Interactive Badge

Introduction

SAMPLE

You are going to make an interactive badge, that will show your mood to your friends.

Instructions: If you're reading this online, press **A** on the micro:bit below to display a happy face, and **B** to show a sad face.

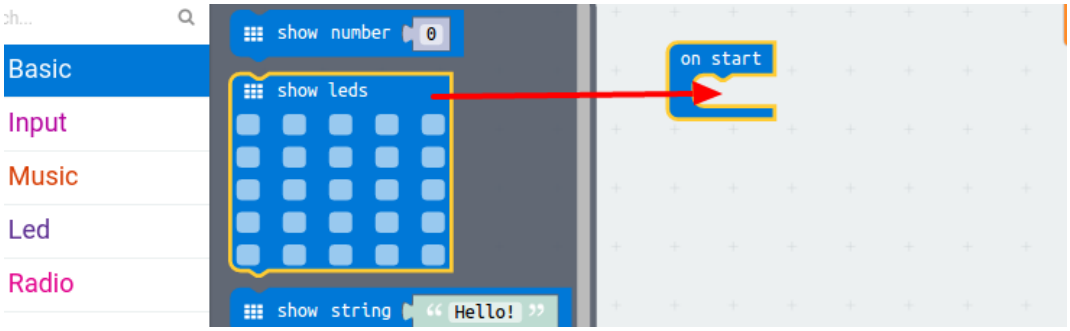
Step 1: Displaying an image

Let's start by showing an image on your micro:bit when it's powered on.

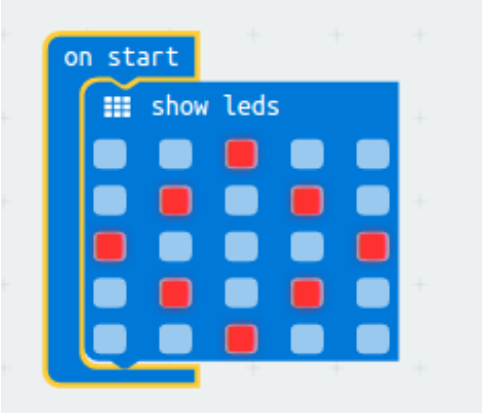
Activity Checklist

- [ ] Go to **jumpto.cc/pxt-new** to start a new project in the PXT editor. Call your new project 'Interactive badge'.

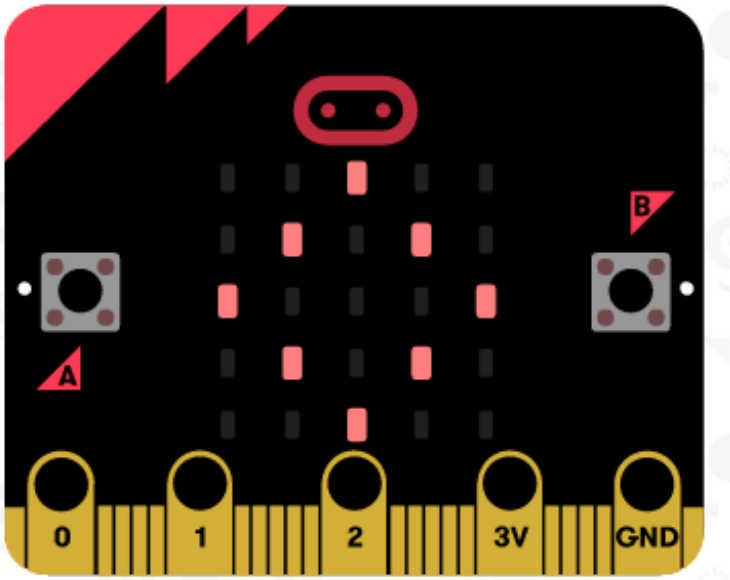
- [ ] You should now see the code editor. To draw an image on your micro:bit when it's powered on, drag a `show leds` block from the code area (on the left) inside the `start` block.



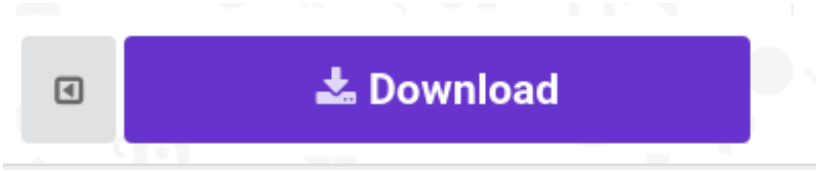
- [ ] To create an image to display, click on leds that you want to light up:



- [ ] Your code will run automatically in the emulator on the left:



- [ ] You can also test your code on the micro:bit itself! To do this, click 'Download' on the menu at the left of the screen.



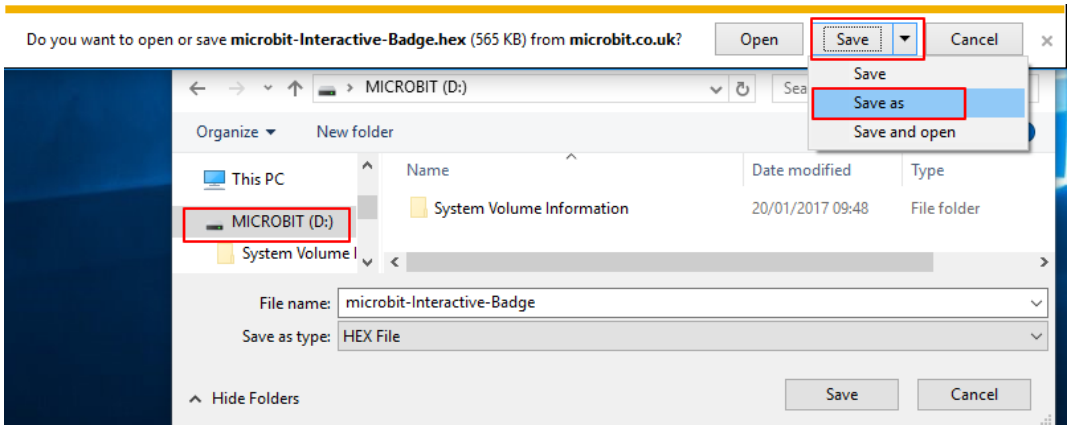
This will create and download a `.hex` file that will run on your micro:bit.

- [ ] Use the USB cable to plug your micro:bit into your computer. You should then see your micro:bit appear in your computer's file manager as a USB drive.

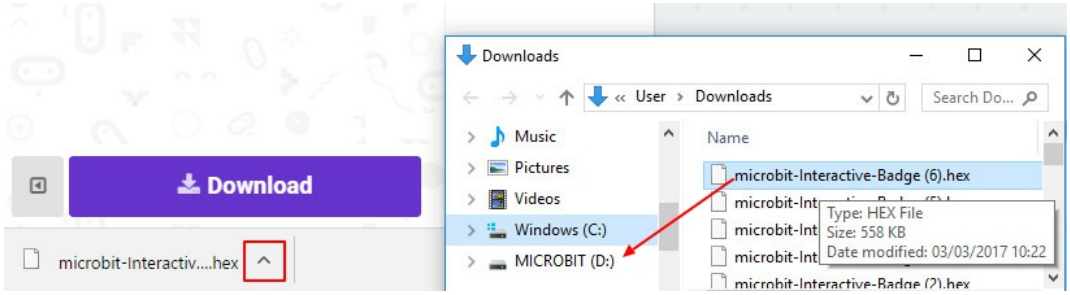
- [ ] If you are using the micro:bit uploader then the `.hex` file will be automatically copied to the micro:bit. Check with your volunteer if you're not sure.

Otherwise you will need to copy the `.hex` file to the micro:bit.

If you are using **Internet Explorer** you can choose `Save as` from the menu that appears at the bottom of your browser and then select the micro:bit drive:

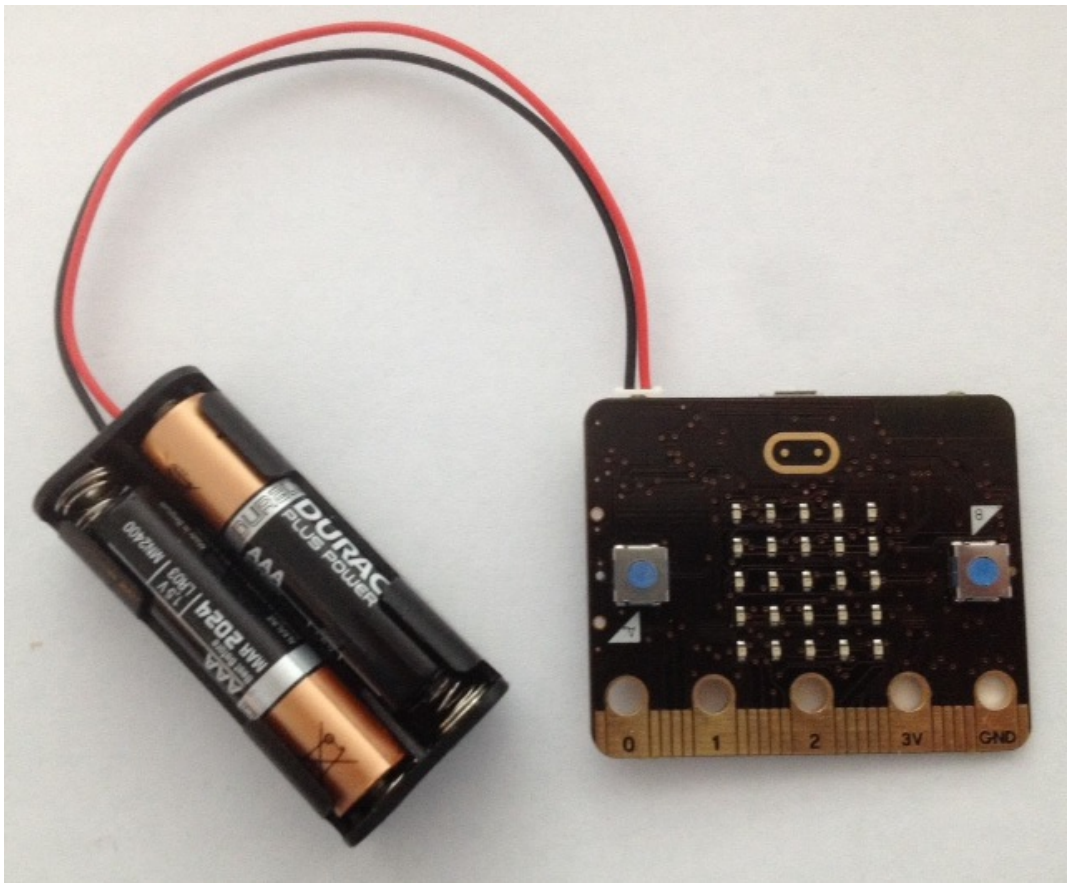


If you are using **Google Chrome** you can click on the arrow after the downloaded file and choose 'Show in folder' and then drag the highlighted file to the micro:bit drive:



- A light on the back of your micro:bit will flash while the file is being copied. Once this has stopped your program will run. You can click the reset button on the back of your micro:bit to restart the program.

- [ ] You should now see your image on the micro:bit. If you prefer, you can remove the USB cable from your micro:bit, and attach the battery. The program will be saved on the micro:bit.

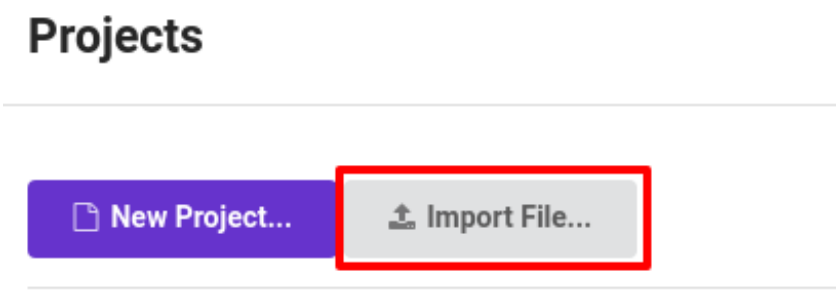


Save your project

You don’t need an account to save your stuff! Your project will automatically be saved in the browser, you can click on `Projects` to see your projects.

You can also click save to download your project as a `.hex` file which contains your project:

To load your project on another computer, click ‘Projects’ and then ‘Import file’ and select your `.hex` file.



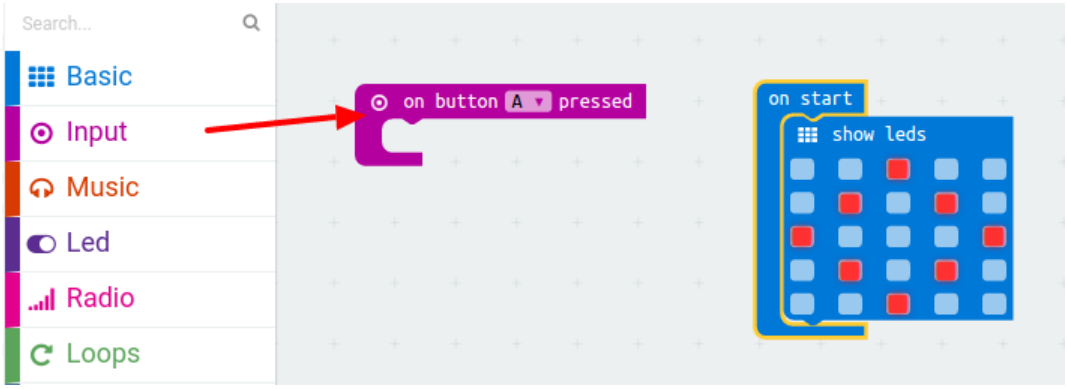
Step 2: Displaying a happy face

Let's show a happy face on your micro:bit when the 'A' button is pressed.

Activity Checklist

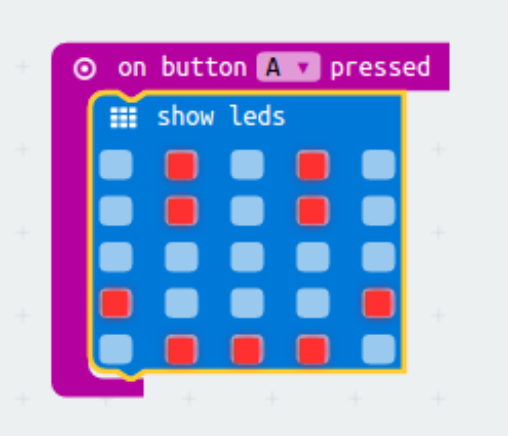
- [ ] So far, you've only run code when the micro:bit is powered on. You can also run code when a button is pressed.

Drag an 'on button pressed' block from input and make sure 'A' is selected:

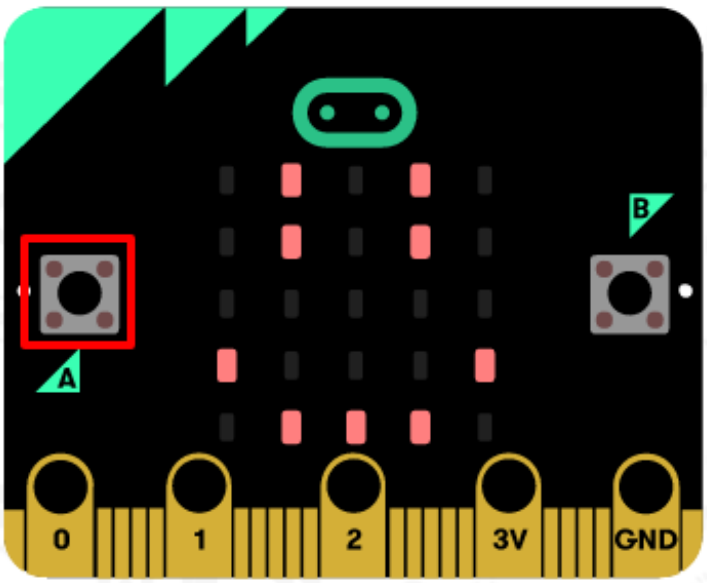


Any code added inside this block will run when the 'A' button on your micro:bit is pressed.

- [ ] Drag another `show leds` block inside your new event, and draw a happy face pattern.



- [ ] Test our your new code in the emulator. Press the ‘A’ button and you should see a happy face on your micro:bit:

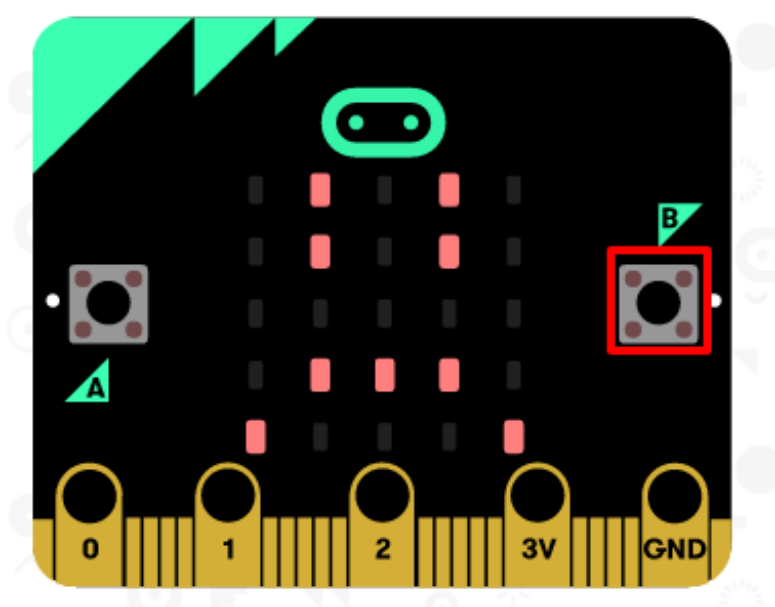


You can also test out your new code on your micro:bit.

Save your project

Challenge: Displaying a sad face

Can you make your micro:bit display a sad face when the ‘B’ button is pressed? You’ll need to use another ‘on button pressed’ block to do this and select ‘B’.



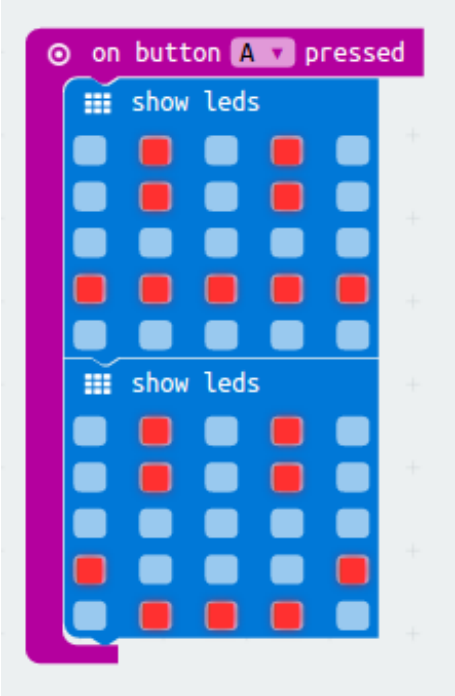
Save your project

Step 3: Creating a simple animation

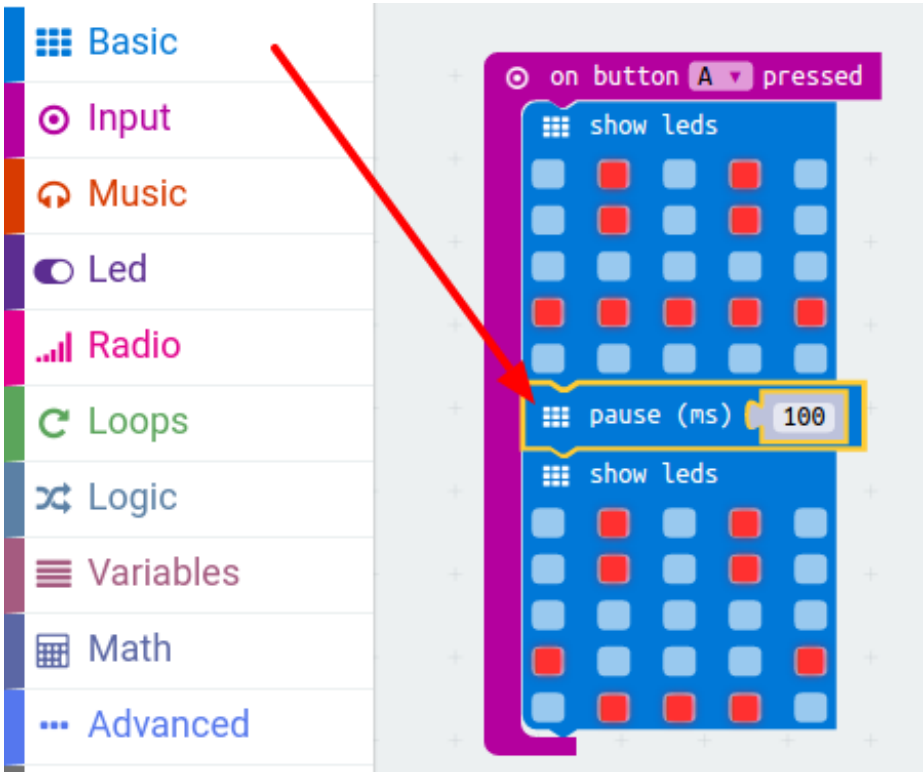
Let’s create a (very) simple animation for your happy and sad faces.

Activity Checklist

- [ ] Add a second `show leds` block to your `on button A pressed` block, with a neutral face.



If you run this code to test it, you'll notice that the pattern changes quickly. For a longer delay, you'll need to add a `pause` block between the two images being displayed.

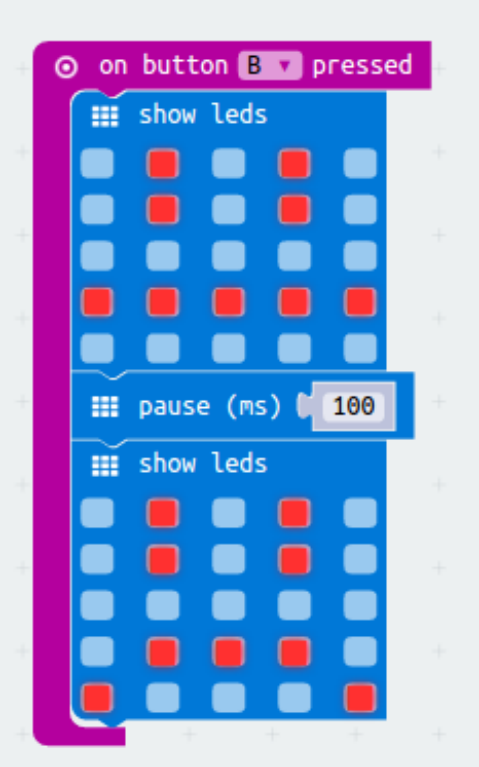


To choose how many milliseconds to wait, click the down-arrow and enter a number. 1000 milliseconds is 1 second, so 250 milliseconds is a quarter of a

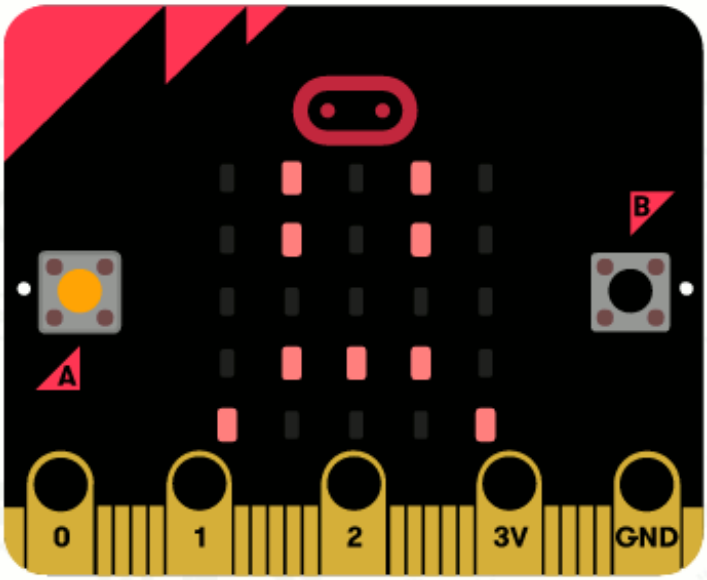
second.

- [ ] You'll also need to animate your sad face. The easiest way to do this is to duplicate the blocks you've just created. Right-click on a block to duplicate it. Note that the PXT editor just duplicates one block at a time (not multiple blocks like Scratch.)

- [ ] You can then drag these blocks into your `on button B pressed` block. This is how your code should look:



- [ ] Test your code, and you should see your animated happy and sad faces when you press button A and B.



Save your project

Challenge: Create your own interactive badge!

Create your own badge - you can use any images or animations you like!

Save your project