

# M1 Mini Sumo Robot Kit

### What's Included?

- Genesis Mainboard
- Arduino Nano
- Dc Gearmotors
- SLT20 Silicone Wheels
- M1 Mini Sumo Chassis
- QTR1A Line Sensors
- Mr45 Opponent Sensors
- 2S LiPo Battery

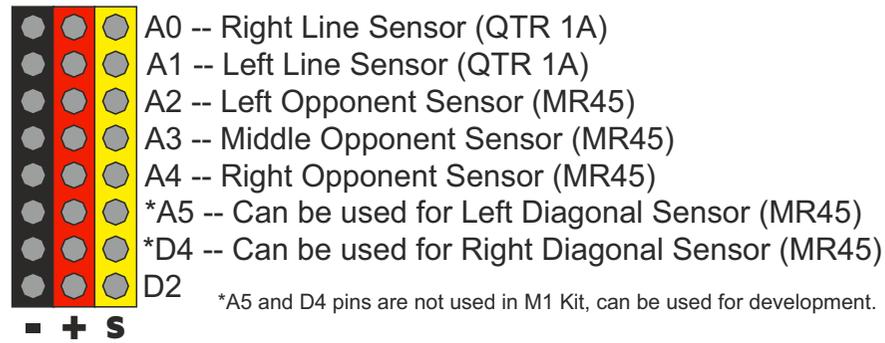


### Assembling Tools

- Soldering Iron & Solder
- Wire cutter
- Philips screwdriver

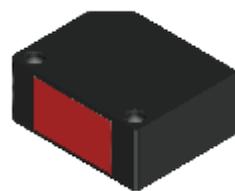


## Connection Terminal - Sensor Pins

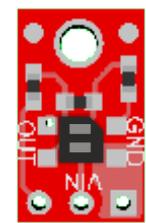


### Tips

All Red Line and Black Line is common in connection terminal. You can connect any GND(-) and Positive (+) Line to sensors. All analog inputs (except A6-A7) can be used as digital too. Please look to program declarations for seeing how is done.



**MR45**  
**BROWN = +**  
**BLUE = -**  
**BLACK = S**



**QTR1A**  
**Vin = +**  
**GND = -**  
**Out = S**

### Sensors

Mr45 and QTR1A Sensors is used as digital input sensors. Just they give us 0 (0V) or 1 (5V). We are using all pins as digital inputs.

### Motors

Kit motors are high power dc gear motors. You will tie this motors to green LeftMot and RightMot terminals. (At the corners of Genesis controller) If your robot goes back or turning when it needs to go forward just reverse Dc motor's cables. Motor will start to turn other direction.

### Battery

M1 Kit uses 2 Cell (2S) or 3 Cell (3S) lipo battery. You can use higher voltages for more high power. Please connect your battery to Green big power terminal (at bottom middle of Genesis controller) Please be carefull to polarity. Battery red cable will be connected to + side And black cable will be connected to minus line.

### Genesis Mainboard

All in one robot controller for minisumo robot and other robot projects. Genesis expands Arduino Nano's voltage inputs and adds extra protection capabilities. It features 8 pins for extra sensors, controlling elements by connection terminals at left side of Genesis. For minisumo we are only using 5 pin of them (A0-A1-A2-A3-A4). Motor channels are connected with 1 PWM, 1 Direction Pin (Left Motor D3 PWM speed, Left Motor Direction D12, Right Motor D11 PEM Speed, Left Motor direction D13). All features and information can be found at [jsumo.com/blog](http://jsumo.com/blog)

## What is Mini Sumo Robot?

Robot-sumo is a sport in which two robots attempt to push each other out of a circle (in a similar fashion to the sport of sumo). The robots used in this competition are called sumobots.

Mini sumo robot's only difference is sizes and weight.

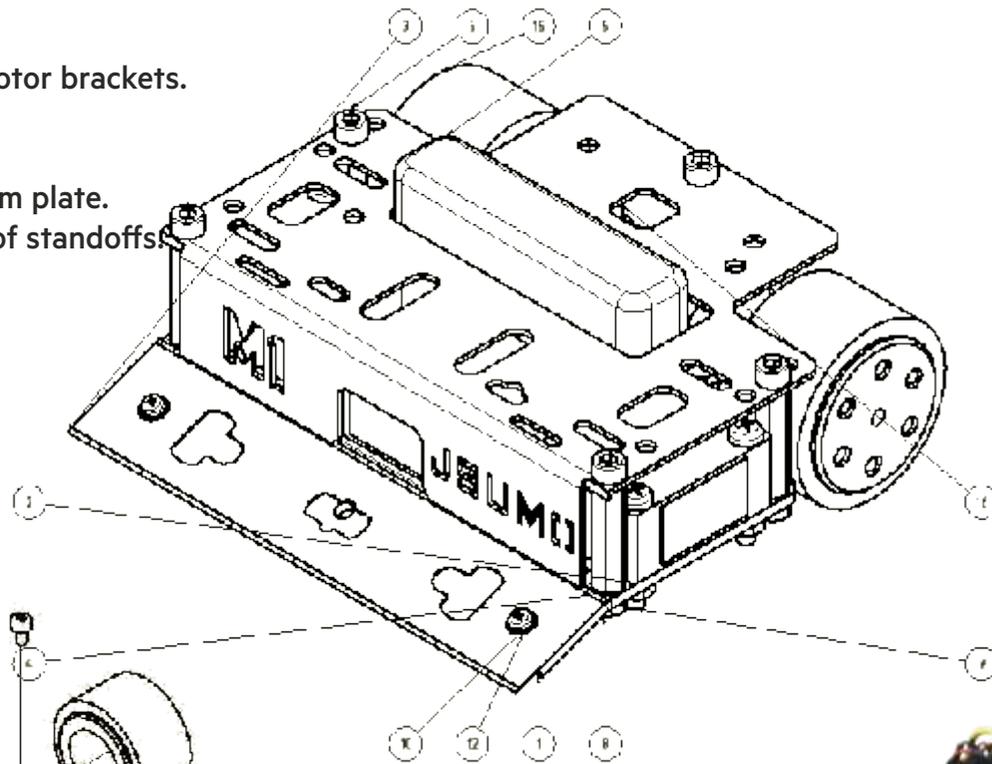
Robot needs to fit in 10cm x10cm sququare (no height limit) and must be lower than 500 grams.

## How to Assemble M1 Kit?

Start from Bottom, Connect motors to chassis with motor brackets.  
Connect SLT2 wheels to motors with M4 setscrews.  
Place 3xMr45 sensors with long M3 screws.  
Attach and add cables for QTR 1A sensors from bottom plate.  
Place upper plate (M1 - Jsumo written) with 5 pieces of standoffs.  
Add your battery to middle hole.

## Soldering & Crimping

Solder Dc motors back terminals with 10-15 cm cables.  
Add crimp pins to Mr45 cables (Shiny, metal sockets)  
After crimping please insulate each one.  
Solder QTR1A Female-Male cables directly. Please solder horizontally.



PARTS LIST		
ITEM	QTY	PART NUMBER
1	2	Bottom Plate
2	2	MR45 sensor
3	1	Kalena Blade
4	5	25mm-standoff
5	1	Lipo Battery
6	4	M3 Screw
7	6	ISC 7045 - M3 x 20 - 4R - H
8	11	ISC 4032 - M3
9	2	QTR Edge Sensors
10	2	ISC 7045 - M2 x 6 4R - H
11	2	ISC 4035 - M3
12	2	ISC 7052 - 5" 2 - 140 Mv
13	1	Bosch Controller
14	2	Gear Motors
15	2	SLT2 Wheels
16	2	13mm Brackets

