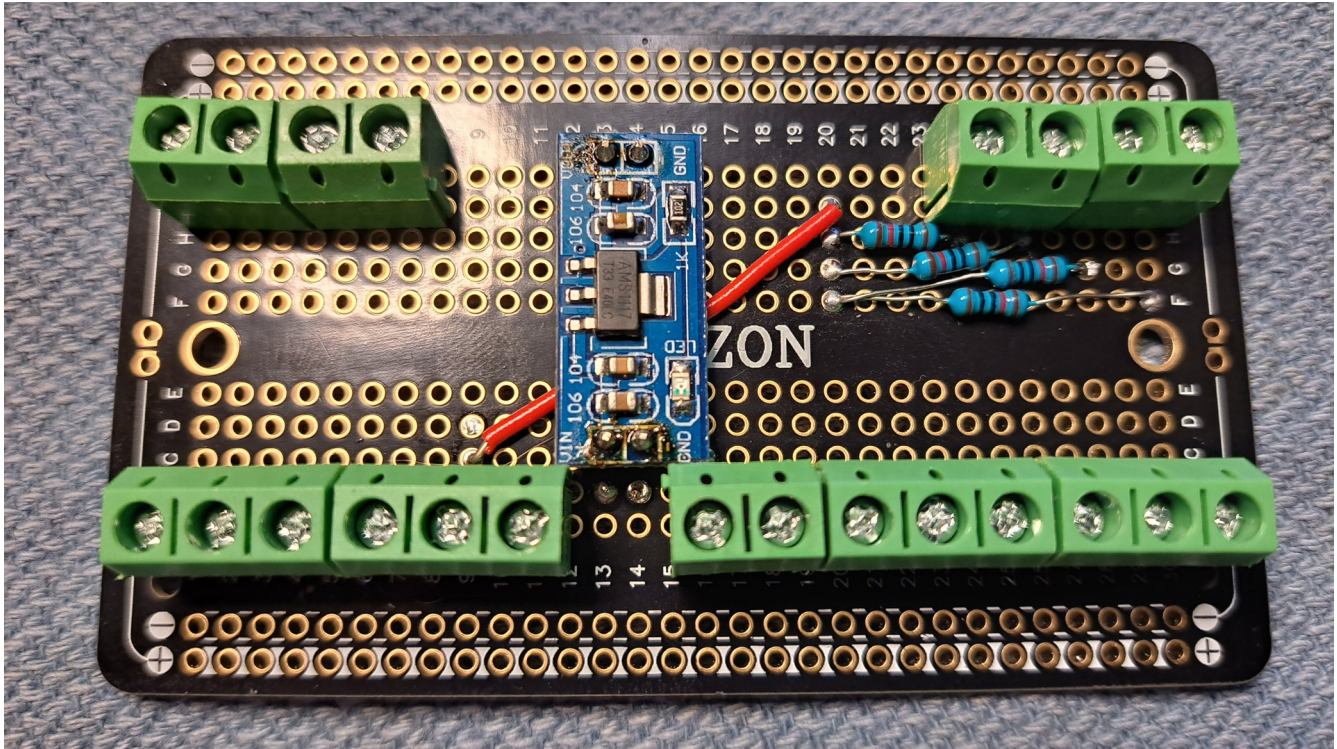


I almost always base my projects on PCB clones of breadboards to make planning easier. In rare cases, I will use plain old point-to-point boards if it doesn't involve a lot of jumper connections. Here's a link to the boards I used in the photos.

<https://www.amazon.com/gp/product/B0BP28GYTV/>



There are three PCBs that require soldering and that's the power break out board (pictured above), the valve controller board, and the interface board. Luckily, none of them involve anything painfully complicated.

The power break out board receives 5 volts from the buck regulator provides a set of power distribution terminals. Six for 5 volts, four for 3.3 volts, eight grounds, and set of four pull up resistors for the servo valve limit switches.

The pull up resistors are 10K and feed from the 5 volt supply. The 3.3 volt supply was an after thought, or I would have fed 4.7K resistors from there.

The little blue board in the middle is an AMS1117 3.3 volt 800 mA regulator that feeds from the 5 volt supply and outputs to the four terminals in the upper left. Below is a link to these regulators.

<https://www.amazon.com/gp/product/B074FDLCLB/>

Thus far, I am only using the 3.3 volt supply to power the small speaker that I use for the Raspberry PI audio output.