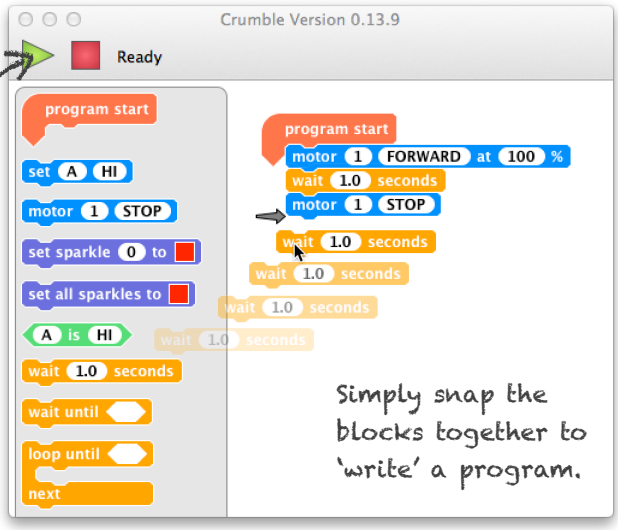
The Crumble Controller

The Crumble is a cheap, easy-to-use electronics controller. A few 'croc' leads and a USB cable are all you need to connect motors, LEDs and sensors and begin experimenting. No programming experience is required as the FREE software is a graphical, drag-and-drop system inspired by MIT Scratch.



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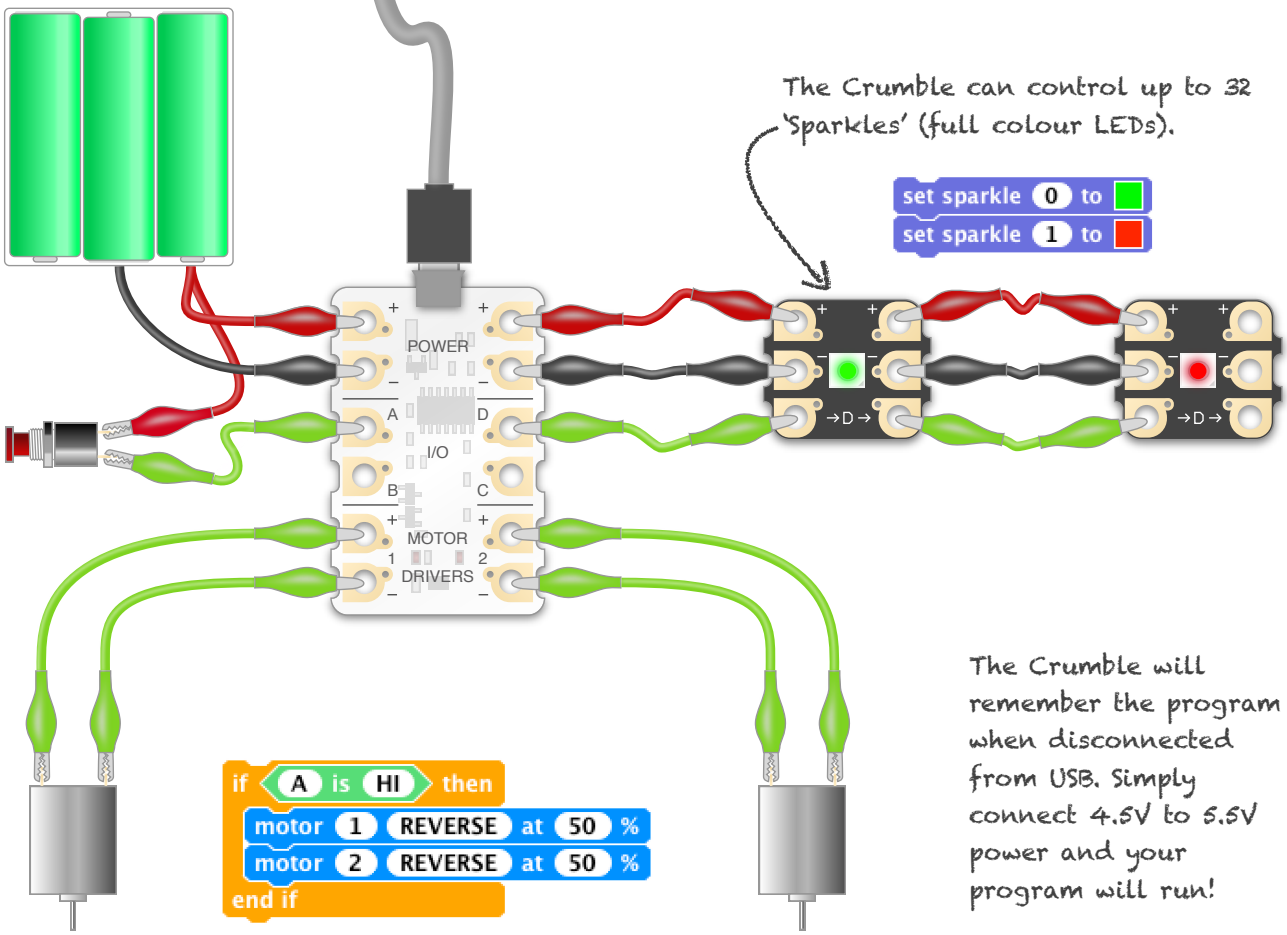
Click here to program the Crumble over USB

The Crumble can control up to 32 'Sparkles' (full colour LEDs).



Sense inputs, control motors and much, much more!

The Crumble will remember the program when disconnected from USB. Simply connect 4.5V to 5.5V power and your program will run!

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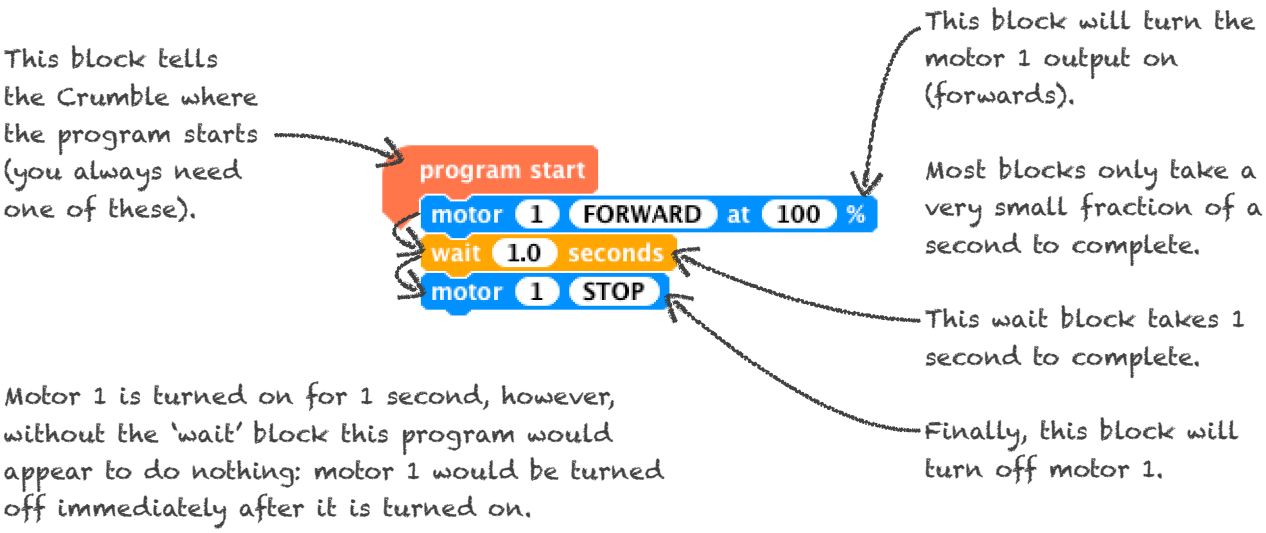
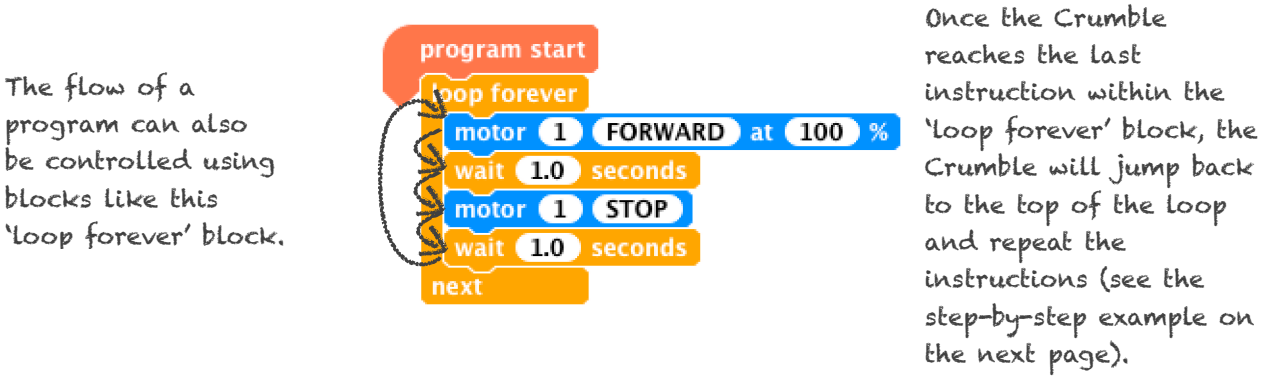
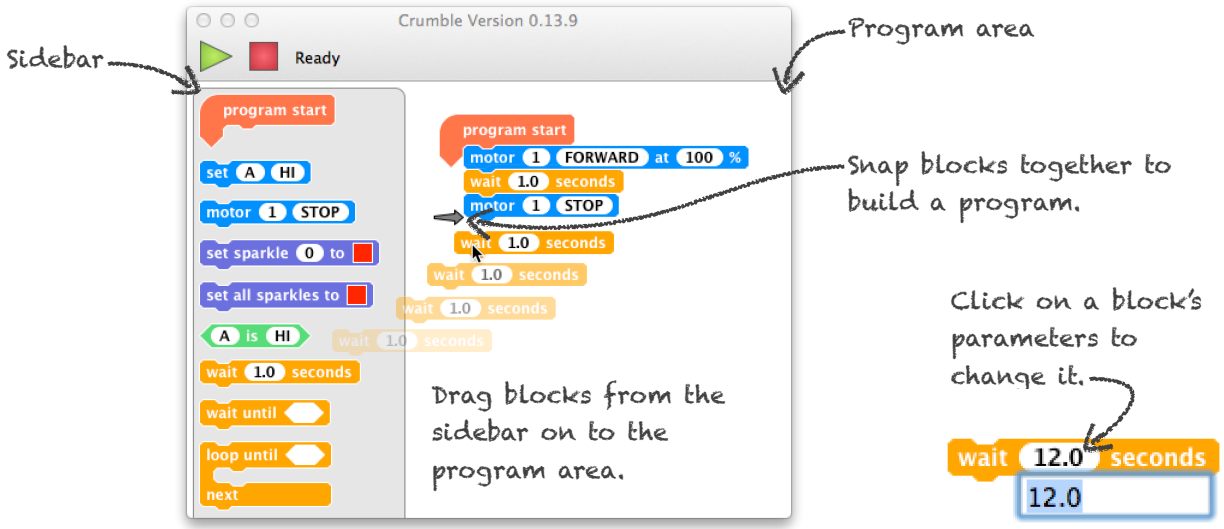
What is a Program?

A program is simply a list of instructions that the Crumble will follow. The Crumble will 'run' a single line (i.e. a block) of a program, one at a time, starting from the top.





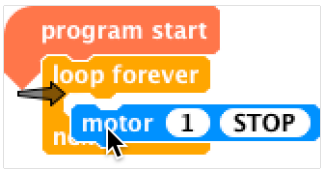
Writing Programs for Crumble



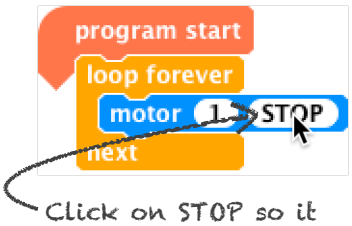
A Step-by-Step Example

The following example show how to write a simple program to flash a motor output LED.

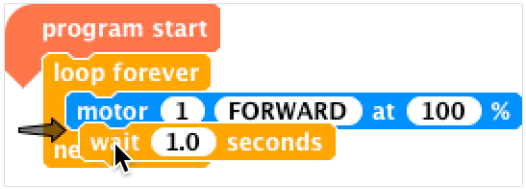
Drag a start block to the code area and attach a 'loop forever' block to it.



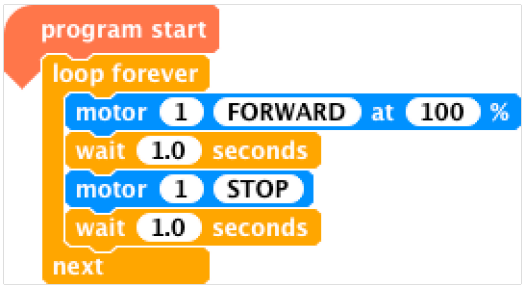
Drag a motor block inside the loop.



Click on STOP so it changes to FORWARD.

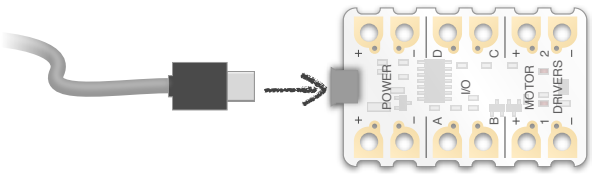


Now add a wait block underneath the motor block, but still within the loop.

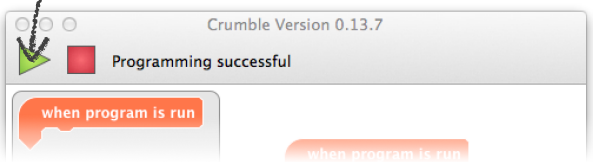


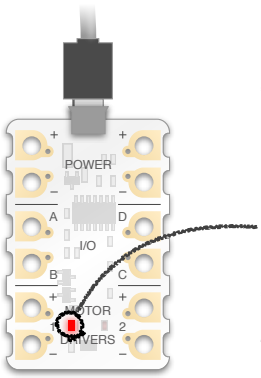
Complete the program with another motor block and a wait block.

Connect to PC using micro USB cable.



Click here to send the program to the Crumble and run it.





The on-board LEDs shows the motor output status.

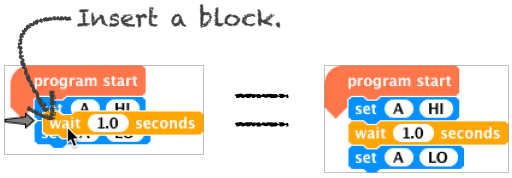
Output 1 turns on for 1 second every 2 seconds. The on-board LED will flash.

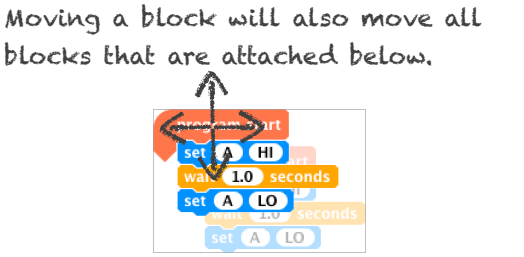
The motor outputs can act as high power outputs for many types of device, not just motors.

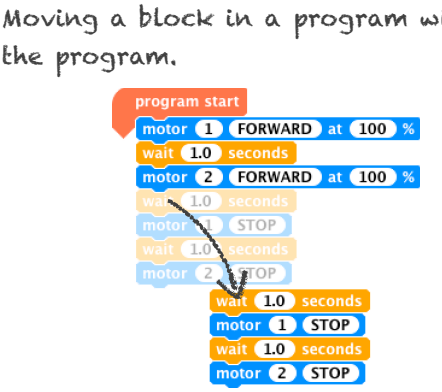
See the first example for more information.

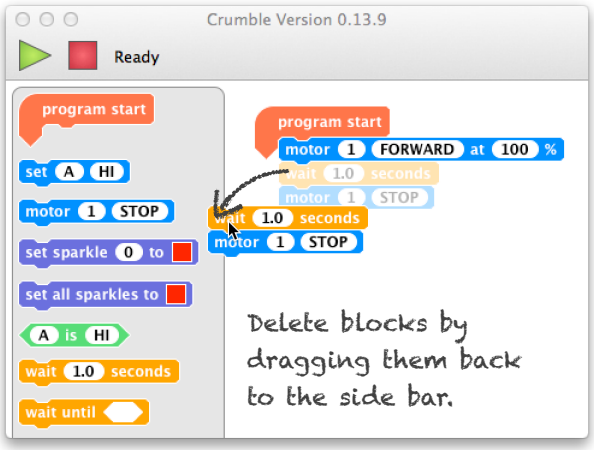
Crumble Software Basics

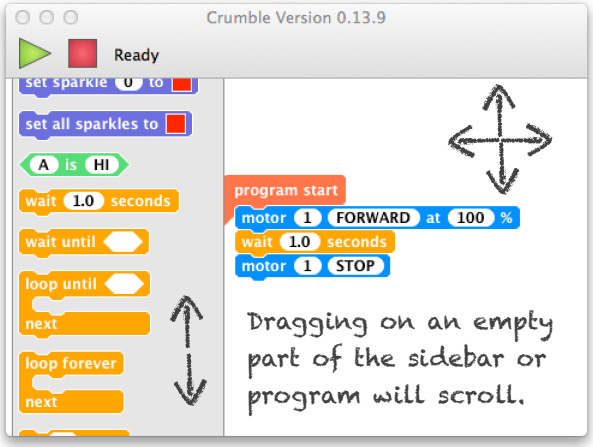
Below are few tips on how to use the Crumble software.

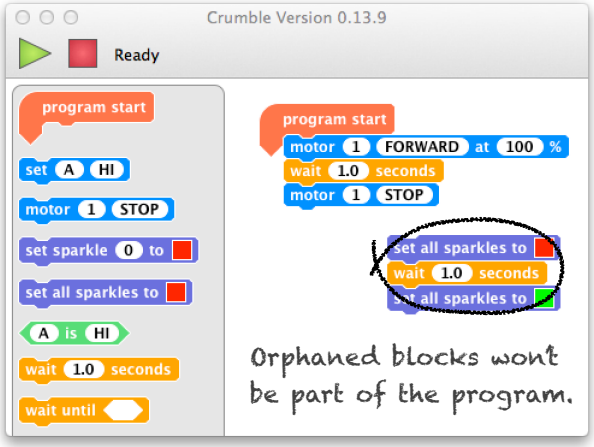


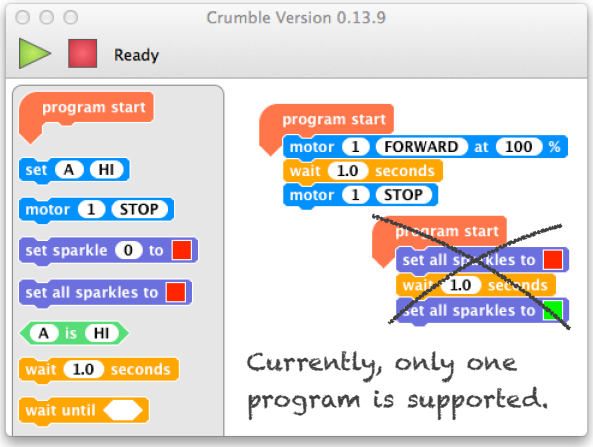












Once the Crumble has been programmed over USB, it will remember the program and run it automatically when power is supplied (see the first example for battery/power connection).

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Using Motors

Click to select motor 1 or 2.

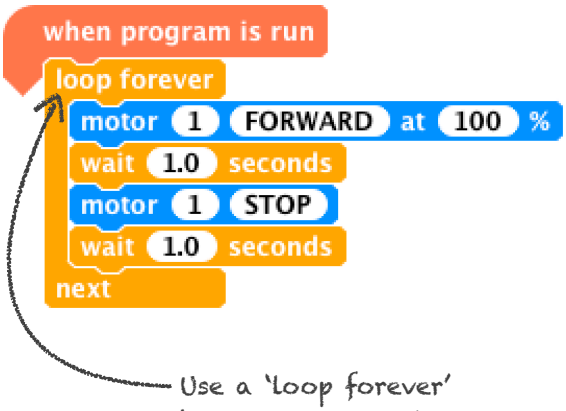
Click to select FORWARD, REVERSE or STOP.

When FORWARD or REVERSE is selected, the speed can also be set (default is full speed).

Click to edit speed. Examples:

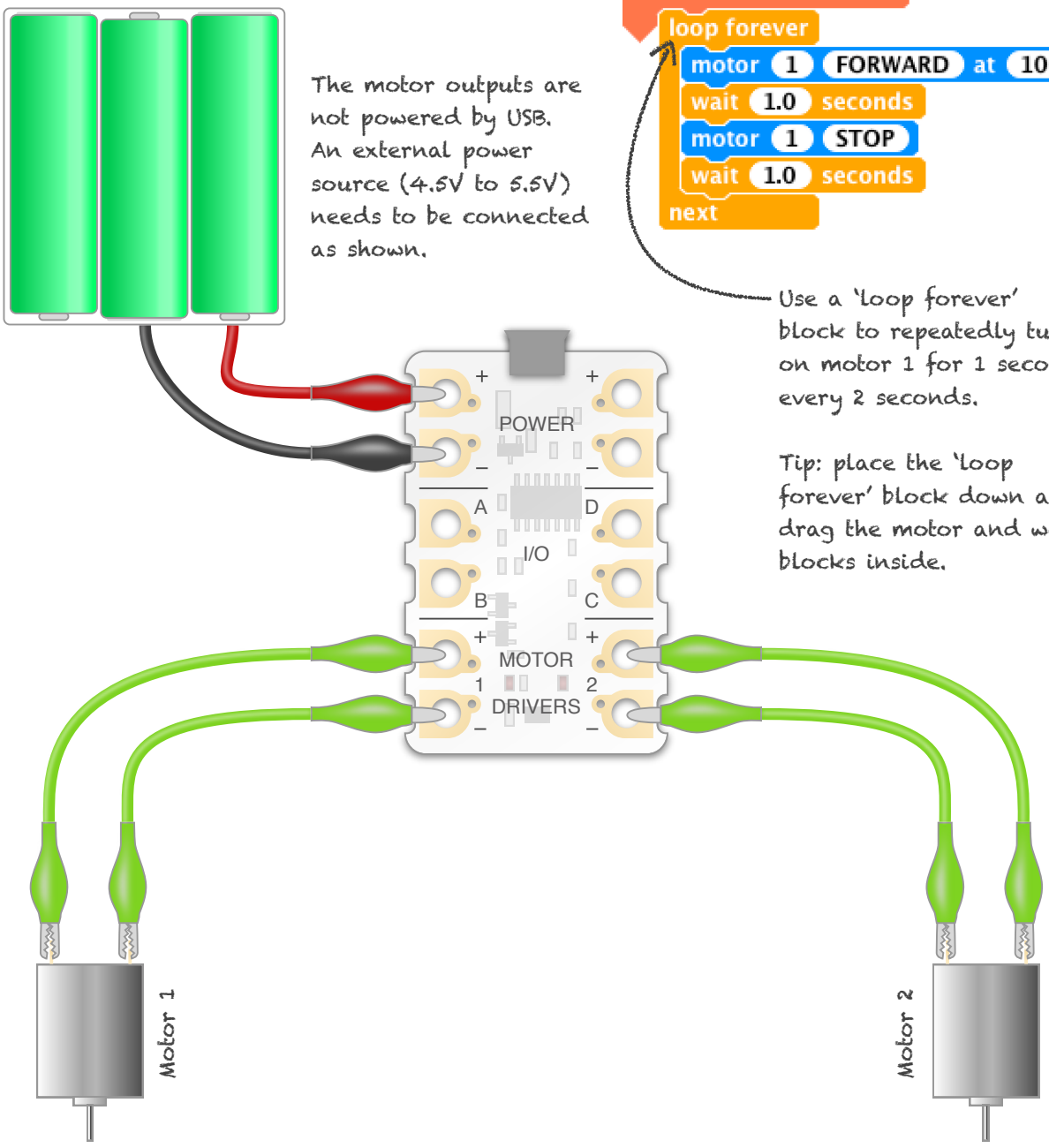
100%	Full speed
0%	Stop
25%	Quarter speed

Example program



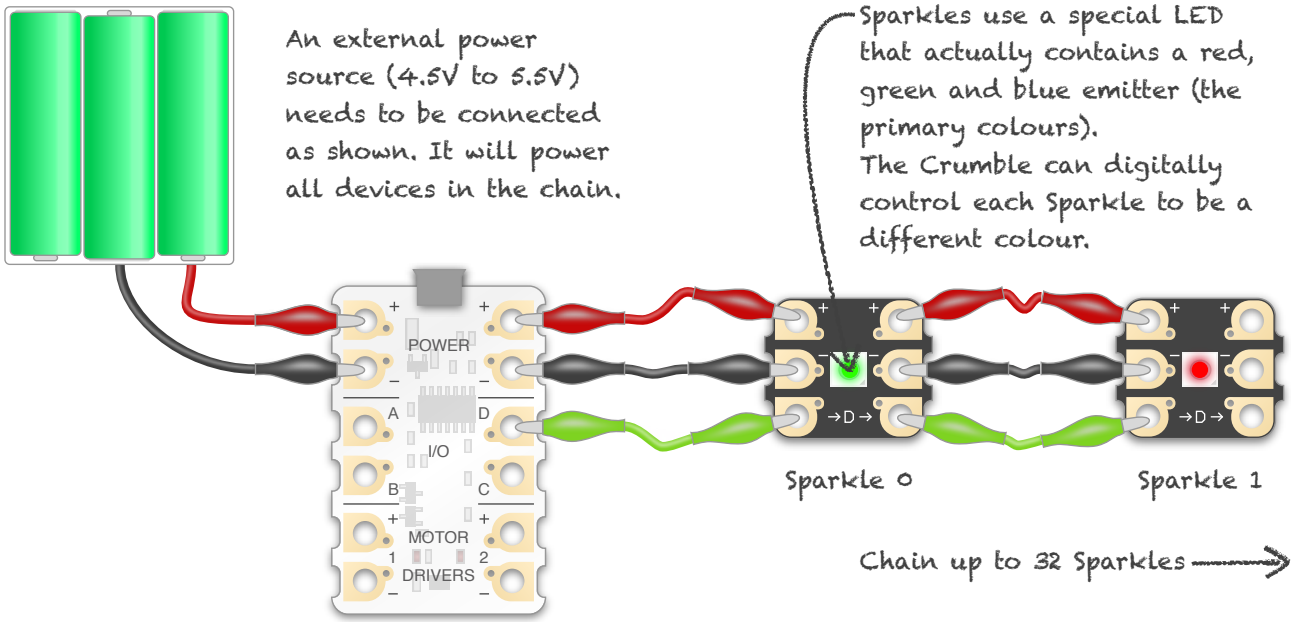
Use a 'loop forever' block to repeatedly turn on motor 1 for 1 second, every 2 seconds.

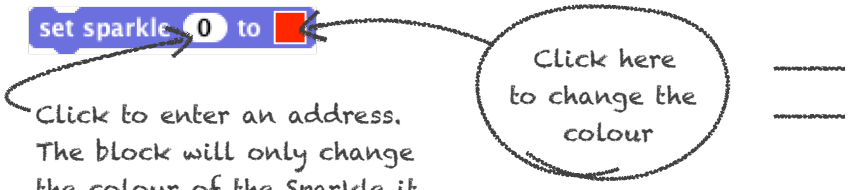
Tip: place the 'loop forever' block down and drag the motor and wait blocks inside.



The motor outputs are not powered by USB. An external power source (4.5V to 5.5V) needs to be connected as shown.

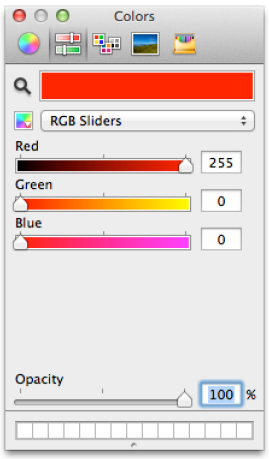
Using Sparkles





Click to enter an address. The block will only change the colour of the Sparkle it is addressing.

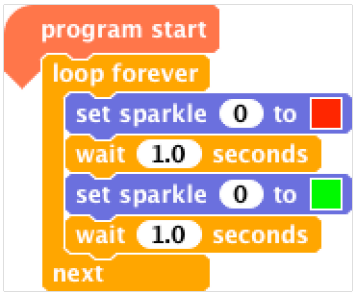
The first Sparkle in the chain is 0, the next is 1 etc.



Note: the colour picker window will be a little different on Windows, Mac and Linux.

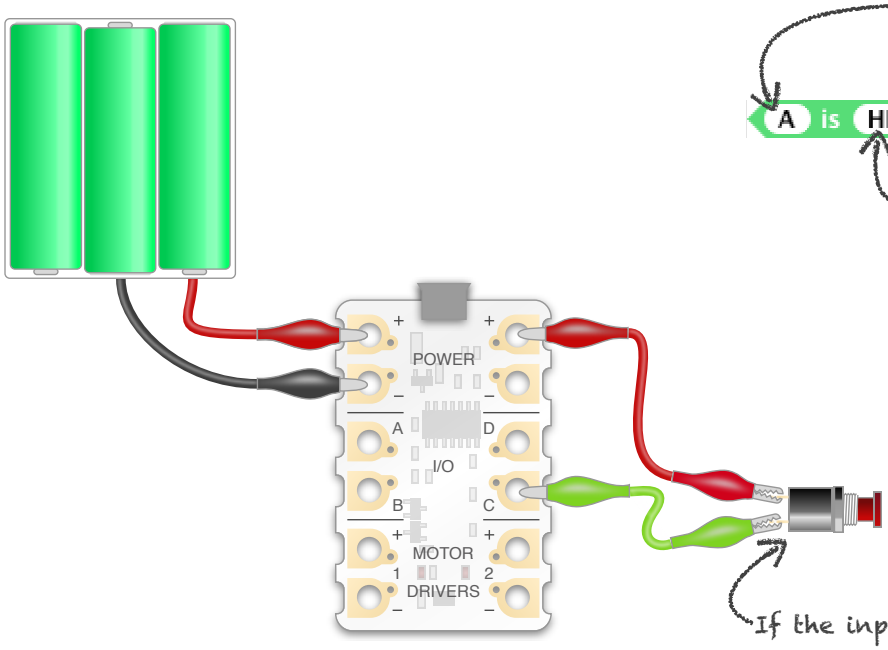
Use this block to change the colour of every Sparkle connected to the Crumble.

Example program



This program switches the first Sparkle between red and green repeatedly.

Using Inputs



A B C and D can all be used as inputs.

Test wether the input is:
HI (input connected to +)
or
LO (input connected to - or nothing)

If the input is not connected to a voltage it will read LO. Switches and buttons can be wired between + and the input: the input will read HI when the switch is pressed.

Blocks of this shape represent a true or false value (called a boolean). It can be used in any block with a corresponding space.

Example program

In this example, motor 1 runs forward for 5 seconds every time the button is pressed (C goes HI).