

SOC

ESP32-PICO-D4

Input only:
IO34, IP35, IO36,
IO37, IO38, IO39
IO, 11, 5, 6, 7, 8

SENSOR_CAPP IO37
SENSOR_CAPN IO38
SENSOR_VP IO36
SENSOR_VN IO39
EN
IO34
IO35
IO0
TOUCH1
SDA
IO5
IO12
IO13
IO14
IO15
IO16
IO17
SCL
ALERT

U0TXD
U0RXD
SD0
SD1
SD2
SD3
CLK
CMD
LNA_IN
IO22
IO23
IO24
IO25
IO26
IO27
IO32
IO33
CAP1_NC
CAP2_NC
XTAL_P_NC
XTAL_N_NC
GND

TX_ESP
RX_ESP
I2S2_CLK
DAC
I2S1_Data
I2S2_WS
I2S1_CLK
Ext. HUD (experimental)
Note: might only be able to provide up to 100mA?

AE1
ANT3216LL00R2400A

ESP32-PICO-D4 Datasheet:
Pins IO16, IO17, CMD, CLK, SD0, SD1 and SD13 (25, 26, 30, 31, 32, 33, 29) are used to connect the embedded flash, and can not be used for other purposes. For details, please see Section 6 Schematics."

Experimental HUD

Touch

Programming

Visual Feedback RGB LEDs

Reset

User Switch

ADC + Breakouts

Programming Transistors

Microphones

PDM (over I2S) Microphones

Ext. I2S Microphones

Power

MIT License
2P Battery Version
Team Open Smart Glasses
Sheet: /
File: OSSG_v0p4.kicad_sch
Title: Team OpenSource Smartglasses
Size: A3 Date: 2022-09-21 Rev: V0.4b6
KiCad E.D.A. kicad 6.0.7-f9a2dced07-116-ubuntu22.04.1 Id: 1/2

SOC

ESP32-PICO-D4

Input only:
I034, IP35, I036,
I037, I038, I039
I0, I1, 5, 6, 7, 8

SENSOR_CAPP I037
SENSOR_CAPN I038
SENSOR_VP I036
SENSOR_VN I039
EN
I034
I035
I00
TOUCH1
SDA
RGB
SCL
ALERT

U0TXD
U0RXD
SD0
SD1
SD2
SD3
CLK
CMD
LNA_IN
I022
I023
I024
I025
I026
I027
I032
I033
CAP1_NC
CAP2_NC
XTAL_P_NC
XTAL_N_NC
GND

TX_ESP
RX_ESP
I2S2_CLK
DAC
I2S1_Data
I2S2_WS
I2S1_CLK
Ext. HUD (experimental)
Note: might only be able to provide up to 100mA?

AE1
ANT3216LL00R2400A

ESP32-PICO-D4 Datasheet:
Pins I016, I017, CMD, CLK, SD0, SD1 and SD13 (25, 26, 30, 31, 32, 33, 29) are used to connect the embedded flash, and can not be used for other purposes. For details, please see Section 6 Schematics."

Experimental HUD

GPIO26
DAC
Ext. HUD (experimental)
Note: might only be able to provide up to 100mA?

Touch

GPIO2
TOUCH1
J4
Touch
GND

Programming

VBUS
USB-
USB+
RST
VDD5
V3
VIO
TXD
RXD
RTS
CTS
DSR
DTR
DCD
RT
SUSPEND
SUSPEND
ACT
TNOW/GPIO.2
WAKEUP/GPIO.3
GPIO.4
TXS/GPIO.0
RXS/GPIO.1

Visual Feedback RGB LEDs

GPIO14
RGB
Din
Dout
GND
Ext RGB

Reset

+3.3V
R1
10K
C1
1uF
GND

User Switch

+3.3V
R4
10K
SW1
SW_SPST
GND

ADC + Breakouts

+5V
TP2
5V
TP8
+3.3V
TP9
GND
TP10
I035

Programming Transistors

DTR
R5
10K
Q1
2SC4617R BR
RTS
R6
10K
Q2
2SC4617R BR
TP12
I00

Microphones

PDM (over I2S) Microphones

+3.3V
GPIO33
GPIO39
GPIO32
I2S2_CLK
I2S2_Data
I2S2_WS
I2S1_Data

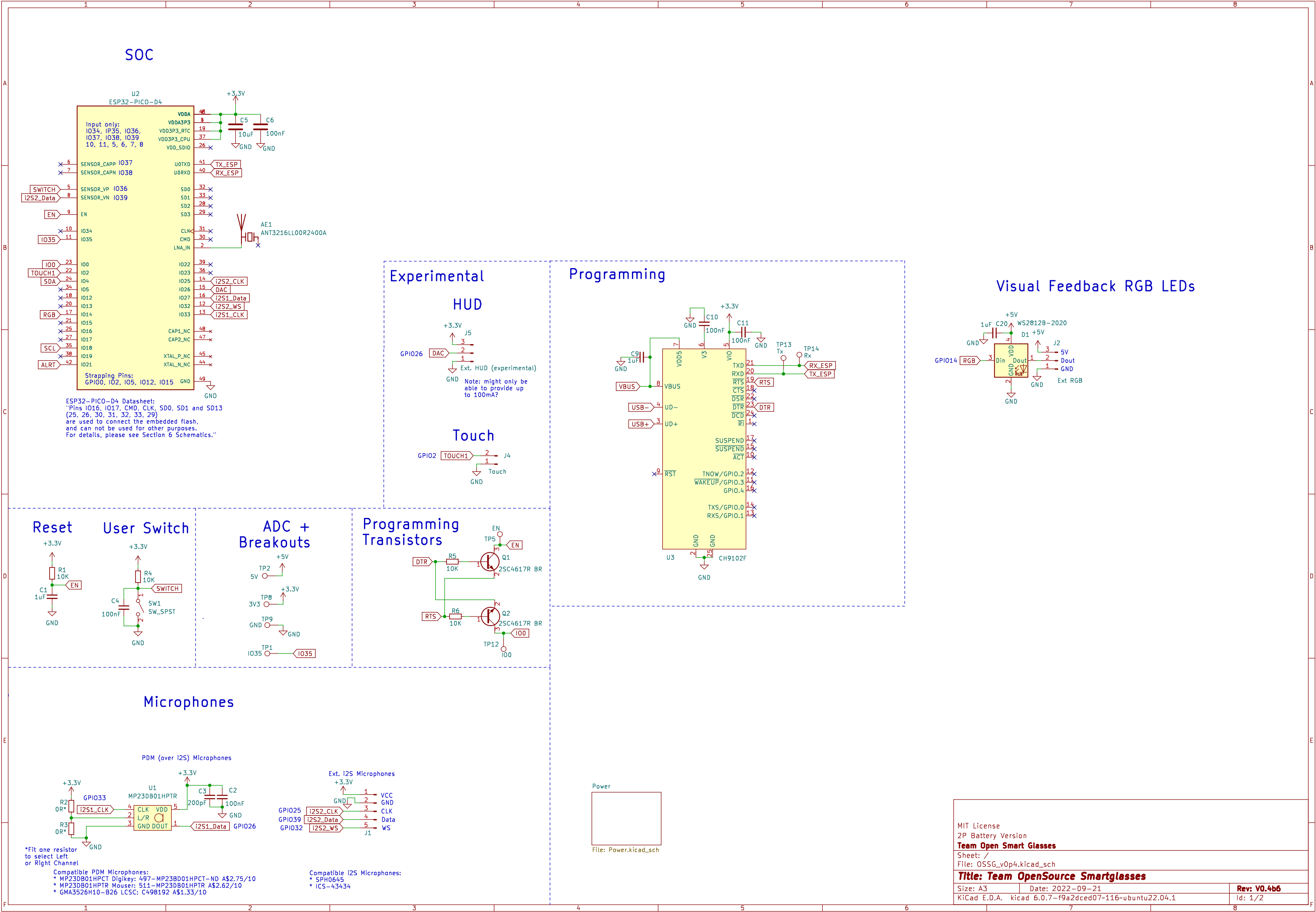
Ext. I2S Microphones

+3.3V
GND
VCC
GND
CLK
Data
WS

Power

File: Power.kicad_sch

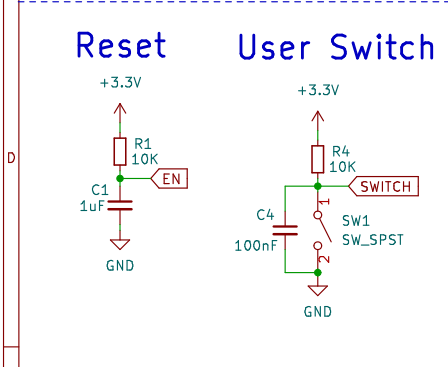
MIT License
2P Battery Version
Team Open Smart Glasses
Sheet: /
File: OSSG_v0p4.kicad_sch
Title: Team OpenSource Smartglasses
Size: A3
Date: 2022-09-21
KiCad E.D.A. kicad 6.0.7-f9a2dced07-116-ubuntu22.04.1
Rev: V0.4b6
Id: 1/2



The image displays two circuit diagrams for the ATtiny10 microcontroller, specifically for the Reset and User Switch pins.

Reset Circuit: The Reset pin is connected to a +3.3V supply through a pull-up resistor R1 (10K). A capacitor C1 (1uF) is connected between the Reset pin and ground (GND). A label 'EN' is shown next to the Reset pin.

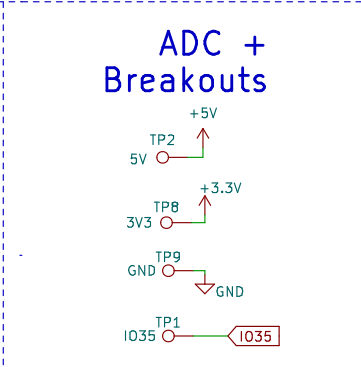
User Switch Circuit: The User Switch pin is connected to a +3.3V supply through a pull-up resistor R4 (10K). A switch SW1 (SW_SPST) is connected between the User Switch pin and ground (GND). A capacitor C4 (100nF) is connected between the User Switch pin and ground (GND). A label 'SWITCH' is shown next to the switch.



ADC + Breakouts

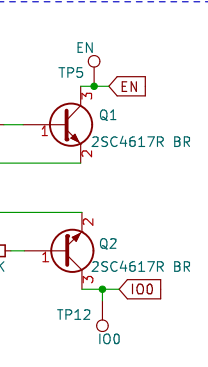
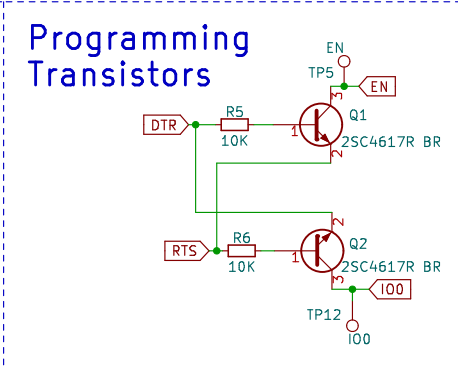
The diagram illustrates the voltage levels and breakout connections for four test points (TP2, TP8, TP9, TP1) on an ADC. TP2 is connected to +5V. TP8 is connected to +3.3V. TP9 is connected to GND. TP1 is connected to IO35.

- TP2: +5V
- TP8: +3.3V
- TP9: GND
- TP1: IO35



Programming Transistors

The diagram shows two transistors, Q1 and Q2, both of type 25C4617R BR. Transistor Q1 has its base connected to ground (IO0) and its emitter connected to ground. Its collector is connected to a 10K resistor (R5), which is in turn connected to the DTR signal. A test point TP5 is located at the collector of Q1. Transistor Q2 has its base connected to ground (IO0) and its emitter connected to ground. Its collector is connected to a 10K resistor (R6), which is in turn connected to the RTS signal. A test point TP12 is located at the collector of Q2.



Microphones

PDM (over I2S) Microphones

*Fit one resistor to select Left or Right Channel

Compatible PDM Microphones:

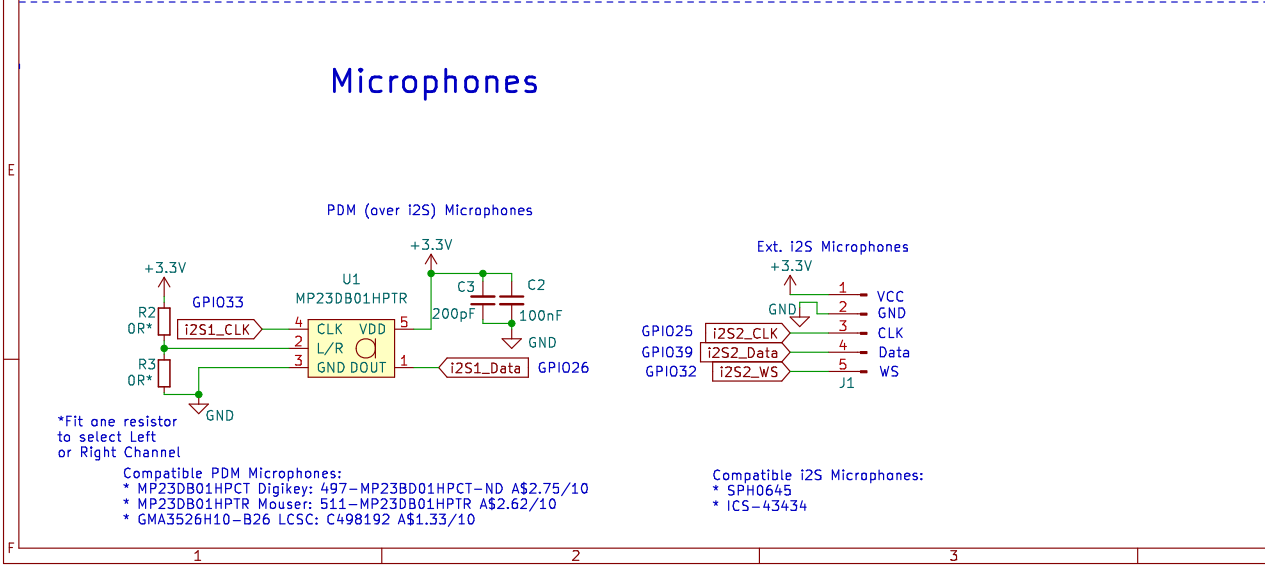
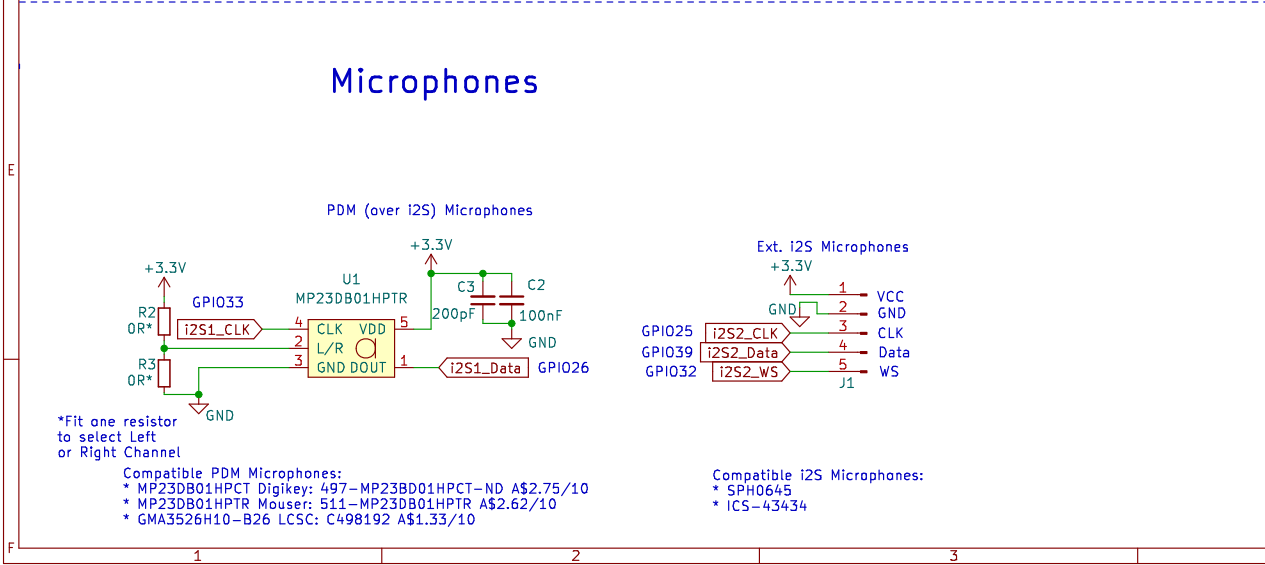
- * MP23DB01HPCT Digkey: 497-MP23DB01HPCT-ND A\$2.75/10
- * MP23DB01HPTR Mouser: 511-MP23DB01HPTR A\$2.62/10
- * GMA3526H10-B26 LCSC: C498192 A\$1.33/10

Ext. I2S Microphones

*Fit one resistor to select Left or Right Channel

Compatible I2S Microphones:

- * SPH0645
- * ICS-43434



Microphones

PDM (over I2S) Microphones

*Fit one resistor to select Left or Right Channel

Compatible PDM Microphones:

- * MP23DB01HPCT Digkey: 497-MP23DB01HPCT-ND A\$2.75/10
- * MP23DB01HPTR Mouser: 511-MP23DB01HPTR A\$2.62/10
- * GMA3526H10-B26 LCSC: C498192 A\$1.33/10

Ext. I2S Microphones

*Fit one resistor to select Left or Right Channel

Compatible I2S Microphones:

- * SPH0645
- * ICS-43434

Microphones

PDM (over I2S) Microphones

*Fit one resistor to select Left or Right Channel

Compatible PDM Microphones:

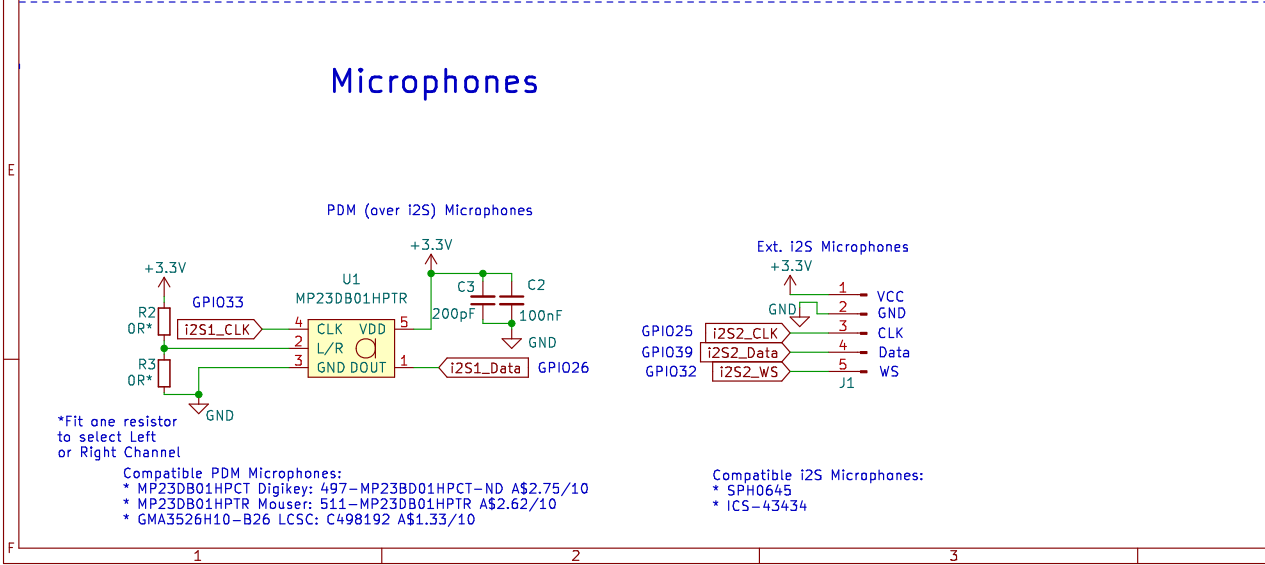
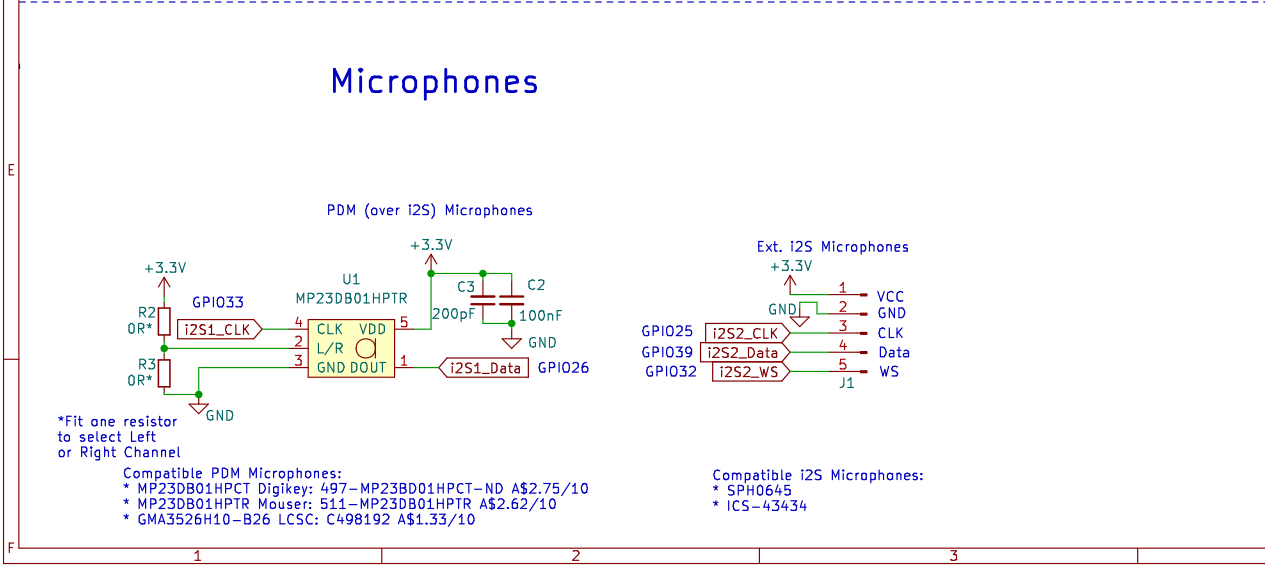
- * MP23DB01HPCT Digkey: 497-MP23DB01HPCT-ND A\$2.75/10
- * MP23DB01HPTR Mouser: 511-MP23DB01HPTR A\$2.62/10
- * GMA3526H10-B26 LCSC: C498192 A\$1.33/10

Ext. I2S Microphones

*Fit one resistor to select Left or Right Channel

Compatible I2S Microphones:

- * SPH0645
- * ICS-43434



Microphones

PDM (over I2S) Microphones

*Fit one resistor to select Left or Right Channel

Compatible PDM Microphones:

- * MP23DB01HPCT Digkey: 497-MP23DB01HPCT-ND A\$2.75/10
- * MP23DB01HPTR Mouser: 511-MP23DB01HPTR A\$2.62/10
- * GMA3526H10-B26 LCSC: C498192 A\$1.33/10

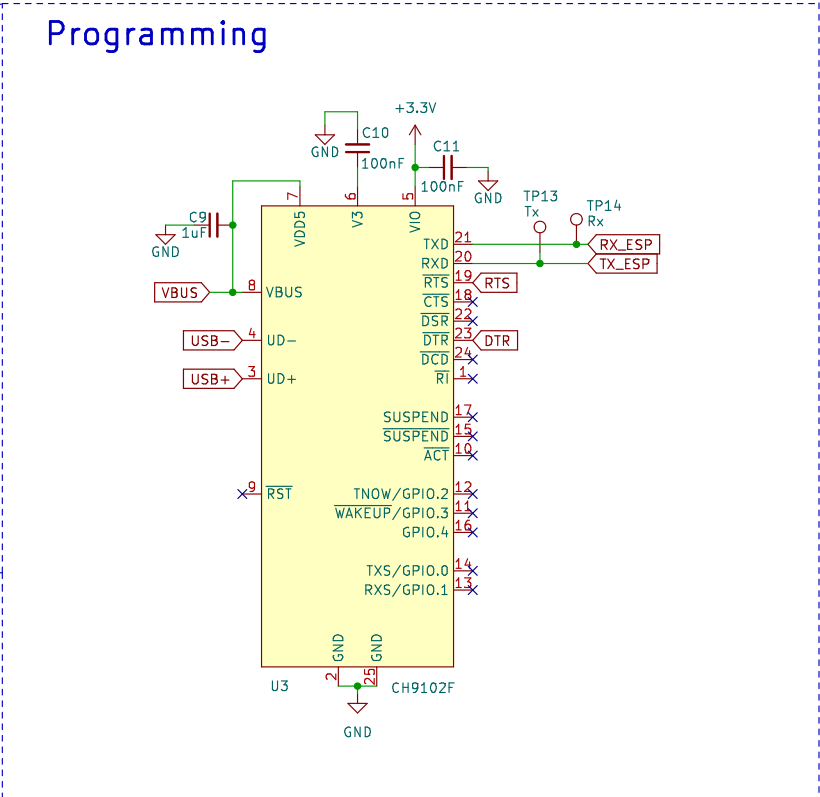
Ext. I2S Microphones

*Fit one resistor to select Left or Right Channel

Compatible I2S Microphones:

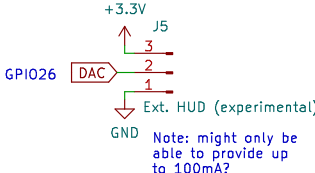
- * SPH0645
- * ICS-43434

Programming



Experimental

HUD



The diagram shows the HUD module's electrical connections. It features a red rectangular block labeled 'DAC'. A green line from 'GPIO26' enters the block. A green line exits the block and splits into three paths: an upward path to a green terminal labeled 'J5' with a green arrow pointing to '+3.3V', a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Ext. HUD (experimental)' and 'GND'. A note states: 'Note: might only be able to provide up to 100mA?'.

GPIO26

DAC

+3.3V

J5

2

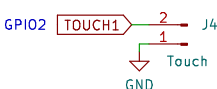
1

Ext. HUD (experimental)

GND

Note: might only be able to provide up to 100mA?

Touch



The diagram shows the Touch module's electrical connections. It features a red rectangular block labeled 'TOUCH1'. A green line from 'GPIO2' enters the block. A green line exits the block and splits into two paths: a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Touch' and 'GND'. A red terminal labeled 'J4' is also shown.

GPIO2

TOUCH1

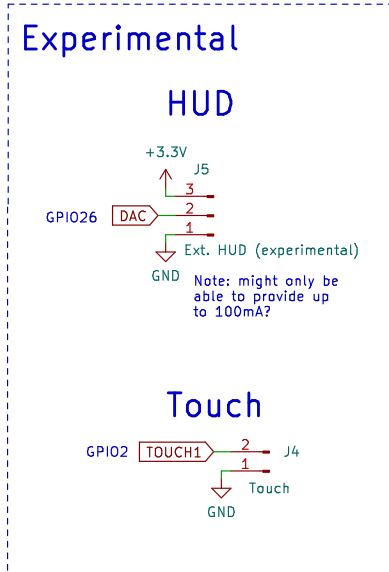
J4

2

1

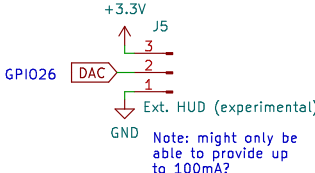
Touch

GND



Experimental

HUD



The diagram shows the HUD module's electrical connections. It features a red rectangular block labeled 'DAC'. A green line from 'GPIO26' enters the block. A green line exits the block and splits into three paths: an upward path to a green terminal labeled 'J5' with a green arrow pointing to '+3.3V', a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Ext. HUD (experimental)' and 'GND'. A note states: 'Note: might only be able to provide up to 100mA?'.

GPIO26

DAC

+3.3V

J5

2

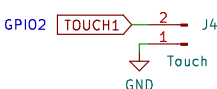
1

Ext. HUD (experimental)

GND

Note: might only be able to provide up to 100mA?

Touch



The diagram shows the Touch module's electrical connections. It features a red rectangular block labeled 'TOUCH1'. A green line from 'GPIO2' enters the block. A green line exits the block and splits into two paths: a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Touch' and 'GND'. A red terminal labeled 'J4' is also shown.

GPIO2

TOUCH1

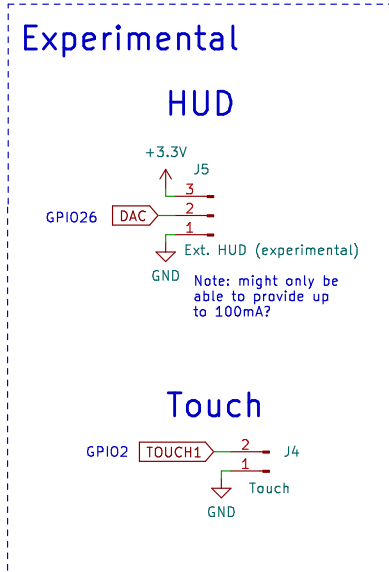
J4

2

1

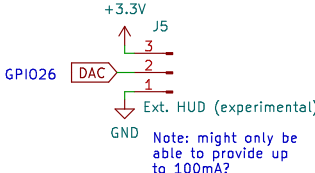
Touch

GND



Experimental

HUD



The diagram shows the HUD module's electrical connections. It features a red rectangular block labeled 'DAC'. A green line from 'GPIO26' enters the block. A green line exits the block and splits into three paths: an upward path to a green terminal labeled 'J5' with a green arrow pointing to '+3.3V', a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Ext. HUD (experimental)' and 'GND'. A note states: 'Note: might only be able to provide up to 100mA?'.

GPIO26

DAC

+3.3V

J5

2

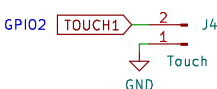
1

Ext. HUD (experimental)

GND

Note: might only be able to provide up to 100mA?

Touch



The diagram shows the Touch module's electrical connections. It features a red rectangular block labeled 'TOUCH1'. A green line from 'GPIO2' enters the block. A green line exits the block and splits into two paths: a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Touch' and 'GND'. A red terminal labeled 'J4' is also shown.

GPIO2

TOUCH1

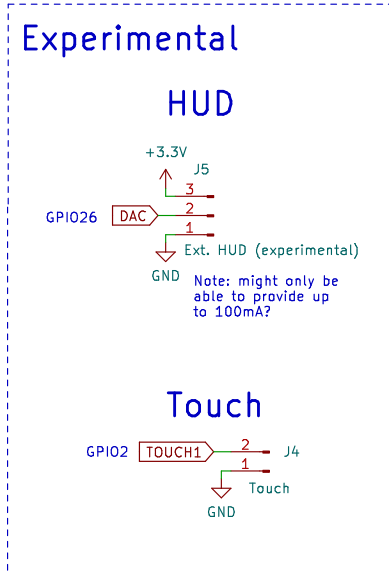
J4

2

1

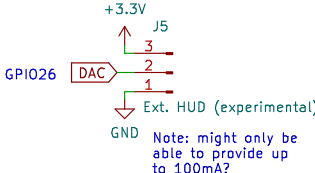
Touch

GND



Experimental

HUD



The diagram shows the HUD module's electrical connections. It features a red rectangular block labeled 'DAC'. A green line from 'GPIO26' enters the block. A green line exits the block and splits into three paths: an upward path to a green terminal labeled 'J5' with a green arrow pointing to '+3.3V', a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Ext. HUD (experimental)' and 'GND'. A note states: 'Note: might only be able to provide up to 100mA?'.

GPIO26

DAC

+3.3V

J5

2

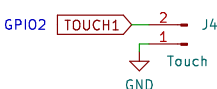
1

Ext. HUD (experimental)

GND

Note: might only be able to provide up to 100mA?

Touch



The diagram shows the Touch module's electrical connections. It features a red rectangular block labeled 'TOUCH1'. A green line from 'GPIO2' enters the block. A green line exits the block and splits into two paths: a rightward path to a red terminal labeled '2' with a red arrow pointing right, and a downward path to a green terminal labeled '1' with a red arrow pointing right. A green ground symbol is connected to the downward path, labeled 'Touch' and 'GND'. A red terminal labeled 'J4' is also shown.

GPIO2

TOUCH1

J4

2

1

Touch

GND

Power

File: Power.kicad_sch

Power

File: Power.kicad_sch

Team Open Smart Glasses

Sheet: /

File: OSSG_v0p4.kicad_sch

Size: A3	Date: 2022-09-21
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KiCad E.D.A. kicad 6.0.7-f9a2dced07

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Size: A3	Date: 2022-09-21	Rev: V0.4b6
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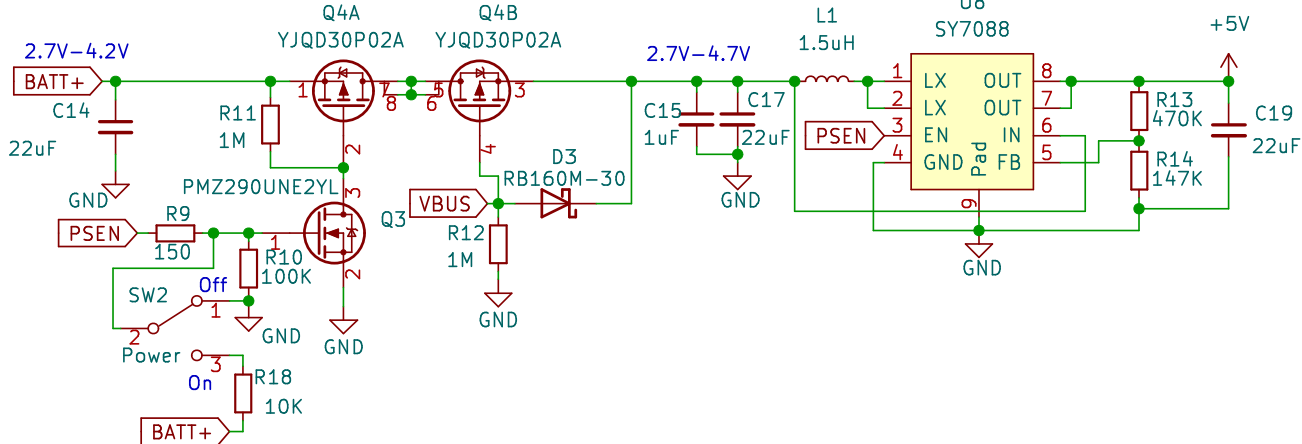
USB In



Power On/Off
+ Low Battery
Isolation

Battery Bypass

2.7V–4.7V to 5V Boost

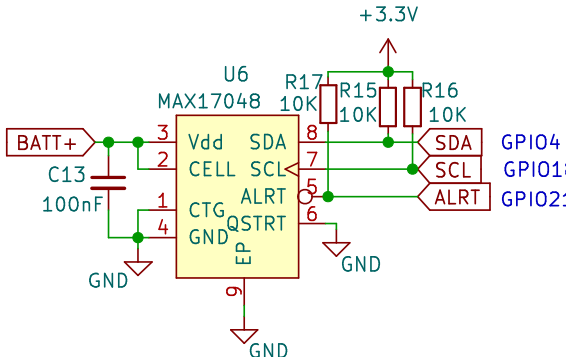


Battery Terminals

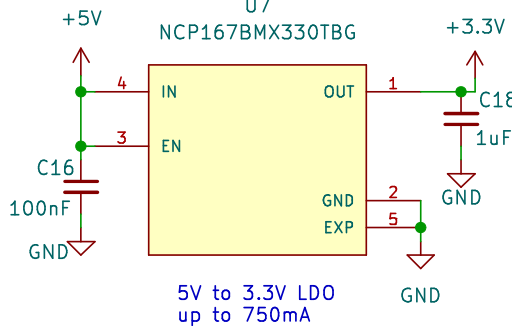


Dual LiPo
2.7V to 4.2V
500mA Batteries

Battery Fuel Gauge



5V to 3.3V LDO



MIT License
2P Battery Version

Sheet: /Power/
File: Power.kicad_sch

Title: Team OpenSource Smartglasses

Size: A4

Date: 2022-09-21

Rev: V0.4b6

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KiCad E.D.A. kicad 6.0.7-f9a2dced07~116~ubuntu22.04.1
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