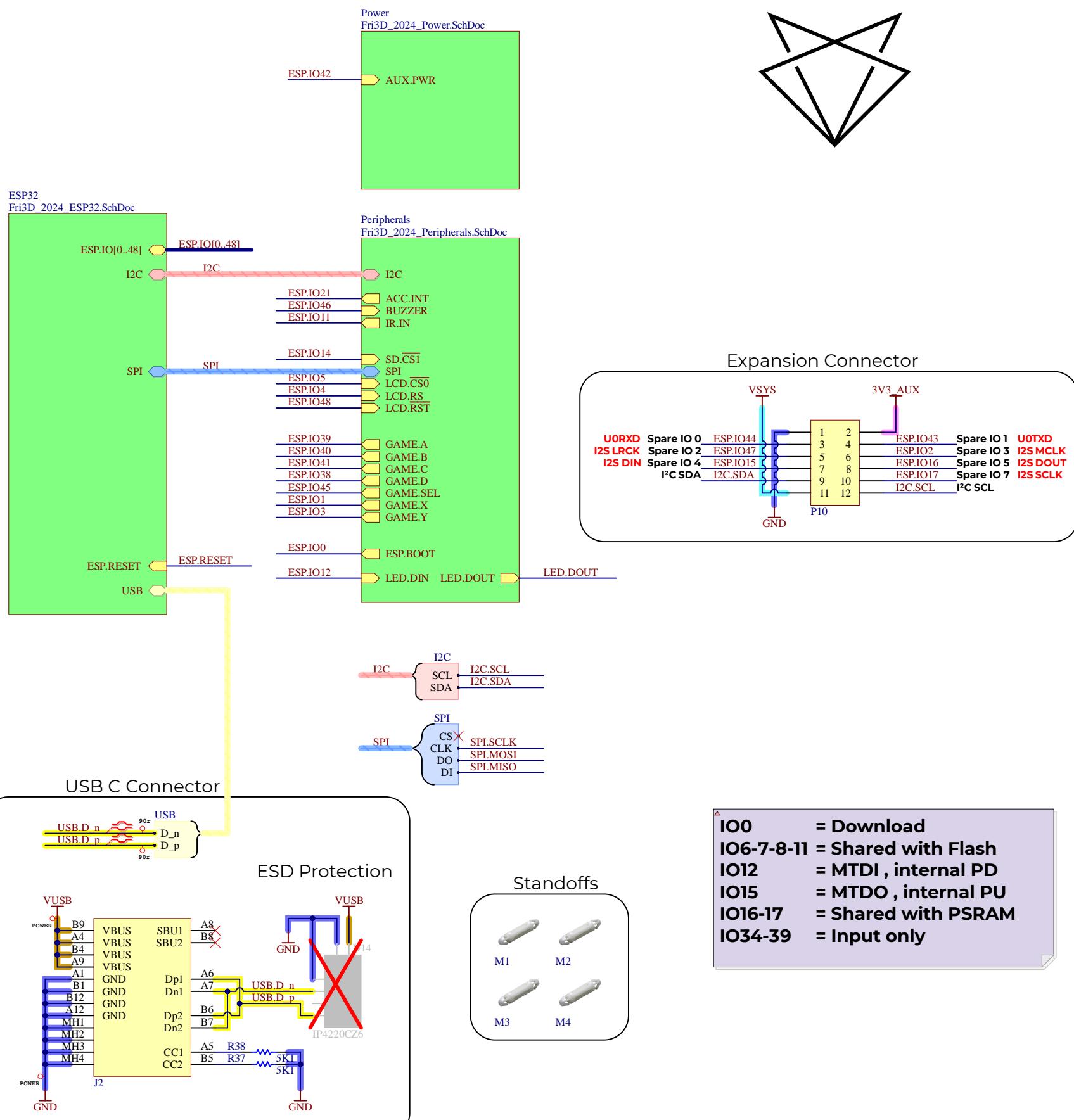


Fri3D Badge 2024

Top Level



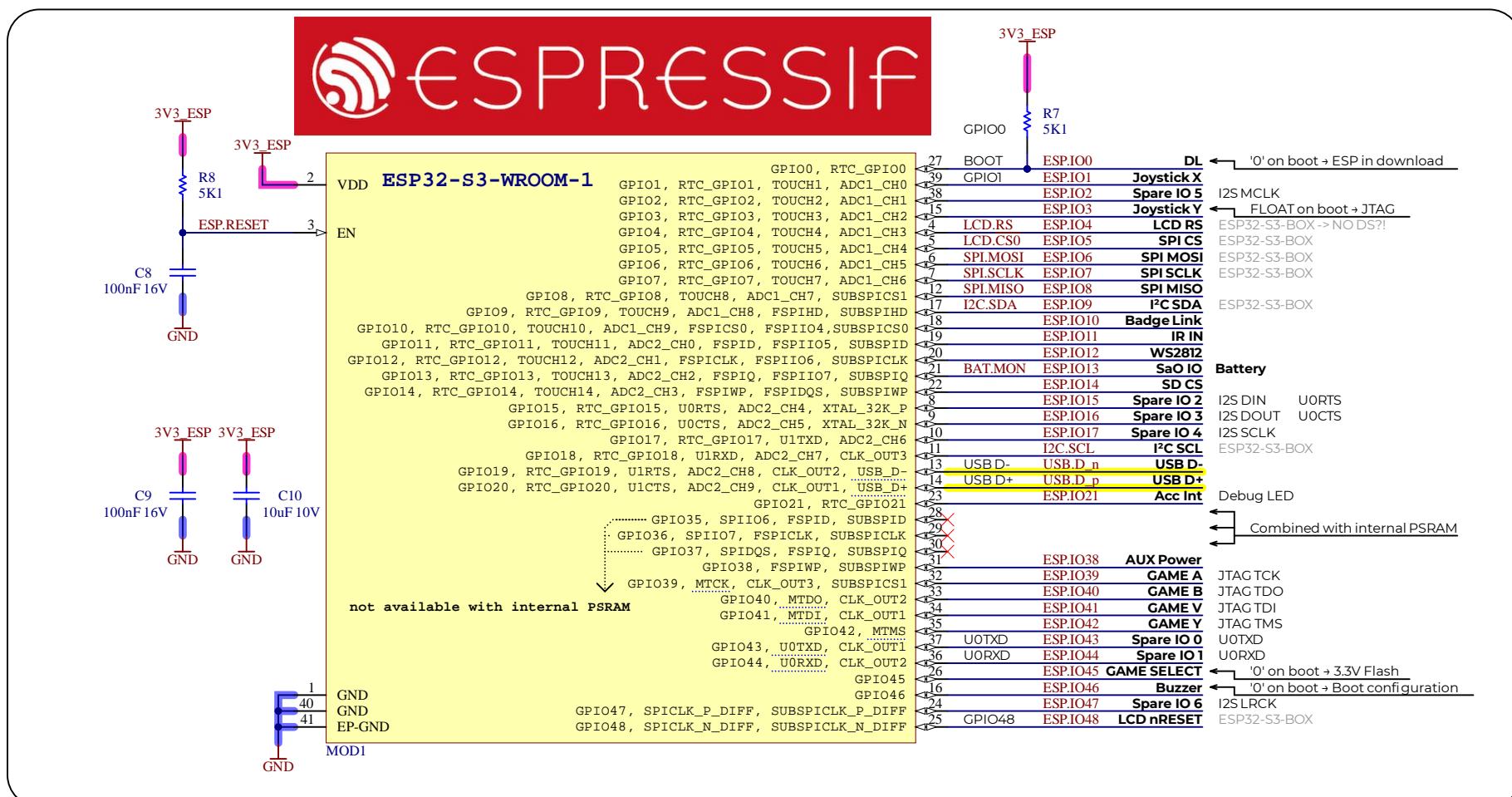
IO0	= Download
IO6-7-8-11	= Shared with Flash
IO12	= MTDI , internal PD
IO15	= MTDO , internal PU
IO16-17	= Shared with PSRAM
IO34-39	= Input only

Fri3D Badge 2024

ESP32-S3 Module

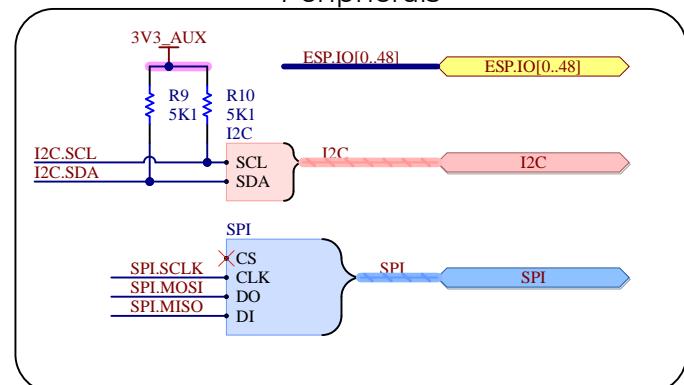
A A

ESP32-S3-WROOM-1

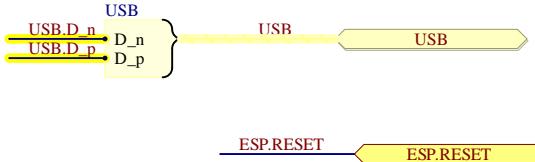


IO0	= '0': Download
IO3	= '1': SPI Boot
IO3537	= Floating: JTAG
IO45	= Shared with PSRAM
IO46	= '0' on boot: 3.3V Flash
	= '0' on boot: Boot configuration

Peripherals



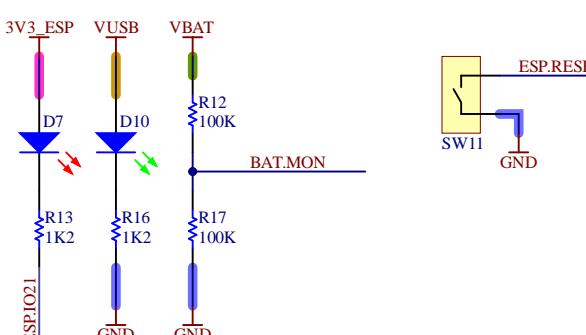
USB Interface



B B

C C

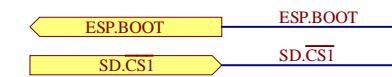
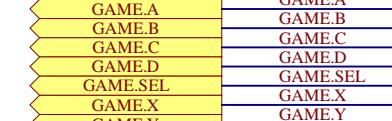
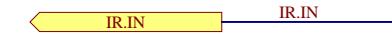
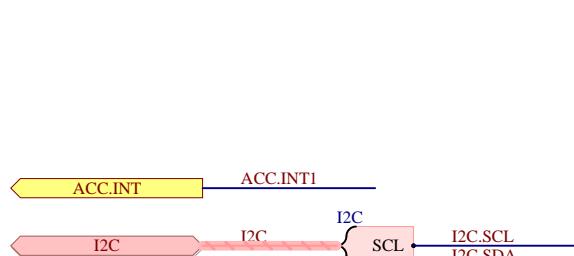
D D



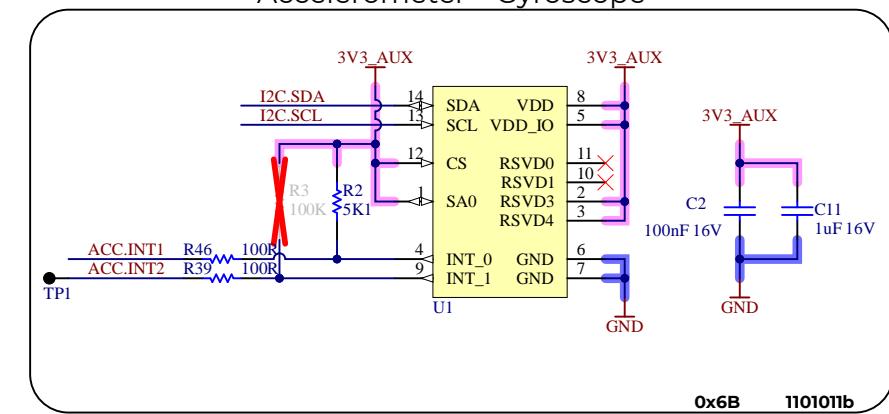
Fri3D Badge 2024

Peripherals

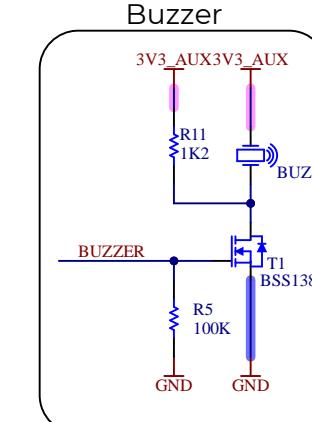
New Buzzer? **CMI-8536-82-SMT-TR**



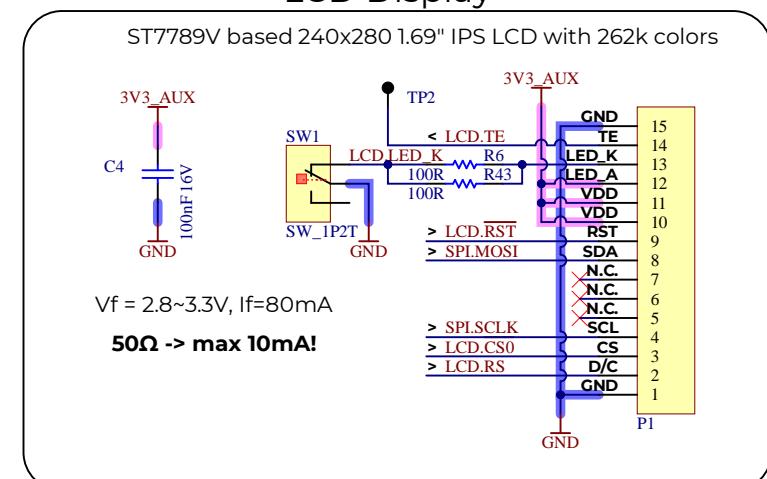
Accelerometer + Gyroscope



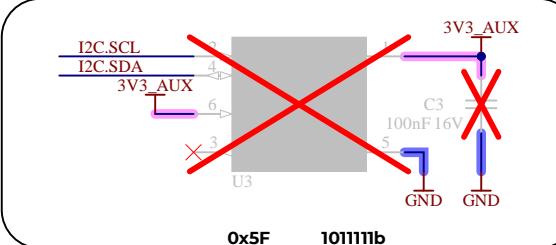
Sensors?



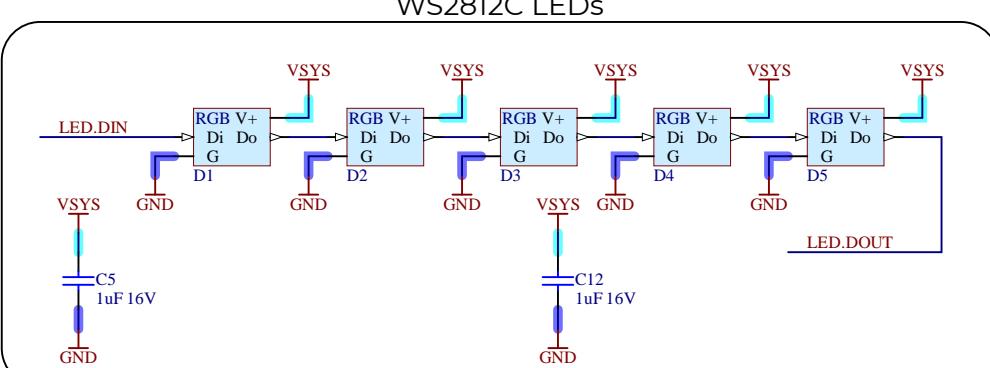
LCD Display



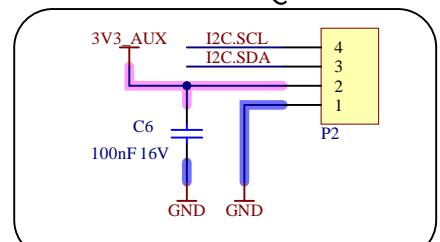
Temperature & Humidity



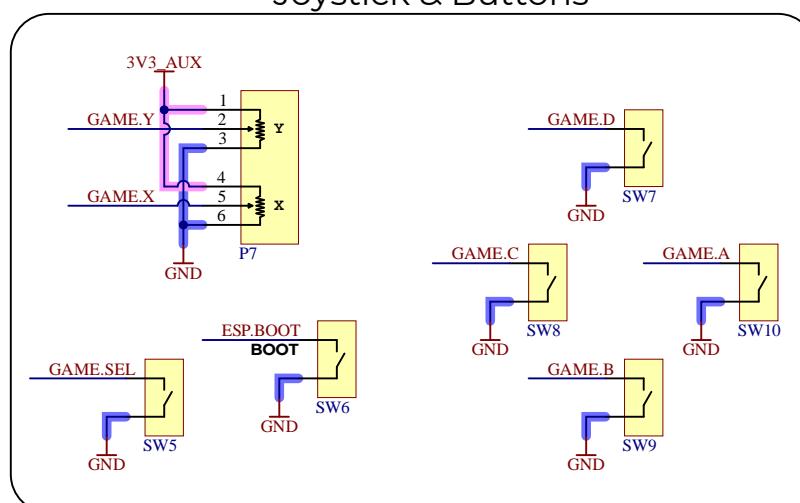
WS2812C LEDs



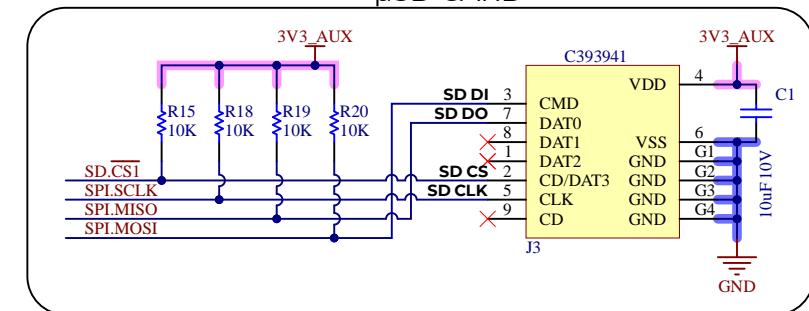
Stemma OT



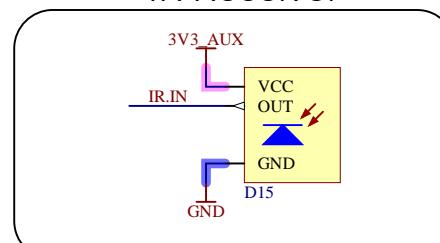
Joystick & Buttons



μSD CARD

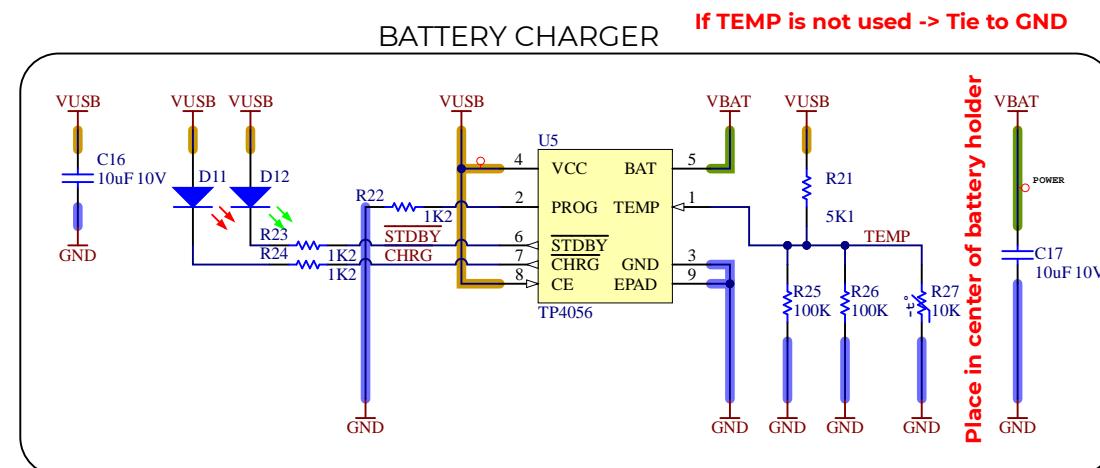


IR Receiver



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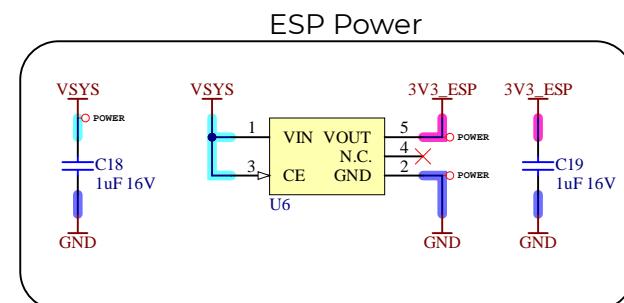
Power



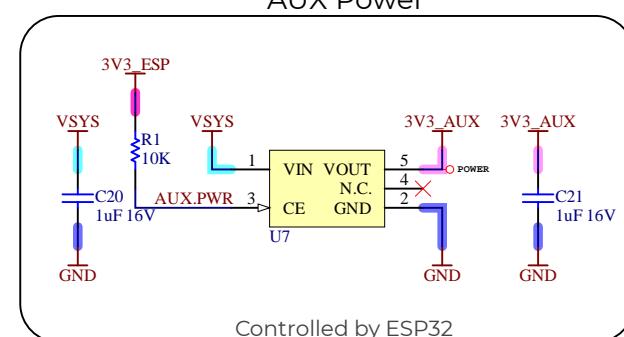
Max. 1A Charge current
1K2 = 1A Charge current
2K4 = 0.5A Charge current
10K = 0.13A Charge current

Charge State	RED	GREEN
Charging	ON	OFF
Done Charging	OFF	ON
Not Charging	OFF	OFF
No Battery	Blink	ON

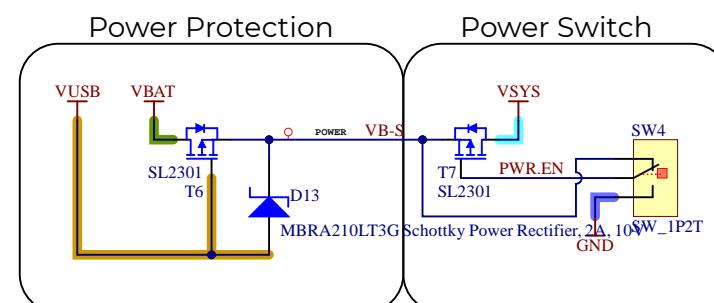
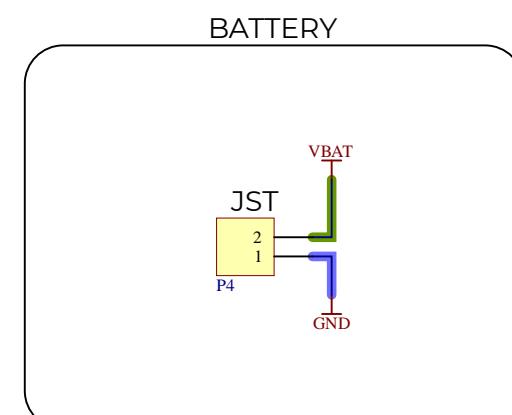
Stop charging if TEMP pin's voltage is below 45% or above 80% of supply voltage VIN
NTC specs:
2K521 @ 60°C $V_{temp} = (5V * R_2) / (R_1 + R_2)$ $V_{temp} @ 60^\circ C = 1.59V$
4K401 @ 45°C $V_{temp} @ 45^\circ C = 2.21V$
10K @ 25°C $V_{temp} @ 25^\circ C = 3.10V$
32K33 @ 0°C $45\% \text{ of } 5V = 2.25V$ $R_1 = 5K1$ $80\% \text{ of } 5V = 4V$ $R_2 = 50K // NTC$ $V_{temp} @ 0^\circ C = 3.97V$

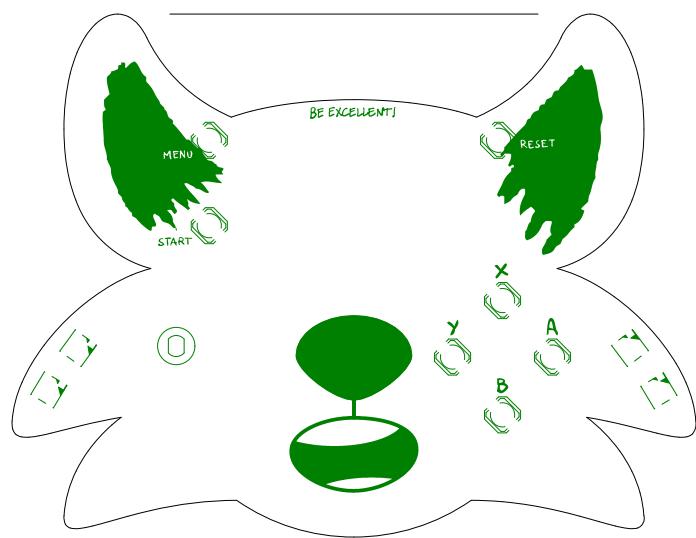


AUX Power

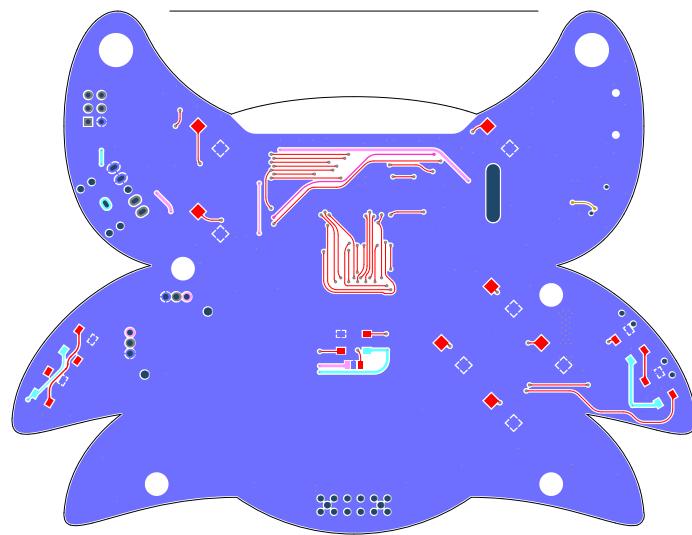


AUX.PWR → AUX.PWR

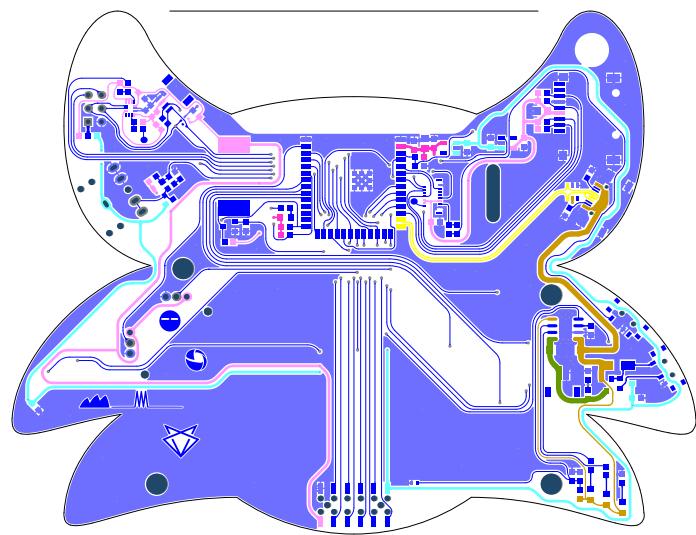




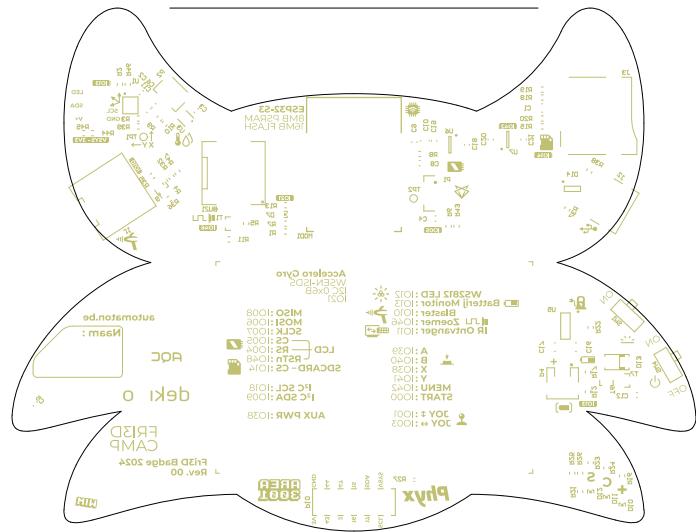
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Layer Name	Top Overlay
Date	12/11/2023
Rev	00
Designer	WimUG
Document	Fri3D_2024_00.PcbDoc



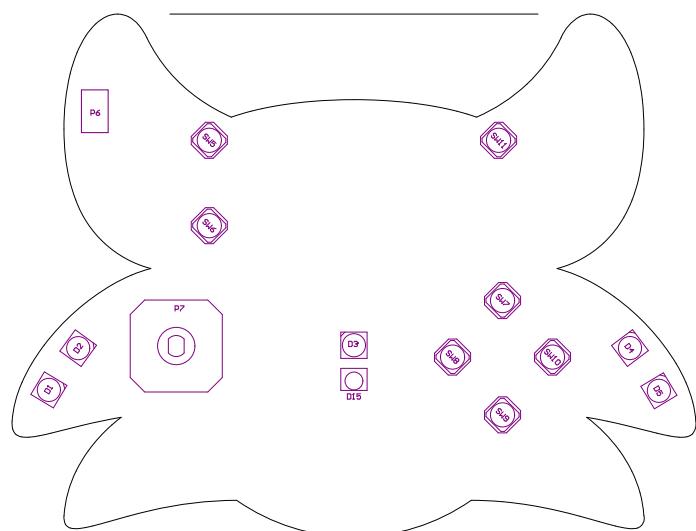
Phyx	Document Fri3D Badge 2024
Layer Name Top Layer	
Date 12/11/2023	Rev 00
Designer WimUG	Document Fri3D_2024_00.PcbDoc



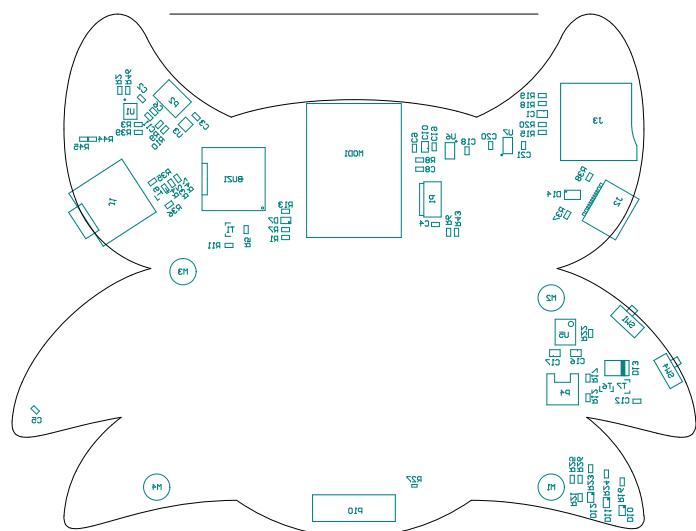
Phyx	Document Fri3D Badge 2024
Layer Name	Bottom Layer
Date	12/11/2023
Rev	00
Designer WimUG	Document Fri3D_2024_00.PcbDoc



Phyx	Document	Fri3D Badge 2024
	Layer Name	Bottom Overlay
	Date	12/11/2023
	Rev	00
Designer WimUG	Document	Fri3D_2024_00.PcbDoc



Phyx	Document Fri3D Badge 2024
Layer Name	Top Assembly
Date	12/11/2023
Rev	00
Designer	WimUG
Document	Fri3D_2024_00.PcbDoc



Phyx	Document
Fri3D Badge 2024	Layer Name
	Bottom Assembly
Date 12/11/2023	Rev 00
Designer WimUG	Document Fri3D_2024_00.PcbDoc

