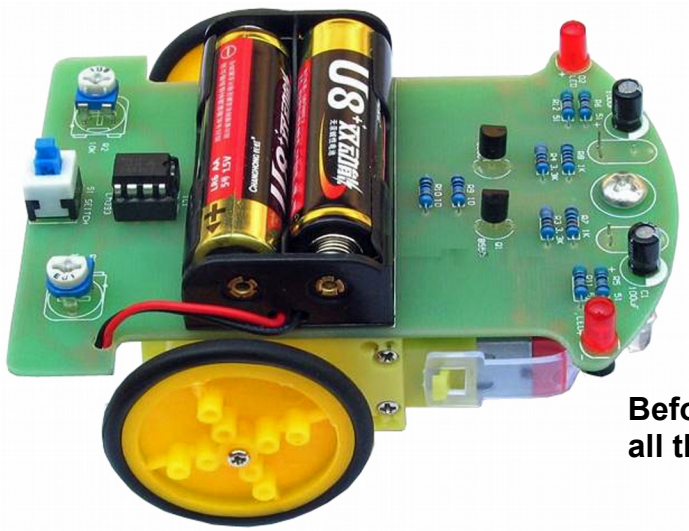
cebekit

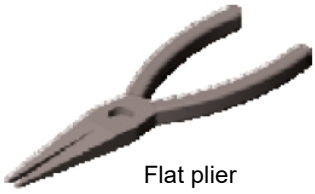


Robot line follower
C-9806

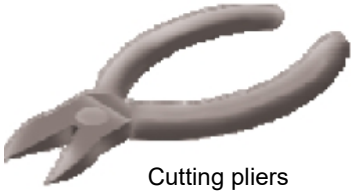
Before beginning the assembly, to check that all the pieces are with this kit.

The Robot follower, is a robot that follows any line that this marked one in the floor.
You can create your own journey, placing adhesive tape of any color in the floor, once you have the mounted circuit, the robot places on the line and he will make the journey that you have marked.

Necessary tools :

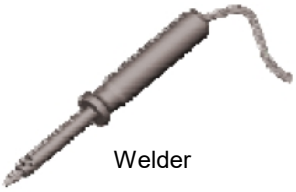


Flat plier



Cutting pliers

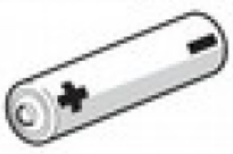
Screwdriver



Welder

Tin

English key



2 piles AA **(NOT INCLUDED)**

www.cebekit.com - info@fadisel.com

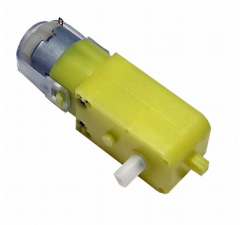
Material included in the kit

Piece núm.	Description	Quantity	Colors
IC1	Integrated circuit LM393	1	
-	Socket for integrated circuit	1	
C1 y C2	Electrolytic capacitor 100uF	2	
R1 y R2	Adjustable resistance 10K (103)	2	
R3 y R4	Resistance 3K3W 1/4W	2	orange-orange-black-brown-brown
R5, R6, R11 y R12	Resistance 51W 1/4W	4	green-brown-black-or-brown
R7 y R8	Resistance 1KW 1/4W	2	brown-black-black-brown-brown
R9 y R10	Resistance 10W 1/4W	2	brown-black-black-or-brown
R13 y R14	Photo-resistance LDR	2	
-	Tube for LDR	2	
D1 y D2	Led red	2	
D4 y D5			
-	LED High Brightness, colorless casing	2	
Q1 y Q2	Transistor 8550	2	
S1	Switch miniature	1	
M1 y M2	Motor with reduction	2	
-	Wheel	2	
-	Pneumatic	2	
-	Wheel fixing screws	2	
-	Screws M5 x 35mm	1	
-	Nut M5	1	
-	Blind nut M5	1	
-	Special printed circuit	1	
-	It carries piles (2 piles LR6 or AA) **NOT INCLUDED**	1	

The Robot's follower more important components

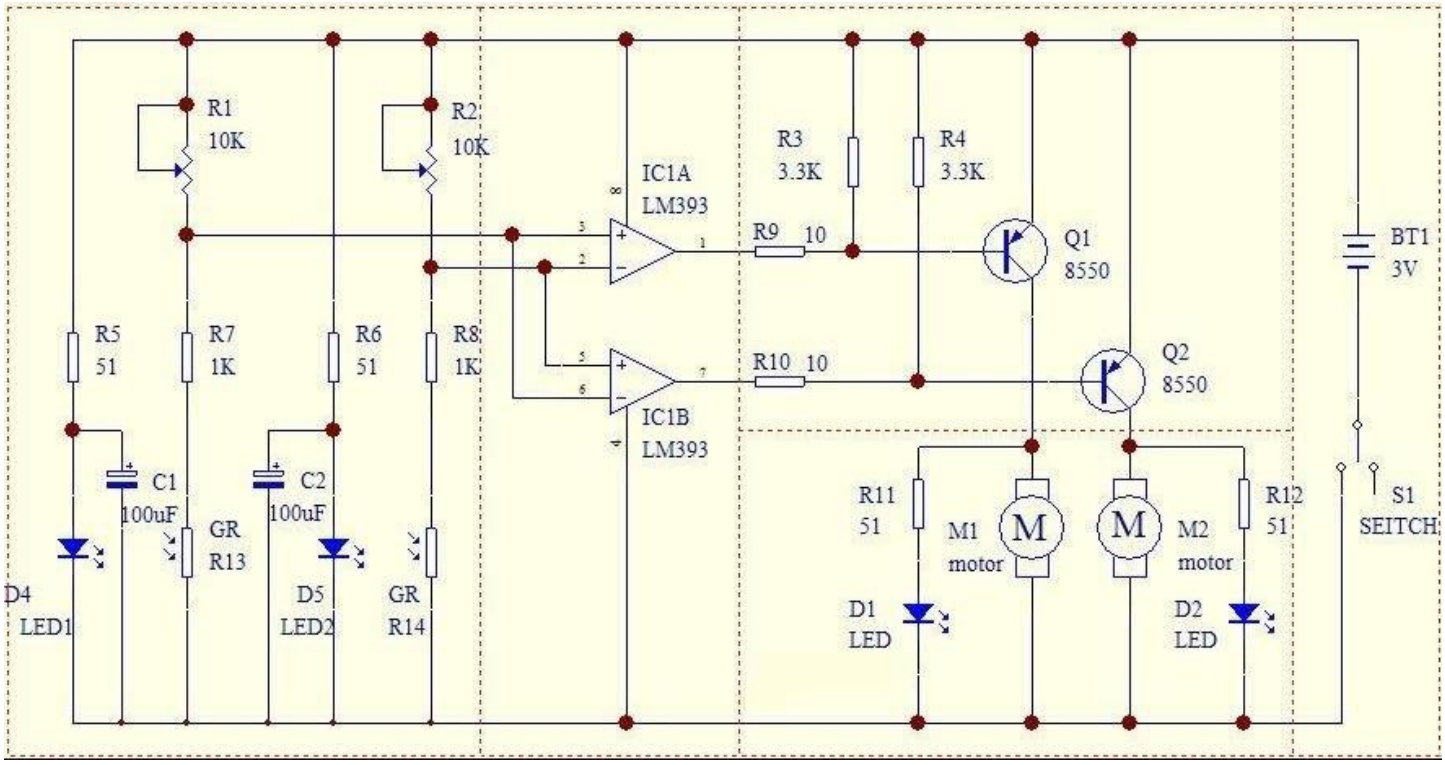
The photoresist LDR, which detects the light intensity.
When the light is more intense the resistance value is lower.
When the red LED light is reflected on the circuit the resistance value will be different due to reflectivity.
Take advantage of the difference in value to control the circuit.

LM393 integrated circuit, dual voltage comparator.
It is used to compare two voltages, and AC input, the output voltage level depending on the level of the input voltages.
The output has two forms: open circuit or low level.



The DC motor, needs to move at a slow speed, but its rotational speed would be too high and could not be controlled.
This engine is indicated to facilitate assembly follower robot.

Electric outline



Assembly of the Robot

Welding of the printed circuit

We begin to weld the components from the lowest and to finish for the highest.
In the first place we will weld the resistances, verifying the value before in Ohms of the resistances with the universal meter.

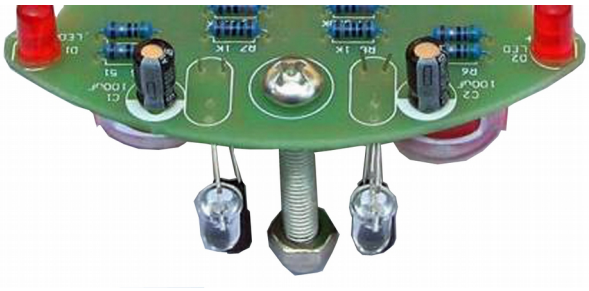
NOTE : TO CHECK BEFORE OF WELDING THE POLARITY OF THE COMPONENTS

- the transistors (the position of the three paws and the flat face)
- the town square of the printed circuit (the notch points out the superior part)
- the electrolytic condensers (the shortest paw is the negative)
- the diodes LED (the long paw is the positive electrode).

NOTE : Remember that the time of welding cannot be long.

To check that all the components soldiers are.

The picture-resistances LDR and colorless LED, will settle in the opposed face of the printed circuit, for the side of the weldings and at 5mm of the floor (to see images).



Assembly of the carry-piles and the motors

To hit the support from the battery to the printed circuit with the expensive adhesive tape of double.
To go the cable by the hole of the circuit, and to weld it to the printed circuit.
The red cable is connected to the positive one from 3V (square marked area +) and the black cable to the track of mass (round marked area 3V).
To cut the two spare cables and we will keep it, to connect the motors later.

We will install the motor-reducers. We place the lateral small axis of the motor-reducer in the hole of the flat part of the wheel. Once inserted the wheel to fix it with the small screw car-thread.
To place the rubber tire in each one of the wheels.

To fix the motor-reducers with the wheels to the printed circuit using the expensive double adhesive placed in the printed circuit.
NOTE: To check at the distance between the border of the printed circuit and the wheels. To avoid the close contacts from the wheels when rotating.

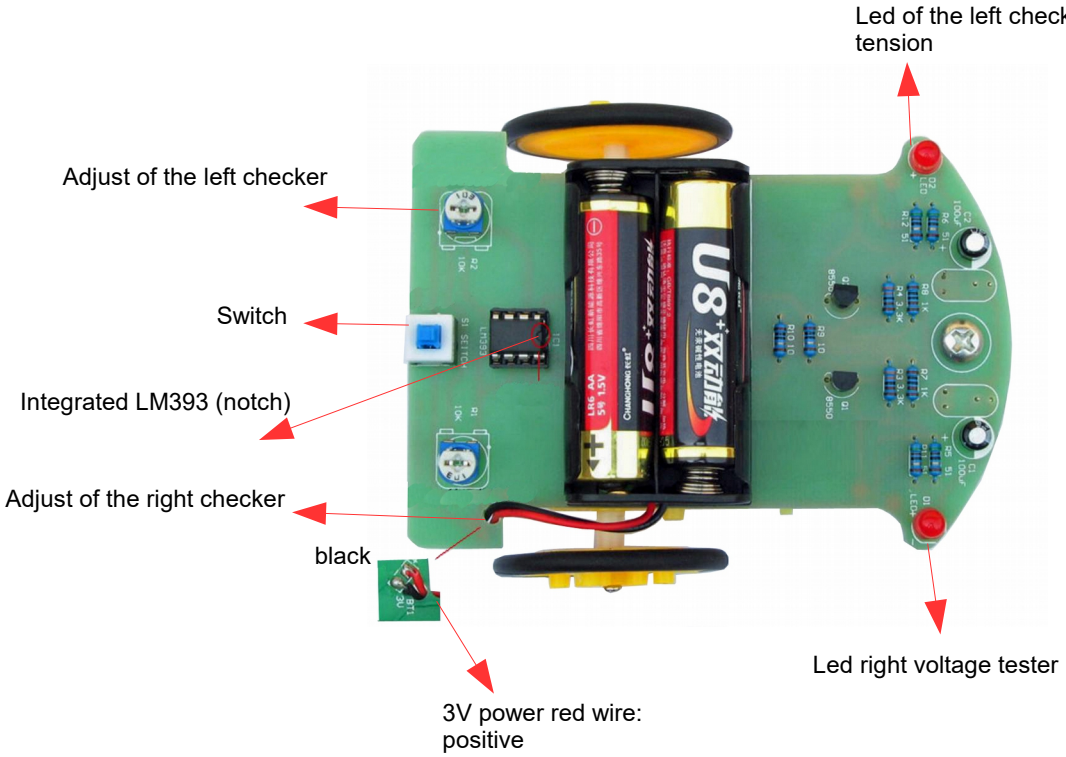
The cable pieces that there is gradado, will use it to connect the two motors.

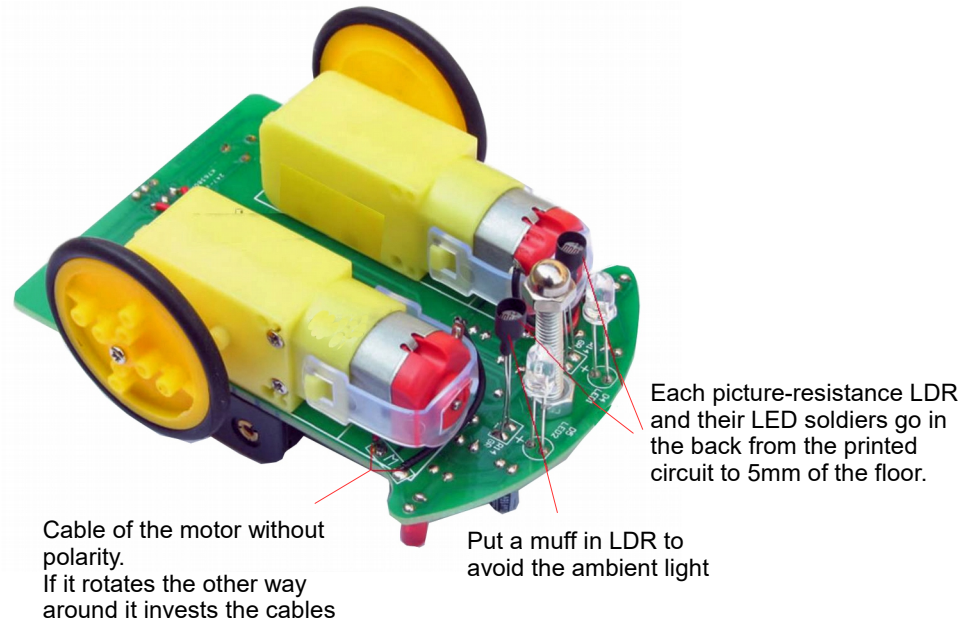
You have to weld the cables from the motor to the printed circuit.

NOTE: The cables of the motor have positive and negative. If some motor works invested, simply invest the two cables of the motor.

To place integrated LM393 in the integrated circuit, he/she closes a little bit the paws of the one integrated and it will be you easier to place it.

NOTE: It checks that this all very connected one.





To place the 2 batteries type LR6 or AA in the carry-piles and it checks that it is correct the polarity.
It connects the switch (ON).

NOTE: If some motor rotates in opposed (back) dorection, it invests the two cables of this motor.

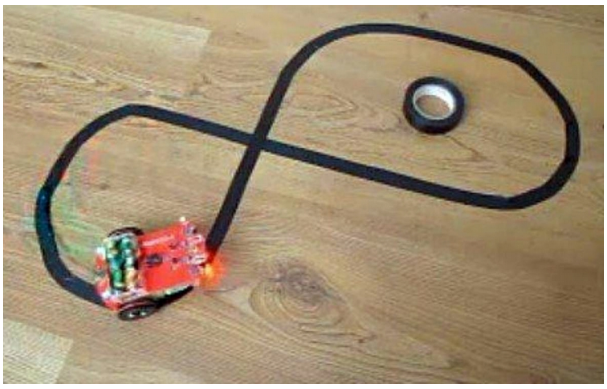
In the robot's follower front part, it is where they are LED and the screw M5.
The robot places on the track, and you lift it for the part of behind to prevent that the two wheels play the floor, support him on the front screw. It adjusts the two potenciómetros until achieving that two sensor LDR, when they are on the track of any dark color, both motors work forward.
When left LDR is outside of the dark track the left motor it should stop and the right to work. When right LDR is outside of the dark track the right wheel it should stop and the left to work.

NOTE : The two picture-resistances LDR should be placed very well aligned with its corresponding diode LED, so that the robot follower can follow the marked road.
But they are well aligned the robot follower, would not follow the marked road.

When you have finished mounting the follower robot, and have found that this well-adjusted and working properly, it will be time to build the track.

We recommend that you use dark colors tape 15 mm, placed on the ground, in a cardboard or paper etc.

See photo of different forms of circuit or to your imagination



NOTE : This kit this recommended for children starting from 12 years, always accompanied by an adult

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Pista: 15 mm

Runway: 15 mm

Piste: 15 mm