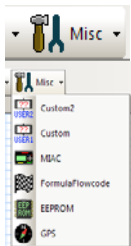


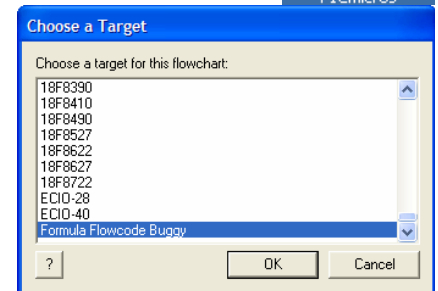
## Run the software

Run Flowcode V4 by double clicking on this icon.  
Select "Create a new Flowcode flowchart..." on the opening screen and click "OK".

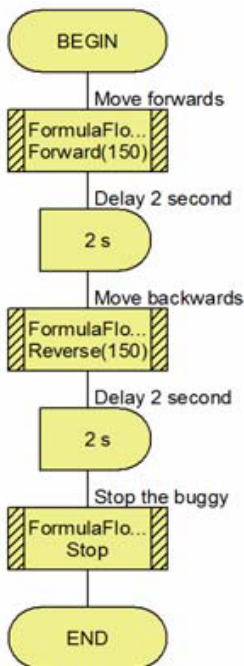


Select the "Formula Flowcode Buggy" as the target device and click "OK" (see screenshot above).

Click the "Formula Flowcode" component icon:



## Forward and back again



The program on the left shows a simple use of the inbuilt macros "Forward", "Reverse" and "Stop" to control the movement of the Formula Flowcode robot.

Create this program in Flowcode and then download it to the robot.

To send the program to the Formula Flowcode robot, connect the robot to the PC using a USB cable, turn it on, and then press the "Compile to chip" button.

Once it has been downloaded, you will need to press one of the switches at the front of the robot to start the program (this is an option in the "properties" window of the Formula Flowcode component).

One thing you might notice is that the robot bends slightly to the left or right. This is because the motors are not turning at exactly the same speed due to slight mechanical variations between the motors. The macro "SetMotors" allows you to specify a different value for each motor and would allow you to compensate for this issue.

## Turning around

The obvious way to make the robot turn around is to use the SpinLeft (or SpinRight) macro, but there is an immediate problem - how to we know when the robot has completed a turn of 180°? The simple answer is that we don't! We need to use trial and error to determine the required time delay.

The program on the right shows the basic principal - 2 additional icons have been added (the "SpinLeft" macro call and an extra delay), and the macro call to "Reverse" has been altered to "Forward". You will need to experiment with the values of the delay (or the speed of the "SpinLeft" macro) to find the one that works for you.

This program is an example of "open-loop control". The program will work ok (once you have found the correct delay value), but not in all circumstances. If you place the robot onto a different surface (e.g. from a table-top to a carpet), then the spin will no longer be 180°.

