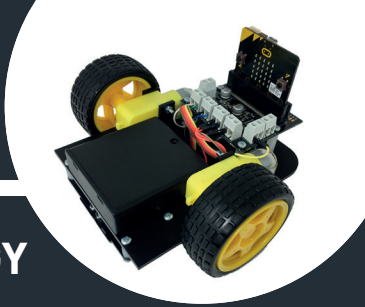
Kitronik

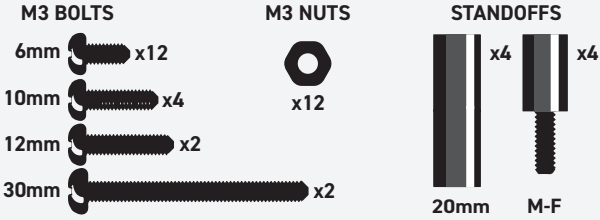


STAY ON TRACK WITH THIS

LINE FOLLOW BUGGY WITH :MOVE LINE FOLLOW BOARD FOR BBC MICRO:BIT

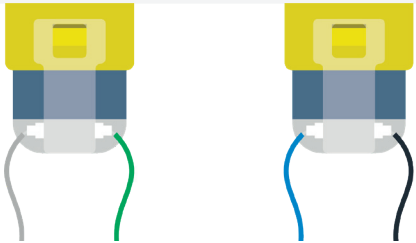
BUILD INSTRUCTIONS

LIST OF FIXINGS



1

Using the four pieces of wire (white, green, blue and black) supplied with the chassis, strip and solder one end of each wire to each motor terminal (a small copper contact protruding from the end of the motor). This is done by putting the exposed wire through the hole on the contact and soldering into place.



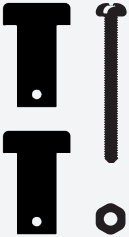
The colours should be as shown in the picture which are:

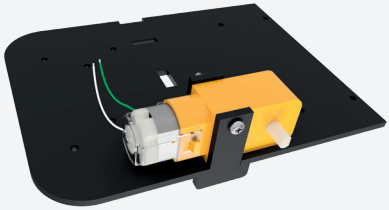
- Wire 1 on Motor 1 = White.
- Wire 2 on Motor 1 = Green.
- Wire 1 on Motor 2 = Blue.
- Wire 2 on Motor 2 = Black.

2

Remove the protective backing off the main chassis. Take two of the 'T' shape acrylic pieces, push one through the bottom of the board (start with the position shown in the image for Motor 1) and align the other one up with the notch in the edge of the body of the buggy.

Place Motor 1 (green and white wires) between the two pieces with the motor terminals pointing toward the rounded corners of the buggy and the axle pointing outwards. Ensure that the motor is placed on the side of the board marked Top.



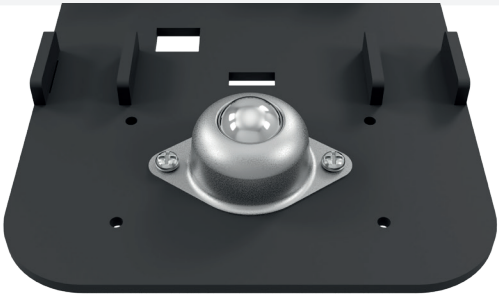


Push an M3 x 30mm Screw through the holes in the 'T' pieces and motor to secure it in place, and then fasten it with the M3 nut.

Repeat this for Motor 2 (blue and black) on the opposite side of the buggy, then push the wheels onto the motor axles.

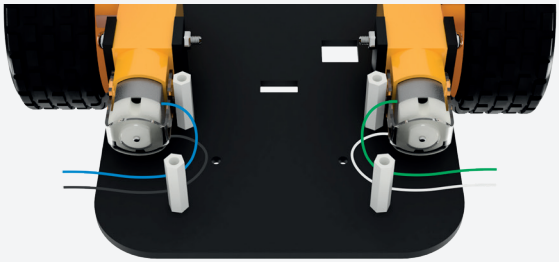
3

To attach the caster to the buggy, mount it to the underside of the buggy and secure using two M3 x12mm screws and two M3 nuts as shown below.

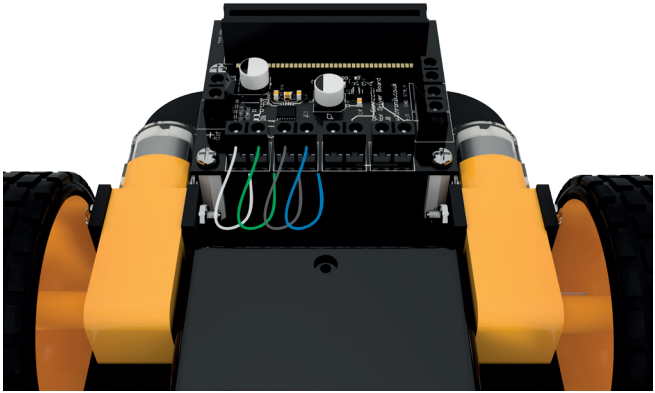


4

Attach the plastic spacers using four of the M3 x 6mm screws from underneath as shown.



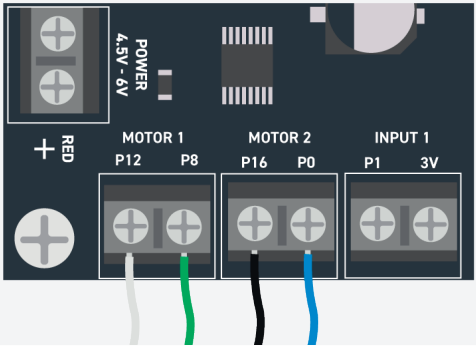
Attach the Motor Driver Board to the top of the M3 x 20mm Plastic Spacers using four more M3 x 6mm screws. Make sure the terminal blocks are facing the centre of the board.



5

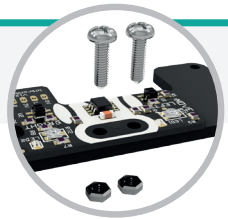
Take the wires from the motors and connect them to the terminal blocks on the motor driver board in the following configuration:

- Wire 1 on Motor 1 (White) goes into the 'P12' terminal.
- Wire 2 on Motor 1 (Green) goes into the 'P8' terminal.
- Wire 1 on Motor 2 (Blue) goes into the 'P0' terminal.
- Wire 2 on Motor 2 (Black) goes into the 'P16' terminal.



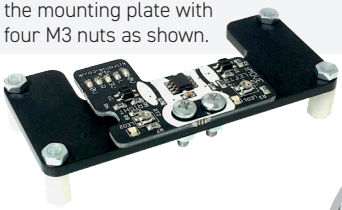
7

Using two M3 x 10mm screws and M3 nuts, fix the Line Follow board to the mounting plate.



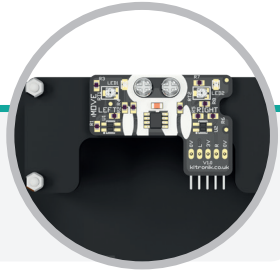
8

Attach the four plastic Hex M-F Standoffs to the mounting plate with four M3 nuts as shown.



9

Use four M3 x 6mm screws to fix the assembly to the bottom of the chassis with the larger Kit robot visible from below and the wires pointing to the centre of the buggy.

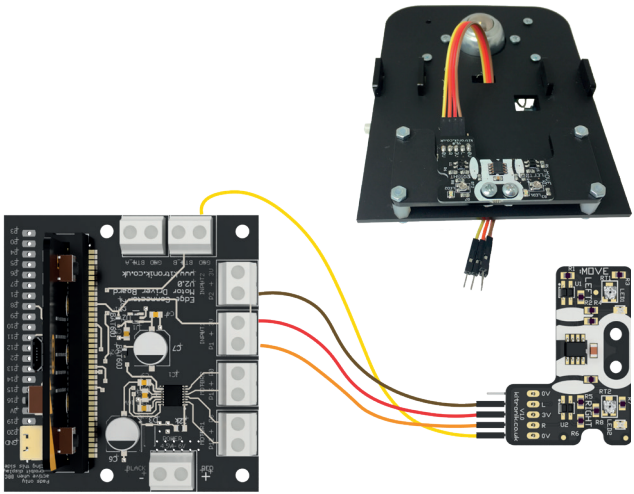


10

a) Split the M-F jumper wires so that you have a group of 4 (brown, red, orange & yellow).
b) Using the wiring diagram below, slot the *female* ends of the wires onto the pins on the Line Following Board.

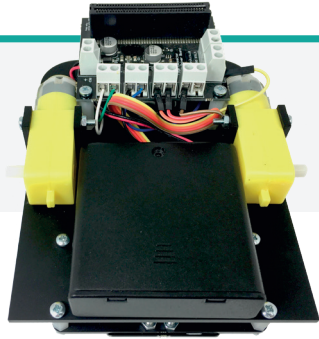
NOTE: There are five pins available but only one of the ground pins (0V) is needed.

c) Thread the wires through the hole in the chassis.
d) Using the wiring diagram below, now insert the male ends into the terminal blocks on the motor driver board and tighten using a screwdriver.



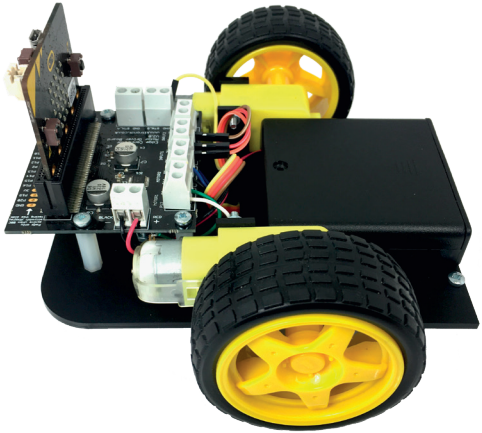
11

Using the sticky pad, attach the battery pack to the top of the buggy chassis with the switch poking through the rectangular cut-out.



12

Attach the red and black wires into the terminal on the Motor Driver Board labelled 'POWER'. Put the black wire in the left hand side of the terminal labelled 'BLACK' and the red wire in the right hand side of the terminal labelled 'RED'. Finally slide the wheels onto the motors and get coding!

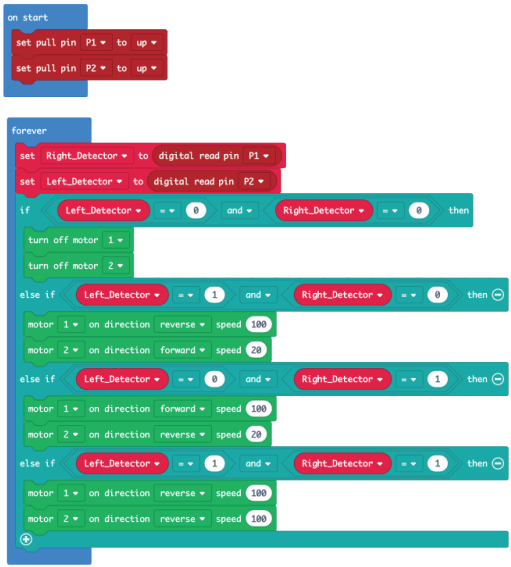


TEST CODE

1

Download the code here: kitronik.co.uk/5638

Now, let's try the code out! Plug your BBC micro:bit into a USB port and it will show up as a storage device. Simply unzip, then drag and drop the .hex file you just downloaded onto the BBC micro:bit. The file might not show up on the BBC micro:bit in the file explorer but it is there! Once the file has been transferred (the light on the BBC micro:bit will stop blinking rapidly) remove the BBC micro:bit from your computer.



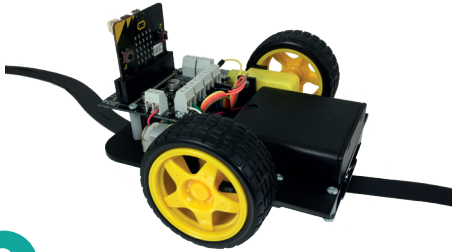
TRY IT OUT!

1

Mark out your track using coloured tape. Make sure the track is quite thick (roughly 20mm). Or alternatively draw the line on a large piece of paper using a marker pen. The greater the contrast, the easier it is for the buggy to identify the line.

2

Insert your coded BBC micro:bit into the connector on the Motor Driver Board for the BBC micro:bit (it can be inserted either way around) and switch on the buggy (with batteries in) using the on/off switch on the bottom. Your buggy should now be working.



NOTE: The buggy can be programmed to work with a dark coloured line on a light background or a light coloured line on a darker background!

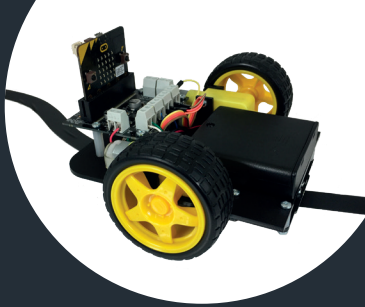
3

When one of the sensors on the Line Following Board passes over the line it will cause the buggy to turn back towards the line. The small LED's on the Line Following Board light up when the corresponding sensor passes over the line and can be used for visual feedback when developing and testing your own code.

4

GET CODING!
Visit kitronik.co.uk/5638 for help. See the online datasheet for a tuning guide.

This easy to build Line Following Buggy is controlled by the BBC micro:bit and the Kitronik Motor Driver Board and makes use of the :MOVE Line Follow board.



TOOLS REQUIRED:
- Small Phillips screwdriver
- Wire stripper
- Soldering iron and some solder
- Pliers

INSTRUCTIONS:
This booklet contains build instructions. For more detailed resources please visit our website at www.kitronik.co.uk/5638

KIT REQUIRES:
- 1 x BBC micro:bit

STOCK CODE:
5638

WARNING: Contents may inspire creativity

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E: support@kitronik.co.uk

Designed & manufactured in the UK by Kitronik

kitronik.co.uk/twitter

kitronik.co.uk/facebook

kitronik.co.uk/youtube

kitronik.co.uk/google

RoHS CE

For more information on RoHs and CE please visit kitronik.co.uk/rohs-ce. Children assembling this product should be supervised by a competent adult. The product contains small parts so should be kept out of reach of children under 3 years old.