



Imagibot Robot Project – Part 3

Programming the Imagibot Crumble Board

Using Scratch type Coding for motor speed and direction with delays



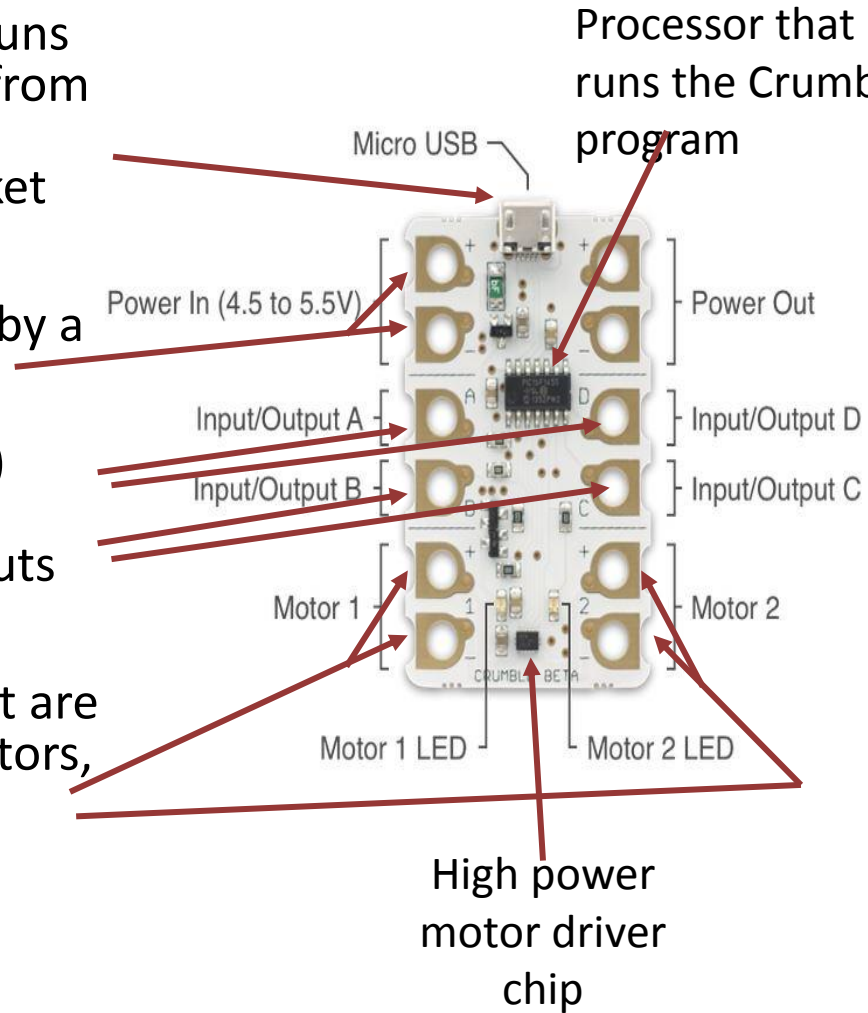
The Crumble Computer Board

The Crumble computer board runs a program that is downloaded from a PC through a USB cable that connects to the Micro USB socket on the board

The crumble board is powered by a 4.5 volt battery.

It has 4 connections (A,B,C &D) that can be used as inputs for switches or sensors or for outputs such as LEDs

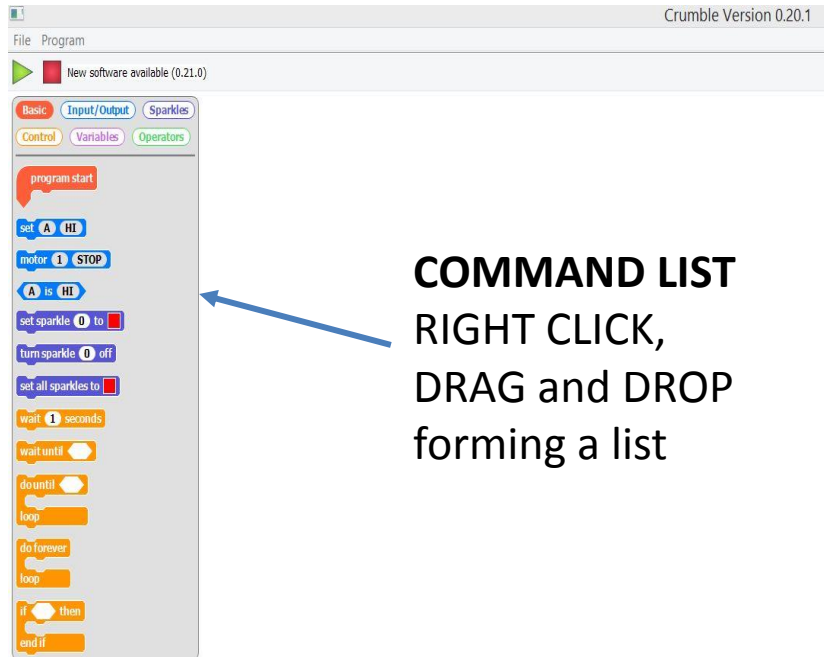
It has 2 high power outputs that are specially for driving electric motors, and an LED for each motor



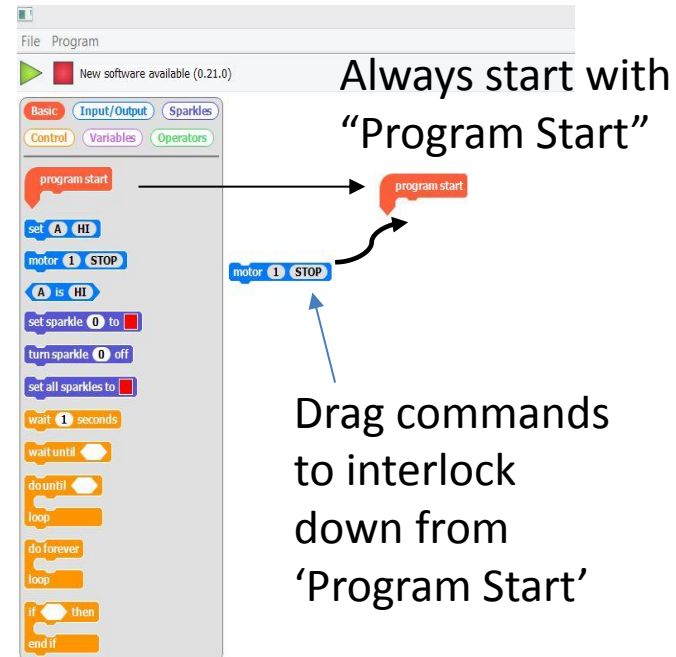


Crumble Programming 1

Basic Screen



COMMAND LIST
RIGHT CLICK,
DRAG and DROP
forming a list

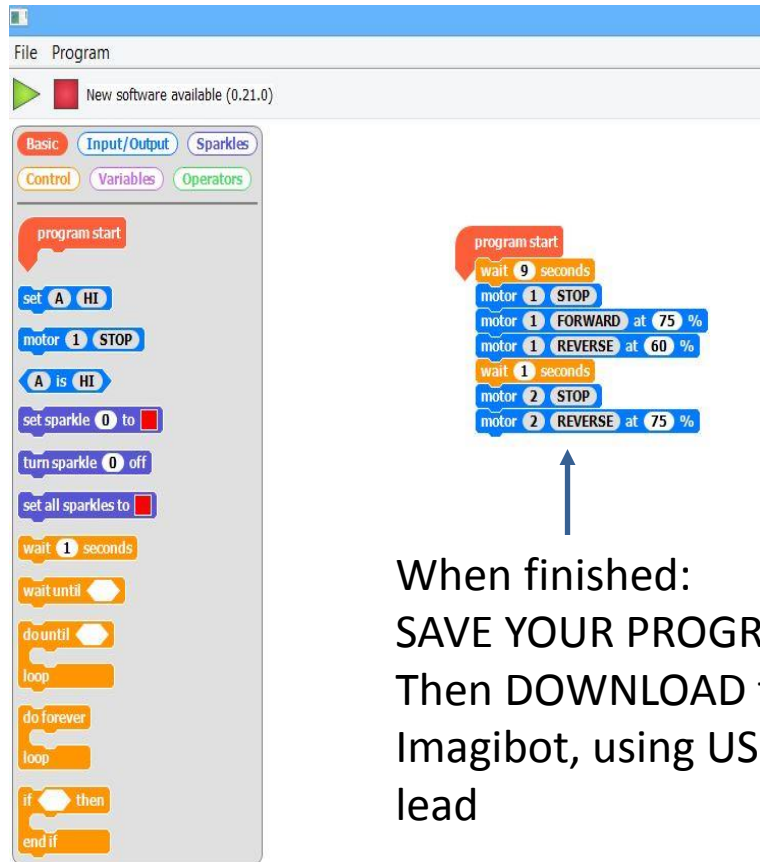


Always start with
"Program Start"

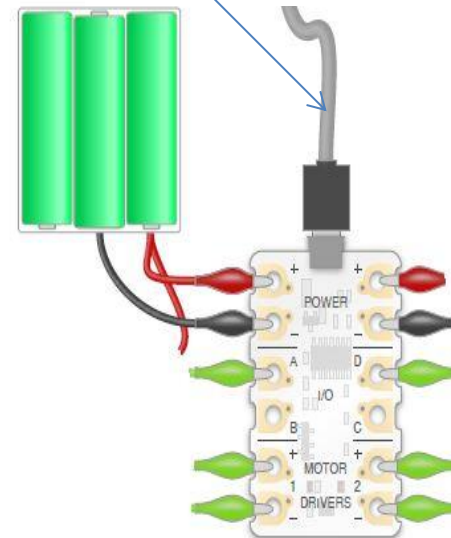
Drag commands
to interlock
down from
'Program Start'



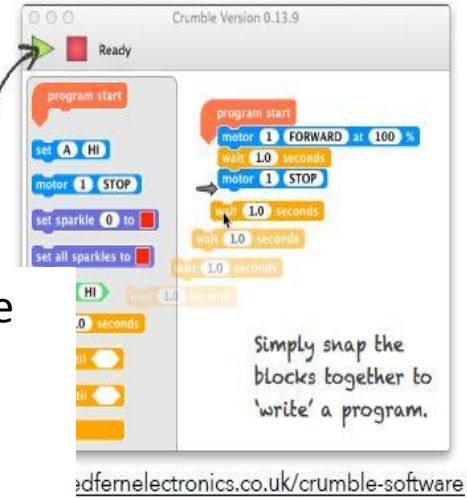
Crumble Programming 2



When finished:
SAVE YOUR PROGRAM
Then DOWNLOAD to
Imagibot, using USB
lead



Click green triangle
to program the
Crumble via USB
lead



Simply snap the
blocks together to
'write' a program.

dfernelectronics.co.uk/crumble-software



Crumble Programming Exercise

Straight Run

Convert instructions below into code on your screen:

“Wait” 4 seconds

Motor 1 FORWARD at 50%

Motor 2 FORWARD at 50%

“Wait” 3 seconds

Motor 1 STOP

Motor 2 STOP

- Make sure battery power is OFF
- Plug USB lead into computer USB socket (Big End)
- Plug USB lead into Crumble Mini USB socket (Small End)
- Press ‘Download’ green arrow on Crumble screen (Motor LEDs should BOTH light up for 3 secs)
- CAREFULLY put Imagibot on floor – SWITCH ON – STAND CLEAR, observe run – SWITCH OFF



Fault Diagnosis

- **Robot not moving** - check battery and motor connections and that program has been loaded down USB cable. If the motor LEDs are coming on then the program is probably loaded OK and you should check the motor leads and that the wheels can move freely. If Motor LEDs do not light, check battery connections and that program has loaded.
- **Robot goes backwards or spins** – swap over the leads from motor to connector block for whichever motor is driving in the wrong direction - change leads on one motor if robot is spinning or both if it is going backwards.
- **Robot not going straight** – check that wheels spin freely and gear engaged correctly – if necessary loosen lock nut on axle that is running slower or adjust gear engagement by moving motor pinion closer or away from gear on wheel, after loosening the motor side plate screw using a small screwdriver through the access hole in the relevant wheel. Also check battery and motor connections to make sure screws are tightened onto bare wire, not the insulation.



The Body - Part 4

The Robot Wars style body is made from folded card

- **Step 1** – decorate the body with your own design and colours, including the back
- **Step 2** – cut round the dark outlines of the body and back
- **Step 3** – score along the lighter lines before folding
- **Step 4** – apply glue (stick or PVA) to tabs and stick body together. Allow glue to dry
- **Step 5** – place body over chassis and sellotape in place round one lug on base plate only (this will allow you to tip the body sideways to access the switch on the battery box)

