:GAME Controller for the BBC micro:bit

5644

The :GAME Controller is a programmable gamepad-style controller for the BBC micro:bit, enabling a better gaming experience on the micro:bit itself, or the ability to control other devices over the micro:bit radio. It features a piezo buzzer for audio feedback, a vibration motor for haptic feedback, and 6 input buttons. It also breaks out P19 & P20 to standard 0.1" footprints including voltage and GND pads. The BBC micro:bit is connected via a card slot connector.

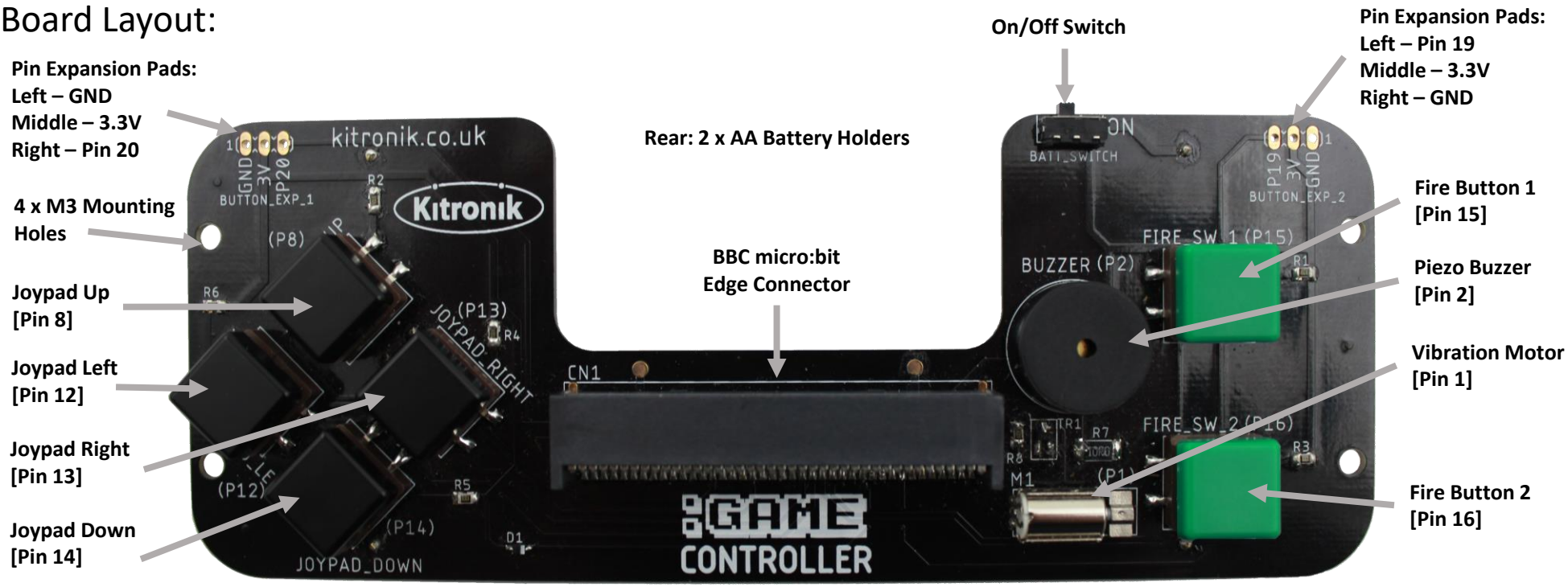
The board is powered by **two AA batteries** which feed into the 3V and GND connections **to power the connected BBC micro:bit**, removing the need to power the BBC micro:bit separately. To protect the BBC micro:bit if power is supplied through it, such as with a USB lead, the devices on the :GAME Controller will not operate.

Inserting a BBC micro:bit:

To use the :GAME Controller, the BBC micro:bit should be inserted firmly into the edge connector, making sure that the BBC micro:bit LED display is facing in the same direction as the front of the :GAME Controller.

Examples: For some starter ideas for how to use the controller, go to: http://www.kitronik.co.uk/5644

Board Layout:



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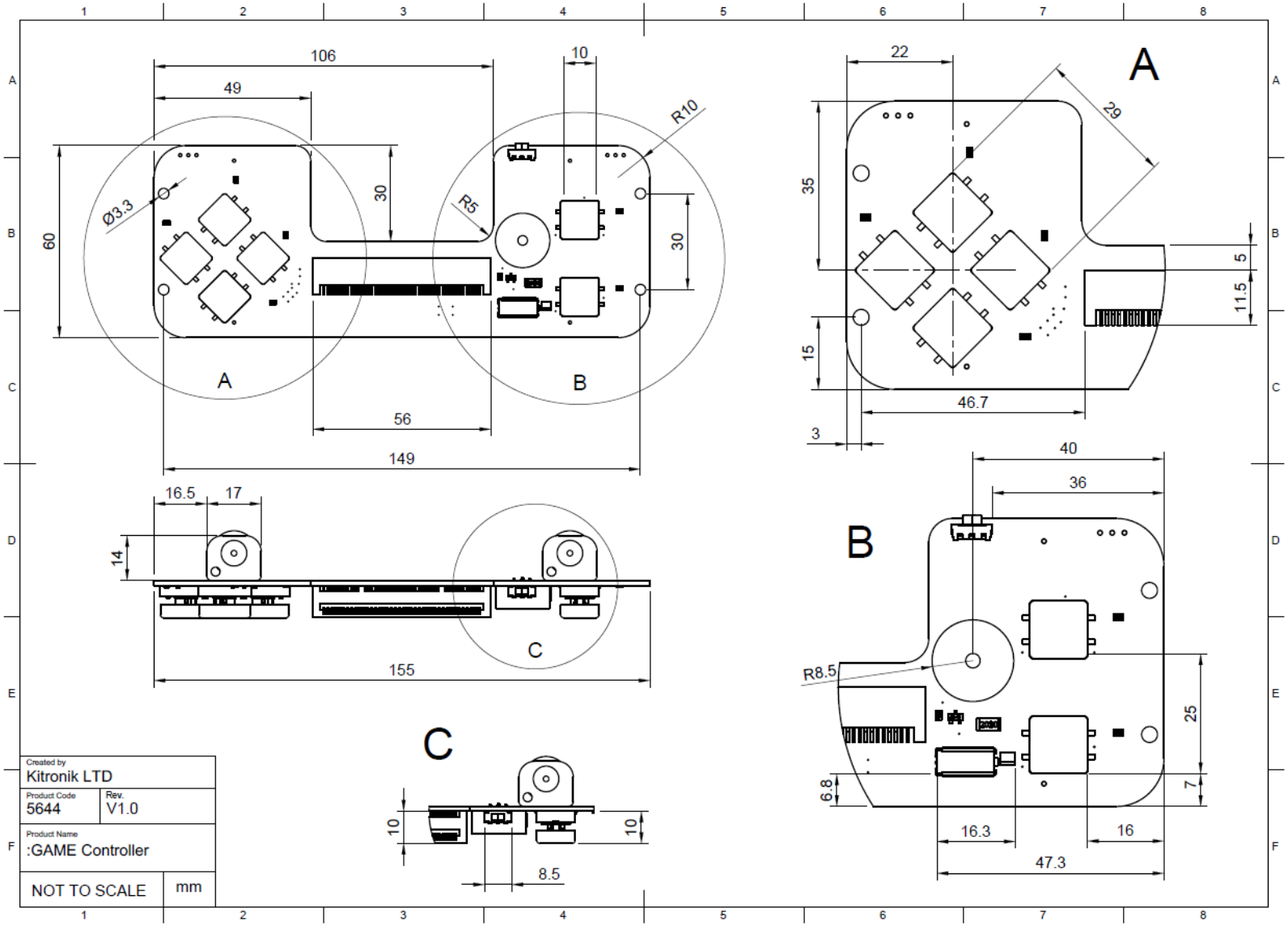
Board Dimensions:



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Electrical Information

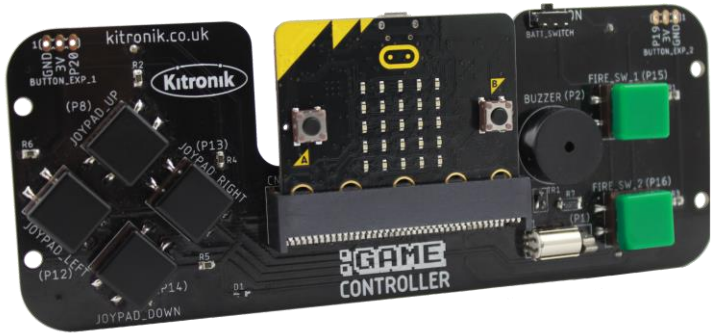
Operating Voltage (Vcc)	3.0V (2 x AA Batteries)
Max Current (All on-board devices and BBC micro:bit in use)	220mA
Number of External Pin Breakouts	2 x I2C/IO pin (each IO pin rated +3.3V @ 5mA)

Note on External Channels:

Care should be taken when using the external breakouts for Pins 19 and 20 as GPIOs, as this can cause issues with the I2C devices on the BBC micro:bit itself (e.g. compass and accelerometer).

When using the 3.0V breakout pins, these should not draw more than 80 mA in total, due to the current limit of the power switch when combined with the BBC micro:bit and on-board device usage.

Front view with BBC micro:bit & batteries:



Rear view with BBC micro:bit & batteries:

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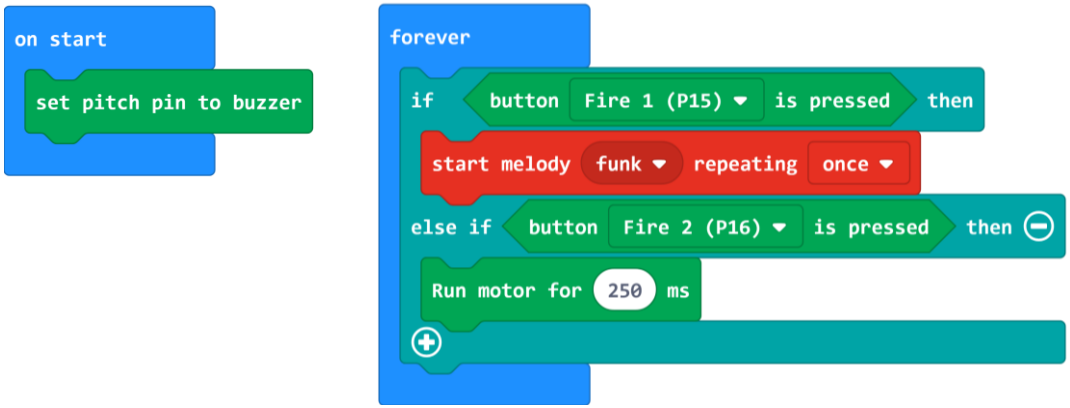
Microsoft MakeCode Blocks Editor Code

This program was created in the Microsoft MakeCode Blocks Editor for the BBC micro:bit.

There is Kitronik package available for the :GAME Controller on Microsoft MakeCode (the green blocks shown here).

On start-up, the music output pin is changed from the default of Pin 0 to Pin 2 (the :GAME Controller on-board buzzer signal pin).

The 'forever' loop uses blocks which output 'True' or 'False' to check whether particular buttons on the Controller have been pressed, and then uses an 'if else' statement to trigger different outputs. When Fire 1 is pressed, the buzzer will play a short tune, and when Fire 2 is pressed, the motor will vibrate for 250ms.



The other blocks which can be used to check whether Controller buttons have been pressed are used to trigger events when any of the Joypad buttons are pressed. When the particular direction buttons are pressed, an arrow will be displayed on the micro:bit screen pointing in the direction of the button.