BLUERETRO STATUS
BLUERETRO STATUS LED
PLAYERx STATUS LED

Player LEDs and BR Status LED (Optional)

LED PINS FOR P1,P3,P4 (GPIO2, GPIO12, GPIO15)
ARE ESP32 STRAPPING PINS!

If Player LEDs used:

Interface via MOSFET: Essential to prevent issues during boot.

Power Connection:

Connect to ESP_3V3 (If using the ESP's internal 3.3V supply).

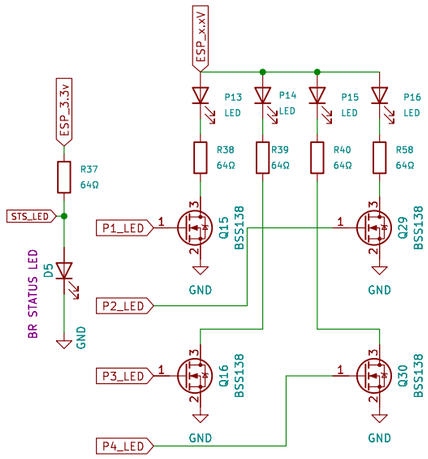
Or, connect to ESP_5V_EXT (if using a separate 5V power supply).

**Resistor Calculation: The 64Ω resistors shown are examples only.
You must calculate and use the correct resistor value based on:**

The specific LED type and color used.

The supply voltage level applied (ESP_3V3 or ESP_5V_EXT).

Refer to the typical values tables at the bottom for guidance.



LED Resistor Calculations (Vcc = 3.3V)
Assumptions:
LED Current: 20 mA (safe for ESP32 & MOSFET)
MOSFET Saturation Voltage V DS_sat: 0.1 V

LED Color	Vf (typ.)	Calculation	Resistance calculated	Standard Value	Power	Package
Red	1.8 V	(3.3 − 1.8 − 0.1)/0.02	70 Ω	68 Ω (E12)	0.028 W	0805
Green	2.1 V	(3.3 − 2.1 − 0.1)/0.02	55 Ω	56 Ω (E24)	0.022 W	0805
Blue	3.0 V	(3.3 − 3.0 − 0.1)/0.02	10 Ω	10 Ω (E12)	0.008 W	0805
Yellow	2.0 V	(3.3 − 2.0 − 0.1)/0.02	60 Ω	62 Ω (E24)	0.024 W	0805
White	3.1 V	(3.3 − 3.1 − 0.1)/0.02	5 Ω	4.7 Ω (E12)	0.002 W	0805

LED Resistor Calculations (Vcc = 5V)
Assumptions:
LED Current: 20 mA
MOSFET Saturation Voltage V DS_sat: 0.1 V

LED Color	Vf (typ.)	Calculation	Resistance calculated	Standard Value
Red	1.8 V	(5 − 1.8 − 0.1)/0.02	155 Ω	150 Ω
Green	2.1 V	(5 − 2.1 − 0.1)/0.02	140 Ω	150 Ω
Blue	3.0 V	(5 − 3.0 − 0.1)/0.02	95 Ω	100 Ω
Yellow	2.0 V	(5 − 2.0 − 0.1)/0.02	145 Ω	150 Ω
White	3.1 V	(5 − 3.1 − 0.1)/0.02	90 Ω	91 Ω

This project allow using BT gamepads on ogXBOX
BlueRetro by DarthCloud https://github.com/darthcloud/BlueRetro
OGX360 by Ryzee119 https://github.com/Ryzee119/ogx360
Based on concept and code by netham45 https://github.com/netham45/BlueRetro
BROGX by Konwektor https://github.com/konwektor/BlueRetro proto_pcb design Crossfader

Sheet: /HW2_LEDS/
File: HW2_LEDS_sch.kicad_sch

Title: BROGX

Size: A3	Date: 2025-06-22	**Rev: 1.5**
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