

ACCESS:bit for the BBC micro:bit

www.kitronik.co.uk/5646



Introduction: The ACCESS:bit is a bolt-on/clip-on board for the BBC micro:bit simulating an access barrier. The ACCESS:bit has been designed to have the ability to drive two servos with barriers and a buzzer for sound. It includes a switch for turning the integrated 2xAAA battery supply on and off. The ACCESS:bit has been designed so that the BBC micro:bit LED display can be used to recreate warning lights, display stop and go symbols or be used for light sensor activation.

Connection: x5 M3 countersunk screws and M3 nuts allow the user to bolt the ACCESS:bit onto the BBC micro:bit.

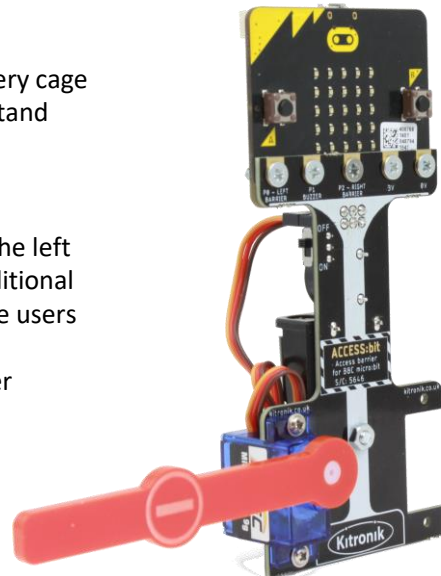
Crocodile clips also can be used between the pads on the ACCESS:bit and the matching pads on the BBC micro:bit.

The table to the right gives the connections between the BBC micro:bit and the ACCESS:bit

Pinout	
P0	Left Barrier
P1	Buzzer
P2	Right Buzzer
3V	3V supply
0V	GND of BBC micro:bit

Stand: The bottom of the 2x AAA battery cage acts as support for the ACCESS:bit to stand upright.

Servo: The servo can be mounted on the left or right hand side (or both with an additional servo) of the ACCESS:bit depending on the user's requirements. The servo lead is then connected into the required pin header indicated on the board.



Software: Custom MAKECODE blocks have been created for driving the servo and sounding the buzzer.

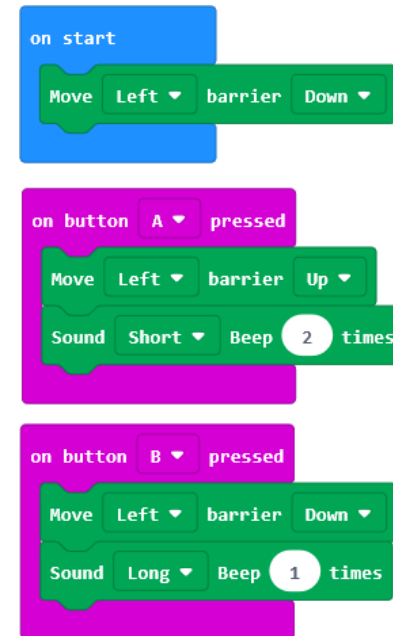
They are available at:

<https://github.com/KitronikLtd/pxt-kitronik-accessbit>

Servo "Move" block: The block allows the selection of which servo or barrier to control and what position (up or down) to have the barrier.

Buzzer "Sound" block: The block allows to drive a long or short beep and how many beeps to sound.

Below is a test code for driving a single barrier fitted on the left hand side.



If the barrier has been fitted on the right hand side, change the block "Move Left barrier" to read "Move Right barrier" and select up or down from the secondary selection within the block

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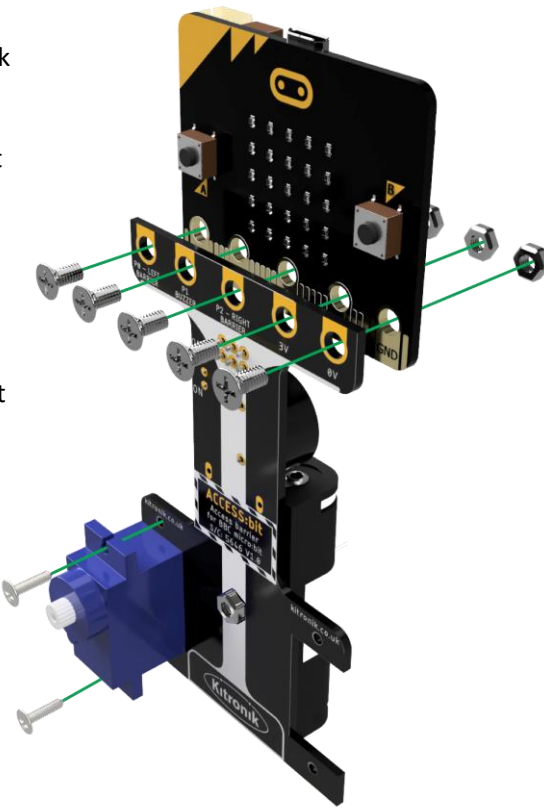
Assembly: The following steps will instruct how to assemble and setup the ACCESS:bit on first installation.

1. Place servo into required mount position from the component side of the PCB, so the servo gear is at the front of the PCB.

2. For attaching the BBC micro:bit, place the BBC micro:bit on the back of the PCB (facing the front). Using the x5 M3x10, place each one through the PCB and BBC micro:bit and attached a single M3 nut onto the thread. Make sure the nut is securely fastened with the PCB.

Alternatively using croc-clips to connect the PCB pads to the matching pins on the BBC micro:bit

3. Using the two large screws from the packet of fixings that came with the servo to screw through the PCB into the servo. Do this for both top and bottom holes in the PCB. Then connect the servo to required pin header on the rear of the PCB.



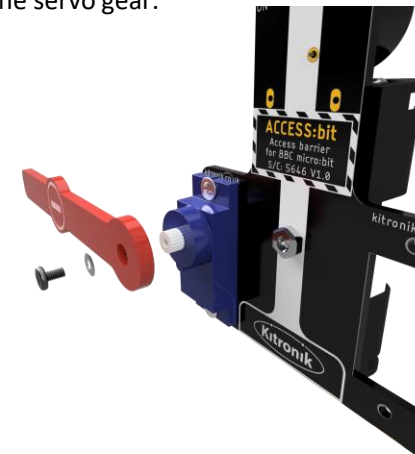
4. Program the BBC micro:bit with the following code. Ensure to select the correct side the barrier is fitted on in the code.

Once the BBC micro:bit has been programmed, with the test code, turn on the PCB from the slide switch.

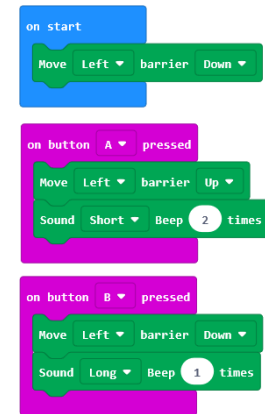
After switch on, the servo/s will centre.

5. When the servo/barrier is in its down position, place the red Perspex barrier horizontally onto the servo gear. Make sure that the barrier is pointing outwards away from the PCB.

The barrier is designed to be a push fit on to the servo and fit a screw through the washer onto the servo gear.



Now it is possible to test the barrier moves up and down with buttons A and B on the BBC micro:bit.



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Layout & Dimensions:

