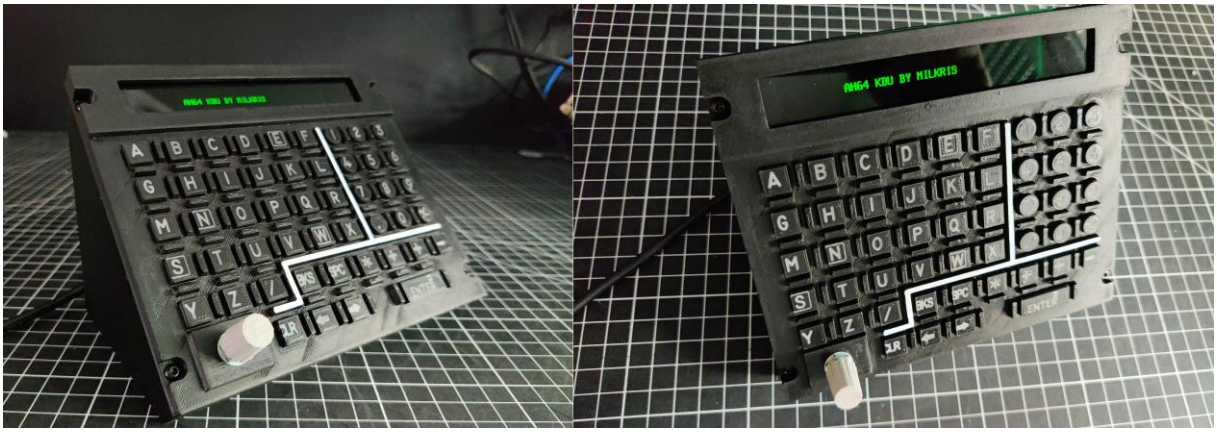
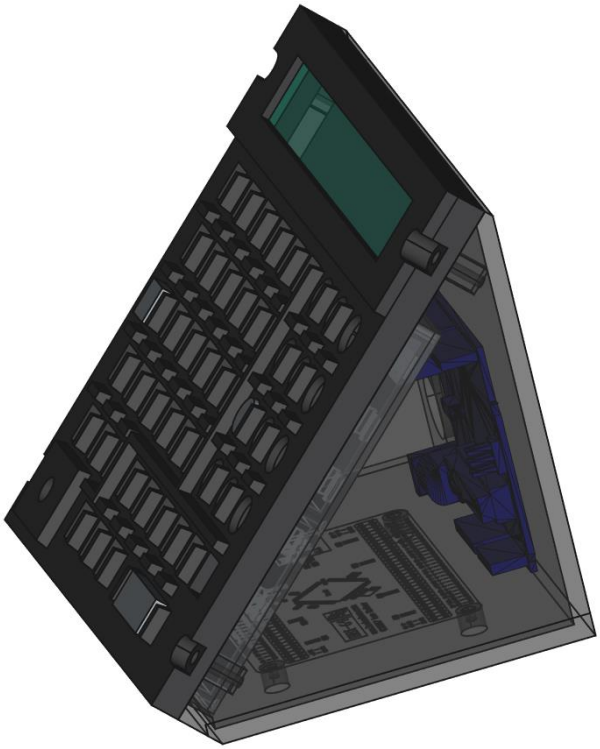
MilKris‘ Keyboard Display Unit (KDU) for the DCS AH64D Apache

DISCLAIMER: I’m not a professional maker! It’s not perfect, but it works and I’m fine with the result. Here and there, some filing, drilling, and gluing mightbe necessary...

WIP: Buttons with raised Labels will be added soon…





You need:

50x 6x6x4,3mm Tactile Switches: https://www.amazon.de/Tactile-Switches-Button-IDGTTLDF-6x6x4-3mm/dp/B0DHN6QC63?th=1

1x Arduino UNO: https://www.amazon.de/Entwicklungskarten-Mikrocontrollern-Binghe-elektronische-Kompatibel/dp/B0DKX16PJT?dib=eyJ2IjoiMSJ9.-GyPB7HIcD3yPWLup1mEPiO0Wjg_9vk9AM3WGiiQ3ZXlRwz2utOf9JkfcthwLy0JsjpFQaMuiTxYaY7YiOCHgF603G5ZY4uaZ1h8bBS-o867a_1Q9Tb84MTR4D-trdAbmnVSXXPYqnZoSyKX0TeRXiqEHiOPOmVKBUXk8AOsp3lCFy-8L0Nz3ECF-cGFAMRimYRK52lNtGqIYe9KZfDdyTqi5ZIzOIDRMFcTg-bhJ3U.LEijxbTuxPC67ruhNkmPg6gHn0kl2ZxW8QCsaMkzSmM&dib_tag=se&keywords=arduino+uno&qid=1739455679&sr=8-17

1x SSD1322 SPI OLED: https://www.amazon.de/OLED-Display-SSD1322-Grafik-LCD-Modul-Parallel-L%C3%B6tstift-wei%C3%9F/dp/B0DQ52MRX1?source=ps-sl-shoppingads-lpcontext&ref_=fplfs&psc=1&smid=A9KVXEOZANNPE

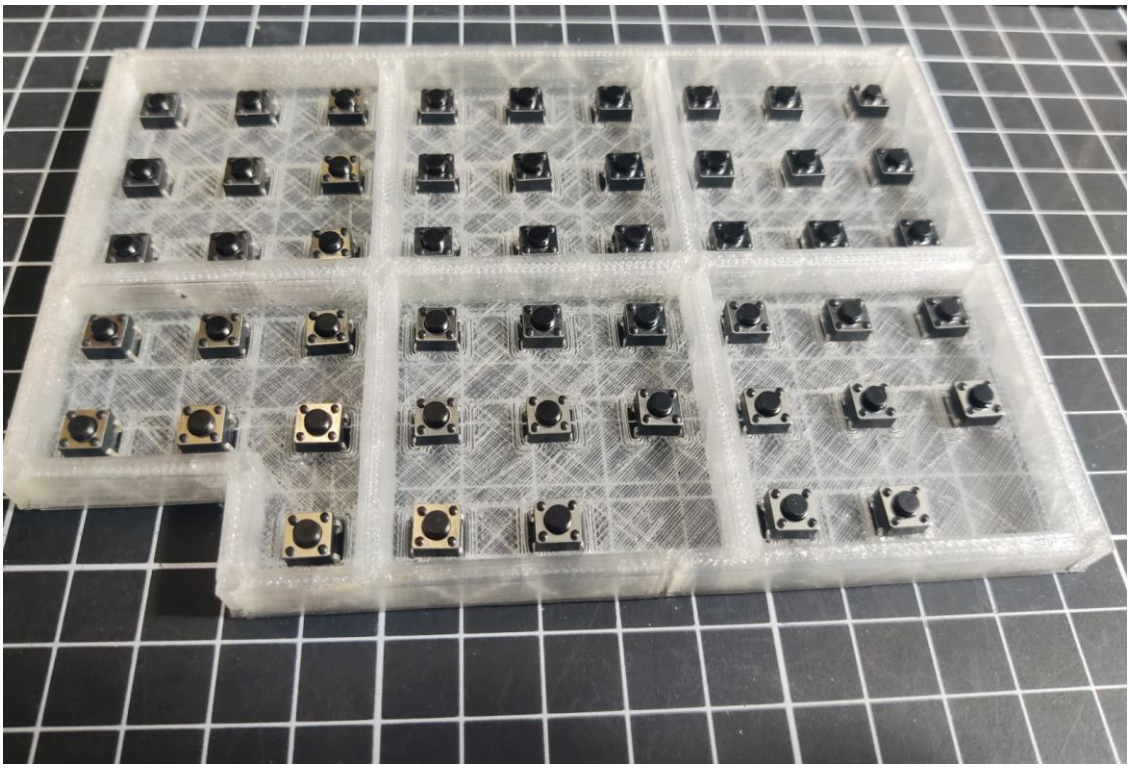
1x Rotary Encoder: https://www.amazon.de/Drehgeber-Drehwinkelgeber-Digital-Potentiometer-Encoder/dp/B0B63YN466?crid=BJCBX1ZRUE4Z&dib=eyJ2IjoiMSJ9.v4qzrG-nR_M2qWVfLskl3r3gAG7EopqaqFpVIKpxF4RteraOTkzoj6yaOKPL14TYGc2jWgus1q3SEiFL75Lyc28BYXHU2K8SeNbNwpCsJ6Vg5nMULRNwRJ6Uxj7ICXr25UlcgFOb-3piOo0v1sLLtAed3bi3OQrqieZ96s0bh6Isc40fqSFs0EnRit2HuflkEqfBKdsaTWKNQpdv2MtKj7ySbaM5aRN3hzxZqV0DbRGTKGv--0ag832N_qoXJ1pNoslYA7ILRrk8IlrCFuzK9kemtVBpTcHSolBqxi-kwKYLJnmGnGZsJKrRZmxj8P0noU8vwozXeCNM2uiJgmoJ31JzZGqgbn0GpdiFnrUbR8OdaQ8lCqI34VcyjPH3kQz2u68BhEH3EJD5XNeCAhPssJlhK9F5KphpeM_ZMFbVp-n8pHE8SaS2V0XvOyoZ1dMo.wv43IIVzUWdEnMpqotB_RK5SoSf9bwj2iXBWaIC8Qxs&dib_tag=se&keywords=rotary%2Bencoder&qid=1739520345&sprefix=rotary%2B%2Caps%2C103&sr=8-10&th=1

1x Leobodnar BBI64:
https://www.leobodnar.com/shop/index.php?main_page=product_info&products_id=300

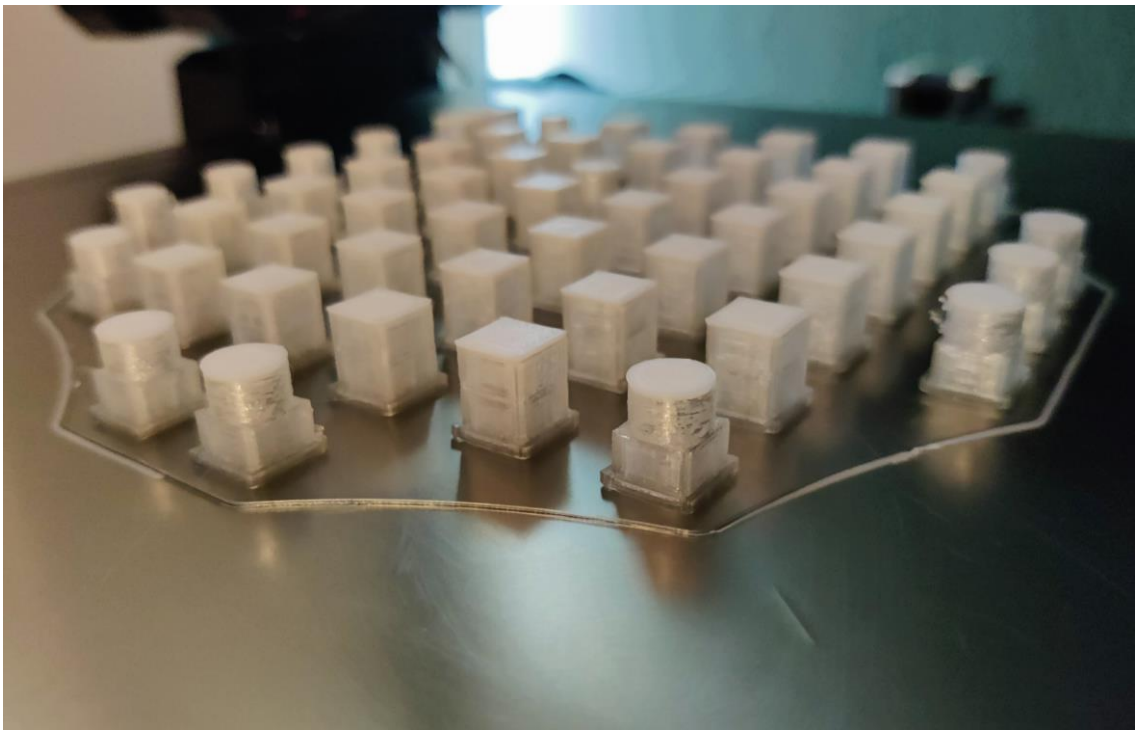
Instead of using the BBI64, you can create your own button matrix for the Arduino and extend my code. However, you might need an Arduino MEGA, as the memory could be too small.

2x green LED Filament:

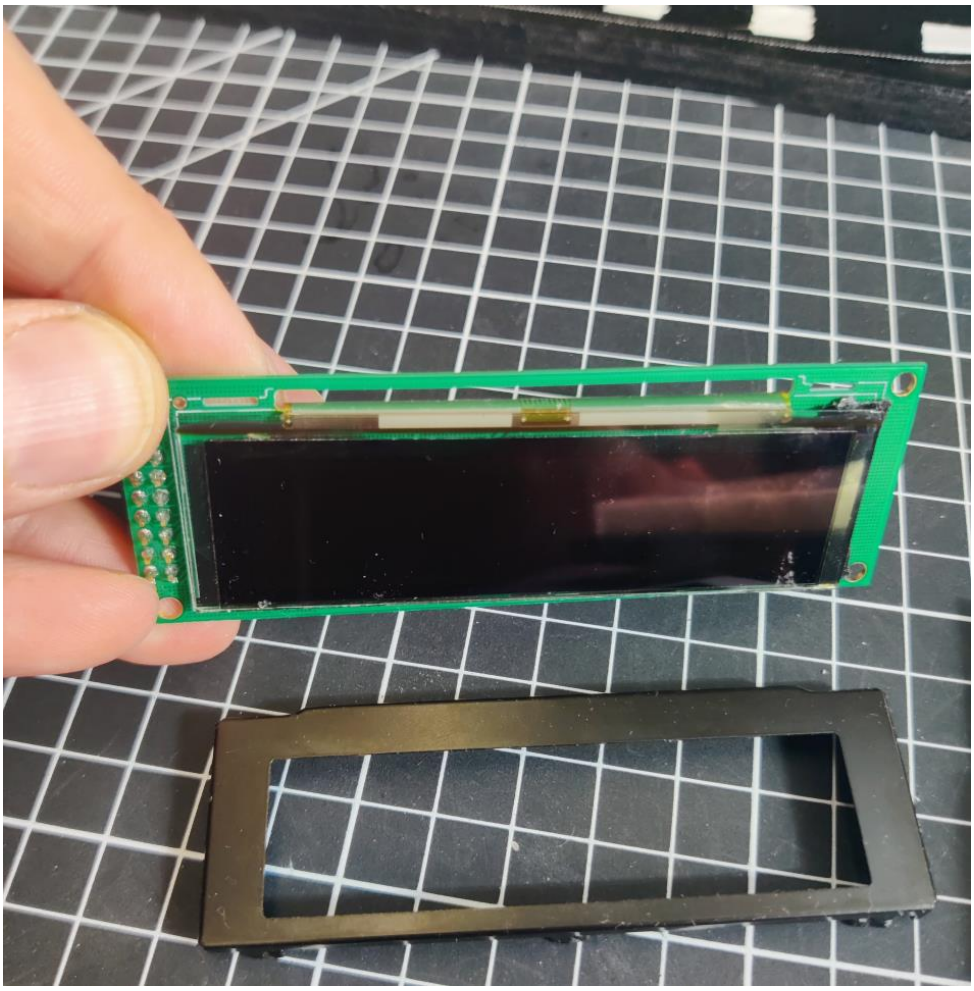
https://www.amazon.de/LISOCLU-Flexibles-LED-Perlendiode-Lichtzubeh%C3%B6r-flexibles/dp/B0DGQ17CBC?__mk_de_DE=%C3%85M%C3%85%C5%BD%C3%95%C3%91&dib=eyJ2IjoiMSJ9.us4Y5oACoc7Vk8tlmFZ68xbk84dToLNiT2758C_uNMxvpO-_vwA9Y6i9jG-7PCsnNSwVx0Sxlv7WQq10fZOYFhu3w879jCbqXo-Y-ORUYPMZbgDdlUrU_7oPkDuGjv4DTNGXNnujj17r4uz9USDAbx6YfNPd4nAbZJZZYLFFGcn3uW8ep5ZecBCmtzVdW50ent--qQ-CyOkZNOvslpSpAtgoZY3nQMClW0Mzf0Zj4g5rqQw27ICXqFxBrfmv5sKjrEoVLaFTxNMOJOSqMytdpWu5uy43fifL_OVNZTsSb4VHM9HJDjPLyRUn3fuej3MXhCezRBJt5IEfB8FyzoDpritIx1rgfosUh3JGaqRmsI-P9MpDt8EH45LEnDPwRF5B0AaX2_3dn745xScEQbqDoa2JaSXo75Mm-cI5gKzkLawPMQL7N3aBiqfc3yb2Bxg3.3z_NiMQb6Ro_yU0_UNk8SAhppodXVby1FKetAXP1tPI&dib_tag=se&keywords=3V%2BLED-Filament%2B110mm%2BRot%2BGr%C3%BCn%2BBlau%2B2700K%2BFlexible%2BFilamentlampe&qid=1739521114&sr=8-3&th=1



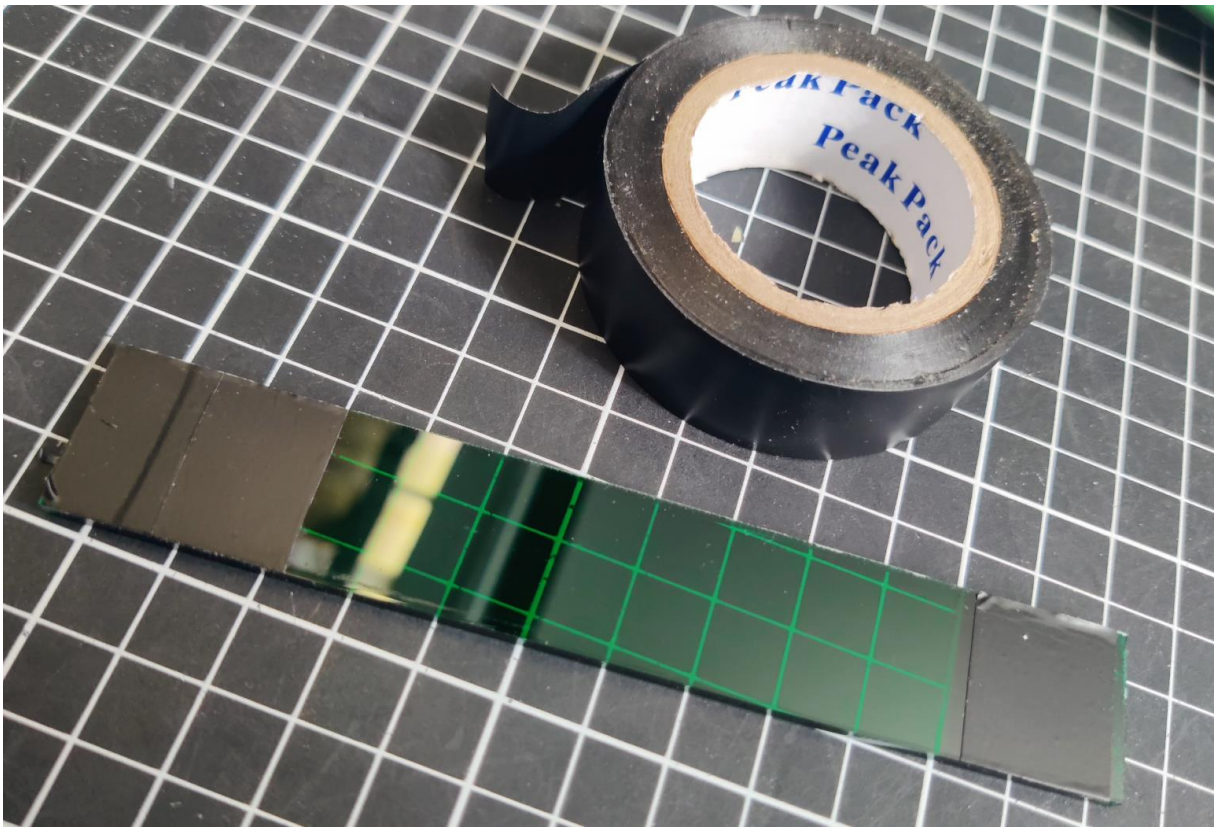
This is the button matrix printed with transparent PLA. This way, it can later be backlit with green LED filament.



The buttons were also printed with transparent PLA. The top three layers were printed with white PLA, making them ideal for backlighting.

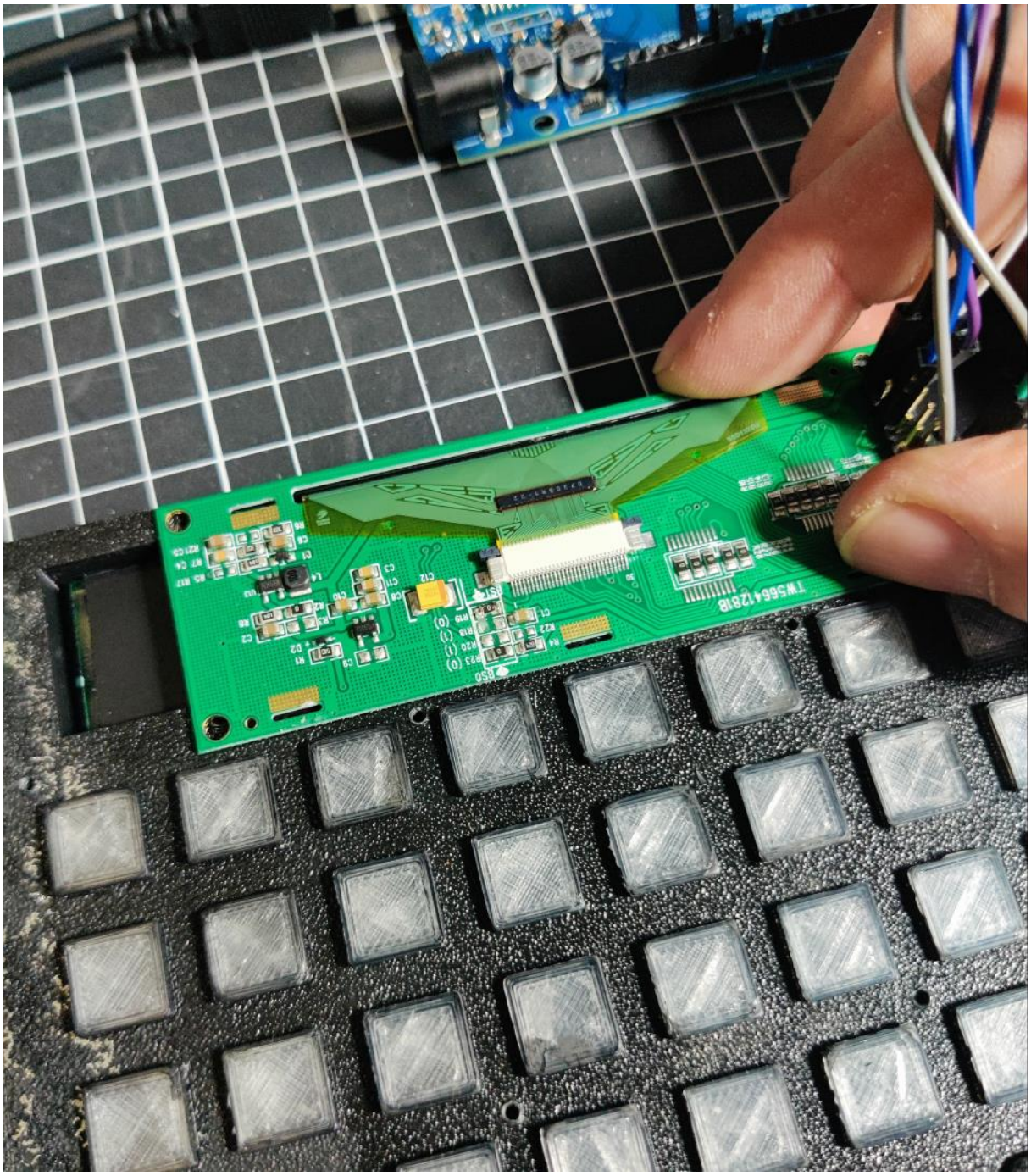


Remove the frame from the OLED Display.

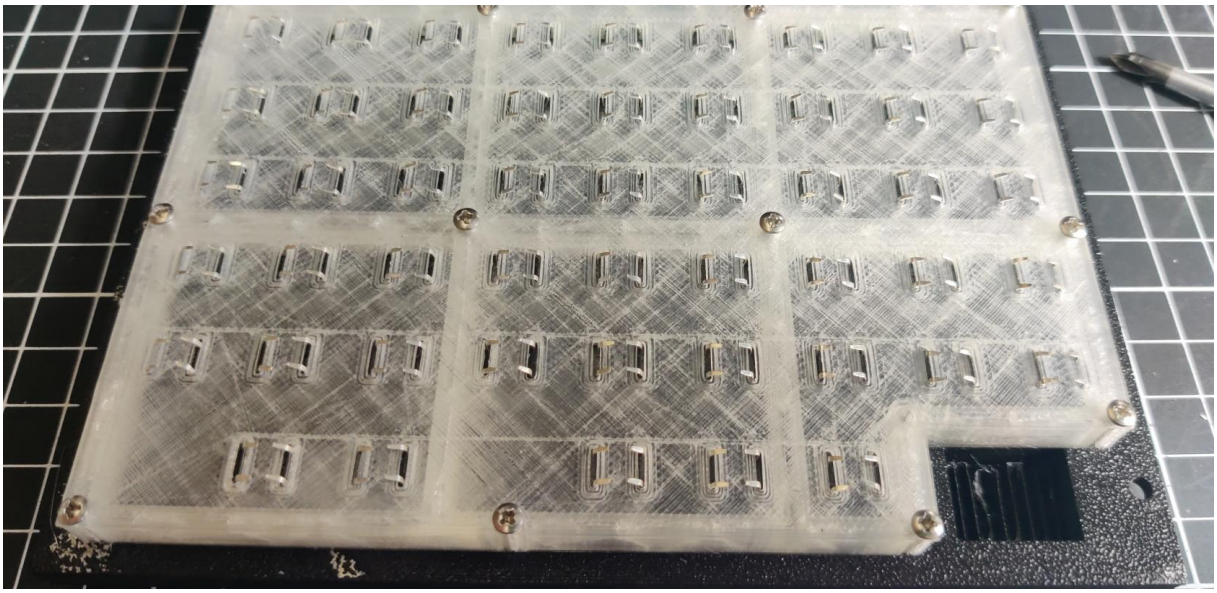


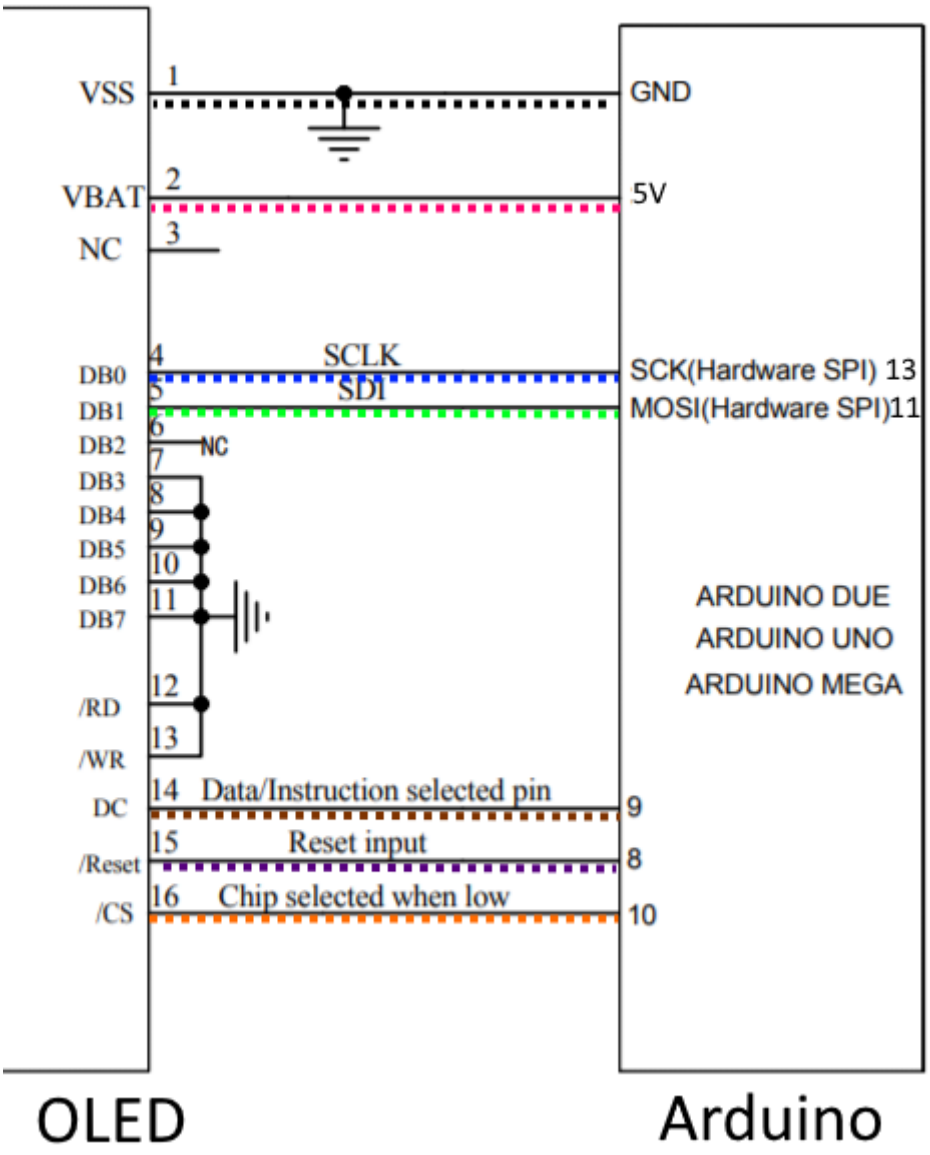
Instead of using the **KDU-OLED.MASK.STL**, I used a piece of green transparent acrylic glass and covered part of it with black insulating tape to prevent light from shining through later.

Use either the acrylic glass or the **KDU-OLED.MASK.STL**.



The OLED is simply inserted and secured by the button matrix. To ensure everything fits together later, the OLED pins need to be bent significantly. Even better, solder the wires instead of using Dupont connectors.





You can switch the display source from Pilot to CP/Gunner by pressing a button. This button is wired to PIN 7. I integrated this function into the push-button of the rotary encoder for the KU Scratchpad Brightness Knob.

For the lighting (which I haven't installed yet), I'll use green LED filament. I'll connect it directly to the 3V of the Arduino with a series resistor. I'll glue the LED filament onto the "button matrix" with hot glue. Not the prettiest solution, but it works fine.