

## **micro:bit Movie Makers**

### How to get sound from the micro:bit using a piezo speaker or amp

#### What you'll need:

A micro:bit, battery pack and micro USB cable, plus a suitable computer for programming.  
2 crocodile clip leads.  
A piezo speaker or an audio amp or even an old pair of earphones  
(don't use a good pair in case you wreck them).

#### Step One: The Basic Code

You're going to use the Python editor on the micro:bit website for this jam.  
Open the editor here: <http://python.microbit.org/editor.html>

Copy the Python script below to the editor:

```
# http://python.microbit.org/editor.html
# Rebel MicroBits
import speech
from microbit import *
from microbit import sleep

stormtrooper = [
    "How long have you had these micro-bits.",
    "Let me see your identification.",
    "We don't need to see his identification.",
    "These aren't the micro-bits we're looking for.",
    "You can go about your business.",
    "Move along. move along.",
]

rebelscum = [
    "about 3 or 4 seasons.",
    "You don't need to see his identification.",
    "These aren't the micro-bits you're looking for.",
    "He can go about his business.",
    "Move along.",
    "HAHA those totally are the microbits you're looking for",
]

# Loop over each line in the script and use the speech module to recite it.

display.scroll('Ready in ..3.. ..2.. ..1.. ACTION', delay=100, wait=True, loop=False)

for line in range(0,6):

    display.show(Image.SKULL)
    speech.say(stormtrooper[line], speed=120, pitch=120, throat=100, mouth=200)
    display.scroll(rebelscum[line], delay=25, wait=True, loop=False)
```

When you're done, download the .hex file and flash it to your micro:bit. Remember to give the script a memorable name!

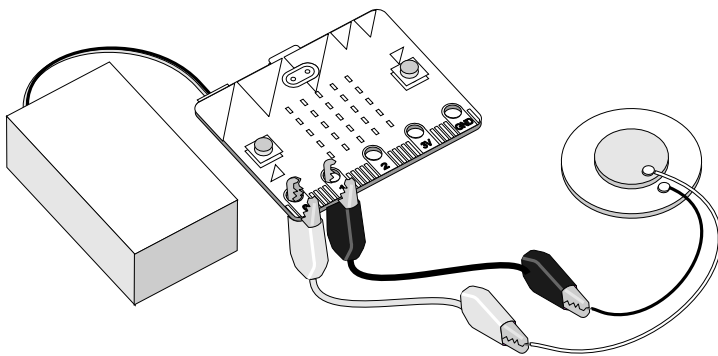
## Step Two: Connecting Speakers

The piezo speaker is a nice, robust, low cost device but in this application it's going to be a little quiet.

If you have a small speaker or a pair of old headphones, they have a much louder sound output.

**A word of warning! The volume from the headphones is going to be quite loud. Please do not put the headphones over your ears!**

Another alternative is to use an audio amp. Since the output from the micro:bit is quite high, turn the volume all the way down then gradually turn the volume up as the micro:bit talks.



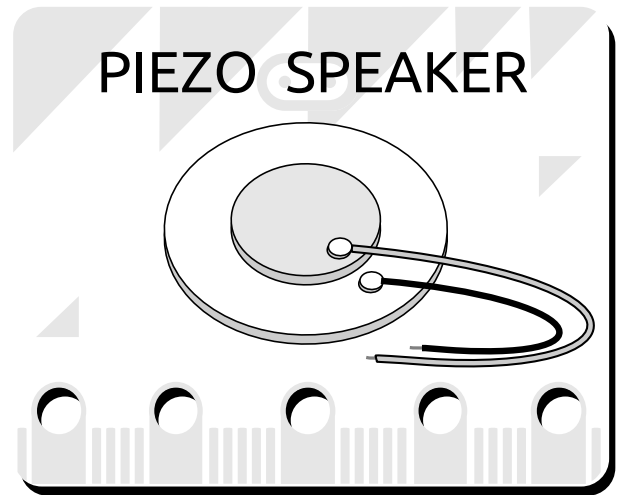
Connect power and after displaying a short countdown the micro:bit should start reciting some familiar dialogue.

Have a look at the code and make the micro:bit say whatever you want..

## Finishing Up

Quite robotic and monotonous, right? Take a look at the Python documentation for speech <http://microbit-micropython.readthedocs.io/en/latest/tutorials/speech.html> and see what happens when you alter some of the speech parameters. You can even get the thing to sing! Maybe your project could be a micro:bit musical...?

**If you create something cool, don't forget to share it with us at #artronixjam**



## Step Three: Wiring Up the Project

Okay, let's wire this up. First make sure your micro:bit is powered down. Use the crocodile clips to connect one of the piezo wires to Pin 0 and the other wire to Pin 1.

If you're using a headphone or amp, clip the tip of the jack plug to Pin 0 and clip the base of the jack plug to Pin 1 using the crocodile clips.

