

Wiring Datasheet for Arduino Uno Robot

1. Power Distribution:

- Connect the 9V battery to the breadboard's positive rail (for motor power).
- Connect the GND (negative terminal) of the 9V battery to the breadboard's ground rail (common ground).
- The Arduino will be powered by 5V from the motor driver or the USB (if you're programming it).

2. Arduino to Breadboard:

- Connect the 5V pin of the Arduino Uno to the 5V rail of the breadboard.
- Connect the GND pin of the Arduino Uno to the GND rail of the breadboard.

3. Motor Driver (L298 or similar) Connections:

- Connect VCC of the motor driver to the 9V rail of the breadboard (for motor power).
- Connect GND of the motor driver to the GND rail of the breadboard.
- Connect IN1, IN2, IN3, IN4 to Arduino digital pins 2, 3, 4, 5.
- Connect EN1 and EN2 to 5V.
- Connect OUT1, OUT2 to DC Motor 1.
- Connect OUT3, OUT4 to DC Motor 2.

4. IR Sensors:

- VCC to 5V rail.
- GND to ground rail.
- OUT to Arduino digital pins 6 and 7.

5. Color Sensor:

- VCC to 5V rail.
- GND to ground rail.
- SCL to A5 on Arduino.
- SDA to A4 on Arduino.

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6. Servo Motor:

- VCC to 5V rail.
- GND to ground rail.
- Signal pin to digital pin 9 on Arduino.

7. Ultrasonic Sensor:

- VCC to 5V rail.
- GND to ground rail.
- TRIG to digital pin 10.
- ECHO to digital pin 11.

Final Wiring Summary:

- Power:
 - 9V battery: VCC to breadboard positive rail, GND to ground rail.
 - Arduino: 5V and GND to breadboard rails.
- Motor Driver:
 - VCC to 9V rail, GND to ground.
 - IN1-4 to Arduino pins 2-5, OUT1-4 to DC motors.
 - EN1, EN2 to 5V.
- IR Sensors: VCC to 5V, GND to ground, OUT to pins 6 and 7.
- Color Sensor: VCC to 5V, GND to ground, SCL to A5, SDA to A4.
- Ultrasonic Sensor: VCC to 5V, GND to ground, TRIG to pin 10, ECHO to pin 11.
- Servo Motor: VCC to 5V, GND to ground, signal to pin 9.