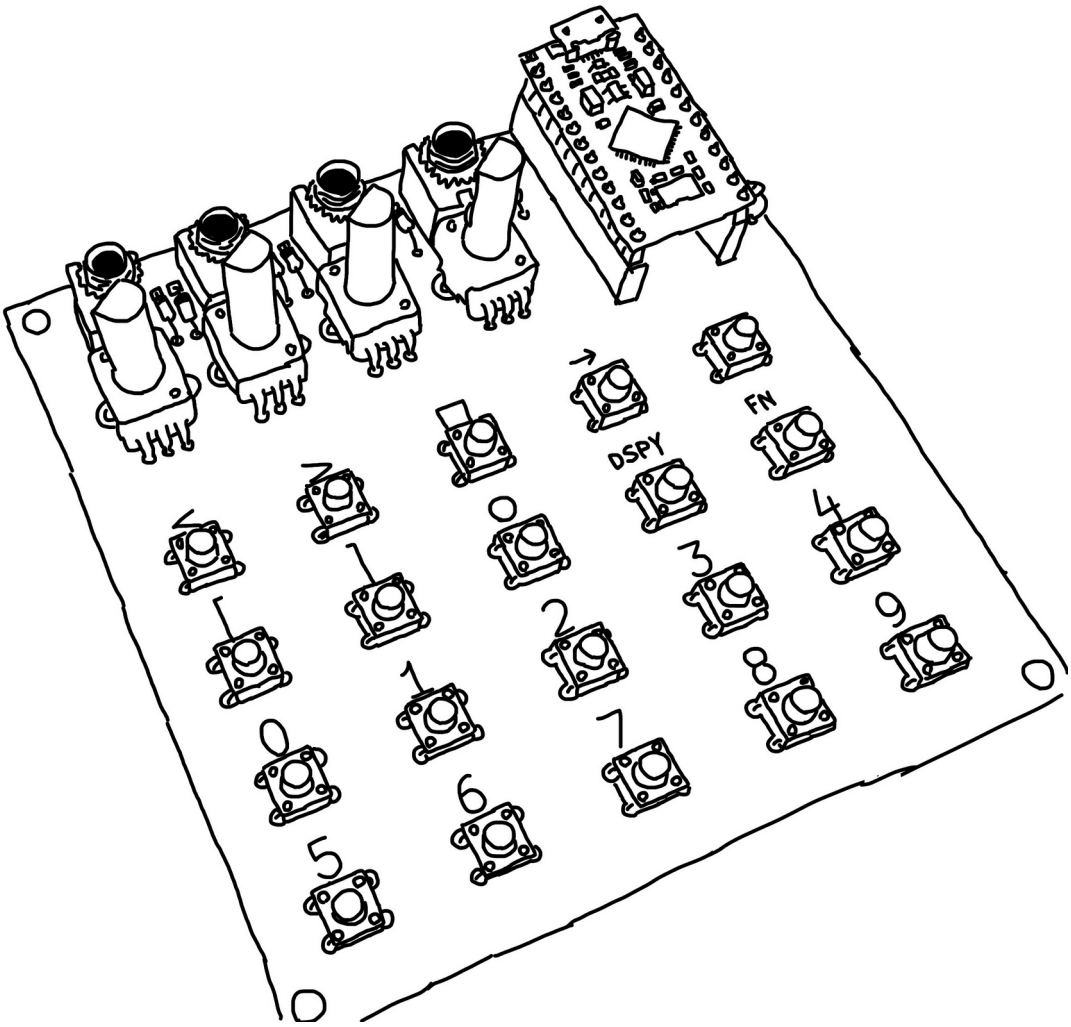
cyberboy666 & underscores.shop present
a r_e_c_u_r video sampler extension circuit

c_l_i_k_r

custom keypad and midi controller

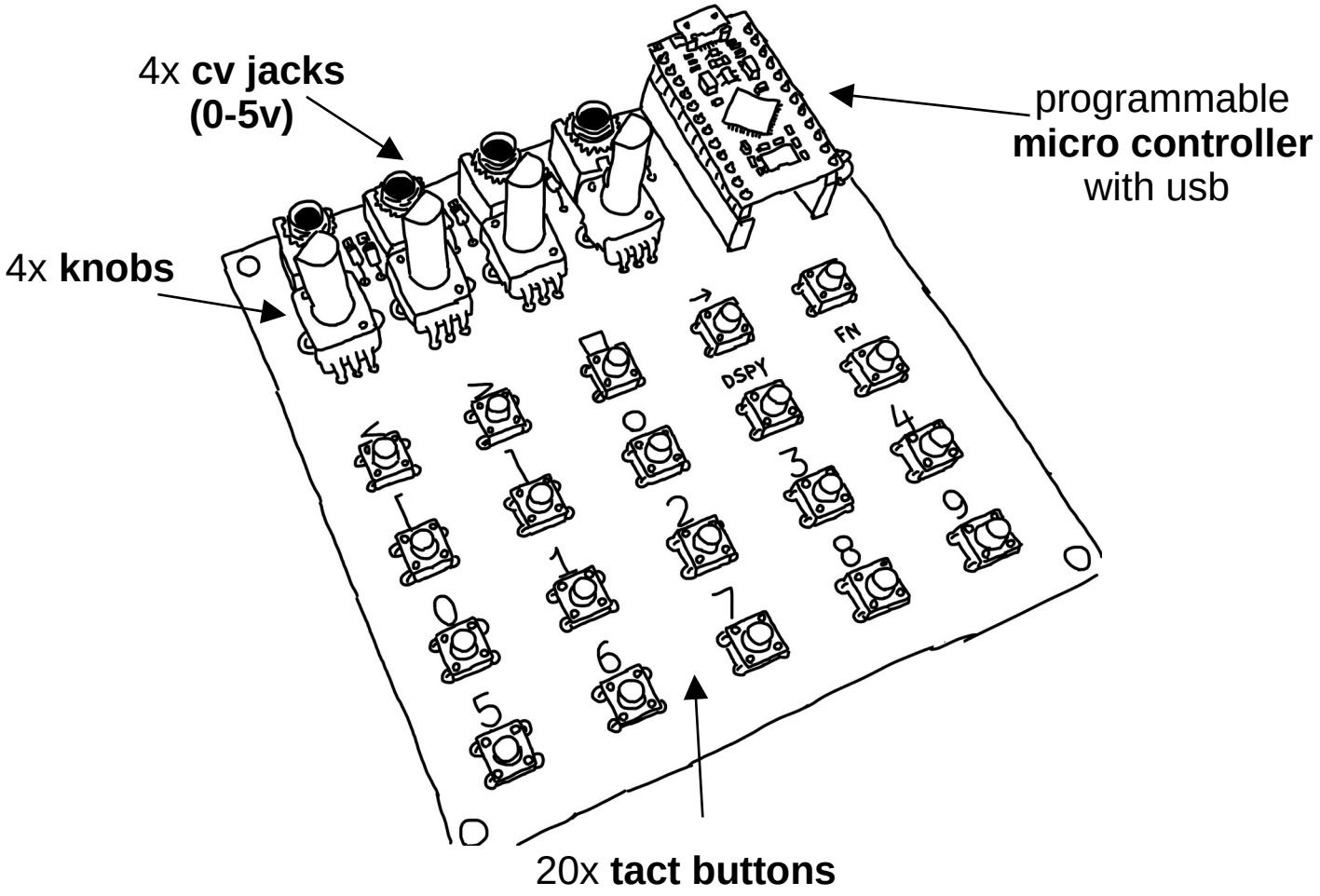


instruction manual and build guide
V0_2_1

View this project online at
underscores.shop/c_l_i_k_r

BACKGROUND

This is a custom controller designed to operate the rpi video instrument r_e_c_u_r. It uses an arduino pro-micro to send key-presses and midi values to the pi over usb:



- 20x **tact buttons** for discrete control over r_e_c_u_r
- 4x **knobs** for continuous control over r_e_c_u_r (eg shader parameters)
- 4x **cv jacks (0-5v)** for sequenced control over r_e_c_u_r (from older/analog synths eg eurorack)
- programmable **micro controller** with editable open-source firmware

BUILD INSTRUCTIONS

Use the Interactive BOM to help place parts - *kutt.it/IaYr8V*

- remember to heat pad first (2-3seconds), then add solder, then continue to heat (1-2seconds) Checkout the web-comic **soldering is easy** for more soldering advice.

- start with the lowest components: resistors, diodes, tact buttons – take note of the direction on the diode - black bar on component matching black bar on footprint

- if you want to be able to remove the pro-micro from the board you will need to solder header sockets to the board – otherwise can directly solder pro-micro header pins

- finally place and solder the pots and jacks. be generous with the solder here -> this is to strengthen the mechanical connections as well as making electrical ones

OPERATING GUIDE

Follow install instructions on the project page to edit and flash the firmware to your pro-micro

By connecting **c_l_i_k_r** to **r_e_c_u_r** with a usb cable the pi should auto-detect it as a *usb-keyboard* – same as with any recur control you need to connect the keyboard before booting to ensure key mapping is performed.

If MIDI_INPUT is set to usb under the **r_e_c_u_r** *user_input* settings then it should auto-detect it as *usb-midi-controller* also.

If you wish to instead connect a different midi device while using **c_l_i_k_r** as a keyboard try the CYCLE_MIDI_PORT action in settings

The default mapping outputs *channel0: cc0 – cc3* on the 4 knobs and cv inputs of *c_l_i_k_r* – this can be customised by editing the *c_l_i_k_r* firmware. Tact buttons do not send midi by default but this can be enabled also in the firmware

Since c_l_i_k_r doesn't currently send **key_release** commands you will need to turn off *gated* presses in r_e_c_u_r menu:
- settings → sampler → FUNC_GATED==**off** & *ACTION_GATED*==**off**

CREDITS AND MORE INFO

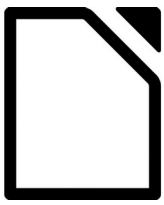
This circuit is distributed through UNDERSCORES – open video hardware label – visit underscores.shop for more info

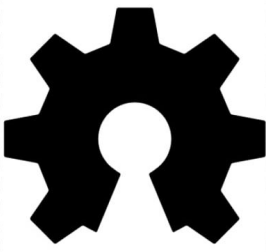
The pcb was designed using KICAD , this booklet was created in LibreOffice Draw

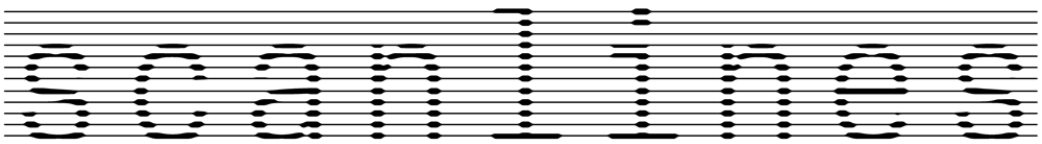
Everything from gerbers, cad files, panels and documentation is freely available online and distributed under CC-BY-SA / open-source licenses – help us contribute to the commons !

Ask any questions or start discussions related to this project on the *scanlines.xyz* forum – an online community space dedicated to diy av / electronic media art

You can contact me directly at *tim (at) cyberboy666 (dot) com*
Please get in touch if you are interested in hosting a workshop !







Thanks to all the r_e_c_u_r users who inspire me to better this project! to Bastien Lavaud for circuit advice, always. To Ben Caldwell for project advice. To everyone who has or will contribute ♥♥♥