

Raspberry Pi Robot Car — Printable GPIO Pin Map (Tutorial 01)

Use BCM numbering in code. Wire motors to driver. Tie all grounds (GND) together.

Wiring Checklist

Motor Driver Inputs (BCM)

- IN1 → GPIO17
- IN2 → GPIO18
- IN3 → GPIO22
- IN4 → GPIO23

Ultrasonic Sensor (HC-SR04)

- VCC → 5V
- GND → GND
- TRIG → GPIO24
- ECHO → GPIO25 *through resistor divider*

Power Rules

- Do NOT power motors from Pi 5V.
- Motors use a separate battery.
- Share GND between Pi and motor driver.

Code Pin Constants (BCM)

Motor driver pins (BCM)

```
IN1 = 17
IN2 = 18
IN3 = 22
IN4 = 23
```

Ultrasonic sensor pins (BCM)

```
TRIG = 24
ECHO = 25 # use a voltage divider!
```

Echo Pin Protection

HC-SR04 ECHO outputs 5V. Raspberry Pi GPIO is 3.3V max. Use a simple resistor divider:

```
Echo → 2kΩ → GPIO25
GPIO25 → 1kΩ → GND
```

Notes

If the robot reboots, it's usually power noise. Separate motor power, add decoupling caps, and keep motor wires away from the Pi.