

## Hardware (July – December 2020)

### Shopping List

£300 CombineReality Deck X Kit A (buy Kit B if you don't have access to a 3d printer for +£100)

£110 Intel T261

£100 Ultraleap Stereo IR 170 (or use a Leap Motion Controller if you already have one)

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£510 Total Cost (£610 if you don't have access to a 3d printer)

### 3D Printing

I started printing the parts ([which are now available here](#)) between July and September,

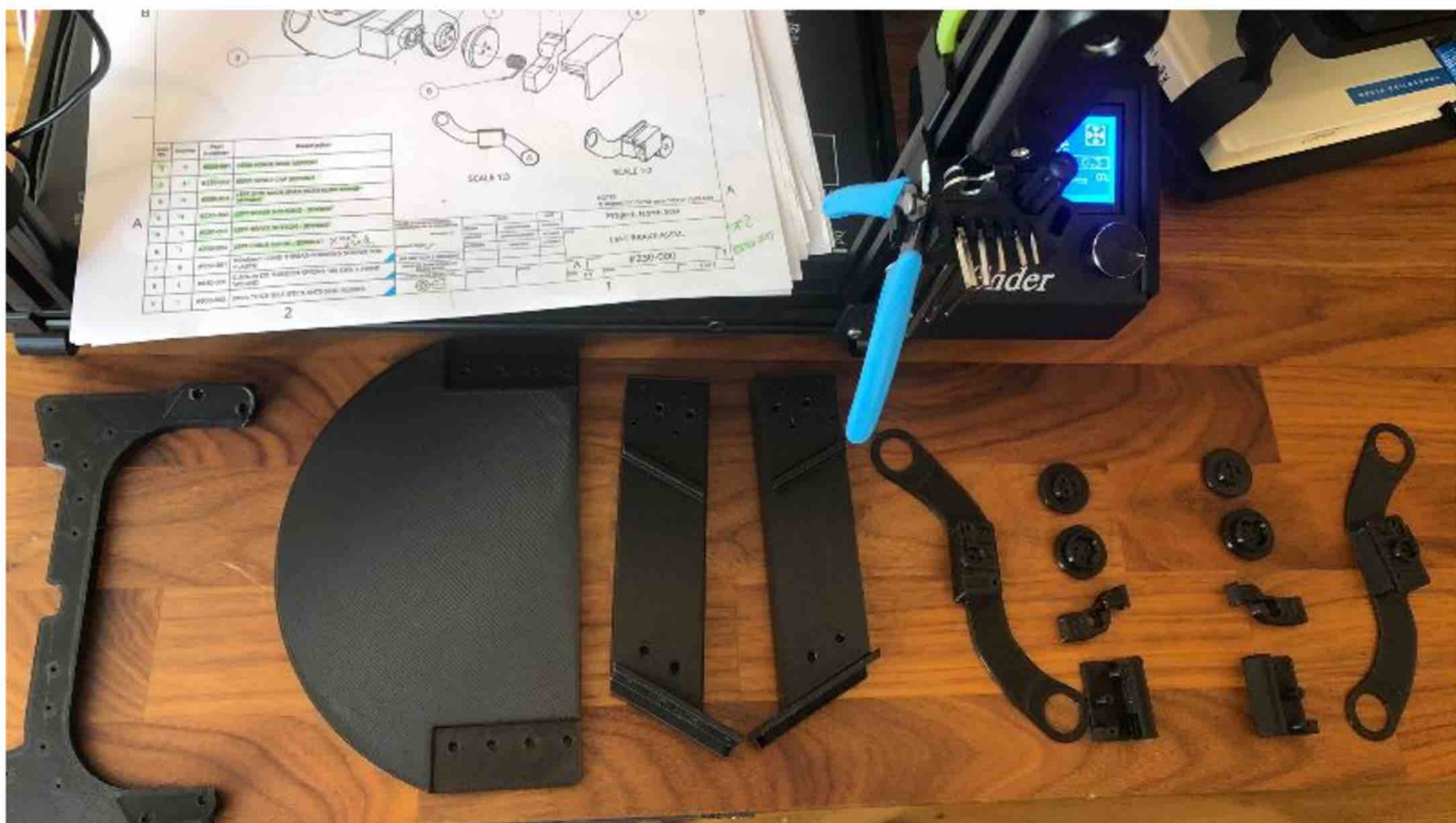
### Electricals and Sensors

Building the headset involves assembling the electrical components and the sensors into the 3D printed parts.

For the Deck X, these electrical components are:

- Intel T261 (6DOF Sensor)
- Ultraleap Stereo IR 170 (Hand Sensor)
- Display Board (The board which provides power to the two displays, and receives their signal via a mini Display Port cable)
- CombineReality Integrator (CR's solution to reduce cables: in older iterations of the HMD, you needed a USB cable to power the display board as well as each of the sensors. This amounted to four cables. The Integrator 'integrates' everything with one unidirectional USB C – A cable.
  - It contains a USB C hub to power and relay sensor data from two USB 3.1 and one USB 2.0 connectors
  - Sends power to the Display Board via a connector and capacitor board.
  - Contains a 3GB on-board flash drive
  - Features an arduino-compatible microcontroller (allows further sensors, and integrates the D-Pad on the lid)
  - Power for a fan to cool the T261 and all other inner components
- Lid D-Pad (CR's 6 button solution to allow hassle-free calibration and easy resetting)
- Capacitor Board (to power the Display Board from the Integrator)
- Screens (two screens that add up to a 2880x1600 120Hz display extension to your computer)





Some photos of my 3D printing process. Around January I updated to the Ultraleap Stereo IR 170 hand tracker from the Leap Motion Controller, which offers higher field-of-view. This required a reprint of the main optics bracket which is why the headset might look different in some pictures further along the process

## Assembly

The full assembly guide for the CombineReality Deck X version of the North Star HMD is available [here](#).