VOLTHUB7

UPSTREAM PORT

DOWNSTREAM PORTS

USB2517 supply current configured Hi-Speed Host with 7 ports 460mA MAX.
USB2517 supply current configured Full-Speed Host with 7 ports 270mA MAX.

U3 USB2517

Power — File: power.kicad_sch

Port1 down — File: downstream_port.kicad_sch

Port2 down — File: downstream_port.kicad_sch

Port3 down — File: downstream_port.kicad_sch

Port4 down1 — File: downstream_port_last.kicad_sch

J3 TYPE-C-31-M-12

OPTIONAL USB Type-B

J1 USB_B

U1 AT24C02C

By default EEPROM not in use.

J2 TEST JIG

InputOutput — File: output.kicad_sch

U2 RaspberryPi GPIO 40pin

PRTPWRx and OCSx signals are 3V3 so it's safe to connect to PiZero!
Warning: the USB2517 will not initialize until the pizero pulls RESET_USB high.

Pi Zero Pogo Pins and Mounting Holes

The pi zero mounting holes are M2.5!
Mounting studs height should be increased to 12mm!
Pogo pin working distance 11-12mm.

Issues revA
1. R86/R85 silk labels are reversed on PCB.
2. D31 GRN LED is too bright, increase resistor value 1K.
3. D32 YEL LED is too dim, decrease resistor value 330R.
4. LEDA1, LEDA2, LEDA3, LEDA4, LEDA5, LEDA6, LEDA6 are too bright, increase resistor value to 1K.

LOGO

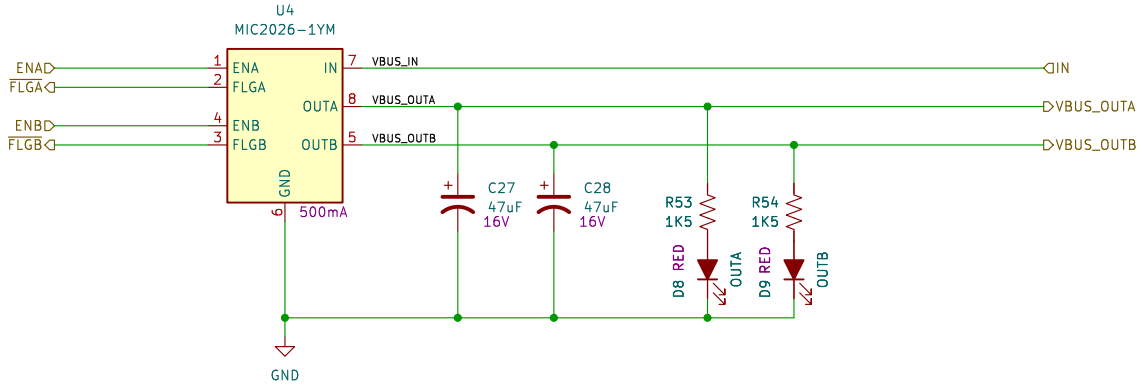
More details on Youtube in Voltlog #475.
License GPLv3
All resistors are 1% unless otherwise mentioned.
Voltlog

Sheet: /
File: volthub7.kicad_sch

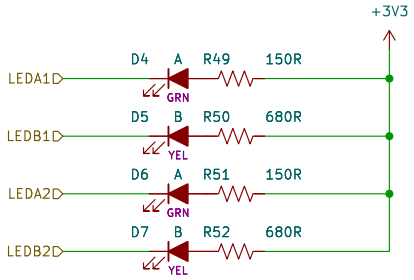
Title: VoltHub7

Size: A3	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 1/7

Dual Channel Power Distributon Switch 500mA/channel



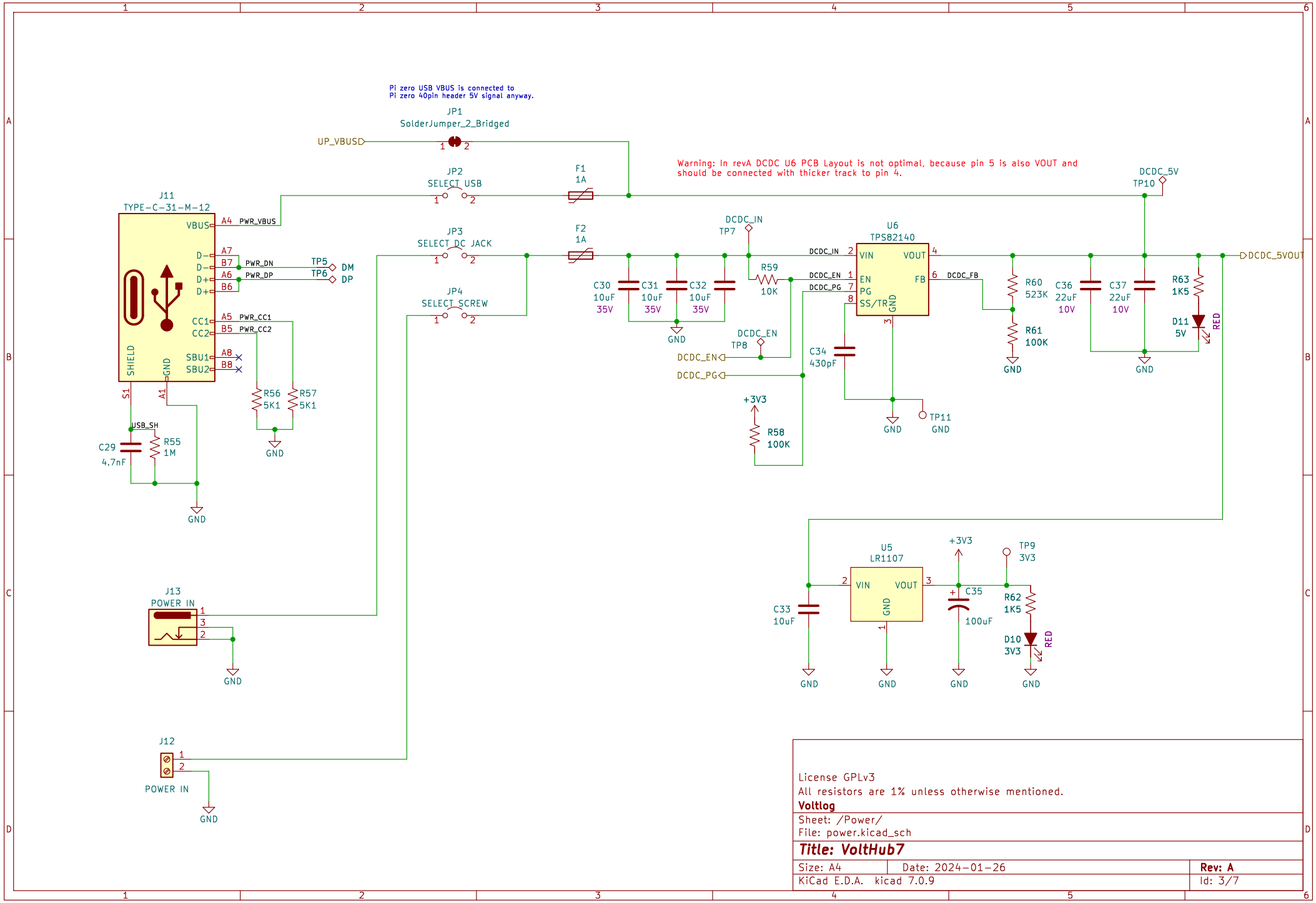
STATUS LEDs



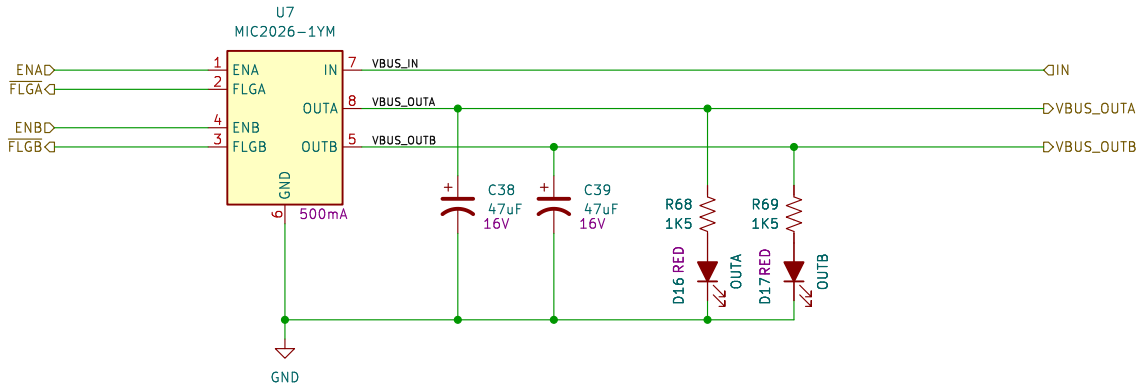
LEDA LOW = LS device attached
LEDA HIGH = FS device attached
LEDA 1KHz = HS device attached
LEDA TRI = no device attached

All resistors are 1% unless otherwise mentioned.
Voltlog

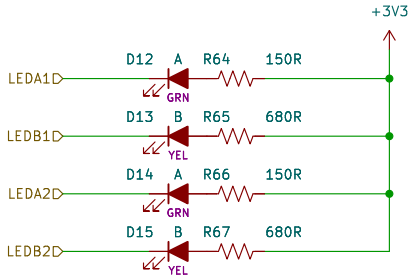
Sheet: /Port1 down/		
File: downstream_port.kicad_sch		
Title: VoltHub7		
Size: A4	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 2/7


Pi zero USB VBUS is connected to
Pi zero 40pin header 5V signal anyway.
JP1
SolderJumper_2_Bridged
UP_VBUS
JP2
SELECT USB
F1
1A
Warning: In revA DCDC U6 PCB Layout is not optimal, because pin 5 is also VOUT and
should be connected with thicker track to pin 4.
DCDC_5V
TP10
J11
TYPE-C-31-M-12
VBUS
A4 PWR_VBUS
D-
B7 PWR_DN
TP5 DM
D-
A6 PWR_DP
TP6 DP
D+
B6
D+
CC1
A5 PWR_CC1
CC2
B5 PWR_CC2
SBU1
A8
SBU2
B8
SHIELD
GND
S1
A1
USB_SH
C29
4.7nF
R55
1M
R56
5K1
R57
5K1
GND
JP3
SELECT DC JACK
JP4
SELECT SCREW
F2
1A
DCDC_IN
TP7
U6
TPS82140
DCDC_IN
VIN
VOUT
DCDC_EN
EN
DCDC_PG
PG
SS/TR
GND
FB
DCDC_FB
C30
10uF
35V
C31
10uF
35V
C32
10uF
35V
R59
10K
DCDC_EN
TP8
DCDC_EN
DCDC_PG
C34
430pF
+3V3
R58
100K
TP11
GND
R60
523K
R61
100K
C36
22uF
10V
C37
22uF
10V
R63
1K5
D11
5V
RED
DCDC_5VOUT
J13
POWER IN
GND
U5
LR1107
VIN
VOUT
GND
C33
10uF
C35
100uF
+3V3
TP9
3V3
R62
1K5
D10
3V3
RED
J12
POWER IN
GND
License GPLv3
All resistors are 1% unless otherwise mentioned.
Voltlog
Sheet: /Power/
File: power.kicad_sch
Title: VoltHub7
Size: A4
Date: 2024-01-26
Rev: A
KiCad E.D.A. kicad 7.0.9
Id: 3/7

Dual Channel Power Distributon Switch 500mA/channel



STATUS LEDs



LEDA LOW = LS device attached
LEDA HIGH = FS device attached
LEDA 1KHz = HS device attached
LEDA TRI = no device attached

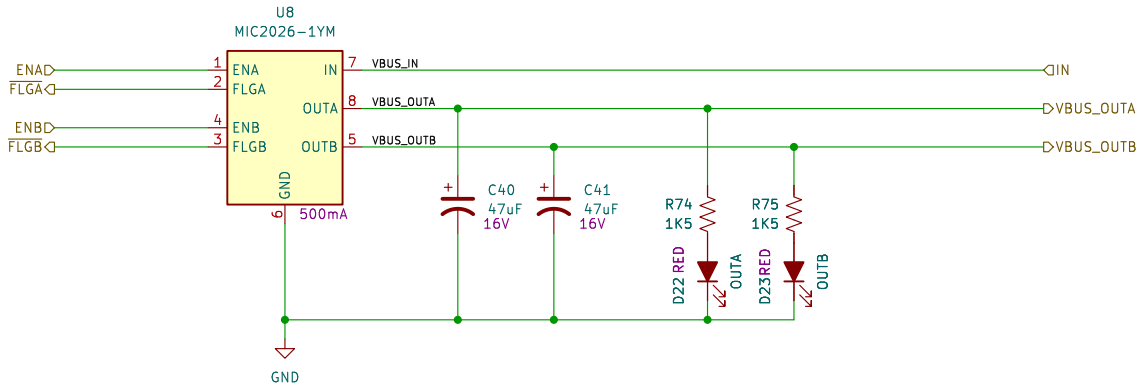
All resistors are 1% unless otherwise mentioned.
Voltlog

Sheet: /Port2 down/
File: downstream_port.kicad_sch

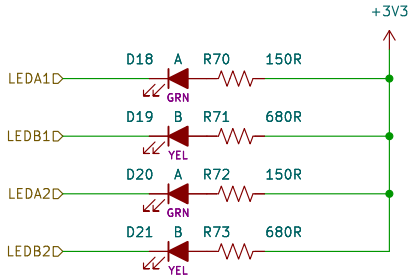
Title: VoltHub7

Size: A4	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 4/7

Dual Channel Power Distributon Switch 500mA/channel



STATUS LEDs



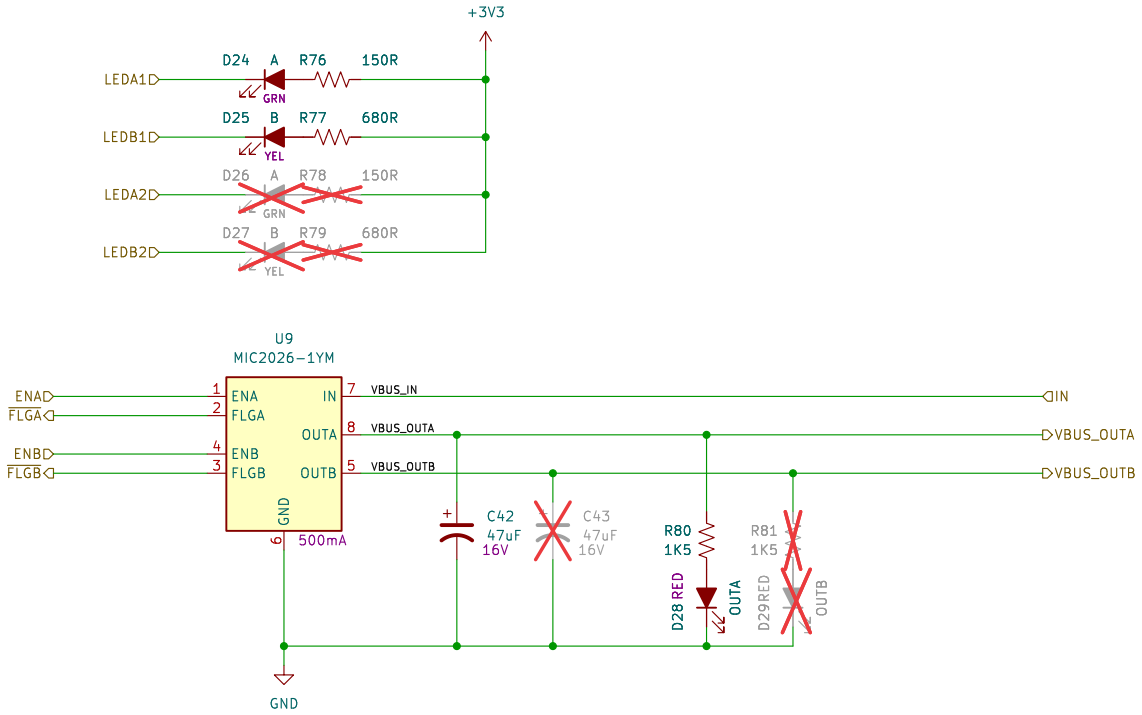
LEDA LOW = LS device attached
LEDA HIGH = FS device attached
LEDA 1KHz = HS device attached
LEDA TRI = no device attached

All resistors are 1% unless otherwise mentioned.
Voltlog

Sheet: /Port3 down/
File: downstream_port.kicad_sch

Title: VoltHub7

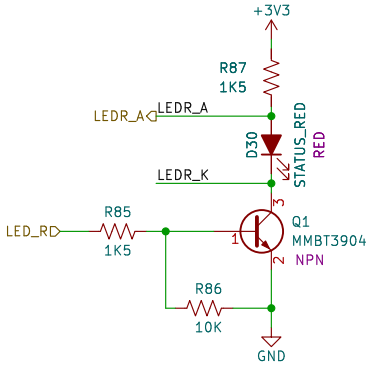
Size: A4	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 5/7

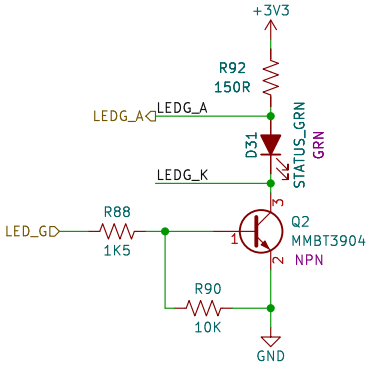


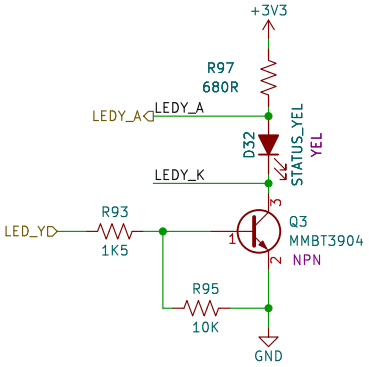
License GPLv3
All resistors are 1% unless otherwise mentioned.
Voltlog

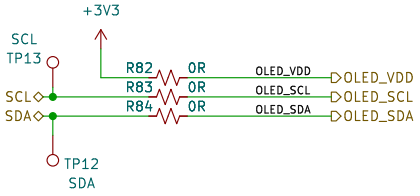
Sheet: /Port4 down1/ File: downstream_port_last.kicad_sch		
Title: VoltHub7		
Size: A4	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 6/7

LED_L, SW_N, OLED_GND can be tied internally in the test jig to available GND.
These 3 LEDs can be position on the test jig itself to signal process status.

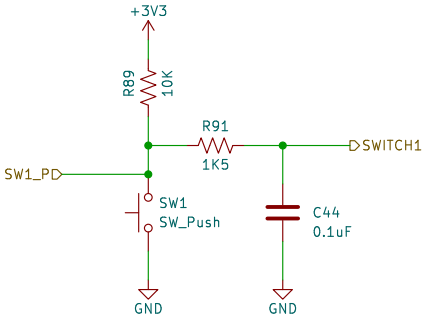


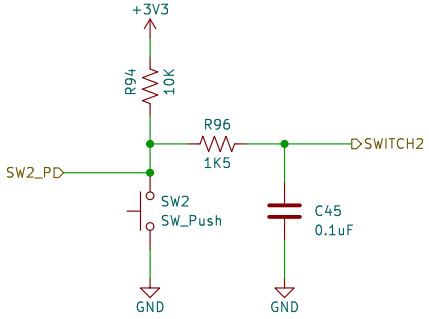






An I2C OLED can be connected to the RaspberryPi
For additional visual status indicators.





These switches can be read by the RaspberryPi and used as triggers for the various scripts.

License GPLv3
All resistors are 1% unless otherwise mentioned.
Voltlog

Sheet: /InputOutput/ File: output.kicad_sch		
Title: VoltHub7		
Size: A4	Date: 2024-01-26	**Rev: A**
KiCad E.D.A. kicad 7.0.9		Id: 7/7