The Journey  
[Very First step of prototyping 3](https://www.instagram.com/p/B-N3lL2hwHD/)

[Post of it functioning complete on protoboard 1](https://www.instagram.com/p/B_WESoFh5NI/)

[My Protoboard Circuit All Dressed up and working 3](https://www.instagram.com/p/B__RywsBV-a/)

[Testing the placement of parts on a pinned up circuit](https://www.instagram.com/p/CByNyPFh1VK/)

I made this mostly for the practice of using easy eda. I really learned a lot from manually routing to using ground planes.  I was inspired by a Cem VCO Design that had the sections laid out and labelled very well for beginners.

I made it to be stackable if you wanted to have a standalone unit with 2 CV Joysticks or 1 built in Joystick on a panel and 1 wired to an external jack. The jacks are all panel mount and in meant to be on a panel that is decently sized/ non standard.

The +/- Voltage addition led incitation was a little bit tricky. I was using Voltage Follower until I noticed the Blue/Red LED had a different Forward Voltages. So I changed it to a Non-Inverting Amplifier too overcomes that problem. The only problem is that It only displays down too 500mV of output. Still works well for a display. But If I ever want to display it more accurately. I would have to think of another method. Like a Voltage -> current control method.

The second schematics are one for easy reading. Then the PCB one was too fix the nets on the Tl072 that I couldn't get the pins reference detected when going from Schematic  -> PCB

Forum Post about it. <https://lookmumnocomputer.discourse.group/t/witches-brew-stick-cv-joystick-module-v-1ish/1239/19>