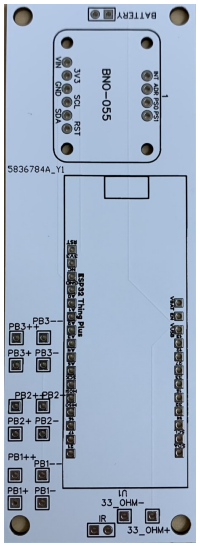
Step By Step VR Pen Guide:

Required Parts:

Can be found in the parts list of the GitHub.

Pen Construction:

To construct the pen, look at the provided schematic and the PCB board. You will solder the proper parts onto the PCB.



Setting up Bluetooth:

Make sure the Bluetooth chip is plugged in and all microcontrollers have power. Then connect the Bluetooth one by one for each microcontroller, making sure to make the pen the last one connected.

Pen Calibration:

If the position of the pen in VR does not correspond to the current real-world position, a calibration is needed. To calibrate the pen, follow the steps below.

1. Point the pen in the direction you consider forward or facing the cube within the environment, the default position is facing South.
2. Hold the pen so that the pen is flat and the push buttons are facing upwards.
3. Push the third button, which is the one furthest away from the tip of the pen (labeled PB1)

Drawing:

Once everything is set up and the environment is on, you can start to draw. You draw with the button that is closest to the tip of the pen also labeled PB3 on the schematic. If you decide to change color, linewidth, or texture then you need to press the middle button, labeled PB2. You will use your left-hand VR headset controller to scroll through the menu and select the desired setting. Then all you have left to do now is enjoy yourself immersed in this environment.

Other information:

For other information, look at the UTA CSE blog website under 2023 VR 3D Pen. There is a project description and demo videos about the OmniPen.