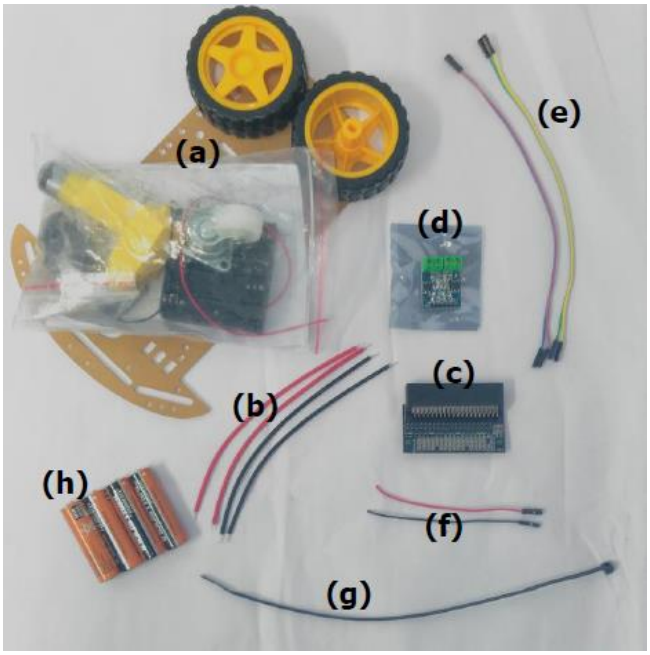
Robot Buggy – Build Instructions

Parts List



1 x buggy pack including instructions leaflet (check parts in pack against leaflet) **(a)**

4 x wires **(b)**

1 x micro:bit edge connector **(c)**

1 x L9110s motor driver **(d)**

4 x jumper leads – green, yellow, blue, burgundy **(e)**

2 x half-jumper leads – black, red **(f)**

1 x cable tie **(g)**

4 x AA batteries **(h)**

Other Requirements

BBC micro:bit

Mini-USB cable

Battery pack for micro:bit

Soldering iron & solder

Wire strippers

Small screwdriver

Sticky tape

(Optional) Electrical tape or duct tape

(Optional) Glue gun

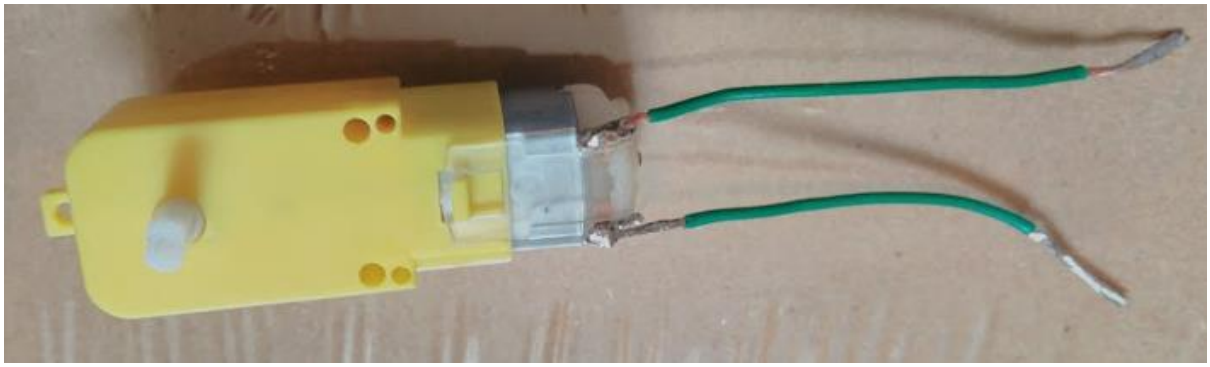
A. Preparation

Step 1: Peel paper backing from robot chassis.

Step 2: Take out the instructions from the buggy pack and scan through the pictures, so you know which part attaches where.

B. Soldering

Step 1: Solder the spare wires to the motors.



Step 2: Push the switch into the chassis, so that the '0' side is facing the narrower end of the chassis, and the '1' side is facing the wider end.

Step 3: Follow the buggy leaflet's instructions to screw the battery pack onto the chassis. Feed the wires through one of the holes, so they are near to the bare ends of the switch.

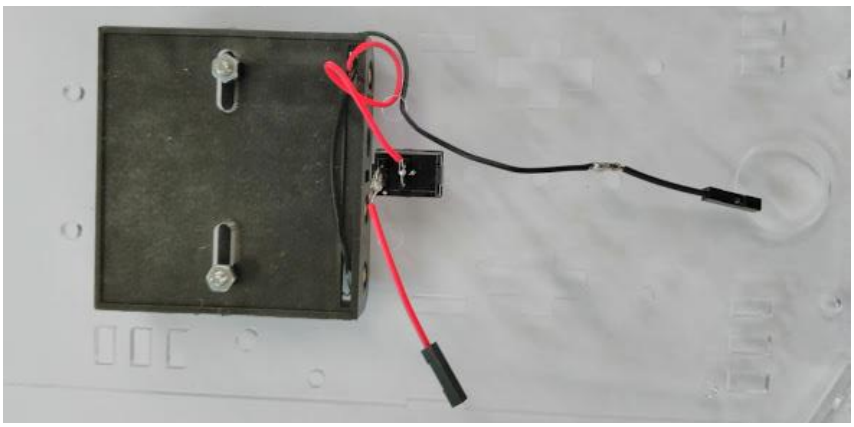
OPTIONAL: Cut both battery pack wires to a shorter length.

Step 4: Solder the red battery pack wire to the switch, to the leg that is in the middle of the plastic.

Step 5: Solder the red half-jumper lead to the other leg of the switch.

Step 6: Solder the black half-jumper lead to the black battery pack wire.

OPTIONAL: Use electrical tape or duct tape to cover the join in the black wire.



C. Testing

Step 1: Plug the black lead onto the pin labelled GND on the motor driver.

Step 2: Plug the red lead onto the pin labelled Vcc on the motor driver.

Step 3: Put the AA batteries into the battery holder and flip the switch to the on position.

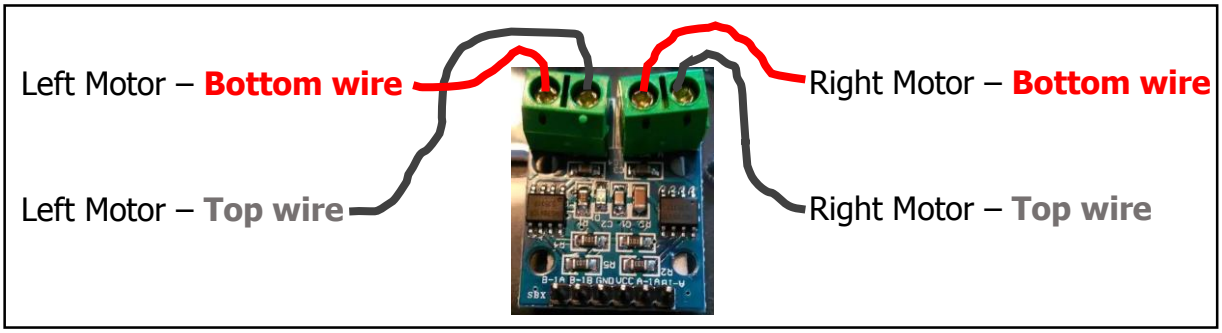
CHECK: Does a red light come on on the motor driver? If not, check your connections.

Step 4: Peel the backing off the foam on the motor driver and stick onto the chassis, underneath the battery pack, with the pins you are currently connected to facing the switch.

D. Wiring

Step 1: Follow the buggy leaflet's instructions to attach the motors – make sure that the wires are on the INSIDE. Don't attach the wheels yet.

Step 2: Screw the motor wires into the motor driver in the following configuration:



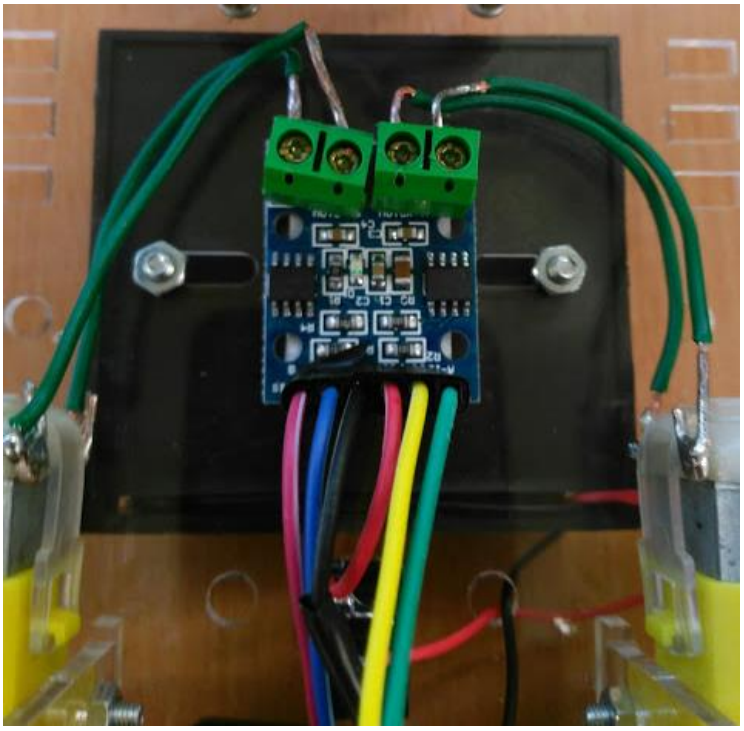
Step 3: Plug the coloured jumper leads onto the motor driver pins in the following configuration:

B-1A	B-1B	GND	Vcc	A-1A	A-1B
Burgundy	Blue			Yellow	Green

PTO for picture of the completed motor driver connections.

OPTIONAL: Use electrical tape or duct tape to tape all 6 jumper lead ends together, this will help keep them attached to the motor driver.

Step 4: Feed the other end of the jumper leads through the outside square holes at the wider end of the chassis.



Step 5: Use the cable tie, through the middle square holes at the wider end of the chassis, to attach the edge connector to the chassis.

Step 6: Plug the jumper leads into the edge connector in the following configuration:

Pin 13	Pin 14	Pin 15	Pin 16
Green	Yellow	Blue	Burgundy

E. Final Touches

Step 1: Cut off the loose end of cable tie, and tape down the jumper wires and battery pack wires so they cannot catch on anything.

Step 2: Follow the buggy leaflet's instructions to attach the front castor wheel – this can be fiddly, so don't fully tighten the screws until they are all in place.

Step 3: Carefully push the wheels onto the motors.

Step 4: Using the mu editor, flash the TEST.py program to your micro:bit.

CHECK: **Does your micro:bit show a smiley face? If not, flash again.**

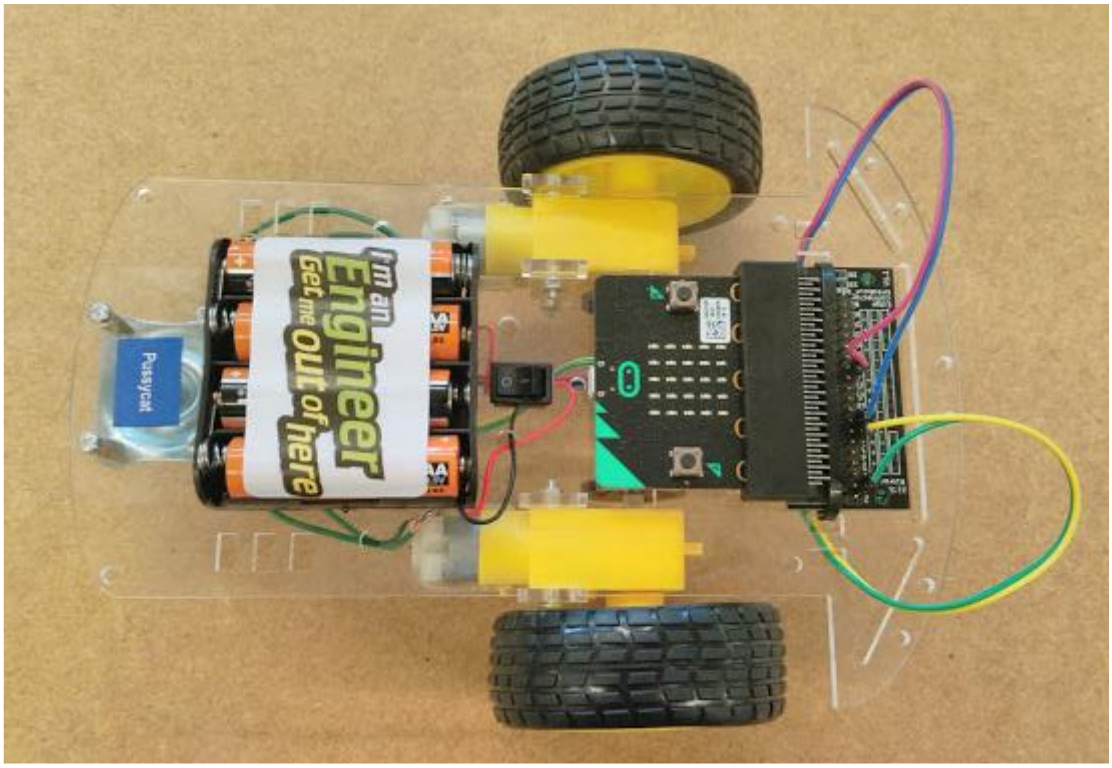
Step 5: Unplug your micro:bit from the computer, and attach the battery pack.

Step 6: Slot your micro:bit into the edge connector.

F. Final Test

Step 1: Place your finished robot buggy on the floor with plenty of space around it.

Step 2: Press the A button on your micro:bit and watch it go!



TROUBLESHOOTING – Is your buggy not working as expected?

Your buggy is not moving at all!

Check that your micro:bit is showing a smiley face -- **Go back to E**.

Check that your motor driver is showing a red light -- **Go back to C**.

Check that all the wires are still connected -- **Go back to D**.

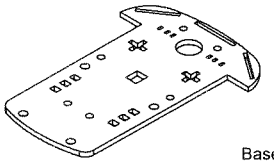
Your buggy is moving in the wrong direction!

Check that the jumper leads are connected to the right pins -- **Go back to D**.

Your motors appear to have a mind of their own!

Check that all the wires are connected correctly -- **Go back to D**.

OPTIONAL: Once you are sure your buggy works as intended, use a hot glue gun to cover any sharp solder connections e.g. on the motors.

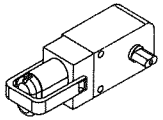


底盘 1片
Base Board 1 Piece

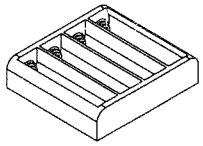
轮子 2个
Wheel 2 Pieces

测速码盘 2片
Encoder Disc 2 Pieces

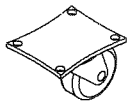
资料扫描二维码下载:
密码:e8rb



减速直流电机 2个
Deceleration DC motor 2 Pieces

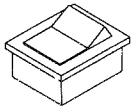


4节5号电池盒 1只
Battery container 1 piece

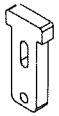


万向轮 1只
Hammer caster 1 piece

M3*30螺丝 4支
M3*30 Screw 4 bars



船形开关 1只
Switch 1 Piece

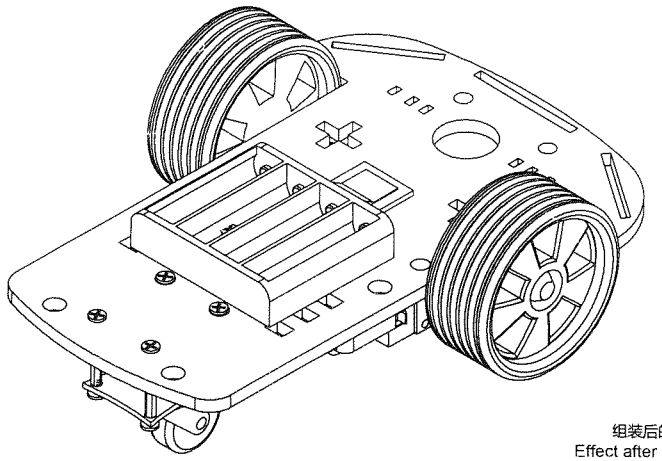


紧固件 4片
Fastener 4 Pieces

M3*6螺丝 8只
M3*6 Screw 8 bars

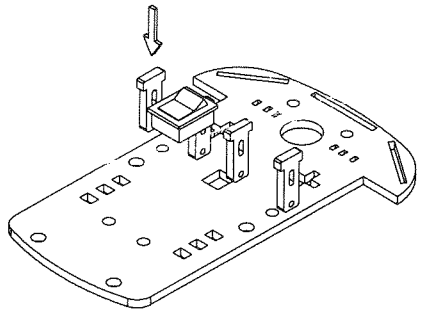
M3螺帽 8只
M3 nut 8 Pieces

L12铜柱 4支
L12 Spacer 4 bars



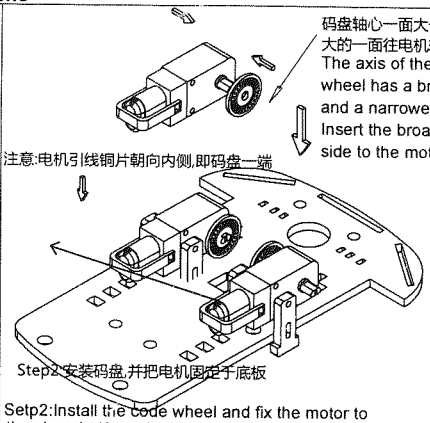
组装后的效果图
Effect after installation

ZK-2WD



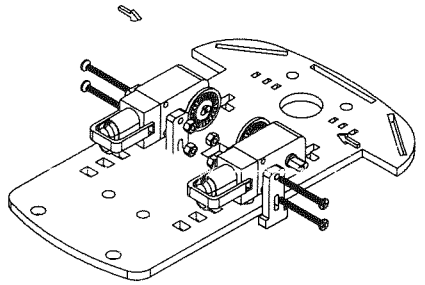
Step1:先把小车底板、紧固件、码盘的黄色保护纸撕掉,然后把紧固件插入小车底板

Setp1:Insert the fastener into the chassis after tearing off the yellow protection wrap of the chassis,the fastener and the code wheel.



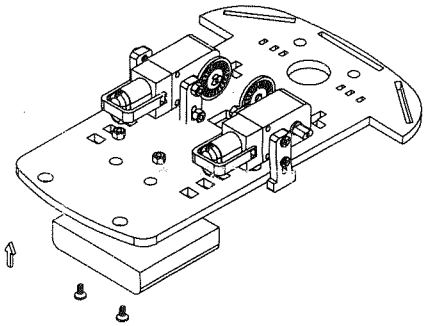
Step2:安装码盘,并把电机固定于底板

Setp2:Install the code wheel and fix the motor to the chassis.(Attention,the copper sheet of the leading wire of the motor should face inside,the same side of the encoder)



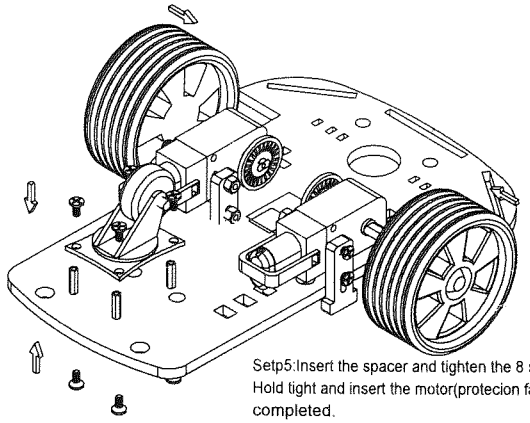
Step3:插入螺丝,把电机固定到小车底板,并拧上螺帽

Setp3:Fix the motor to the chassis,then insert and tighten the screws.



Step4:插入螺丝,固定电池盒

Setp4:Insert the screws and fix the battery container



Setp5:Insert the spacer and tighten the 8 screws to fix the hammer caster. Hold tight and insert the motor(protecion fastener) to the wheel.Installation completed.

Step5:放入铜柱,拧进8个螺丝,固定万向轮,手捏住电机(保护紧固件),并往里面插入轮子,组装完成