

Teachers guide – Micro:bit

Using the Radio function

Code Playground



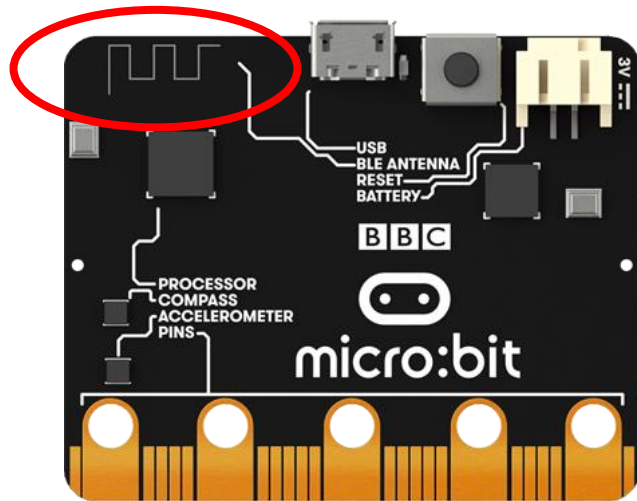
```
int x=10
for(int a=0; a<x; a++)
{
  if(a==x) // check for c
    break; // exit loop
}
```



Using the Radio function

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The radio and Bluetooth antenna is found on the back of the micro:bit, as shown here.

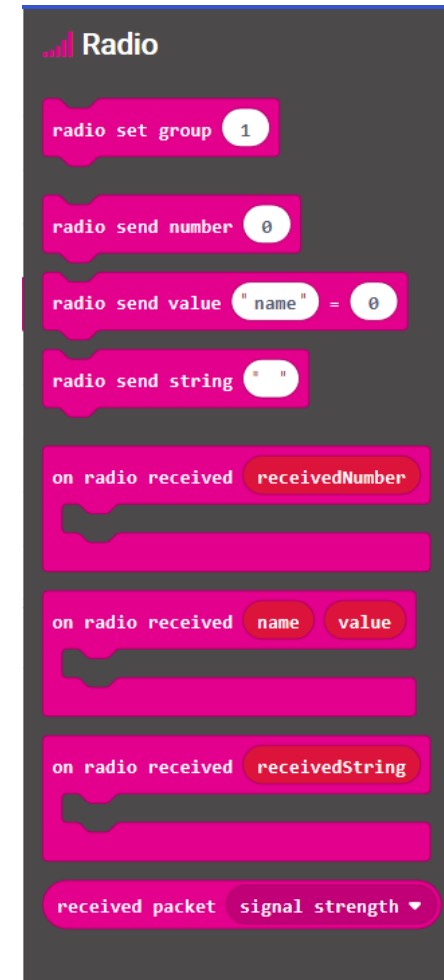


All of the blocks that work with the radio feature are housed in their own tab in the micro:bit MakeCode editor. These include blocks both for sending and receiving radio signals.

The radio blocks are able to interact with most other blocks in the editor, including variables.

The micro:bit can send a radio signal with a range of up to 70 metres.

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Selecting a 'channel'

In order to allow multiple micro:bit devices to communicate, this set up is very important. Just like switching a walkie-talkie to the right channel so you can communicate with the corresponding handset, the 'radio set group' block will allow micro:bits that are assigned the same number to send and receive information.



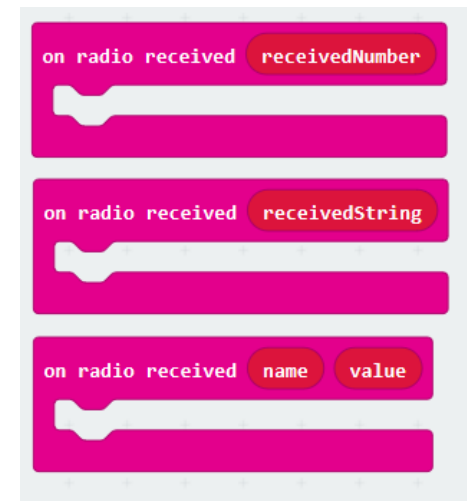
This should be set up on ALL devices wishing to communicate. Any number from 1 to 255 may be used, and any other event block will work just as well, depending on how and when you want the radio event to trigger.

Receiving messages and information

There are three 'on radio received' blocks to choose from. The first two blocks shown on the right will trigger an event when the micro:bit receives either a number or string value.

'receivedNumber' and 'receivedString' act as variables in these blocks. You can click and drag them to duplicate them to be used elsewhere in your script.

The third block will trigger an event when it receives a string and number together.

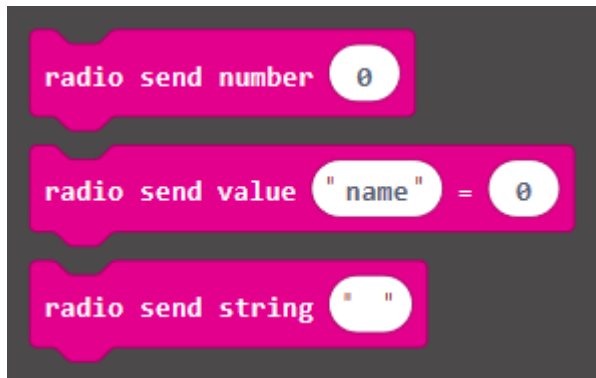


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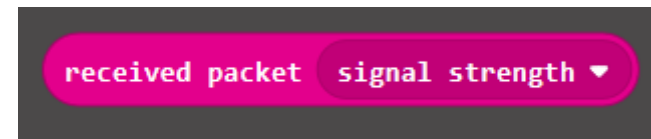
Micro:bit project

Sending messages and information

There are three corresponding blocks which will allow you to send information from one micro:bit to another when a particular event is triggered. This could be a button press, a shake, or you could even use the 'forever' loop block.



The 'received packet' block has three options in its drop down menu: signal strength, time and serial number. The packet is the value of the option chosen from the menu. Signal strength is the strength of the radio signal when the packet was received. Serial number is the serial number of the board sending the packet. Time is the time the packet was sent



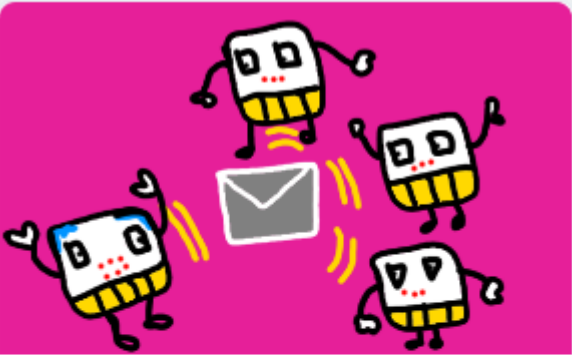
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Advanced Blocks

There is a micro:bit extension called radio-broadcast which adds several new blocks into the radio tab.

These are for use in more complex programmes, and you may find them included in other online resources and downloads.



radio-broadcast

Adds new blocks for message communication in the radio

```
radio set transmit power 7
radio set transmit serial number true
radio write received packet to serial
radio raise event
from source MICROBIT_ID_BUTTON_A
with value MICROBIT_EVT_ANY
```

```
radio send message1
on radio message1 received
```

Notes

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