Smart Tracking Robot Car
Instruction Manual

Thank you for purchasing the D2-1 Line Tracking Car Kit. This kit gives you an initial understanding of the principles of automatic control and technology. We hope that you will learn useful knowledge and skills in this product, and for further learning in the future lay a good foundation. When using this product, please assemble it according to the instructions in the manual so that it can be correctly use this product.

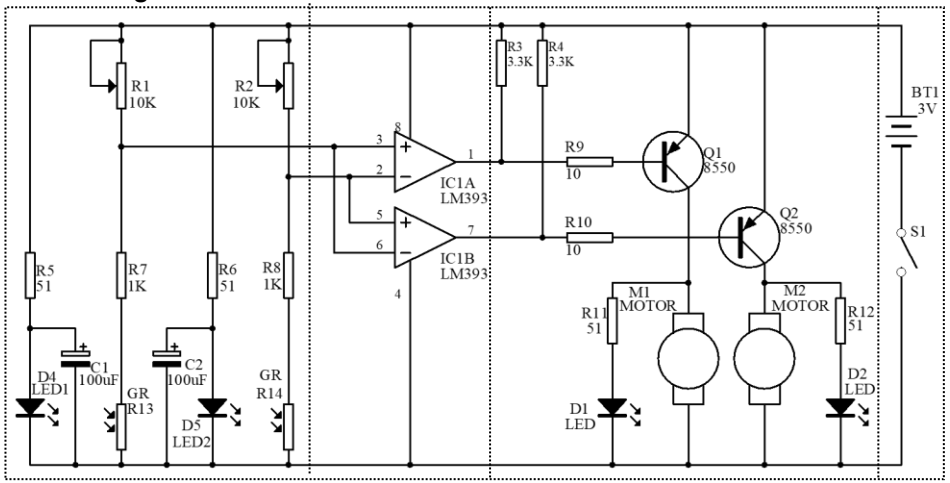
PCBA Assembly Process :

1. According to the circuit diagram and the identifier on the circuit board, the color ring resistance, 8-pin IC socket, switch, potentiometer, three poles are sequentially turned. The tube, electrolytic capacitor, and φ3.0 light-emitting diode are soldered to the circuit board. Pay attention to the direction of the IC socket. In addition, for the convenience of debugging, the chip is not installed for the time being.
2. Install the battery box on the circuit board according to the positions of the wiring holes and identifiers on the circuit board. Pay attention to the power pads. Do not reverse the polarity, usually the red lead is the positive pole of the power supply.
3. Turn the front side of the circuit board upward, and screw the universal wheel into the hole. And screw in the universal wheel nut and the universal wheel to tighten.
4. With the bottom of the circuit board facing up, solder the φ5.0 light-emitting diode and the photo-sensor to the board according to the markings on the board. It is required that the distance between the light emitting diode and the photo-sensor is about 5mm from the spherical surface of the universal wheel.
5. Insert 2 AA batteries in the battery box, switch the switch to the "0N" position, at this time, the 2 lights of the sensor. The diode should emit light. If it does not emit light, you may reverse the polarity of the φ5.0 light-emitting diode. After the polarity is reversed, after the commissioning is successful, the self-locking switch that pops up will be powered off for standby.

Assembly of mechanical parts :
1. Put the silicone tire on the wheel.
2. Fix the wheels on the shaft of the reduction motor with hub screws.
3. Divide the connecting wires into 2 sections and solder them on the two reduction gear motors for later use.
4. Stick the motor on the circuit board according to the identifier on the circuit board.
5. Weld the leads on the motor to the motor board according to the identifier.

Vehicle commissioning :
1. Test the drive circuit, press the self-lock switch to power on, and connect pins 1, 7, and 4 of the 8-pin IC. At this time, the geared motor should be turned forward, otherwise the lead position of the corresponding motor can be changed. If the motor does not turn, check whether the triode is reversed and the base resistance (10 ohms) is correct.
2. Insert the LM393 chip into the 8-pin IC socket after power-off. After power-on, adjust the corresponding potentiometer to make the car walk normally on the black line without running out of the black line. The manual is attached to the test track. You can also **request an electronic** version from the dealer, or use 1.5 cm to 2.0 cm wide black tape, insulation tape, etc. as the track.

Circuit diagram



Electronics Component List

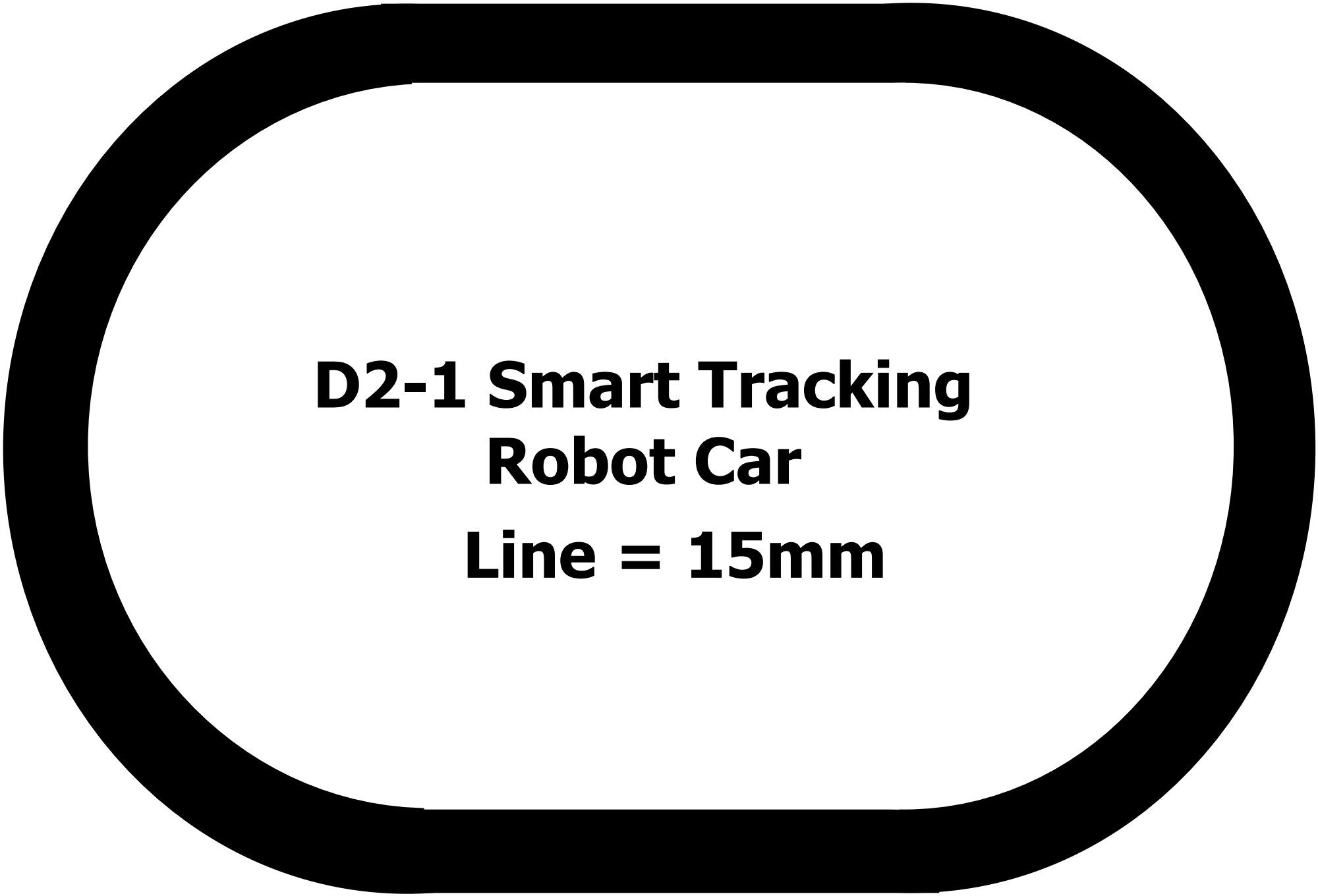
No.	Mark	Description	Specification	Qty
01	IC1	IC	LM393	1
02	/	IC socket	8Pin	1
03	C1	E-Capacitor	100uF	1
04	C2		100uF	1
05	R1	VR	10K	1
06	R2		10K	1
07	R3	Resistor	3.3K	1
08	R4		3.3K	1
09	R5		51	1
10	R6		51	1
11	R7		1K	1
12	R8		1K	1
13	R9		10	1
14	R10		10	1
15	R11		51	1
16	R12		51	1
17	R13	Photo-sensor	CDS5	1
18	R14		CDS5	1
19	D1	φ3.0 LED	LED	1
20	D2		LED	1
21	D4	φ5.0 LED	LED	1
22	D5		LED	1
23	Q1	Transistor	8550	1
24	Q2		8550	1
25	S1	On/Off Switch	6Pin	1

Mechanical Component List

No.	Mark	Description	Specification	Qty
01	M1	DC Motor	JD3-100	1
02	M2			1
03	/	Wheel	/	2
04	/	Silicon Tyre	25×2.5	2
05	/	Screw	M2.2×7	2
06	/	Screw	M5×30	1
07	/	Nut	M5	1
08	/	Nut	M5	1

Accessories List

No.	Mark	Description	Specification	Qty
01	/	PC Board	D2-1	1
02	/	Wire	Red	1
03	/		Black	1
04	/	Batteries housing	AA×2	1
05	/	Instruction Manual	A4	1
06	/	Packing Box	10×16	1


D2-1 Smart Tracking
Robot Car
Line = 15mm