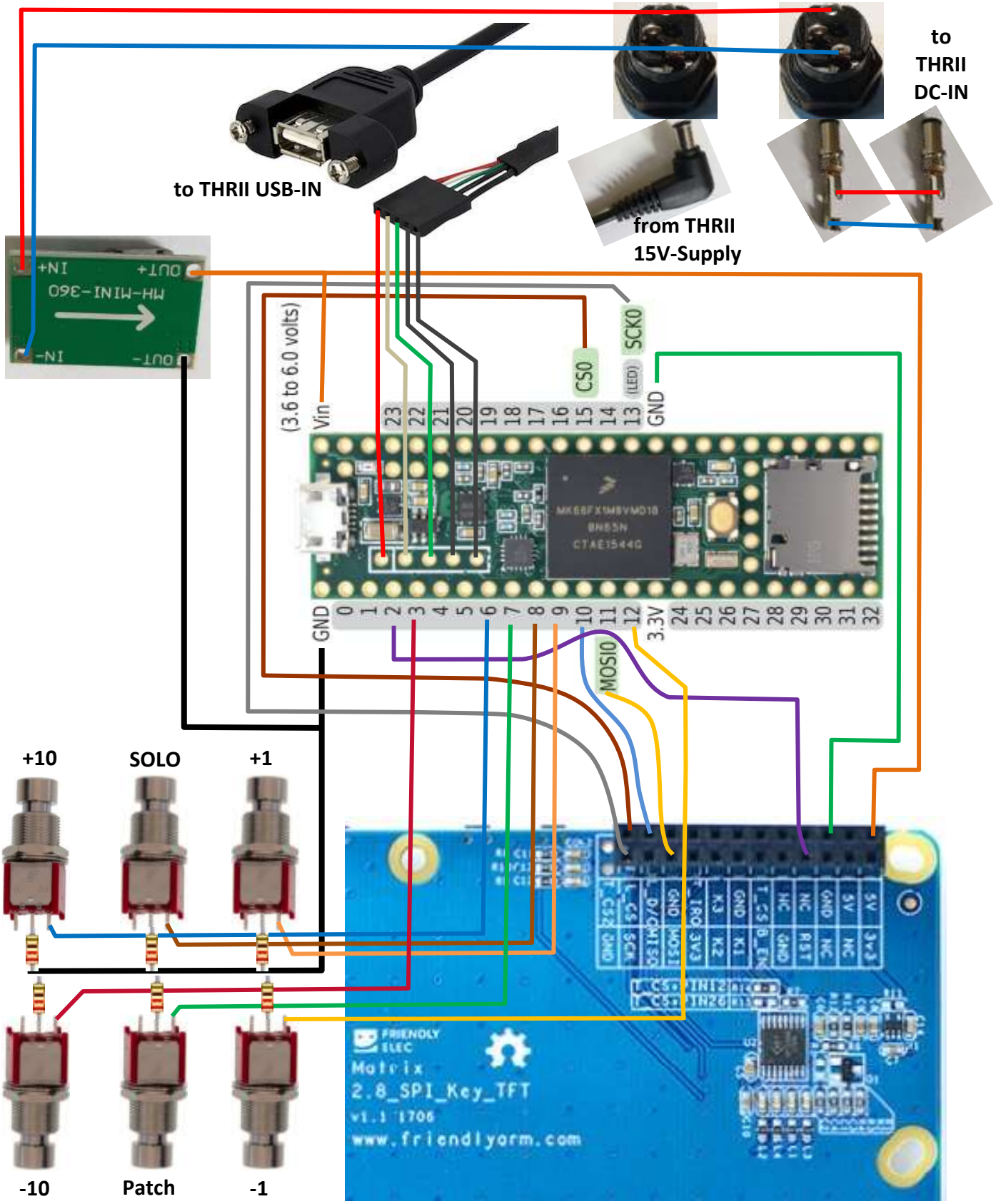
Foot Switch for THRII

Teensy 3.6, 2.8_SPI_Key_TFT, 6 SPDT Switches

Vivid schematic

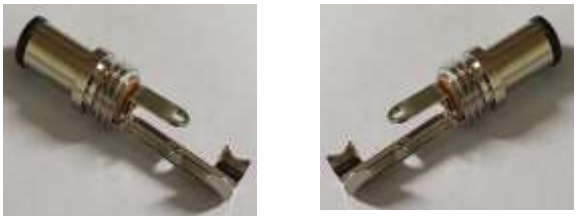


Material and hints

Adjustable 15V -> 5V Converter (be sure to adjust to 5V before connecting to the Teensy 3.6 or 4.1 controller board

Two DC-Jacks (connected in parallel) and fetching 15V-DC from the THRII-Power-supply

Two DC-plugs (connected with wire) and bridging 15V-DC to the THRII

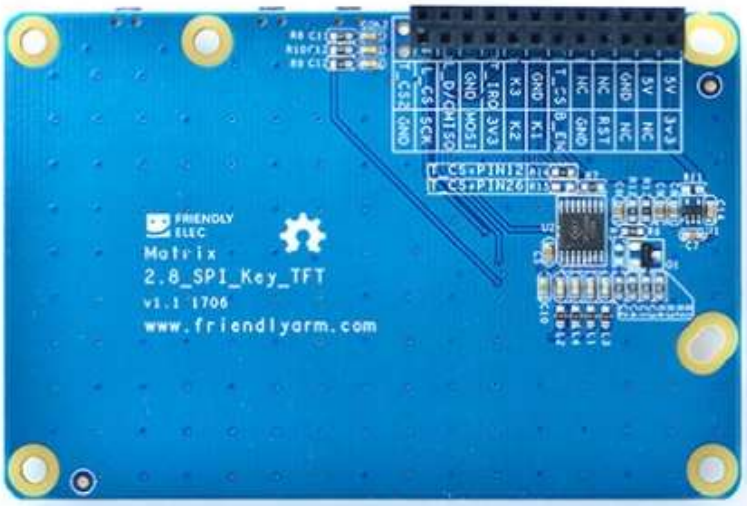


6 foot switches (may be momentary or latching switches – can be adapted in software)

6 Resistors 220Ω

USB-Adapter. Teensy controller will act as USB-host. Plug in the THRII with the supplied USB-A<->USB-B cable

SPI-TFT-Display (touch is not used)



This display is quite cheap and has a good resolution. Normally it is intended for Raspberry Pi.

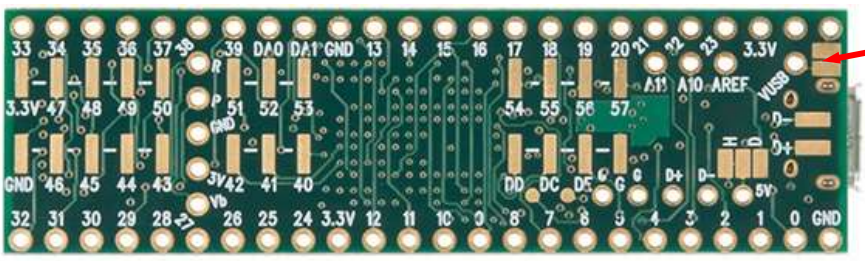
I adapted a speed optimized Teensy-library to make it work.

If you use a different display be sure to maintain a resolution of 240x320 (or you will have a lot of work adapting the software!)

You will need a high-speed DMA-library for the TFT display or refresh is much too slow.

The display has got a touch interface. But touch it is not used and not needed for this project!

Teensy 3.6 or Teensy 4.1 controller (4.1 not tested)
Teensy 4.0 is possible but not advisable, Teensy 3.5 does not work!.



cut V_{in} from V_{USB} here, if you use micro-USB programming jack while supplying with DC-converter!

Links:

TFT-Display:
https://www.friendlyarm.com/index.php?route=product/product&product_id=102&search=tft&description=true&category_id=0

Teensy
https://www.pjrc.com/store/teensy36.html
https://www.pjrc.com/store/teensy41.html

USB-Adapter:
https://www.mindfactory.de/product_info.php/InLine-USB-2-0-Slotblech-2x-Buchse-auf-2x-intern_135296.html
https://www.manomano.de/p/bematik-usb-adapter-2x5-pin-motherboard-2xah-halterung-13324591

Foot switches:
https://www.digikey.com/en/products/detail/e-switch/FS5700SPLT2B2M1QEH/6825401

DC-Jacks:
https://www.digikey.de/product-detail/de/schurter-inc/4840-2230/486-3578-ND/1731063
DC-Plugs:
https://www.digikey.de/product-detail/de/schurter-inc/4840-1230/486-3379-ND/2646638