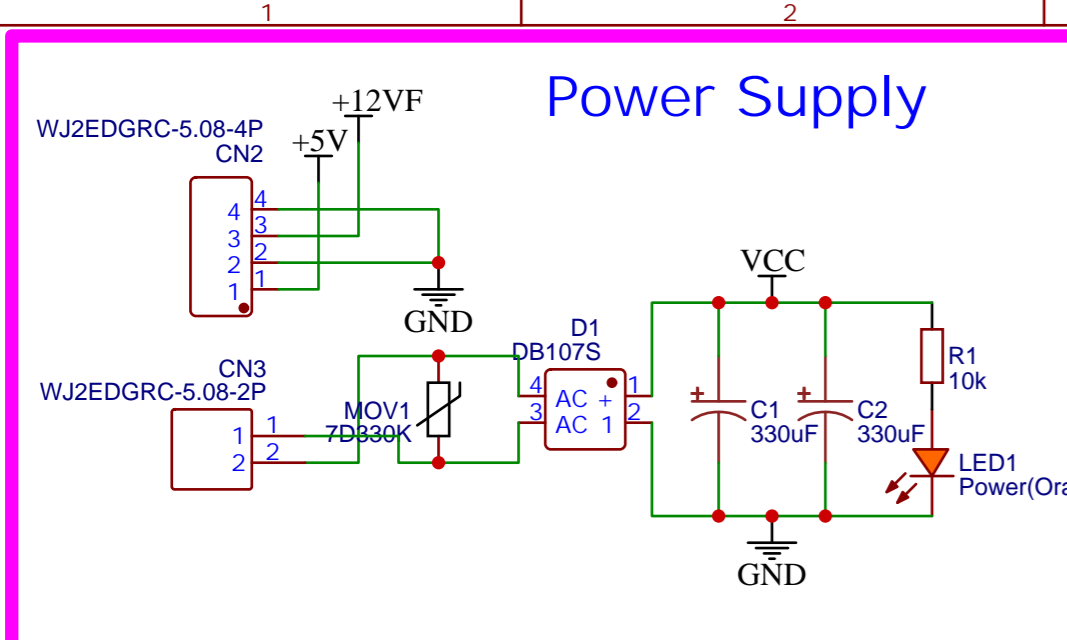


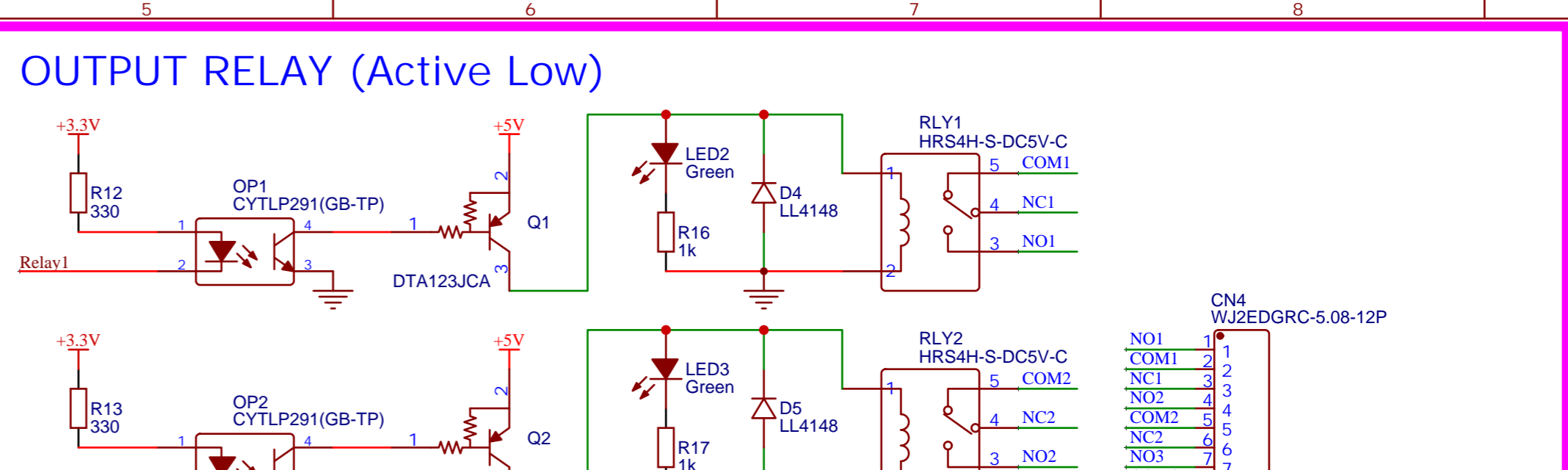
Power Supply

The diagram illustrates a power supply circuit for an LED. It features two WJ2EDGRC-5.08-4P modules. The first module (CN2) is connected to a +12V and +5V source. The second module (CN3) is connected to the output of the first module through a MOV1 ZP330K and a DB107S diode. The output is then connected to a VCC pin, which is also connected to a 10k resistor (R1) and an LED1. The circuit is grounded at multiple points.

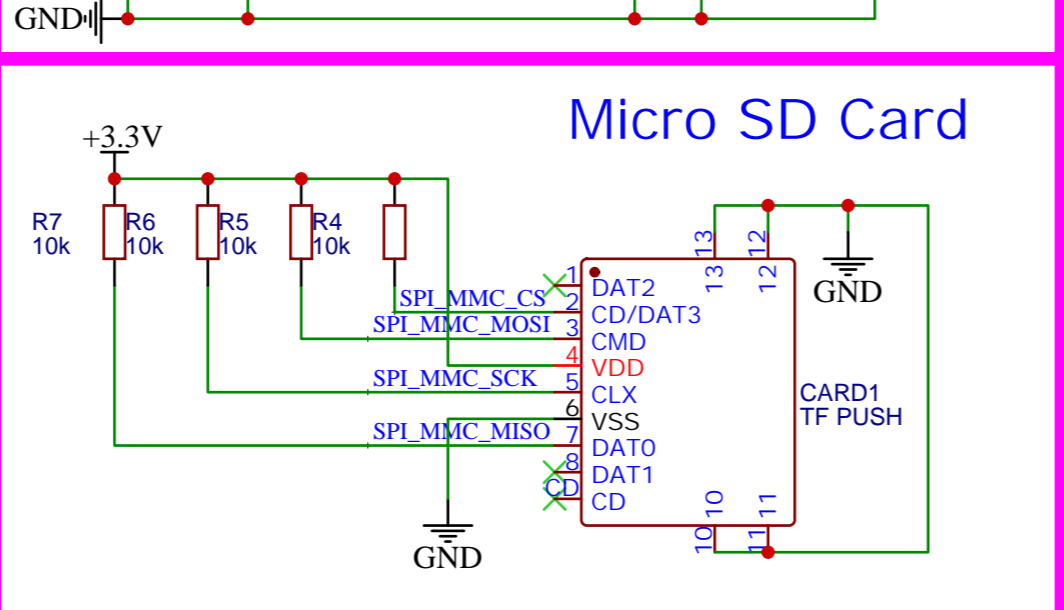
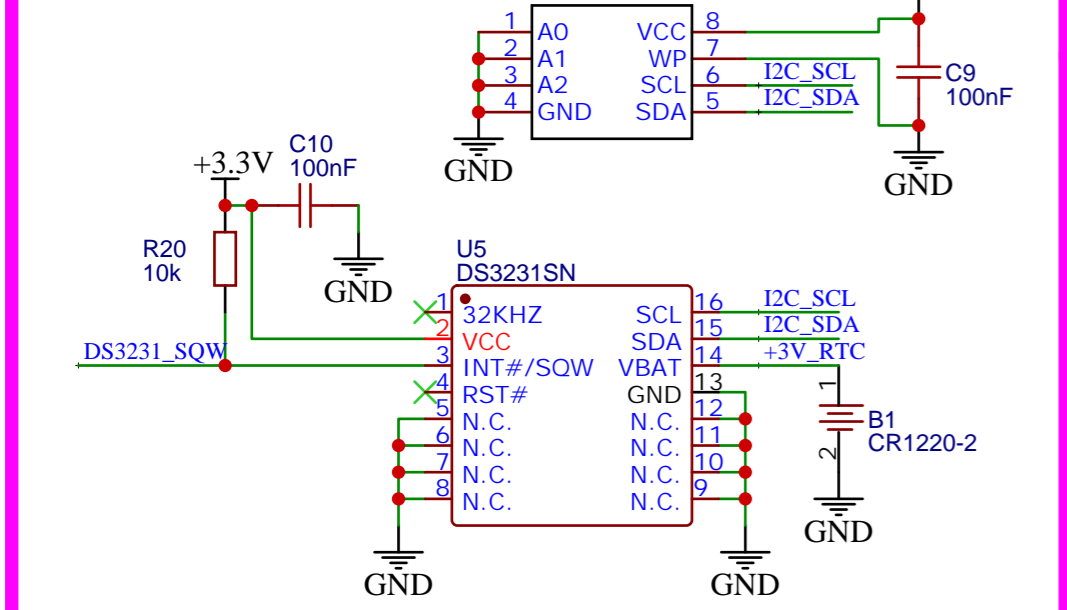


OUTPUT RELAY (Active Low)

The diagram illustrates the output relay circuit for an active-low configuration. It features two identical channels, one for RLY1 and one for RLY2. Each channel is driven by a 3.3V signal through a 330Ω resistor (R12, R13) to the base of a PNP transistor (Q1, Q2). The transistor's emitter is connected to +5V, and its collector is connected to the relay coil (RLY1, RLY2) and a 1kΩ resistor (R16, R17). A flyback diode (D4, D5) is connected in parallel with the relay coil. The relay is a 5VDC solenoid relay (HRS4H-S-DC5V-C). The output terminals are COM1, NC1, NO1 for RLY1 and COM2, NC2, NO2 for RLY2. A connector CN4 WJ2EDGRC-5.08-12P is shown on the right.

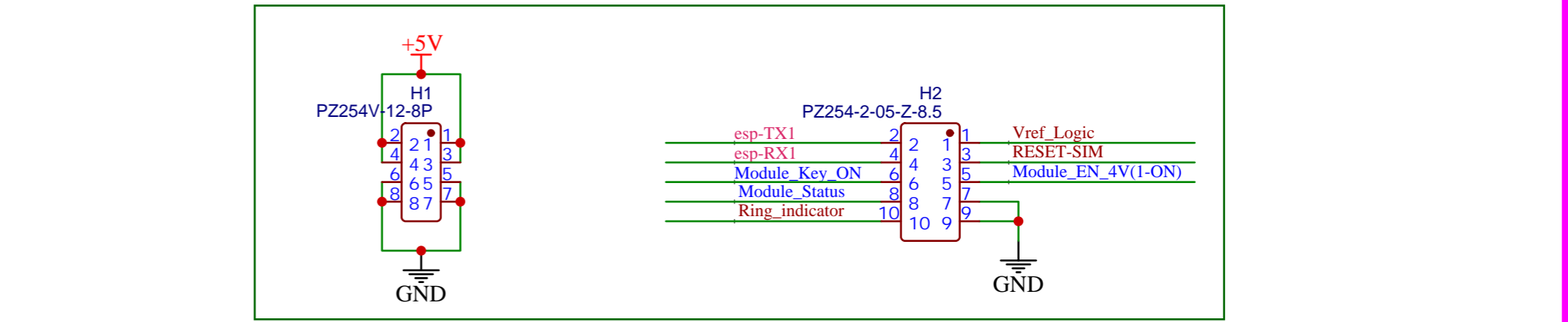
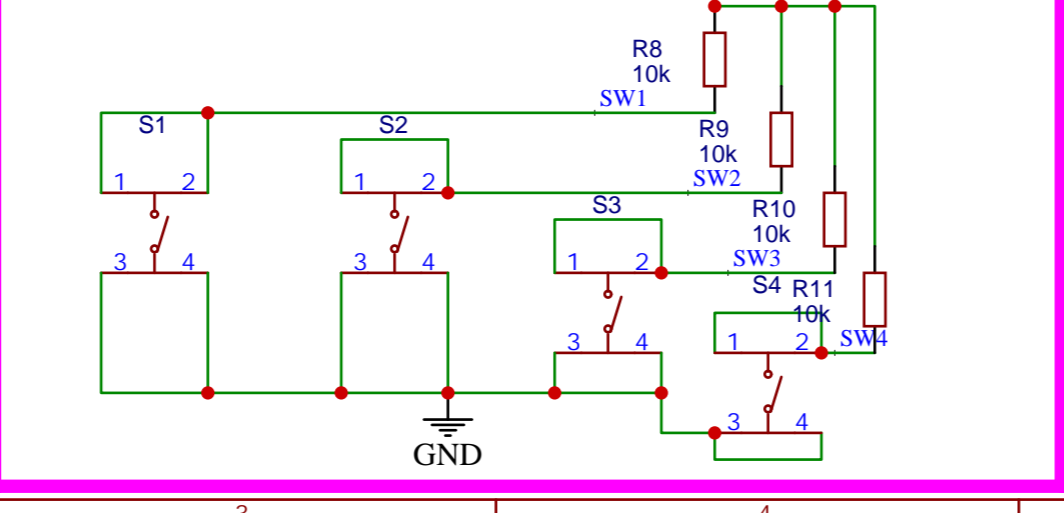
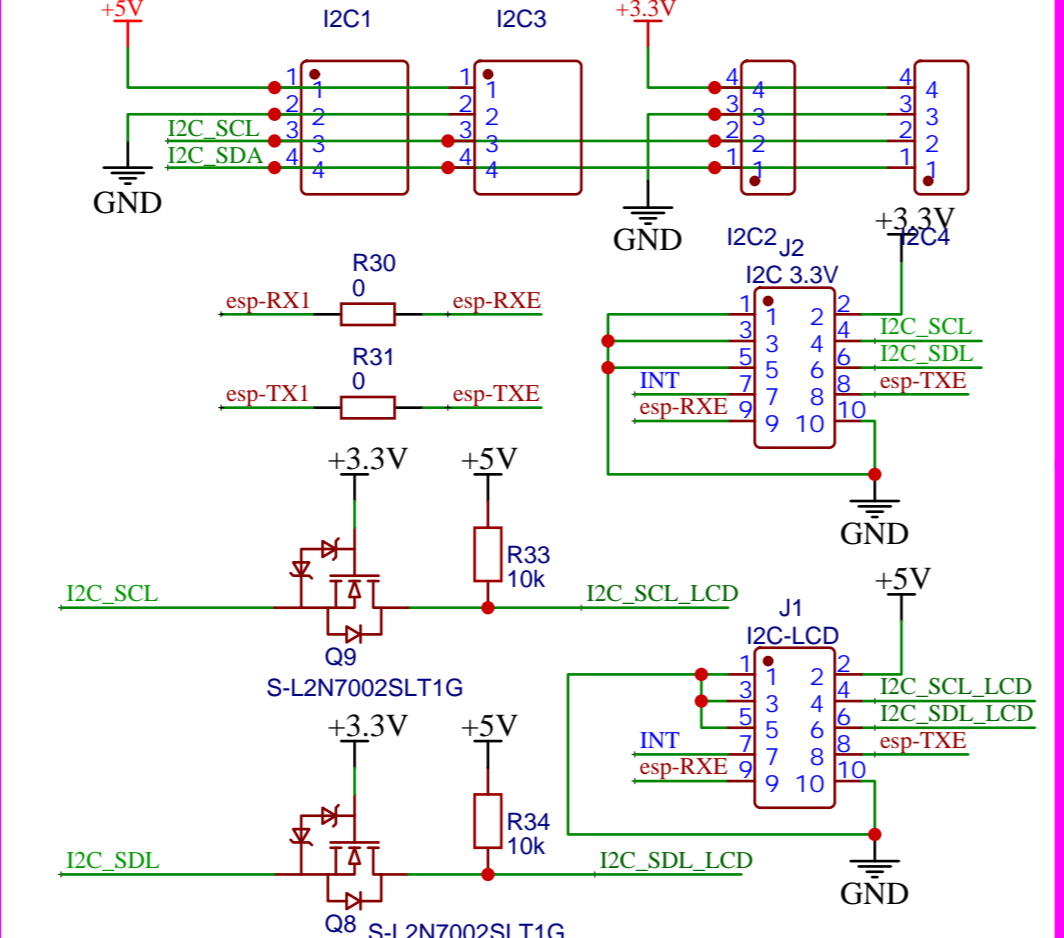
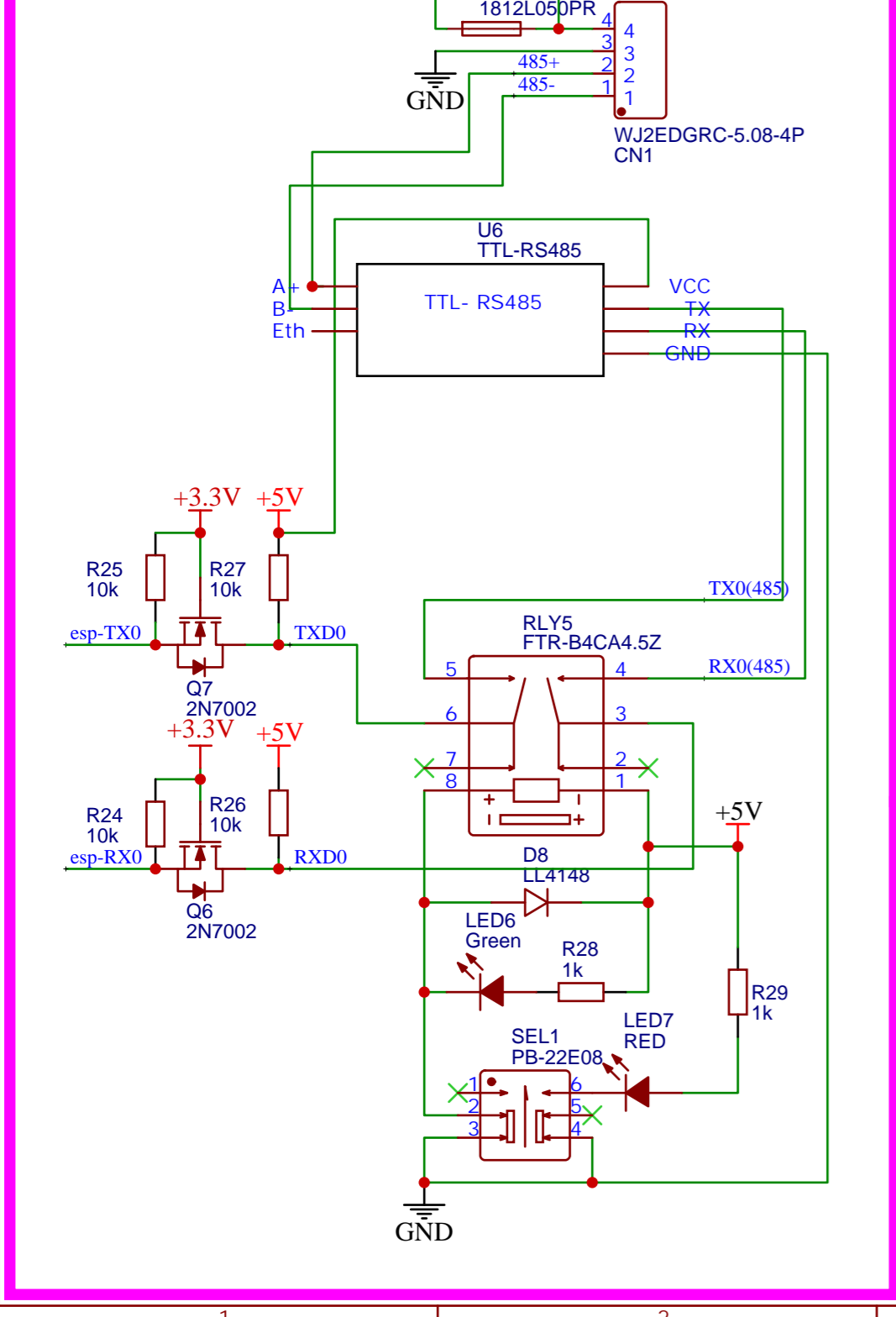


The diagram illustrates the hardware setup for the DS3231SN module. A 3.3V voltage regulator (R20) is connected to the module's VCC pin (pin 3) and the Arduino's 5V pin. A 100nF capacitor (C10) is connected to the module's VCC pin and ground. The module's GND pin (pin 4) is connected to the Arduino's GND pin. The module's SCL pin (pin 1) is connected to the Arduino's A0 pin, and the module's SDA pin (pin 2) is connected to the Arduino's A1 pin. The module's INT#/SQW pin (pin 3) is connected to the Arduino's A2 pin. The module's RST# pin (pin 4) is connected to the Arduino's GND pin. The module's pins 5 through 8 are connected to the Arduino's GND pin. The module's pins 9 through 12 are connected to the Arduino's GND pin. The module's pins 13 through 16 are connected to the Arduino's GND pin. The module's pins 17 through 20 are connected to the Arduino's GND pin. The module's pins 21 through 24 are connected to the Arduino's GND pin. The module's pins 25 through 28 are connected to the Arduino's GND pin. The module's pins 29 through 32 are connected to the Arduino's GND pin. The module's pins 33 through 36 are connected to the Arduino's GND pin. The module's pins 37 through 40 are connected to the Arduino's GND pin. The module's pins 41 through 44 are connected to the Arduino's GND pin. The module's pins 45 through 48 are connected to the Arduino's GND pin. The module's pins 49 through 52 are connected to the Arduino's GND pin. The module's pins 53 through 56 are connected to the Arduino's GND pin. The module's pins 57 through 60 are connected to the Arduino's GND pin. The module's pins 61 through 64 are connected to the Arduino's GND pin. The module's pins 65 through 68 are connected to the Arduino's GND pin. The module's pins 69 through 72 are connected to the Arduino's GND pin. The module's pins 73 through 76 are connected to the Arduino's GND pin. The module's pins 77 through 80 are connected to the Arduino's GND pin. The module's pins 81 through 84 are connected to the Arduino's GND pin. The module's pins 85 through 88 are connected to the Arduino's GND pin. The module's pins 89 through 92 are connected to the Arduino's GND pin. The module's pins 93 through 96 are connected to the Arduino's GND pin. The module's pins 97 through 100 are connected to the Arduino's GND pin.



The diagram shows a relay module with the following components and connections:

- Relay (RLY5 FTR-B4CA4.5Z):** A 4-pin relay with terminals 1, 2, 3, and 4. Terminal 1 is connected to GND. Terminal 2 is connected to the RX0(485) line. Terminal 3 is connected to the TX0(485) line. Terminal 4 is connected to +5V.
- Transistors (Q6, Q7):** 2N7002 N-channel MOSFETs. Q6 is connected to the RX0(485) line, and Q7 is connected to the TX0(485) line. Both gates are connected to +3.3V through resistors R24 and R25, respectively. Both drains are connected to the relay terminals 2 and 3, respectively.
- Resistors (R24, R25, R26, R27, R28, R29):** 10k resistors for the MOSFET gates and a 1k resistor for the LED current limiting.
- LEDs (LED6 Green, LED7 RED):** Two LEDs connected to the relay terminals 1 and 2, respectively, through a 1k resistor (R28).
- RS485 Module (U6 TTL-RS485):** A module with TX, RX, and GND pins. The TX pin is connected to the TX0(485) line, the RX pin is connected to the RX0(485) line, and the GND pin is connected to GND.
- Power Supply:** +3.3V and +5V rails are shown, connected to the MOSFET gates and the relay module, respectively.



The diagram illustrates the hardware setup for the ESP32 IoT Smart Farm Ver.3. The central component is the ESP32-DOIT ESP32 DEVKIT V1 module. Key connections include:

- Power Supply:** A 5V source is connected to the VCC pin (pin 1) and the GND pin (pin 30). A 1uF capacitor (C7) is connected to the VCC pin, and a 330uF/6.3V capacitor (C8) is connected to the GND pin.
- Serial Communication:** The TX pin (pin 17) is connected to a 4.7k resistor (R2) and the RX pin (pin 18) is connected to another 4.7k resistor (R3). Both resistors are connected to a +3.3V source.
- Relay Module:** A relay module (RF1, KH-SMA-K514-N) is connected to the GPIO pins. The module's VCC is connected to the +3.3V source, and its GND is connected to the GND pin.
- Buzzer:** A buzzer (BUZZER1, TMB09A03) is connected to the BUZZER pin (pin 7) and the GND pin.

The diagram is titled "ESP32-DOIT ESP32 DEVKIT V1" and "ESP32 IoT Smart Farm Ver.3".

