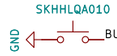
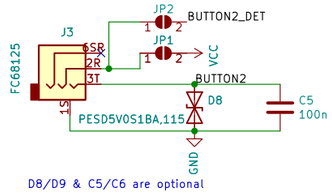
Button 1 (internal)

long button, length: 8.35mm (from pin)



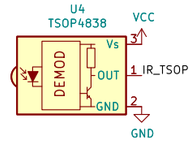
Button 2 (ext. with ADC)



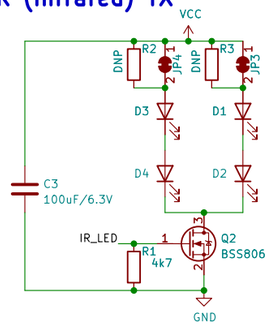
D8/D9 & C5/C6 are optional

Note: if external power supply is needed (e.g. sensor connected via jack plug), bridge JP1.
Via pin D3 (input_pulldown) the voltage can be detected.
Button 2 is connected to D1 (v2 & v3 board) and D15/A1 (v3 board only).

IR (infrared) RX



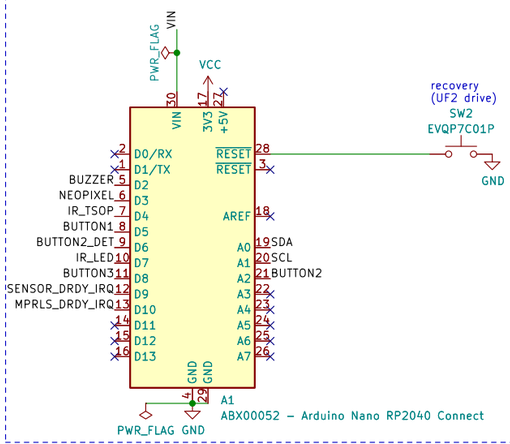
IR (infrared) TX



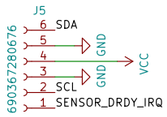
SFH4045: Vftyp=1.5V@70mA; max. 1.75V

In this setup, all 4 LEDs are around 100–200mA pulsed, so the maximum duty cycle for IR sending should be around 0.3. In total we need ~200–400mA for sending, therefor we have an additional capacitor for the DCDC power supply.
Should we need to add a resistor at some point, cut the jumper and place the resistor.

Arduino Nano Connect RP2040

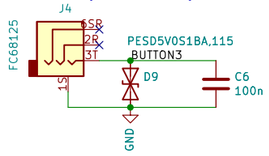


Sensors



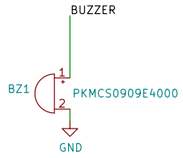
Würth WR-WM
Counterpart:
690157000672

Button 3 (external)

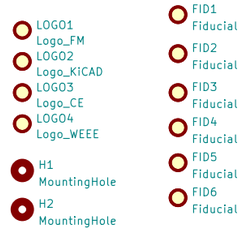


Jacks (same as on FABI)
Cliff FC68125
RS Pro 805-1655
Lumberg 1503 19
Aliexpress: "PJ321C" hard to find, here is a link:
www.aliexpress.com/item/32665420060.html
Note: might not fit that well!

Buzzer

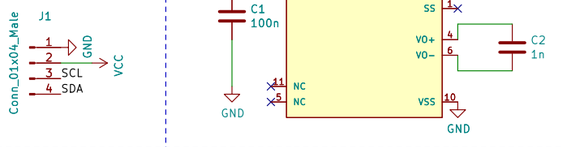


Mechanical



Pressure sensor

EITHER

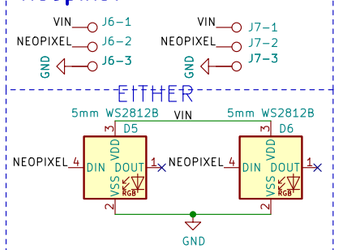


OLED – SSD1306

Note: there are different pinnings available, take care when ordering!

Also take car of orientation of plug.

Neopixel



Notes on Button2:
* D6/GPIO18 can be used to detect if there is 3V3 on button 2
* If JP1 is closed, a 3pin Jackplug can be connected, which carries 3V3, GND and a GPIO pin

Notes on pressure sensor:
* An MPRLS sensor is used on the mainboard normally
* Alternative: attach sensor board with I2C

Changes for v3.2:
-) 2x2 SFH4045 LEDs without R (but possibility)
-) move MPRLS DRDY to a RP2040 pin
-) pulldown on FET gate
-) remove all THT stuff
-) remove MPXV in general
-) change footprint of OLED
-) resistor buzzer -> removed
-) connector sensorboard (Würth WM-MM)
-) capacitor for IR LEDs
-) moved all SMD parts to top (except Arduino)

Orders in addition to Schematic BOM

FLipMouse
* Silicon tube, 2x4mm, 45mm length
* PVC/PE tube 4x6mm, 5mm length
* LuerLock with M5 screw
* Sensor board PCB (see second KiCAD project & BOM)
* screws according to case (4x M2x10+nuts; 2x M2x16)
* Mouthpiece
* Sensorboard cable (6pin IDC cable 65mm + 2x WR-MM 690157000672)

FLipPad
* Glide adapter PCB (see addons folder for KiCAD project & BOM)

Both:
* 3D printed case (depending on type)
* HotShoe Adapter
* USB cable with magnetic plug
* Packaging

These parts should be placed in the .xls BOM file.

v3.2

<beni@asterics-foundation.org>
Benjamin Aigner
AsTeRICS Foundation

Sheet: /
File: FM3_mainboard.kicad_sch

Title: FLipMouse (FLipPad) Mainboard

Size: A3	Date: 2022-10-18	**Rev: v3.2**
KiCad E.D.A. kicad 6.0.11+dfsg-1		Id: 1/1