

Experiment 6

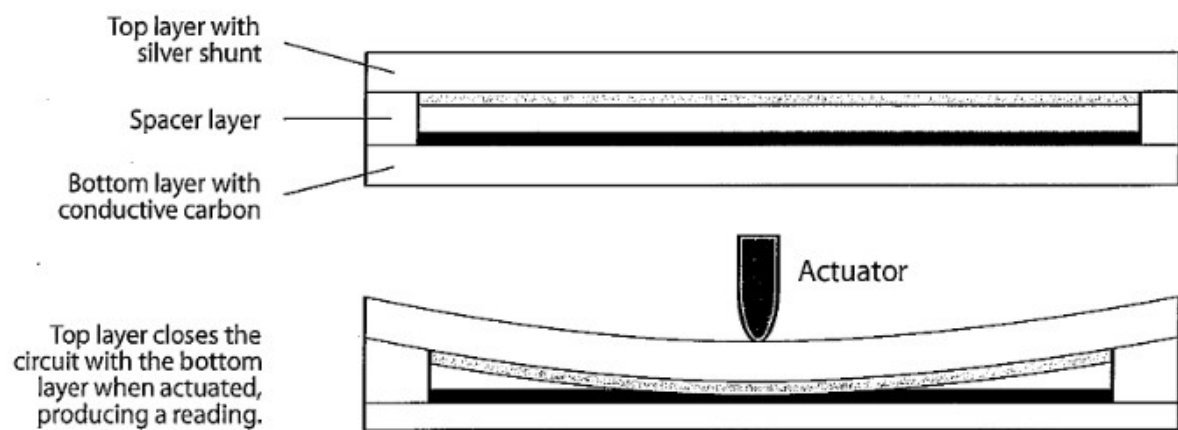
Soft Potentiometer / Piezo Buzzer

Outline

In this experiment, it is expected from you to,

1. Learn the soft potentiometer (softpot) structure and usage
2. Assemble and test the softpot circuit
3. Learn the piezo buzzer structure and usage
4. Assemble and test the piezo buzzer circuit
5. Modification

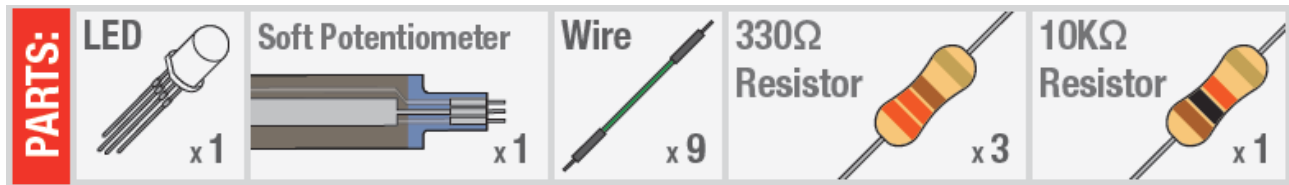
1. Soft Potentiometer (Softpot)



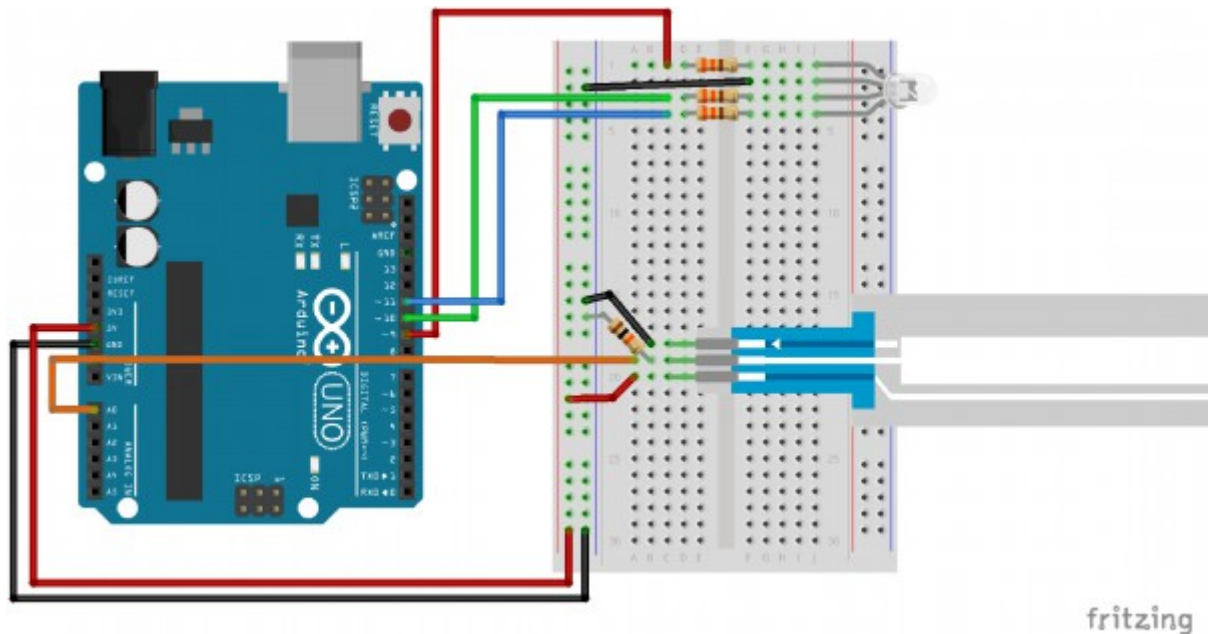
Structure of Softpot

Softpots are specialized potentiometers which change their resistance value according to where the user applies pressure to complete the inner circuit. While relaxed softpots pose a minimal amount of resistance ($\sim 100 \Omega$).

2. Assembling the Softpot Circuit



Required Parts



Fritzing Diagram of the Circuit

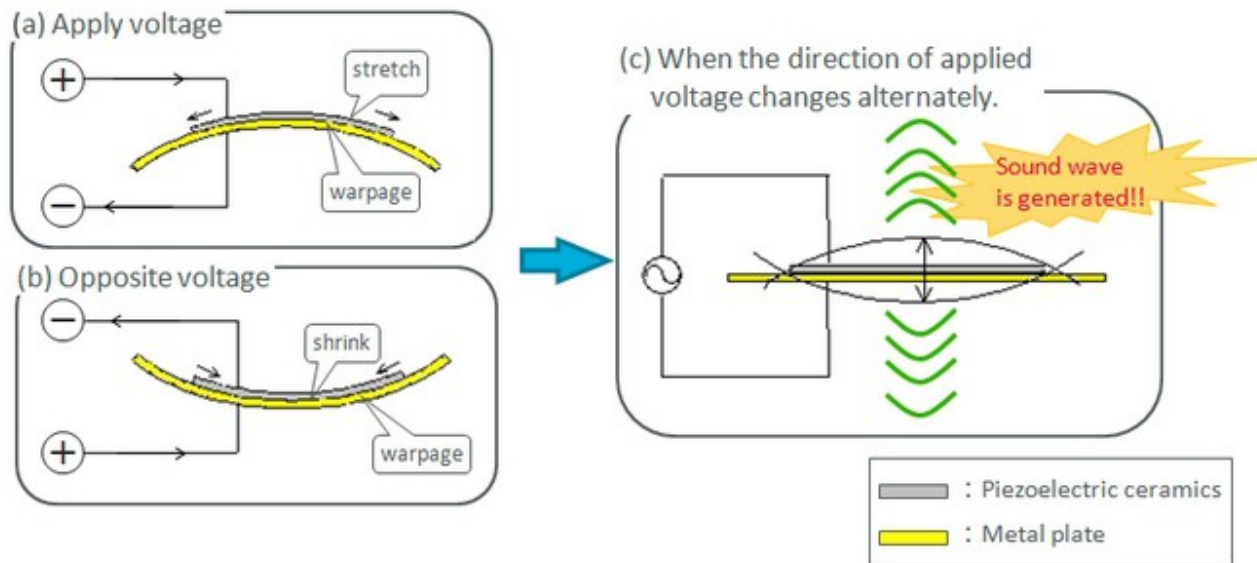
1. Select your resistors (330 Ω and 10k Ω) by using the color code table
2. Connect your RGB LED and softpot as shown in the diagram
3. Verify and upload your code to the arduino board
4. Observe the result and compare it with the expected outcome

Expected Outcome: RGB LED should change its color according to the resistance change in softpot

3. Testing The Softpot Circuit

1. Try to find the lowest and highest achievable input value you can get from your softpot using analog pin.
 - Use serial port to check the values
 - Change your mappings according to the values you found

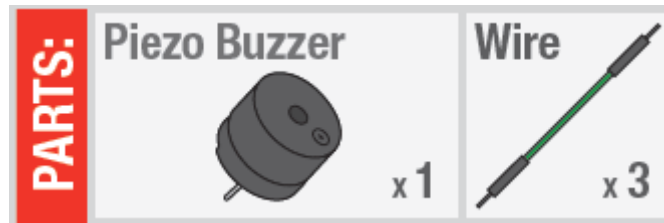
4. Piezo Buzzer



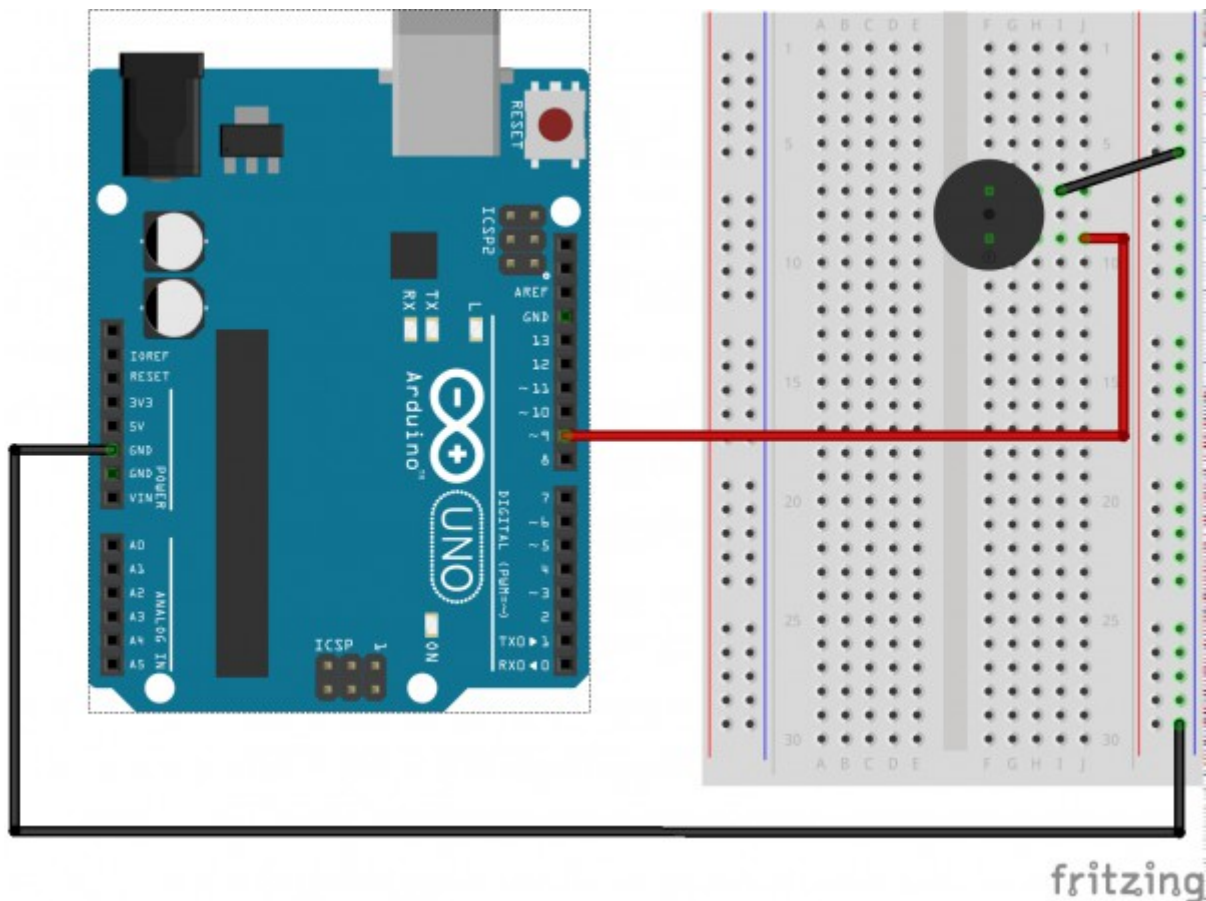
Structure of Piezo Buzzer

Piezo buzzers create sound by vibrating a piezoelectric crystal by utilizing the electric current. Some buzzers use thin metal sheets instead of these crystals, but the principle of sound creation remains the same, vibrating the material.

5. Assembling the Piezo Buzzer Circuit



Required Parts



Fritzing Diagram of the Circuit

1. Connect your piezo buzzer as shown in the diagram
2. Verify and upload your code to the arduino board
3. Observe the result and compare it with the expected outcome

Expected Outcome: You should hear the given melody in the code.

Modification

Use a piezo buzzer, a softpot and 2 buttons, as follows

1. Softpot should determine the speed of the melody we are playing
2. Buttons will be used to change between melodies
 - You can find different melodies on internet