

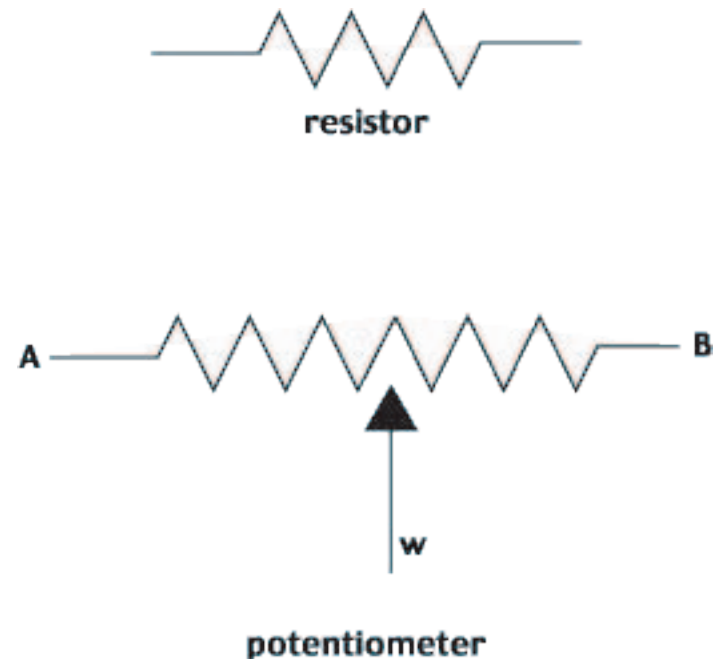
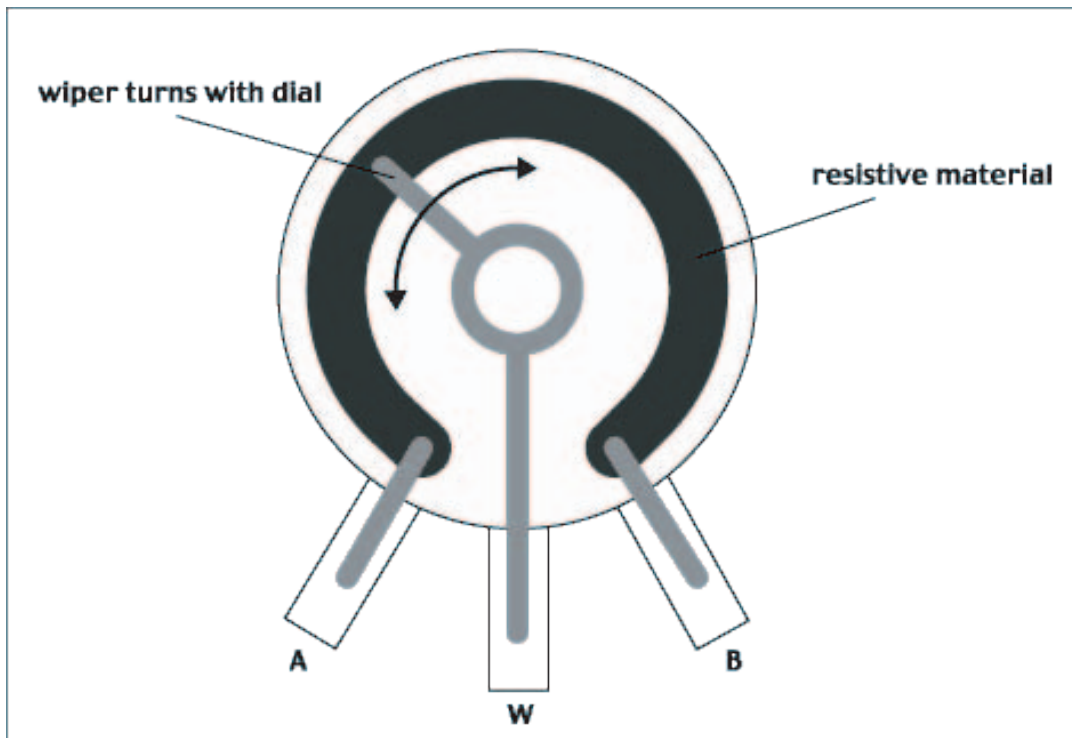
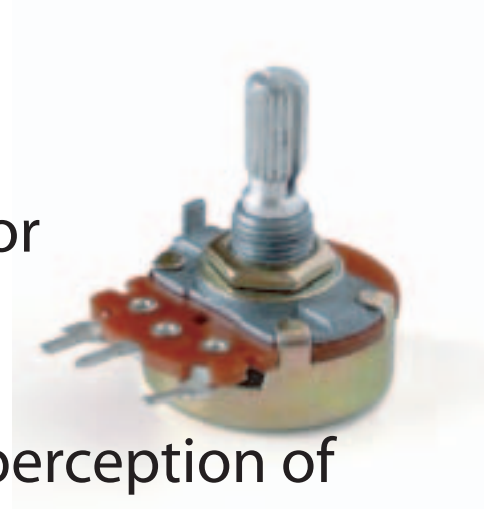
Electronics for Artists

Class #4

final project - photo theremin with amplifier
some resources for your future in electronics

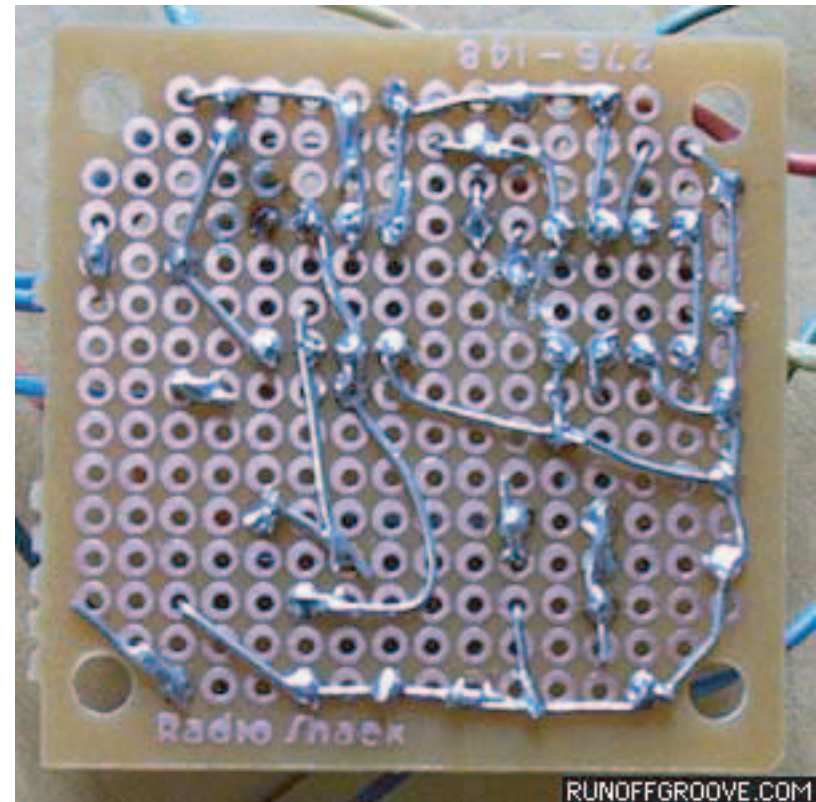
Potentiometer

- 1) used as a voltage divider or (as we will) a variable resistor
- 2) also referred to as a pot
- 3) rated by maximum resistance
- 4) two types: audio taper (which is logarithmic since our perception of loudness and frequency follows a logarithmic curve), or linear taper
- 5) three connectors: we'll use one of the outside connectors and the one in the middle
- 6) physical package can be a knob you rotate or a slider you move

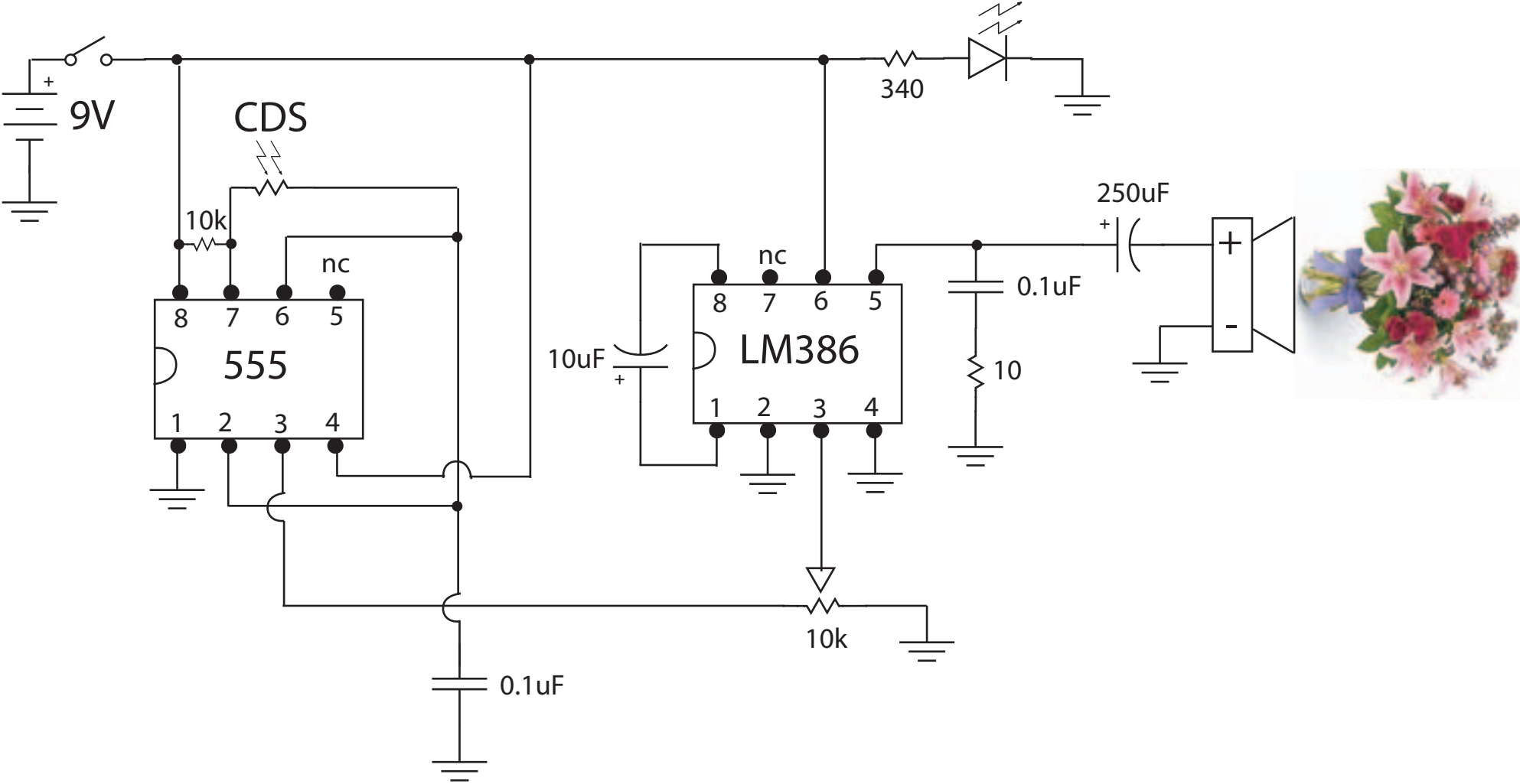


Perf Board

- 1) A board for soldering components together permanently
- 2) Still considered a “prototyping” board since mass produced things use custom designed “circuit boards” rather than the generic perf board
- 3) Usually a grid of holes with little copper rings (solder pads) around each hole on one side
- 4) Components sit on the non-copper side
- 5) Components, wires, etc. are soldered together using the solder rings



Lab 1 - photo theremin with amplifier



Resources for the future:

parts:

All Electronics - we're lucky that they're located in Van Nuys since most of the world finds them at:
www.allelectronics.com

Radio Shack - usually poor quality parts, but they're everywhere and can be a life saver in a pinch

Jameco - search by part number, they have just about everything supply somethings only in bulk (like 1000+) but most as one-offs:
www.jameco.com

Mouser - just like Jameco
www.mouser.com

Digi-Key - just like Jameco and Mouser
www.digikey.com

Electronic Goldmine - all kinds of weird stuff (like AllElectronics), also cool bundles of tons of parts for cheap:
www.goldmine-elec.com

Information:

Google, google, google

Wikipedia actually has some really good resources

Solarbotics.net - BEAM bot community. Great resource for small simple robotics as well as solar powered things (www.solarbotics.com sells stuff too).

HowStuffWorks.com has some clear explanations of many of the concepts we covered in class - plus lots more.

Really understand the 555 timer: www.uoguelph.ca/~antoon/gadgets/555/555.html

Google, seriously - I could type for years trying to list all of the things available online.

Arduino.cc - simple to use microcontroller to get you into physical computing. Connect sensors to your computer and get your computer to controll physical objects (solenoids, relays, LEDs, motors, etc. etc.). Great community with lots of sharing of information.

Books:

Practical Electronics for Inventors - Paul Scherz

Hardware Hacking - Nicolas Collins (mostly related to sound but some visual things too - a workshop with this man on which the book is now based got me into electronics).

Teach Yourself Electronics - Malcolm Plant - I used lots of info from this for the class

Starting Electronics - Keith Brindley - ditto to the previous, they have photos of how to breadboard their demonstrations which can really help

Electronics Demystefied - Stan Gibilisco (like the "for Dummies" series but MUCH better and more thorough - starts easy gets pretty hard)

The Art of Electronics - Paul Horowitz and Winfield Hill (not for the feint of heart - expert nerd territory)

Any book by Forrest M. Mims III

Again, this list could go on and on.....these are just books I've actually read and used. Check some different ones out at the library and see what you think.