GPIO0 — Bootmode:
low=bootloader,
high=flashboot

Enable Pin:
muss über 10k auf 3V3 liegen

+3.3V

R1
10k

U1
ESP-12F

EN

1	RST	GPIO1/TXD	22
2	ADC	GPIO3/RXD	21
3	EN	GPIO5	20
4	GPIO16	GPIO4	19
5	GPIO14	GPIO0	18
6	GPIO12	GPIO2	17
7	GPIO13	GPIO15	16
8	VCC	GND	15

CS0 MISO GPIO9 GPIO10 MOSI SCLK
9   10   11   12   13   14

+3V3

Sheet: USB
TxD
RxD
File: usb.sch

Sheet: Auto-Reset
Reset   DTR
GPIO0   RTS
File: autoreset.sch

DTR
RTR

Sheet: OLED 128x64
SDA
SCL
File: oled.sch

GND

Arduino-IDE:
Programmierbar über die Standardeinstellungen
für ESP8266/NodeMCU V1.0

Sheet: Buttons
R0   C0
R1   C1
R2   C2
File: buttons.sch

GPIO15:
muss beim Booten über 10k
auf GND liegen. Dann kann er
verwendet werden.

R2
10k

GND

TODO: Taster ausprobieren

FID1
Fiducial
FID2
Fiducial

H1
MountingHole
H2
MountingHole
H3
MountingHole
H4
MountingHole

Item1
3D Druck: Knopf A
Item2
3D Druck: Knopf B
Item3
3D Druck: Knopf Start
Item4
3D Druck: Knopf Select
Item5
3D Druck: Steuerkreuz
Item6
PCB: Abmessungen?, 2 Layer, 35u Cu, d1,6mm
Item7
SMD-Schablone: 120um, Edelstahl, 25mm Umlaufender Überstand

Hosted by Prof. Karl Zeilhofer
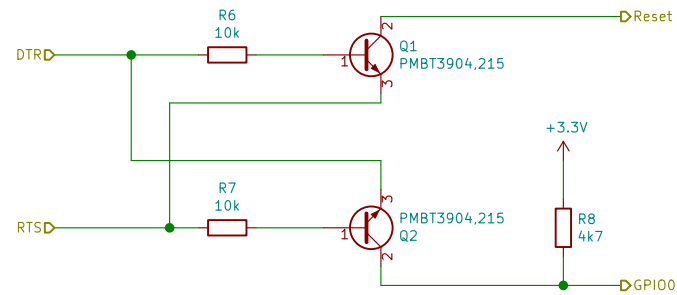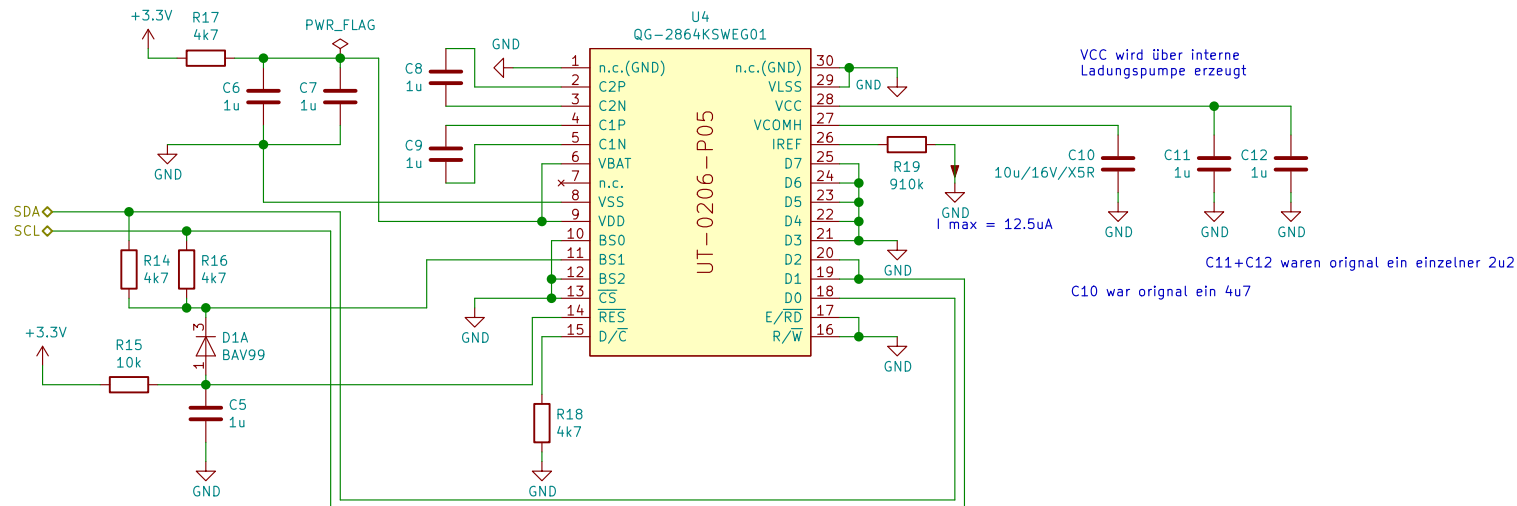4ABHEL, 2020/2021
HTL-Steyr
Sheet: /
File: gamearino.sch
Title: Gamearino
Size: A4   Date: 2021-04-29   Rev: V0.0.2
KiCad E.D.A. kicad_ppa 5.1.9-73d0e3b20d88ubuntu20.04.1   Id: 1/5

C0

C1

C2

SW5
Select

SW6
Start

SW8
A

+3.3V   +3.3V   +3.3V

R3   R4   R5
10k   10k   10k

SW2
Up

R0

R1

R2

SW1
Left

SW4
Right

SW7
B

SW3
Down

Title: Gamearino

| Size: A4 | Date: 2021-04-29 | **Rev: V0.0.2** |
| KiCad E.D.A. kicad_ppa 5.1.9-73d0e3b20d88ubuntu20.04.1 | | Id: 2/5 |

Wahrheitstabelle:

```
DTR  RTS  |  RST  GPIO0
-----------------
LO   LO   |  HIZ  HI
LO   HI   |  HIZ  LO
HI   LO   |  LO   HI
HI   HI   |  HI   HI
```

Reset

DTR

R6
10k

Q1
PMBT3904,215

RTS

R7
10k

PMBT3904,215
Q2

+3.3V

R8
4k7

GPIO0

Title: Gamearino

Size: A4 | Date: 2021–04–29 | **Rev: V0.0.2**

KiCad E.D.A. kicad_ppa 5.1.9–73d0e3b20d88ubuntu20.04.1 | Id: 3/5

Upstream facing port
--> 5k1 pull down on CC1/2

X1
USB-C/16p

VBUS
CC1
CC2
D-
D-
D+
D+
SBU1
SBU2
SHIELD
GND

R9
5k1
R10
5k1

GND
PWR_FLAG
PWR_FLAG

GND
GND

+3V3

C1
100n
C2
100n

GND

GND

R11
100R
siehe Bem.1

U2

R232
UD+
UD-
OUT
GND

VCC
V3

TXD
RXD
CTS
DSR
RI
DCD
DTR
RTS

CH340C

GND

R12
100R
R13
100R

TxD
RxD

GND
Terminate unused inputs

DTR
RTR

Bemerkung 1:
Pin 15, RS232:
Wenn high, wird RxD invertiert,
um direkt die RS232-Leitungen zu kontaktieren.

R20
4k7

D2
LED_Dual_green-red

GND

U3
AMS1117-3.3

VI VO
GND

+3V3

C3
10u/16V/X5R

C4
10u/16V/X5R

GND
GND
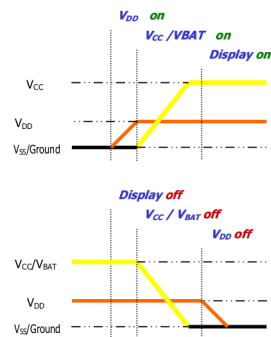GND

Hosted by Prof. Karl Zeilhofer
4ABHEL, 2020/2021
HTL-Steyr
Sheet: /USB/
File: usb.sch
Title: Gamearino
Size: A4   Date: 2021-04-29   Rev: V0.0.2
KiCad E.D.A. kicad_ppa 5.1.9-73d0e3b20d88ubuntu20.04.1   Id: 4/5

4.2 Power down and Power up Sequence

To protect OEL panel and extend the panel life time, the driver IC power up/down routine should include a delay period between high voltage and low voltage power sources during turn on/off. It gives the OEL panel enough time to complete the action of charge and discharge before/after the operation.

4.2.1 Power up Sequence:

1. Power up V_{DD} / V_{BAT}
2. Send Display off command
3. Initialization
4. Clear Screen
5. Power up V_{CC}
6. Delay 100ms
   (When V_{CC} is stable)
7. Send Display on command

V_{DD} on
V_{CC} /VBAT on
Display on

V_{CC}
V_{DD}
V_{SS}/Ground

4.2.2 Power down Sequence:

1. Send Display off command
2. Power down V_{CC} / V_{BAT}
3. Delay 100ms
   (When V_{CC} / V_{BAT} is reach 0 and panel is completely discharges)
4. Power down V_{DD}

Display off
V_{CC} / V_{BAT} off
V_{DD} off

V_{CC}/VBAT
V_{DD}
V_{SS}/Ground

Note 13:

1) Since an ESD protection circuit is connected between V_{DD} and V_{CC} inside the driver IC, V_{CC} becomes lower than V_{DD} whenever V_{DD} is ON and V_{CC} is OFF.
2) V_{CC} / V_{BAT} should be kept float (disable) when it is OFF.
3) Power Pins (V_{DD}, V_{CC}, V_{BAT}) can never be pulled to ground under any circumstance.
4) V_{DD} should not be power down before V_{CC} / V_{BAT} power down.

TODO: Poti für Helligkeit

VCC wird über interne
Ladungspumpe erzeugt

+3.3V R17 4k7
PWR_FLAG
C6 1u C7 1u
GND

C8 1u
C9 1u
GND

SDA
SCL

R14 4k7 R16 4k7

+3.3V
R15 10k D1A BAV99
C5 1u
GND

R18 4k7
GND

U4
QG-2864KSWEG01
UT-0206-P05

1	n.c.(GND)	n.c.(GND)	30
2	C2P	VLSS	29
3	C2N	VCC	28
4	C1P	VCOMH	27
5	C1N	IREF	26
6	VBAT	D7	25
7	n.c.	D6	24
8	VSS	D5	23
9	VDD	D4	22
10	BS0	D3	21
11	BS1	D2	20
12	BS2	D1	19
13	CS	D0	18
14	RES	E/RD	17
15	D/C	R/W	16

GND
GND

R19 910k
I max = 12.5uA
GND

C10 10u/16V/X5R
C11 1u C12 1u
GND GND GND

C11+C12 waren orignal ein einzelner 2u2

C10 war orignal ein 4u7

Hosted by Prof. Karl Zeilhofer
4ABHEL, 2020/2021
HTL-Steyr
Sheet: /OLED 128x64/
File: oled.sch
Title: Gamearino
Size: A4   Date: 2021-04-29   **Rev: V0.0.2**
KiCad E.D.A. kicad_ppa 5.1.9-73d0e3b20d88ubuntu20.04.1   Id: 5/5