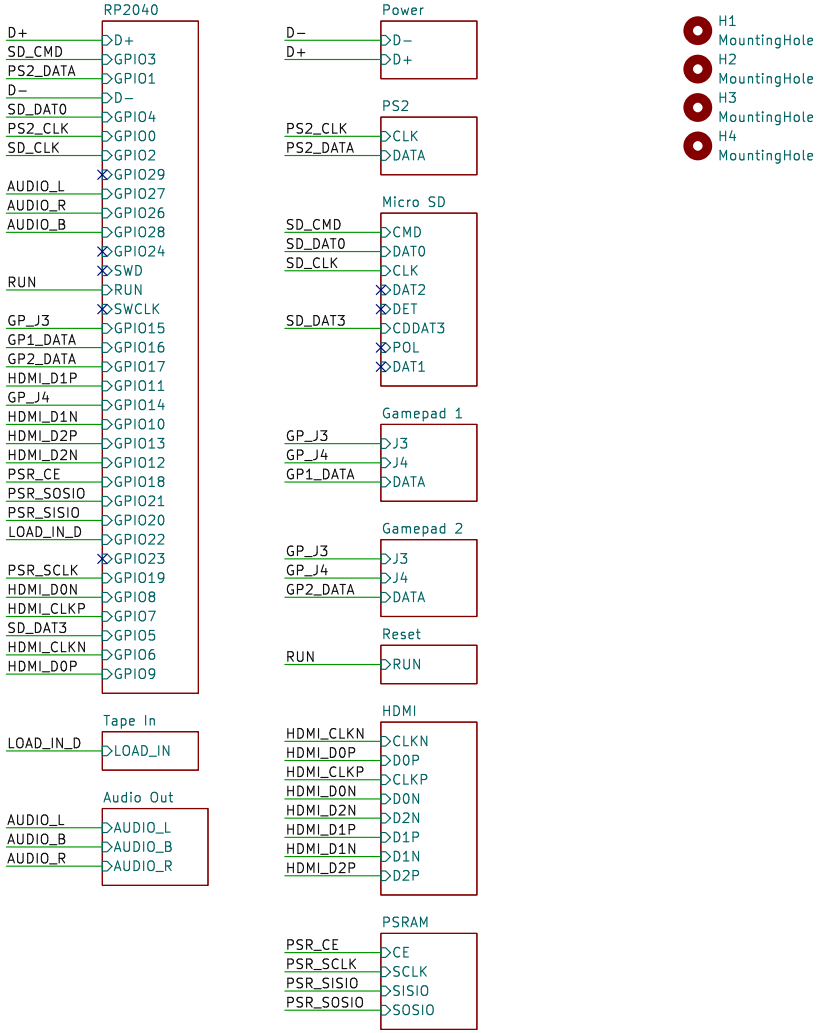


https://github.com/xtremespb/frank

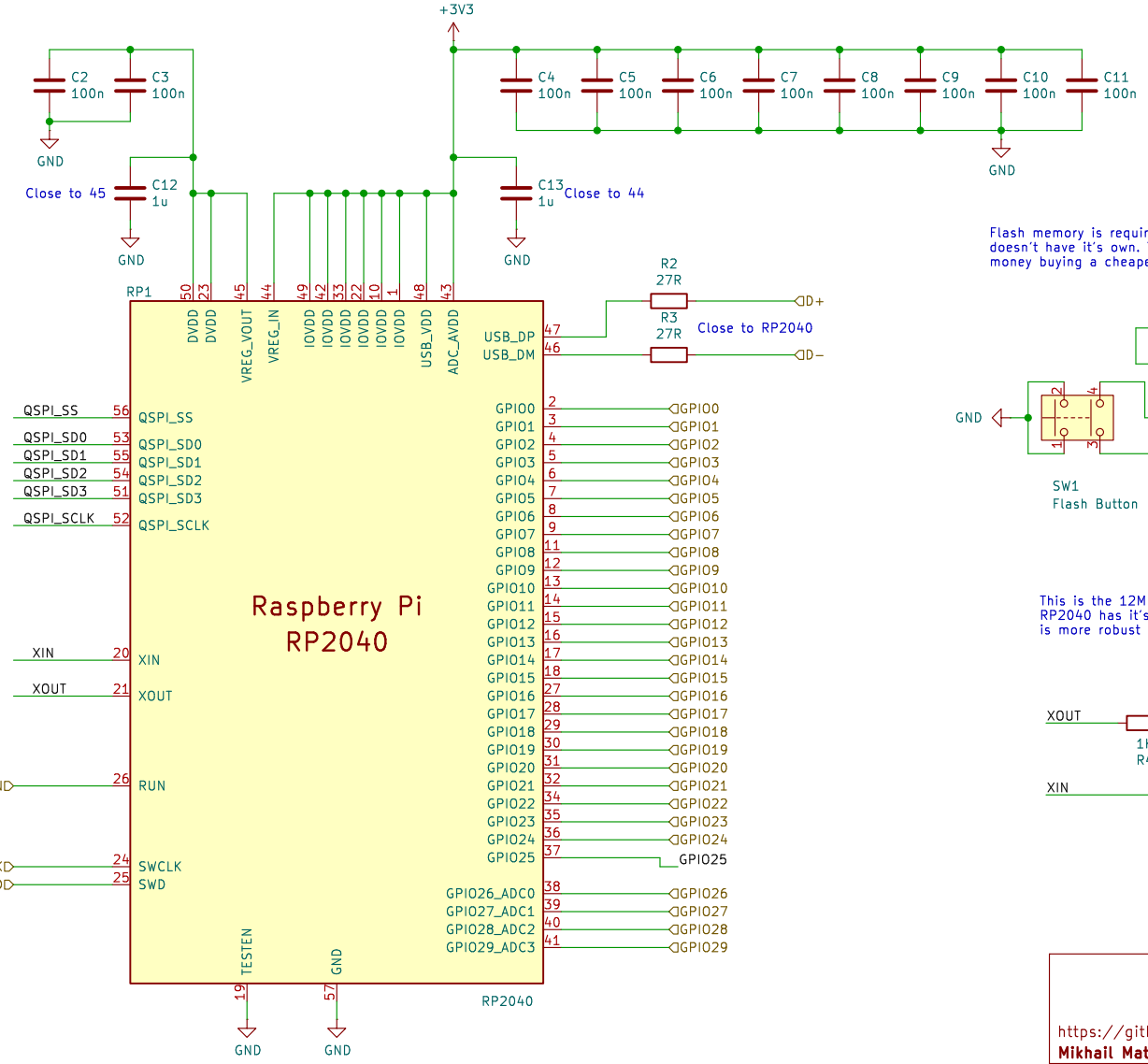
Mikhail Matveev

Sheet: /
File: minifrank.kicad_sch

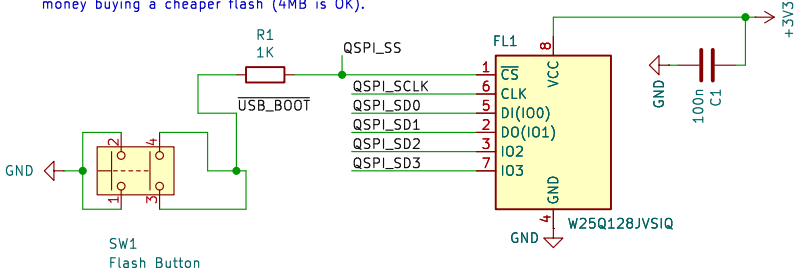
Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 1/12

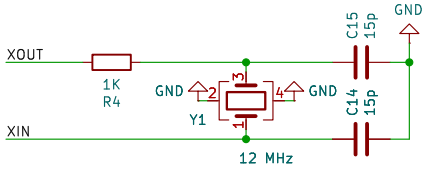
This is the main schematics of RP2040.
Note that all 3V3 capacitors shall be kept close to the RP2040,
especially pins 45 and 44.

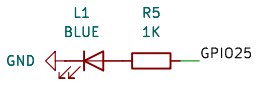


Flash memory is required as RP2040
doesn't have it's own. You may save some
money buying a cheaper flash (4MB is OK).



This is the 12Mhz external crystal.
RP2040 has it's own, but the external crystal
is more robust and is recommended.





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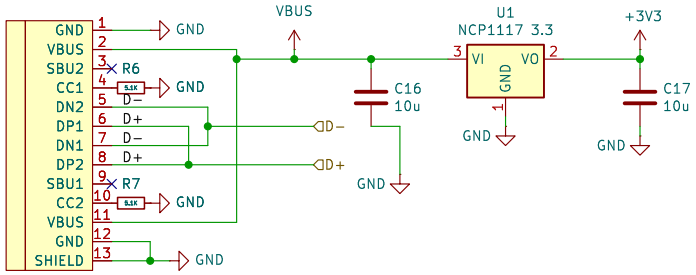
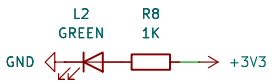
Sheet: /RP2040/		
File: rp2040.kicad_sch		
Title: MiniFRANK		
Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 2/12

The power source is USB-C connector.
The NCP1117 transforms +5V to +3V3.



USB Type C



The LED indicates +3V power availability.
Usually it's green, but you decide ;-)

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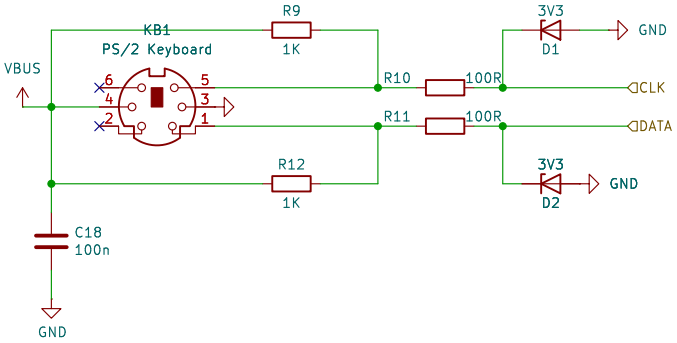
Sheet: /Power/
File: power.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 3/12

PS/2 Keyboard is used here. You can connect
USB>PS/2 Adapter in order to use USB keyboards.



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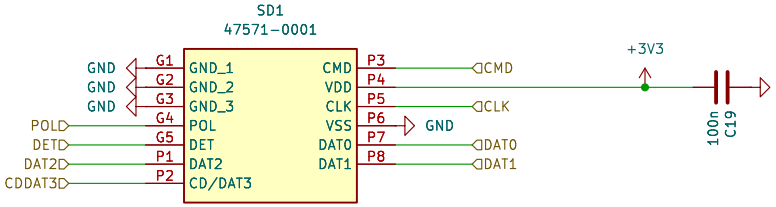
Sheet: /PS2/
File: ps2.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 4/12

Short TF Card slot is used to save some space on the PCB.



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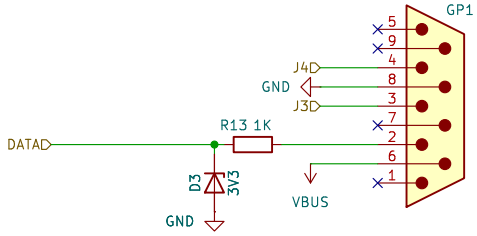
Sheet: /Micro SD/
File: sd.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 5/12

The gamepad uses standard DB9 male socket.



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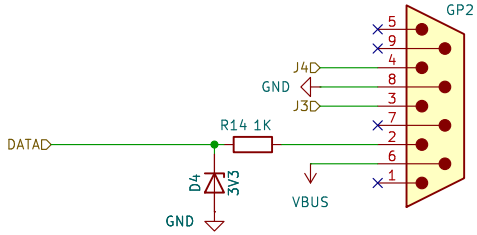
Sheet: /Gamepad 1/
File: gamepad.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 7/12

The gamepad uses standard DB9 male socket.



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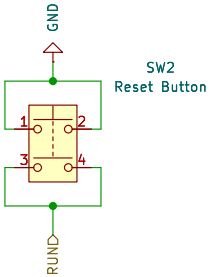
Sheet: /Gamepad 2/		
File: gamepad.kicad_sch		
Title: MiniFRANK		
Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 8/12

This button connects RUN pin of RP2040
and GND.



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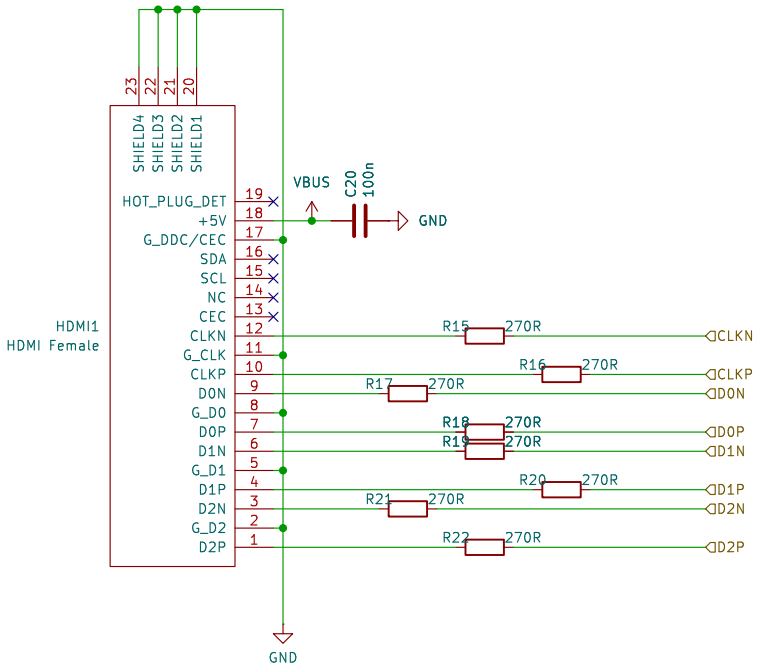
Sheet: /Reset/
File: reset.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 9/12

HDMI video output requires the resistors to be close to the HDMI socket in order to work properly.



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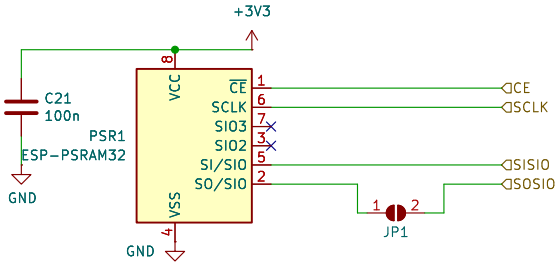
Sheet: /HDMI/
File: hdmi.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 10/12

As PSRAM is optional, you need to solder JP1
if you are going to use it.



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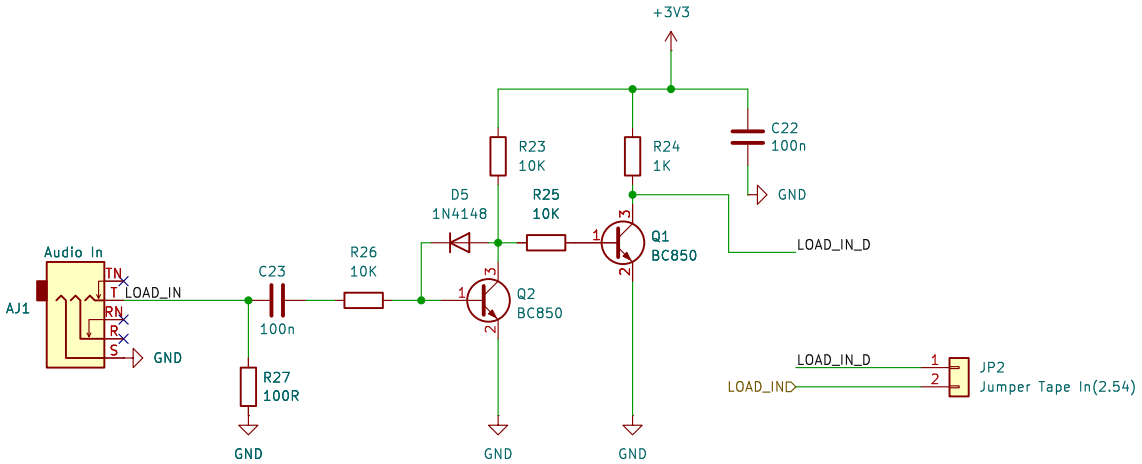
Sheet: /PSRAM/
File: psram.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 11/12

This schematics is used to load data from external audio source, e.g. tape.



https://github.com/xtremespb/frank

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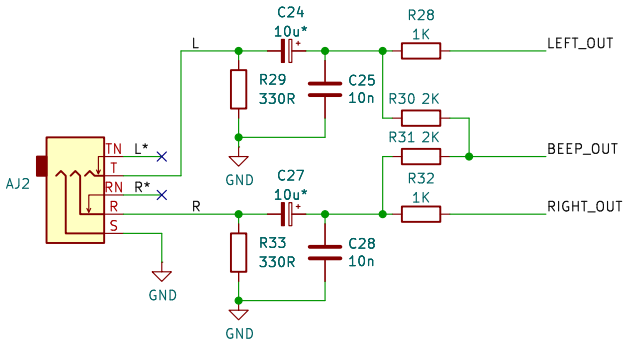
Sheet: /Tape In/
File: tape.kicad_sch

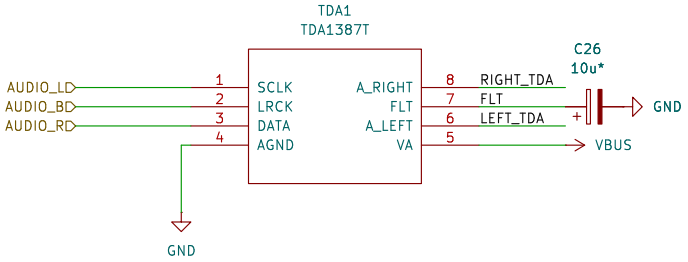
Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 12/12

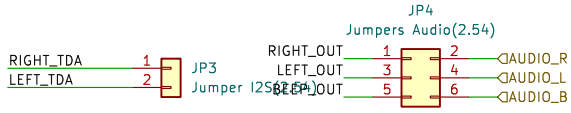
Standard PWM audio output schematics is built on resistors and capacitors.



TDA1378T is optional, you will need to set the proper jumper configuration in order to use it.



Connect 1 of JP3 to 1 of JP4 and 2 of JP3 to 3 of JP4 to make TDA work.



Connect 1–2, 3–4 and 5–6 to make PWM work.

https://github.com/xtremespb/frank

Mikhail Matveev

Sheet: /Audio Out/
File: audio.kicad_sch

Title: MiniFRANK

Size: A4	Date: 2025-01-14	**Rev: 2.0**
KiCad E.D.A. 8.0.7		Id: 12/12