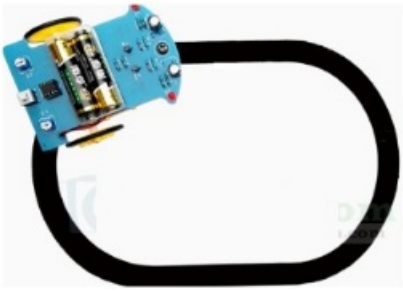
Megatronics D2-1 Smart Tracking Robot Car Instructions

Contents

MEGATRONICS

Megatronics D2-1 Smart Tracking Robot Car



Introductions

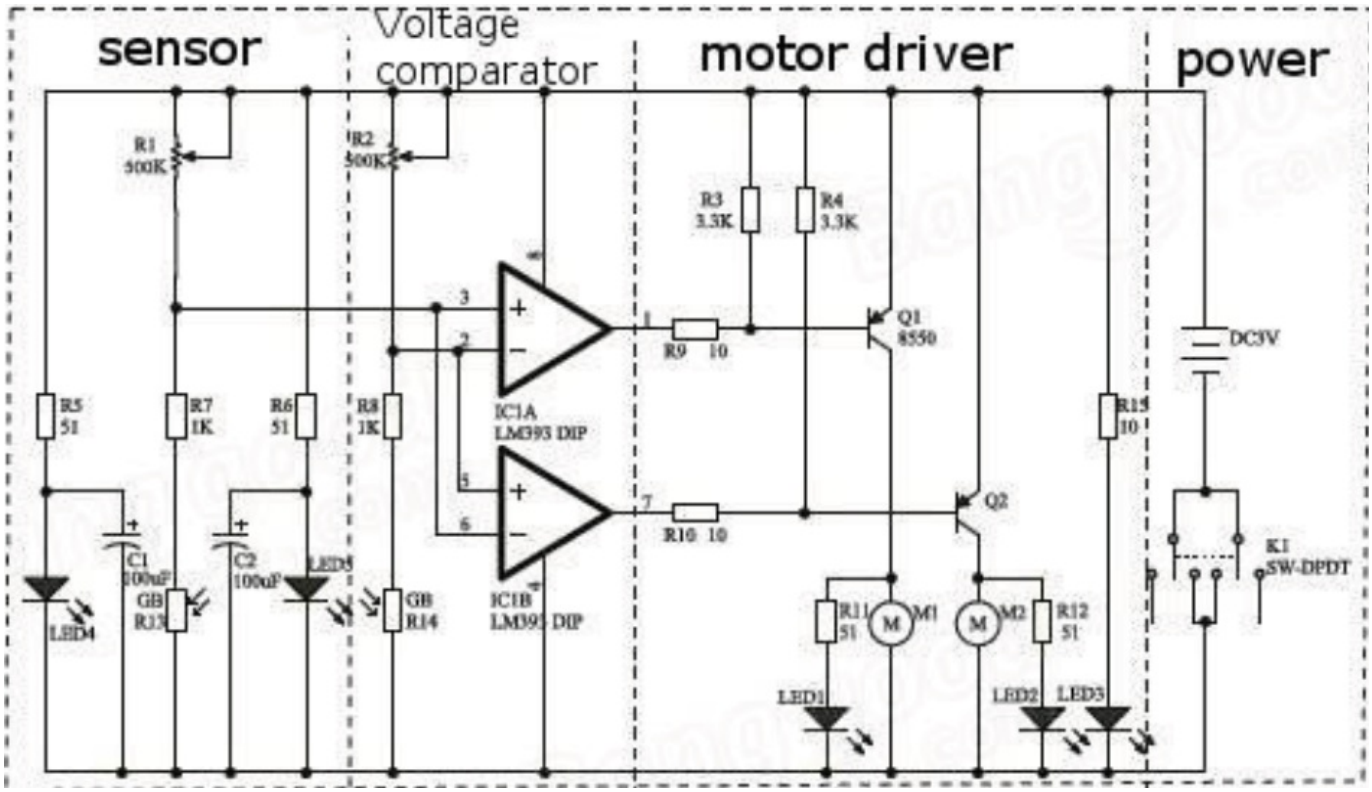
The DIY smart tracking robot car kit is an introductory electronic kit designed to help kids or electronic, enthusiasts, and novices learn about basic electronic basics knowledge like soldering and simple circuits(photoelectric sensor circuit, voltage comparator, motor driving, ir sensor, C51 MCU) The smart kit is designed based on the principle of infrared sensor and light reflectivity difference when the light emitting on the white and black items, The red LED emits the red light, then light will be reflected the photoresistor, the circuit will detect the resistance to detect if the car on the white area and to regulate its running direction automatically. There is no programming involved, and all of the soldering is beginner-friendly, making it perfect for budding electronic enthusiasts.
This kit does not contain batteries

Package list

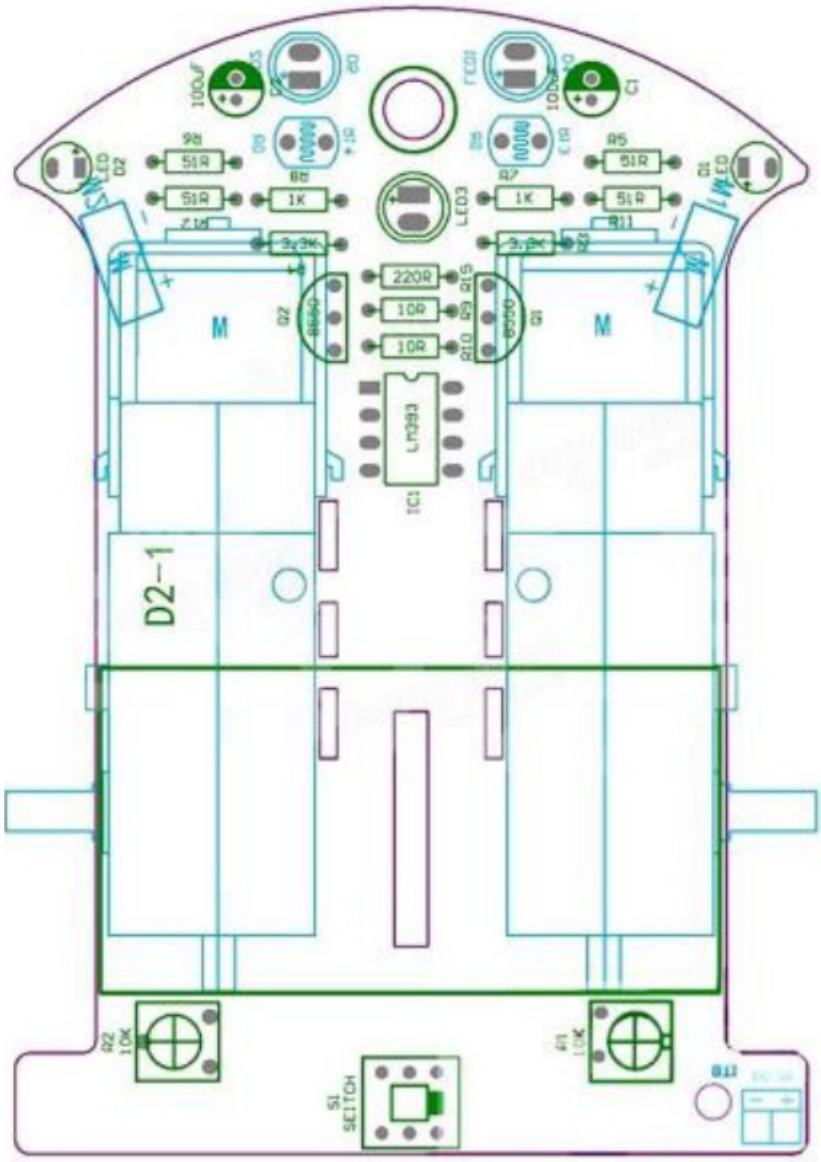
Grade	Name	Specification	Quantity
IC1	Voltage comparator	LM393	1
	IC socket	8 pin	1
C1	Electrolytic capacitor	100uF	1
C2		100uF	1
R1	Adjustable resistance	10K	1
R2		10K	1
R3	Color ring resistance	3.3K	1
R4		3.3K	1
R5		51	1
R6		51	1
R7		1K	1
R8		1K	1
R9		10	1
R10		10	1
R11		51	1
R12		51	1
R13	Photo-resistance	CDS5	1
R14		CDS5	1
D1	3.0 LED	LED	1
D2		LED	1
D4	5.0 LED	LED1	1
D5		LED2	1
Q1	Transistor	8550	1
Q2		8550	1
S1	Switch	SWITCH	1

Machinery parts list			
1	Geared motor	JD3-100	2
2	Wheel piece 1	/	2
3	Wheel piece 2		2
4	Wheel piece 3		2
5	Silicone tire	25*25	2
6	Wheel screw	M3X10	4
7	Wheel nut	M3	4
8	Wheel shell screw	M2 2*7	2
9	Caster screw	M5X30	1
10	Caster nut	M5	1
11	Caster	M5	1

Schematic diagram



Assembly instructions



The assembly steps

The first step: the circuit part of the basic welding
Pay attention to the welder, welding according to the welding circuit is simple, the welding sequence component height from low to high principles, the first welding eight resistance welding must be used universal confirmation form resistance is correct, is welded with a polar components such as transistors, the green indicator light, the electrolytic capacitor must point clear polarity as reference we picture element direction, welding capacitor short pin is the negative into the PCB screen printing on the shadow side of the green LED pin long is the cathode welding time not too long otherwise easy to weld, D4, D5 R13, and R14 can be temporarily not welding, integrated circuit chip can be in, the initial completion of welding, please be sure to carefully check, prevent careless.
The second step: mechanical assembly
Will the universal wheel and the screw is inserted into the PCB hole and screwed universal wheel nut and a universal round. Battery box through the double-sided adhesive tape affixed to the PCB and lead wire through the PCB reserved eyelet welding connected to the PCB, the red wire 3V power supply. The yellow line grounding, and excess lead can for interconnection of the motor. The mechanical parts assembly can be assembled by three wheels, the wheels round black acrylic sheet. Please remove the protective film before the assembly, wheel center hole inside the park grows, and the middle wheel diameter is relatively small, round piece center hole Shiyuan outside, with two screws fixed to three round plates, and is fixed on the motor shaft with self-tapping screws black, the silicone tire sets on wheels. Connect the motor wire lead, and the wheel assembly with the adhesive formulation position in PCB, note the wheels and PCB edge keeping sufficient clearance, the motor wire welding to PCB, pay attention to lead appropriately to stay longer, to change the direction of rotation of the motor to prevent lead error after order.

The third step: is the installation of optoelectronic circuits

Photosensitive resistance and light emitting diode (attention polarity) is the reverse installed on the PCB, and the ground distance of about 5 mm, the distance between the photosensitive resistance and light emitting diode is about 5 mm.

The fourth step: the vehicle debugging

In the battery box in 2 AA batteries, switch ON the “ON” position, the motion of the car’s right inverse is the universal wheel direction, if you hold down the left side of photosensitive resistance, the car ON the right side of the wheel should turn, hold down the right of the photosensitive resistance, the car to the left of the wheel should turn, if the car back can exchange at the same time two motor wiring, if one side is normal other retreat, as long as the exchange of back side of the motor wiring.

Documents / Resources

	Megatronics D2-1 Smart Tracking Robot Car [pdf] Instructions D2-1, D2-1 Smart Tracking Robot Car, Smart Tracking Robot Car, Tracking Robot Car, Robot Car, Car