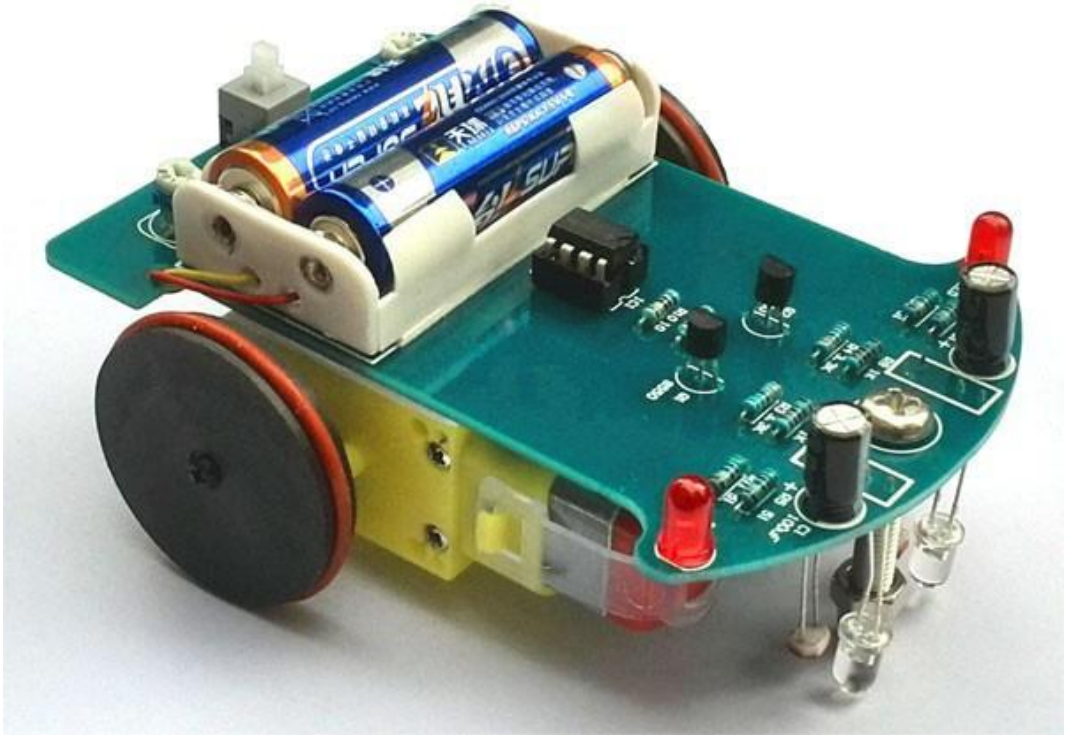
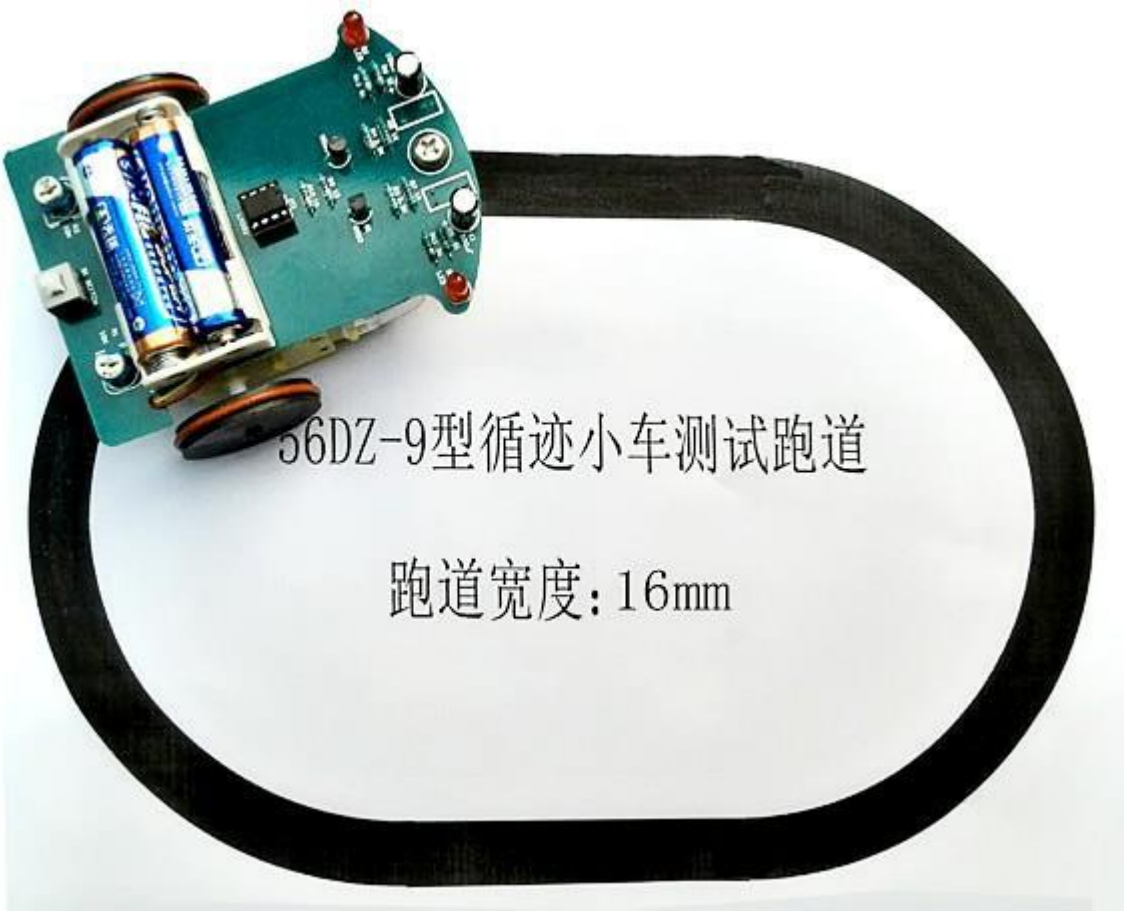


Introduction:

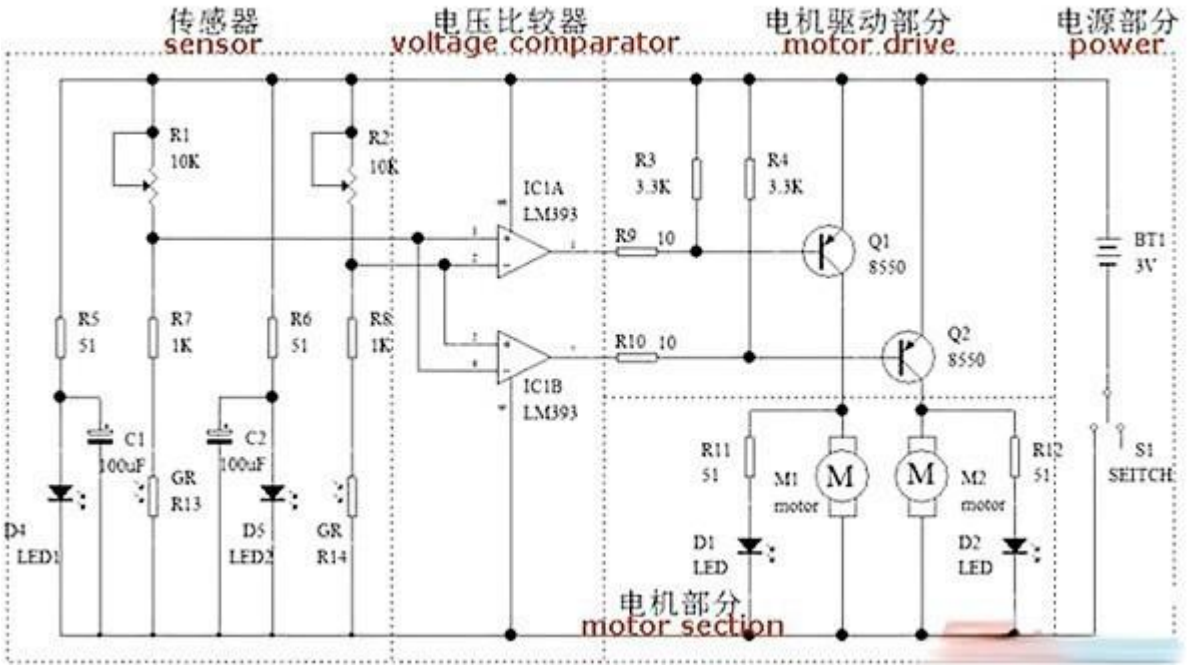
DC motor with reduction gear:

DC motor driving the car\'s words must slow down, otherwise the car speed is too high to run too fast can not control, and without a reduction of torque is too small or not up and running, the motor customized we have integrated the reduction gear and greatly reduce the manufacture difficulty is very suitable for us to use.



Working principle:

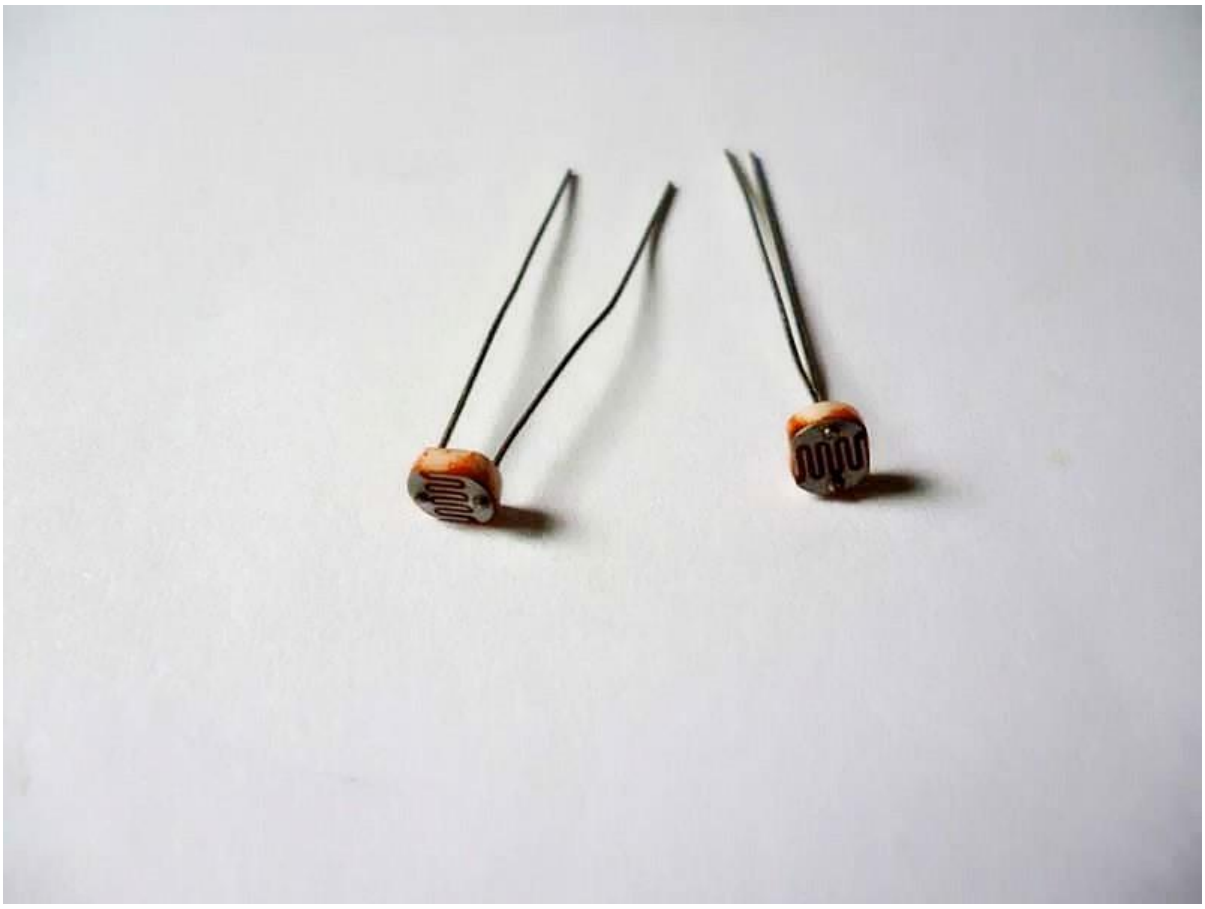
LM393 to compare two photosensitive resistance, when the unbalance (such as side pressure black runway) immediate control side motor stops rotating, the other side of the motor speed rotation, so that the car modification direction, returned to the right direction, the whole process is a closed loop control, so the rapid and sensitive control.


传感器
sensor
电压比较器
voltage comparator
电机驱动部分
motor drive
电源部分
power
R1
10K
R2
10K
IC1A
LM393
R3
3.3K
R4
3.3K
R9 10
Q1
8550
BT1
3V
R5
51
R7
1K
R6
51
R8
1K
R10 10
Q2
8550
IC1B
LM393
C1
100uF
C2
100uF
R11
51
M1
motor
M
M
M2
motor
R12
51
S1
SEITCH
D4
LED1
GR
R13
D5
LED2
GR
R14
D1
LED
D2
LED
电机部分
motor section

List of electronic components				Mechanical parts list			
marking	name	Specifications	QTY	Serial number	name	Specifications	QTY
IC1	voltage comparator	LM393	1	1	Gear motor	JD3-100	2
	Integrated circuit block	8legs	1	2	wheel piece 1		2
C1	Electrolytic capacitor	100uF	1	3	wheel piece 2		2
C2		100uF	1	4	wheel piece 3		2
R1	Adjustable resistance	10K	1	5	Tire	25*2.5	2
R2		10K	1	6	wheel bolt	M3*10	4
R3	Color ring resistance	3.3K	1	7	Wheel nuts	M3	4
R4		3.3K	1	8	Wheel hub screw	M2.2*7	2
R5		51	1	9	Universal wheel screw	M5*30	1
R6		51	1	10	Universal wheel nut	M5	1
R7		1K	1	11	Universal wheel	M5	1
R8		1K	1	Other list			
R9		10	1				
R10		10	1	1	PCB	D2-1	1
R11		51	1	2	connect	red	1
R12		51	1	3	cable	black	1
R13	Photosensitive resistance	CDS5	1	4	battery case	AA*2	1
R14		CDS5	1	5	Instructions	A4	1
D1	Φ3.0 LED	LED	1				
D2		LED	1				
D4	Φ5.0 LED	LED1	1				
D5		LED2	1				
Q1	Triode	8550	1				
Q2		8550	1				
S1	Switch	SWITCH	1				

LM393 is a dual voltage comparator integrated circuit, composed of two independent precision voltage comparator Its role is to compare the twoinput voltage, output voltage changes according to the two input voltagelevel The output has two states:.. Close to open or close to the low level ofLM393 drop, with open collector outputs, so must add resistance to output high level.

This is a photosensitive resistance, it can detect ambient light intensity, the stronger external light photosensitive resistor smaller, weaker external lightresistance increases, when the red LED light onto a white and black runwaybecause the reflection rate of different, the photosensitive resistor will haveobvious difference, for the follow-up circuit control.



D2-1 Automatic Intelligent Tracking Car Electronic Kit instructions

1.1. Foreword

Thank you for purchasing the D2-1 Automatic Intelligent Tracking Car Electronic Kit. This kit gives you a preliminary understanding of automatic control principle and technology. We hope that you will find useful knowledge and skills in the secondary school, and to lay a good foundation for further study after. When DIY this product please assembly according to the specification requirements, in order to use this product right.

2.1. List

3.1 Schematic diagram

4.1. Assembly instructions

4.1.1 Circuit assembly

1. According to the identifier of the circuit diagram and the circuit board ,in turn the color-ring resistance, 8-pin IC seat, switch, adjustable resistance, triode, electrolytic capacitors, Ø3.0 LED are welded on the circuit board.NOTE: IC direction do not weld wrong.

In addition to facilitate debugging, chip dont installed at this time.

2. Mount the battery box on the circuit board according to the threading hole on the circuit board and the identifier of the position. Attention to the power pad\'s

not welding anti polarity, usually red wire to the positive pole of the power supply.
3. Face up the circuit board, a universal wheel screw passes through the hole, and fix the universal wheel nut and a universal wheel and tighten.
4.The circuit board bottom up, according to the board identifier, weld the and a photosensitive resistance on the board. Make sure the distance between LED/photosensitive resistance and universal wheel spherical surface is about 5mm.
5.Install 2 AA batteries in the battery box, switch to the "ON" position, the 2 LEDs of sensor should be light, if not light, you maybe reverse Ø5.0 LED polarity welding, please reverse the polarity.
After the test is successful, switch to the "OFF" to stand-by.

4.1.2 Mechanical parts assembly

1. install the tire on the wheel.
2. using the wheel hub screw, fixed the wheel on the motor shaft.
3. Divide connect-wires into 2 parts ,then weld on the 2 gear motors for use.
4, According to the identifier of circuit board, paste the motor on the circuit board.
5. According to the identifier, weld the wire lead of the motor in the circuit board.

4.1.3 debugging vehicle/test

1.test drive circuit: put the switch to the "ON" position, connect the pin 1,4,7 of 8-leg IC, the gear motor shall forward rotation, otherwise swap the lead wire position in corresponding motor. If the motor does not turn, please check please check whether the transistor is weld wrong, and the transistor base resistor (10 Ohm) is correct.
2.Turn off the power, insert the LM393 chip into the 8 pin IC seat, after power on, adjust the adjustable resistance , make sure the car walk in the black runway and does not run out of black runway. The black runway is on the back of the instruction manual, or you can also use black insulating tape, 1.5mm-2mm wide as a runway.