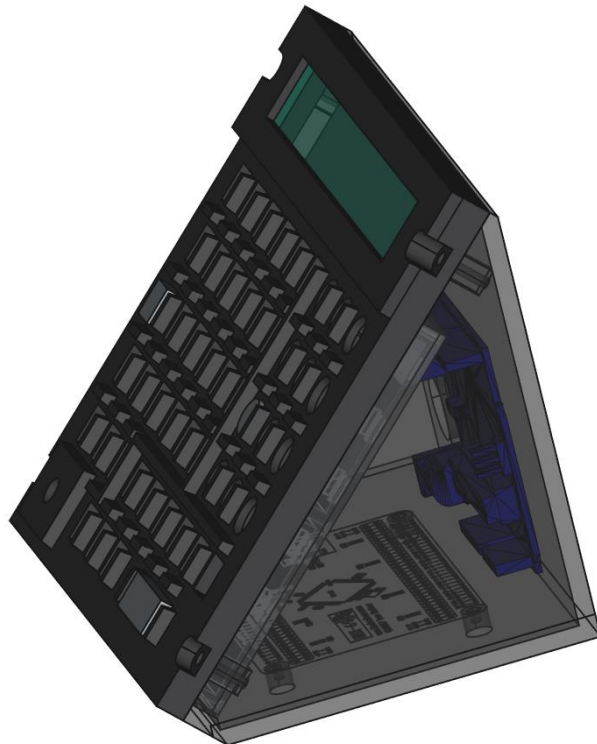
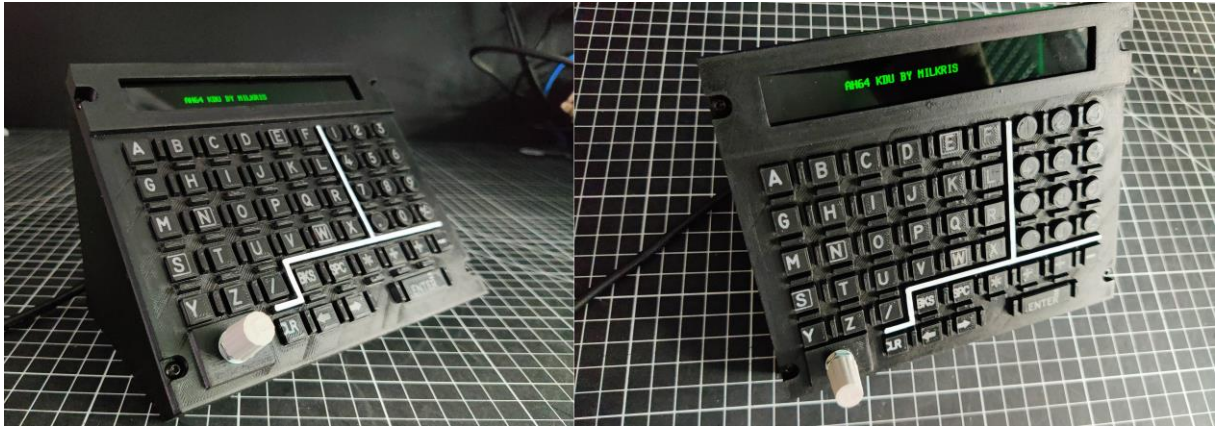


# MilKris' Keyboard Display Unit (KDU) for the DCS AH64D Apache

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 might be 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.-GyPB7HlcD3yPWLup1mEPiO0Wjg\\_9vk9AM3WGiiQ3ZXIRwz2utOf9JkfcthwLy0JsipFQaMuiTxYaY7YiOC HgF603G5ZY4uaZ1h8bBS-o867a\\_1Q9Tb84MTR4D-trdAbmnVSXXPYqnZoSyKX0TeRXiqEHIOPomVKBUXk8AOsp3lCFy-8L0Nz3ECF-cGFAMRimYRK52INtGqIYe9KZfDdyTqi5ZlZOIDRMFcTg-bhJ3U.LEijxbTuxPC67ruhNkmPg6gHn0kl2ZxW8QCsaMkzSmM&dib\\_tag=se&keywords=arduino+uno&qid=1739455679&sr=8-17](https://www.amazon.de/Entwicklungskarten-Mikrocontrollern-Binghe-elektronische-Kompatibel/dp/B0DKX16PJT?dib=eyJ2IjoiMSJ9.-GyPB7HlcD3yPWLup1mEPiO0Wjg_9vk9AM3WGiiQ3ZXIRwz2utOf9JkfcthwLy0JsipFQaMuiTxYaY7YiOC HgF603G5ZY4uaZ1h8bBS-o867a_1Q9Tb84MTR4D-trdAbmnVSXXPYqnZoSyKX0TeRXiqEHIOPomVKBUXk8AOsp3lCFy-8L0Nz3ECF-cGFAMRimYRK52INtGqIYe9KZfDdyTqi5ZlZOIDRMFcTg-bhJ3U.LEijxbTuxPC67ruhNkmPg6gHn0kl2ZxW8QCsaMkzSmM&dib_tag=se&keywords=arduino+uno&qid=1739455679&sr=8-17)

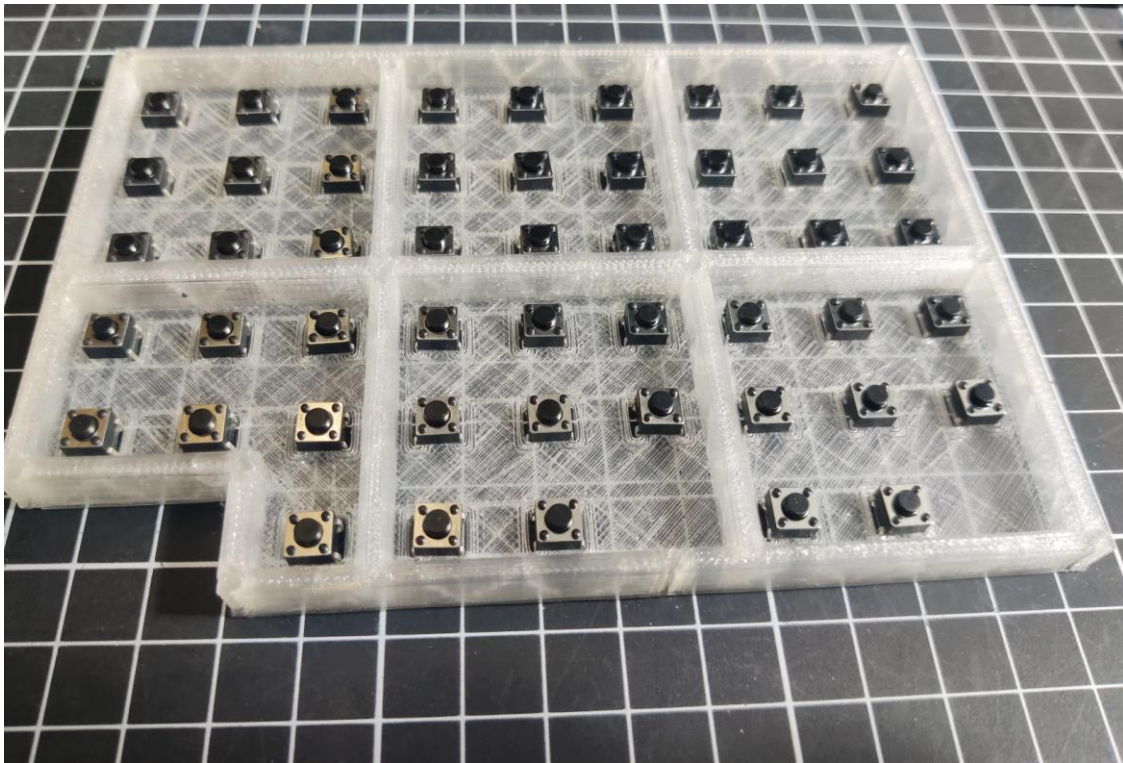
1x SSD1322 SPI OLED: [https://www.amazon.de/OLED-Display-SSD1322-Grafik-LCD-Modul-Parallel-L%C3%B6tstift-wei%C3%9F/dp/B0DQ52MRX1?source=ps-sl-shoppingads-lpcontext&ref\\_=fplfs&psc=1&smid=A9KVXEOZANNPE](https://www.amazon.de/OLED-Display-SSD1322-Grafik-LCD-Modul-Parallel-L%C3%B6tstift-wei%C3%9F/dp/B0DQ52MRX1?source=ps-sl-shoppingads-lpcontext&ref_=fplfs&psc=1&sm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

1x Rotary Encoder: [https://www.amazon.de/Drehgeber-Drehwinkelgeber-Digital-Potentiometer-Encoder/dp/B0B63YN466?crd=BJCBX1ZRUE4Z&dib=eyJ2IjoiMSJ9.v4qzrG-nR\\_M2qWVfLskl3r3gAG7EopqaqFpVIKpxF4RteraOTkzoj6yaOKPL14TYGc2jWgus1q3SEiFL75Lyc28BYX HU2K8SeNbNwpCsJ6Vg5nMULRNwRJ6Uxj7ICXr25UlcgFob-3piOo0v1sLlTAd3bi3OQrqieZ96s0bh6lsc40fqSFs0EnRit2HufIkEqfBKdsaTWKNQpdv2MtKj7ySbaM5aR N3hzxZqV0DbRGTKGv--0ag832N\\_qoXJ1pNosIYA7ILRrk8llrCFuzK9kemtVBpTcHSolBqxi-kwKYLJnmGnGZsJKrRZmxj8P0noU8vwozXeCNM2uiJgmoJ31JzZGqgbn0GpdiFnrUbR8OdaQ8lCqI34Vcyj PH3kQz2u68BhEH3EJD5XNeCAhPssJlhK9F5KphpeM\\_ZMFbVp-n8pHE8SaS2V0XvOyoZ1dMo.wv43IIVzUWdEnMpqtB\\_RK5SoSf9bwj2iXBWalc8Qxs&dib\\_tag=se&keywords=rotary%2Bencoder&qid=1739520345&sprefix=rotary%2B%2Caps%2C103&sr=8-10&th=1](https://www.amazon.de/Drehgeber-Drehwinkelgeber-Digital-Potentiometer-Encoder/dp/B0B63YN466?crd=BJCBX1ZRUE4Z&dib=eyJ2IjoiMSJ9.v4qzrG-nR_M2qWVfLskl3r3gAG7EopqaqFpVIKpxF4RteraOTkzoj6yaOKPL14TYGc2jWgus1q3SEiFL75Lyc28BYX HU2K8SeNbNwpCsJ6Vg5nMULRNwRJ6Uxj7ICXr25UlcgFob-3piOo0v1sLlTAd3bi3OQrqieZ96s0bh6lsc40fqSFs0EnRit2HufIkEqfBKdsaTWKNQpdv2MtKj7ySbaM5aR N3hzxZqV0DbRGTKGv--0ag832N_qoXJ1pNosIYA7ILRrk8llrCFuzK9kemtVBpTcHSolBqxi-kwKYLJnmGnGZsJKrRZmxj8P0noU8vwozXeCNM2uiJgmoJ31JzZGqgbn0GpdiFnrUbR8OdaQ8lCqI34Vcyj PH3kQz2u68BhEH3EJD5XNeCAhPssJlhK9F5KphpeM_ZMFbVp-n8pHE8SaS2V0XvOyoZ1dMo.wv43IIVzUWdEnMpqtB_RK5SoSf9bwj2iXBWalc8Qxs&dib_tag=se&keywords=rotary%2Bencoder&qid=1739520345&sprefix=rotary%2B%2Caps%2C103&sr=8-10&th=1)

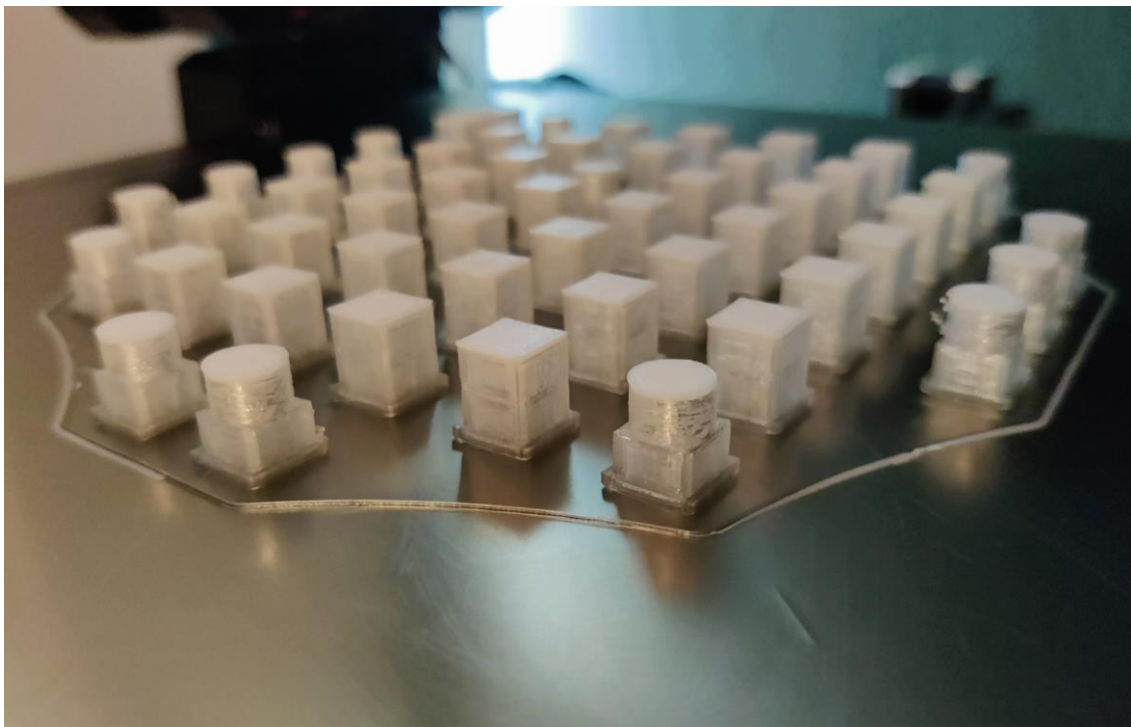
1x Leobodnar BBI64:

[https://www.leobodnar.com/shop/index.php?main\\_page=product\\_info&products\\_id=300](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.

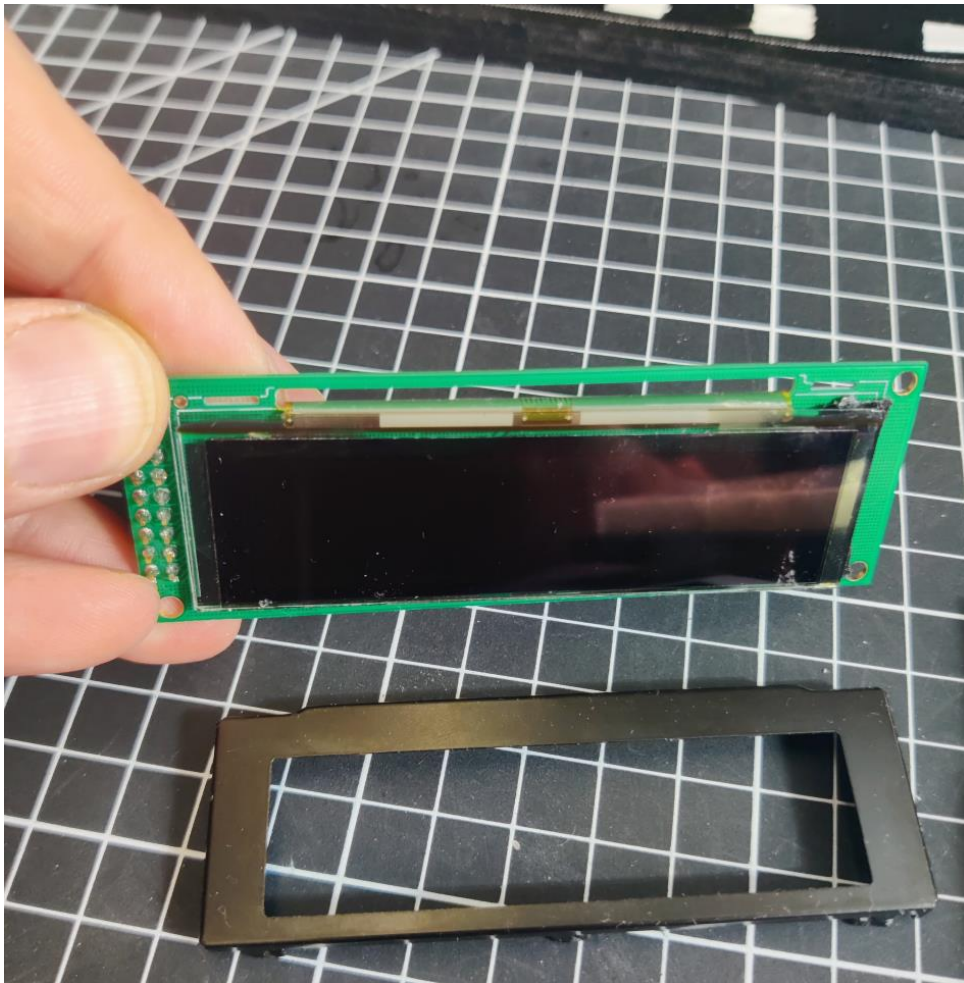


This is the button matrix printed with transparent PLA. This way, it can later be backlit with green LED filament.

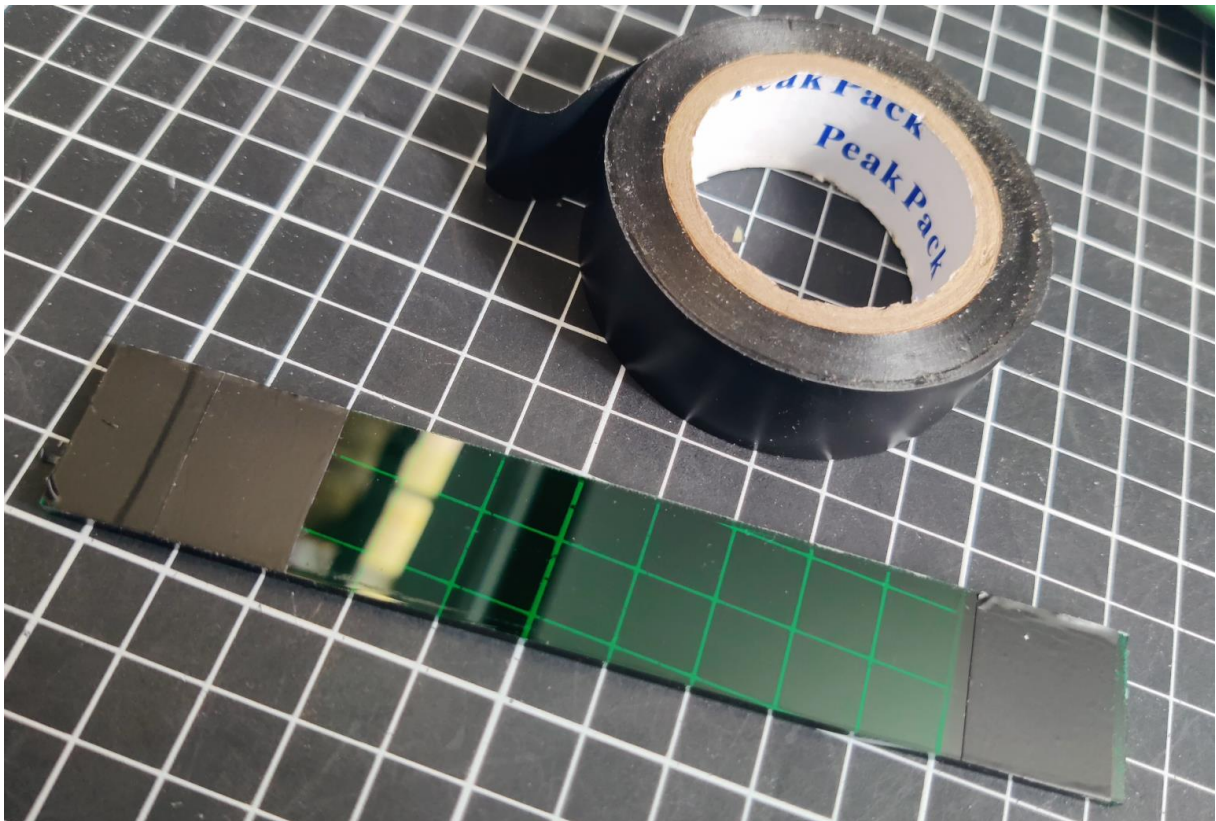


The buttons were also printed with transparent PLA. The top three layers were printed with white PLA, making them ideal for backlighting.





Remove the frame from the OLED Display.

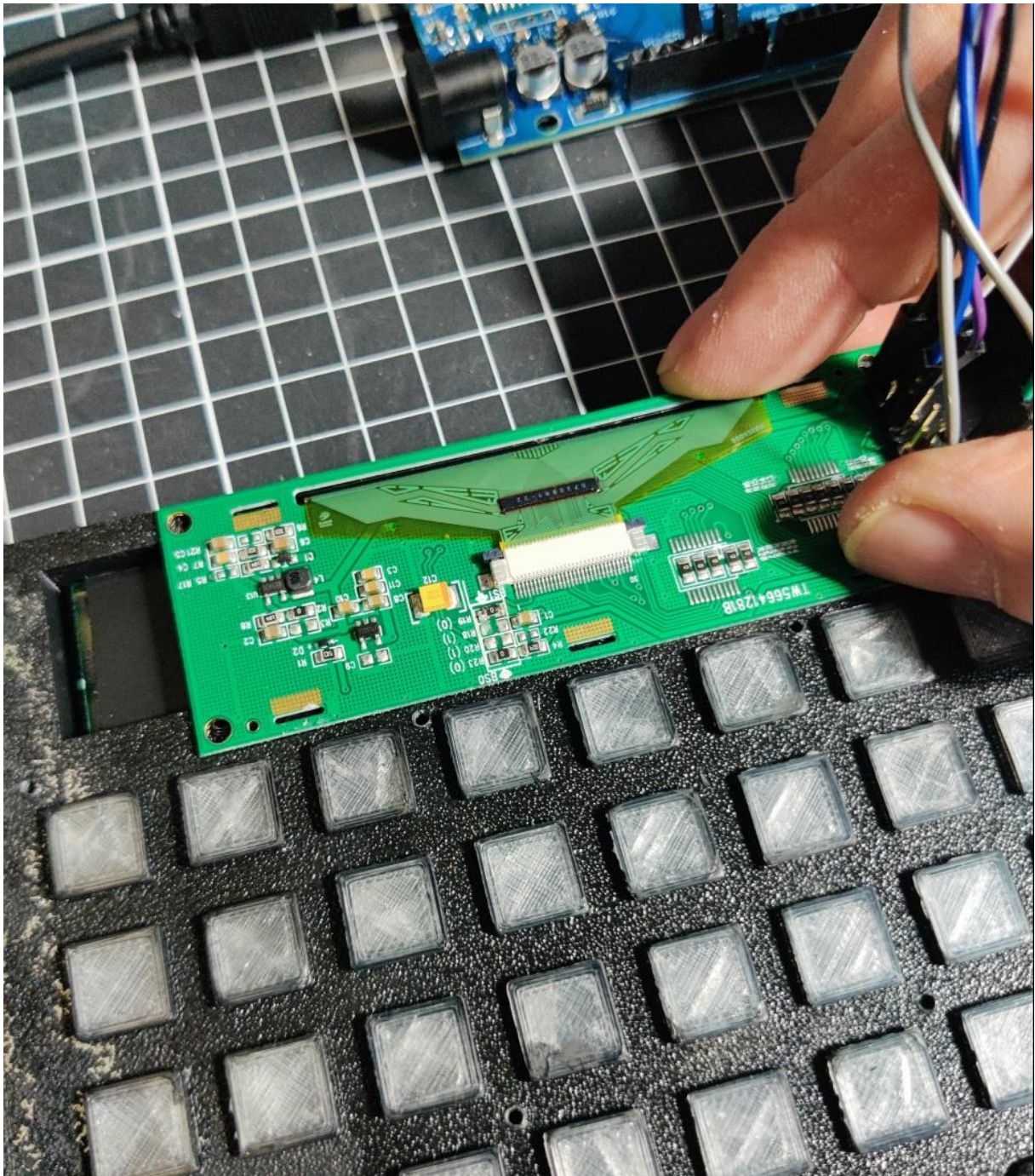


Instead of using the **KDU-OLED.MASK.STL**, I used a piece of green transparent acrylic glass and covered part of it with black insulating tape to prevent light from shining through later.



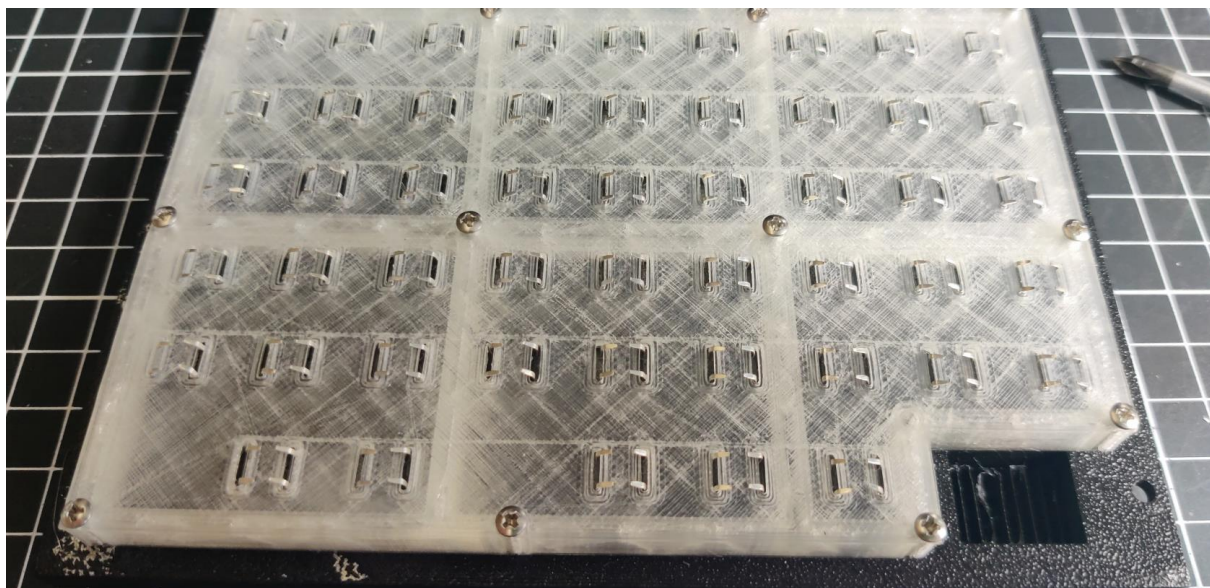
Use either the acrylic glass or the **KDU-OLED.MASK.STL**.

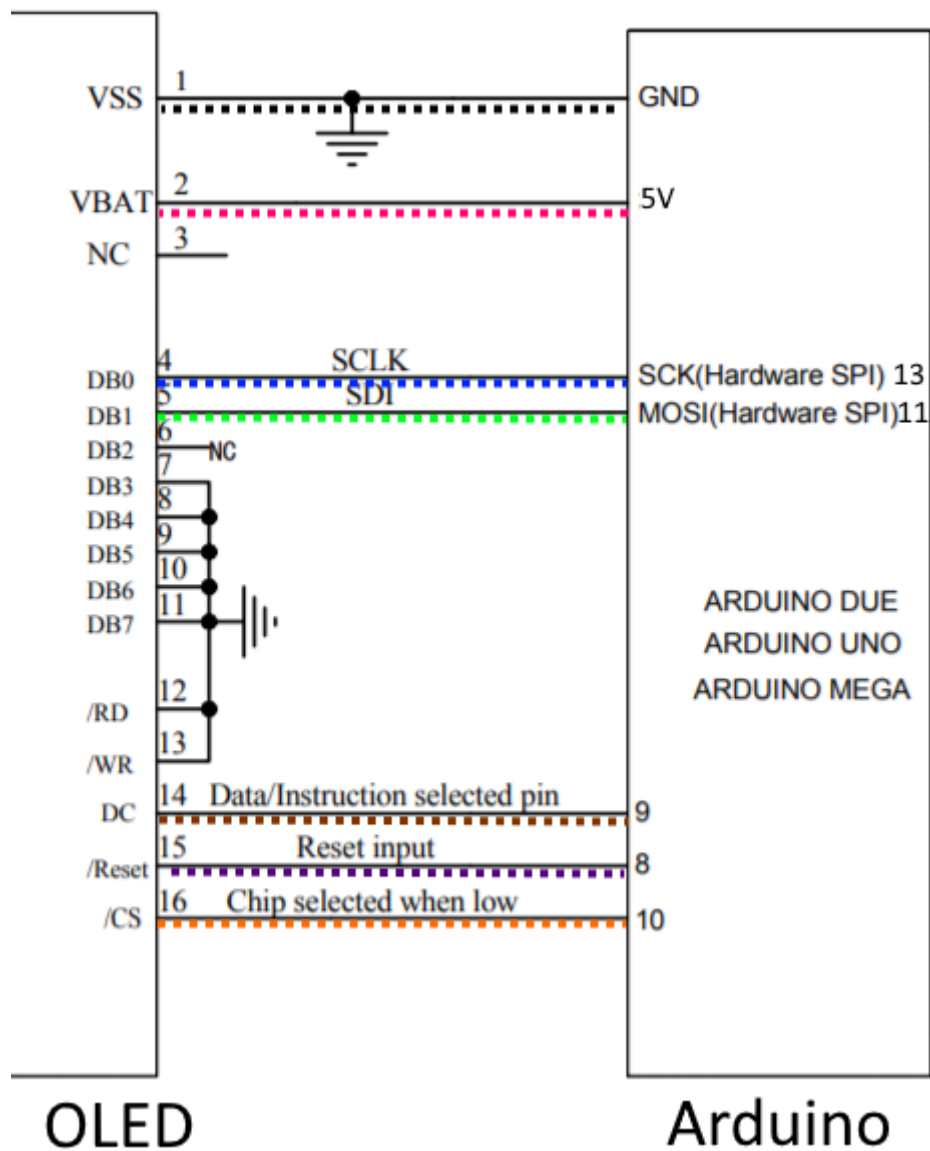




The OLED is simply inserted and secured by the button matrix. To ensure everything fits together later, the OLED pins need to be bent significantly. Even better, solder the wires instead of using Dupont connectors.







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.