



1 - Radio Communications

Added libraries:

Libraries



Radio

Scrolling

Radio blocks let two or more micro:bits communicate without wires!



Put all these scripts on two micro:bits to allow you to send and receive in both directions. (Feel free to change the string and number values.)

When pressing A, B, or both A+B on one micro:bit you will send a message. Be prepared to quickly look at the other to see if it arrived.

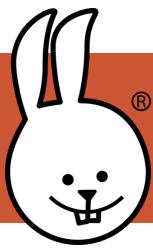


The receiver script is always listening for an incoming message. When data are received, the message will be scrolled across the LED display.



You can also send numbers as “codes” from one micro:bit to trigger actions on another. For example, send a “1” to show an LED matrix pattern, and a “0” to clear it. The sender acts like a remote control.

Challenge: How far does the radio reach? Is it blocked by walls or your body? How many letters can you send with the “radio send string” block?



2 - Radio Texting

From the File menu, open the **RadioTexting** example in the “by Board” then “micro:bit and Calliope” folders. Get together in pairs or small groups and set the same group number (different from others.)

when started
radio set group 10

Your challenge is to understand how the example works, then try it. As usual, don't forget to click the green “start” button.

The Scratch script defines a variable "letters" containing the string "ABCDEFGHIJKLMNOPQRSTUVWXYZ.!?:()&#+-*/=0123456789". It then sets the variable "alphabet" to this value. A message "HI ROSA!" is displayed. A "define" block for "letters" is shown with the command "set alphabet to [ABCDEFGHIJKLMNOPQRSTUVWXYZ.!?:()&#+-*/=0123456789]".

Variables shown: Add a variable, Delete a v, alphabet, letter, msg2send, sending-flag.

Some hints...

- Hold Button A and tilt to select a letter from the alphabet.
- Button B adds the selected letter to your message.
 - What do B double and long presses do?
- Pressing A+B sends your message.
- Shaking clears your message.
- If the LED is blinking, you received a message from someone else. Tilt down then up to read it.

The Scratch script uses an "acceleration" sensor to shake the micro:bit. If the z-axis acceleration is greater than 280, it clears the display and sets the variable "msg2send" to an empty string. It then displays a 5x5 grid of red squares. When a radio message is received, it clears the display, comments that a message was received, and repeats a loop until the z-axis acceleration is less than -20. Inside the loop, it blinks the LEDs and flashes the screen, then scrolls the received message onto the display.

when acceleration > 280
comment Shake hard to clear message to send
set msg2send to ""
display [grid v]
when radio message received?
clear display
comment blink = msg received
repeat until [tilt z < -20]
 blink
 flash
 scroll text [radio last string v]