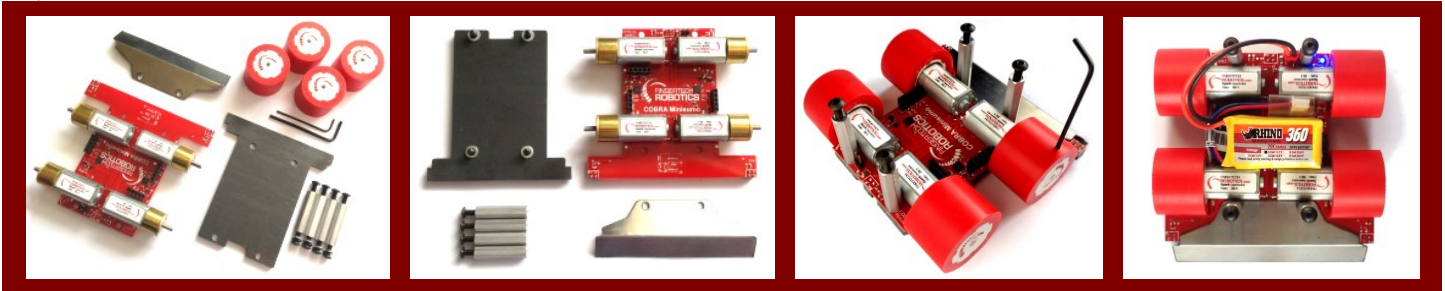


COBRA Mini-Sumo Chassis



Using the standoffs, four screws, and the large 5/64" hex wrench, attach the scoop to the top of the chassis and the metal ballast plate to the bottom with the four washers spacing it from the pcb. Don't forget them or short circuits will damage the board and battery!

Screws

Wheels

Press the urethane mini-sumo wheels onto the motor shafts. The shaft's flat spot should line up with the wheel's setscrew (the large notch of the FingerTech logo). Tighten the setscrew in each wheel by pushing the small 1/16" hex wrench through the existing hole. If all four wheels do not touch the ground, adjust the scoop height by bending it upward (be careful of the sharp edges). There will be four screws remaining to attach your circuit board or PCB Mount Kit (sold separately).

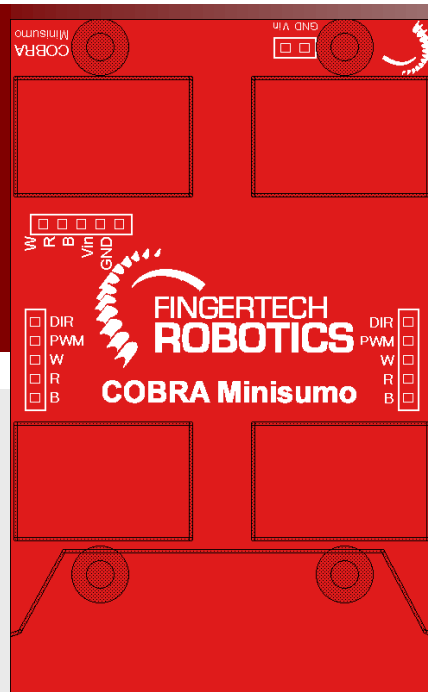
Connect your 6V-16V battery to the 2-pin header (GND closest to the wheel). A 3-position power switch can supply battery voltage to only your connected control board (the middle "PCB" switch setting) or to your control board plus the Cobra circuitry ("MOT" switch setting). There are Vin and GND headers available for bringing power to your control board.

Power

Motors

The Cobra has two on-board motor drivers (left and right). To operate them, you will need to connect their DIR (direction) and PWM (speed) pins to a microcontroller. For DIR, 5V is forward direction and 0V is reverse. The PWM pins require a 5V pulse-width-modulated waveform for smooth operation.

With power to the board and control circuitry disconnected, you can test the motors by pressing the PWM TEST button. Press the DIR TEST button at the same time and the motors will switch direction.



The Cobra comes with three line sensors that can detect the white outer line of the black sumo ring. They are labeled "R" (between "W" and "B" on each header) and must be used in analog mode. Black generally reads 1.7V and white reads 2.5V, so set your software's thresholds accordingly. There is a green LED for each line sensor that will light up faintly as it detects more white. If you need access to GND, you can tie in to the "B" header pins. "W" is 5V, but the regulator is not capable of much extra current so don't try to power LEDs or bigger.

Sensors