

Lab 5 – Output: Piezo Speakers / Processing

INFOSYS 290-13/ CNM 290-1: Design and Theory of Tangible User Interfaces
Date: Thursday, Sept 27, 2007

Before the Lab

You should have experiments with the force sensitive resistor and photosensor to control your LEDs. You should have also used the force sensitive resistor and photosensor to control a Processing program on your computer. Congratulations!

In Lab Exercise

Special Note

If you finish early, please use the extra time to solder some wires onto your motor, which we will be using in the near future.

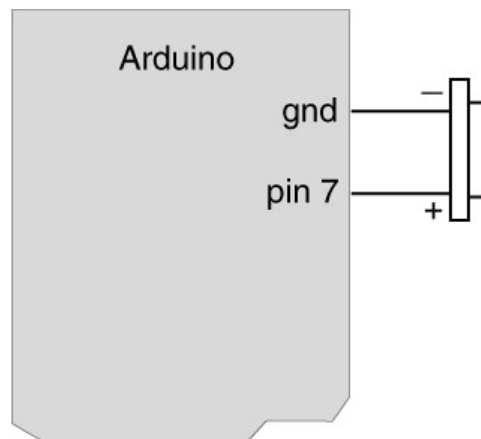
Objective

Using the piezo to make sound

Activities

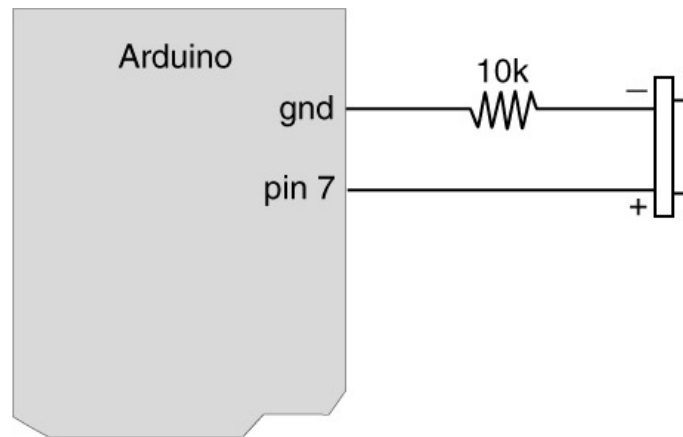
Part 1 – The Piezo Buzzer

- 1) Connect the Arduino to the Piezo Buzzer.



- 2) There are two programs on the course website: (1) "play_melody.txt" which plays a song on your speaker, and (2) "sound_serial.txt" which lets you control the speaker with your keyboard. Give it a shot.

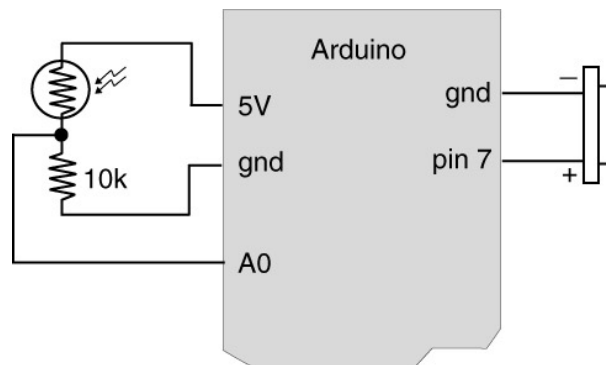
- 3) If you want to reduce the volume of the piezo speaker, you can add a resistor in series with the speaker:



Part 2 - Make a Theremin

A Theremin is an instrument designed to be played without being touched. You will make one here using your piezo buzzer and the photosensor.

- 1) Build the Theremin circuit



- 2) The software to control the Theremin can be found on the course website: "theremin.txt"

Homework for next week:

Input output coincidence exercise. Design an artifact where both input and output occur at the same place. Use any combination of your input transducers and output transducers (pot, photocell, FSR, LEDs, piezo, screen). E.g., a ball that changes colors and/or plays different sound/melody depending on the pressure being applied. A stick you can twist to color or sound differently... These are just examples to spark your imagination. Be creative!