

Version 1

The frame was cut on the Shopbot CNC router at FabLab Manchester from 20mm MDF, then contoured around the top to give it that oldschool etch-a-sketch shape.

We sanded the edges, painted it red and attached some legs using M6 Coach bolts and wing nuts. This made the legs removable, to make it easier to transport.

The knobs were built next, two CNCed MDF circles were center-drilled, and had a channel cut into them to allow an M8 hex-head bolt head to be held in place. Acrylic washers and Skate bearings were used to make sure the knobs could spin freely in the holes cut for them.

Next, we had to attach the knobs to some encoders. The quadrature encoders used were low resolution, at only 16 notches per rotation, so Bob laser cut a 16 tooth gear to fit on the quadrature encoder, and a second, 64 tooth one to attach to the knob itself. Raiding the scrap bin for more chunks of acrylic, he also cut out a frame to hold all the gears in place. This gives a 1:4 gear ratio, for each turn of the knob, the quadrature encoder outputs 64 state changes, a far more acceptable resolution.

The screen was made from a piece of cotton sheeting we found at the madlab, which was thin and white enough to allow rear projection.

Category:Project-A-Sketch

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