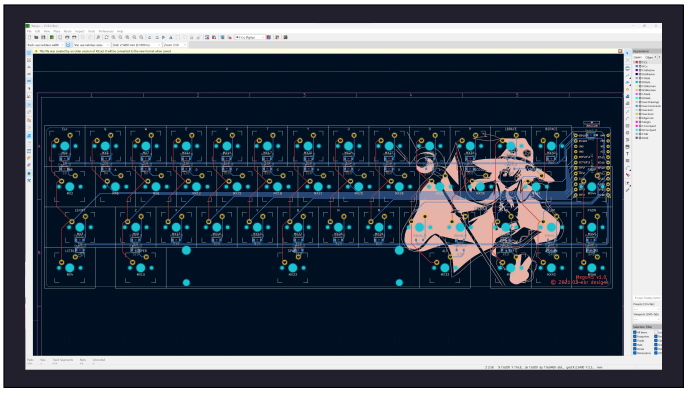
Now I knew that fewer keys is better.

I started again, and designed a 45% keyboard, and based it around a ProMicro.

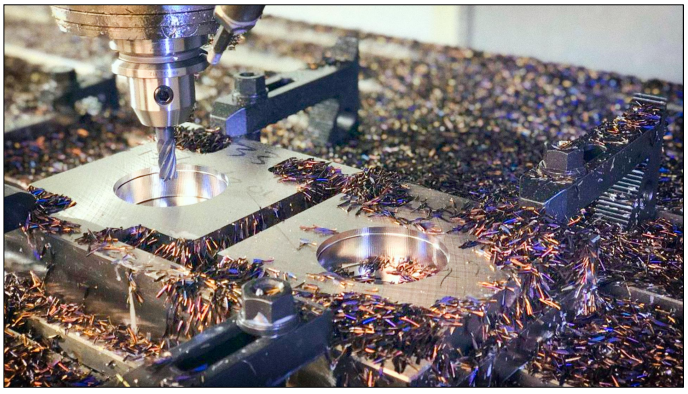
I themed it around Megumin. Because it was small, and I hoped it wouldn't explode...



After the same journey with Kicad and fusion. I had a case design



and a PCB design.



and started looking at how to get the case fabricated.

I really wanted aluminium, I sent off my design to a bunch of local fab houses, as well as some of the Shenzen based ones

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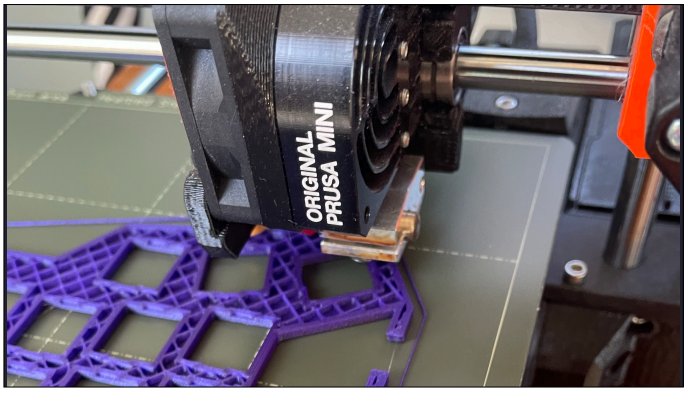
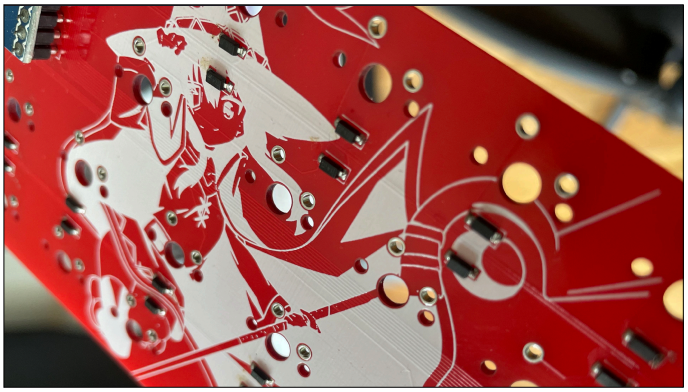
and recoiled in horror at the cost.



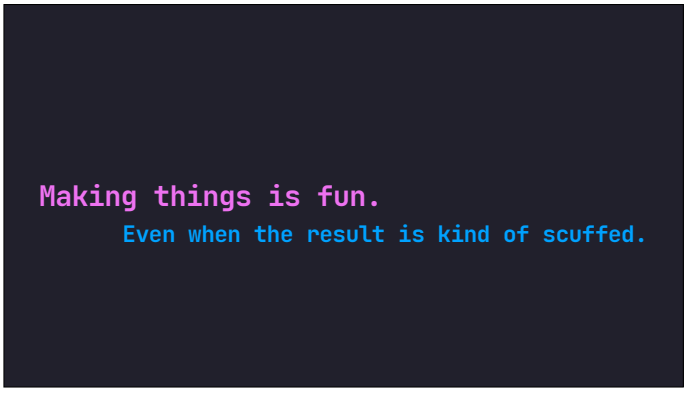
So I bought a 3D printer instead. Which I had to learn how to use.

I had to print the case in several parts,



and my PCB came back. And despite my last round of pain, I couldn't resist surface mount diodes.

after assembling and testing I now had a functional Keyboard I'd built myself. So what have I learned?



I've learned that learning, and making things, is fun. Even when the result is kind of scuffed.

Keyboards are expensive.

And I've learned just how much time effort and money goes into our beloved shiny rectangles.

And I've learned to appreciate the endgame.

I don't think I need a Kyuu anymore...

Or, my scuffed little 40%.

But I'll be happy if they keyboard and the journey, help inspire a new generation.

My daughter really enjoys her new Keyboard.

Thanks.

Thanks.