

# Seattle



# New Facebook Group

[facebook.com/groups/idseattle/](https://facebook.com/groups/idseattle/)

Twitter  
@idseattle

#sid3

Want to talk?

[gavin@gsumtop.com](mailto:gavin@gsumtop.com)

# Thanks!

Simply Measured, Heather Dooley, Jon Culver,  
Austin Happel, Marcus Ghaly

# **Building a MIDI Controlled Tapestrum**

**Gavin Suntop**  
Creative Technologist

@gvn + [github.com/gvn](https://github.com/gvn)

# WTF? Tapestrument?

- Repurposed cassette tape deck
- MIDI controllable pitch
- Implemented with Arduino

# Video

[vimeo.com/53477991](https://vimeo.com/53477991)

# Inspiration

# Melottron

- World's first sample-playback keyboard
- Early 1960's
- A bank of parallel linear magnetic audio tape strips.



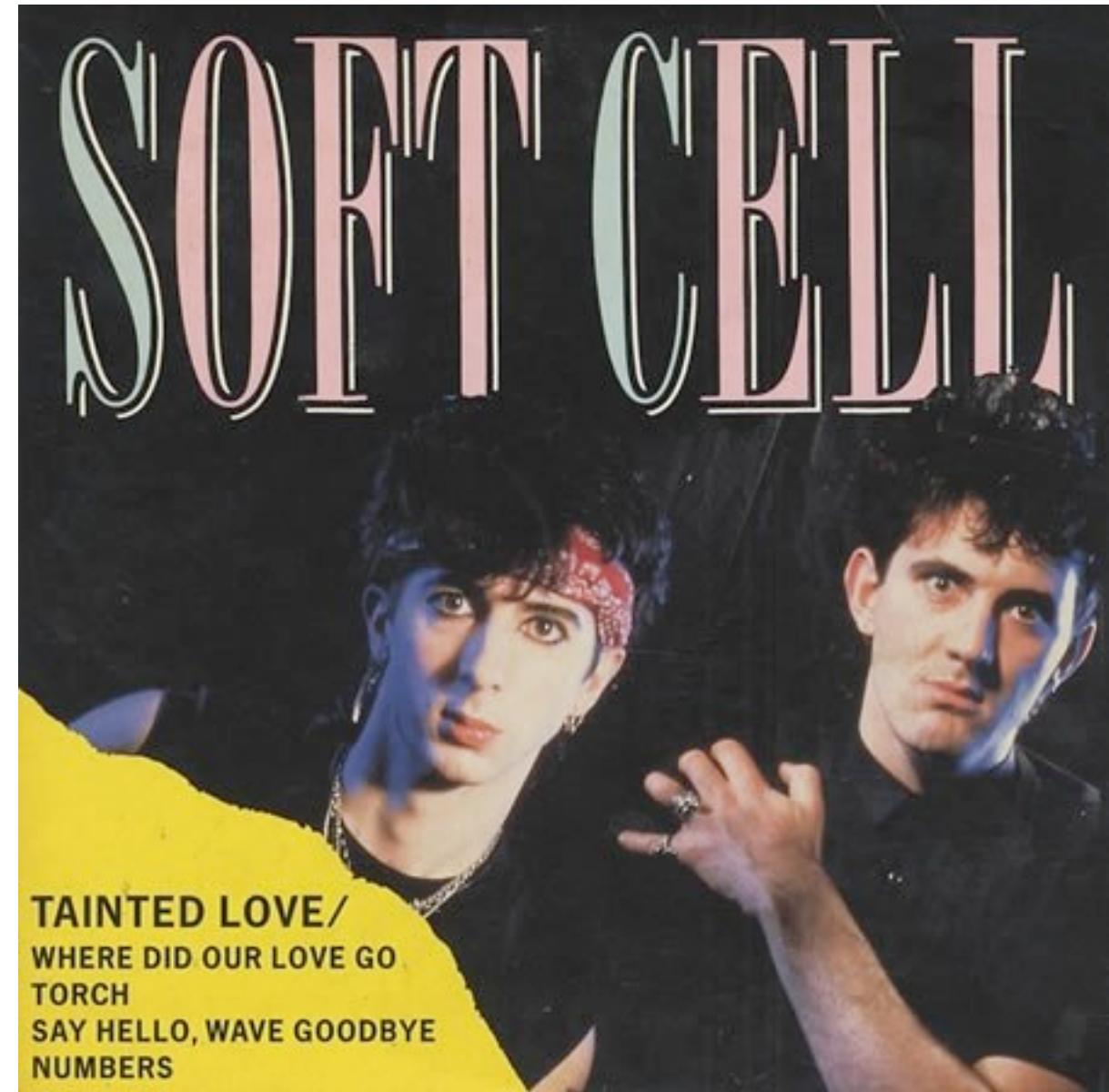
# Chopped + Screwed

- Remix: tempo to 60 - 70 BPM
- Pitch Shift > Time Stretch



# 45@33

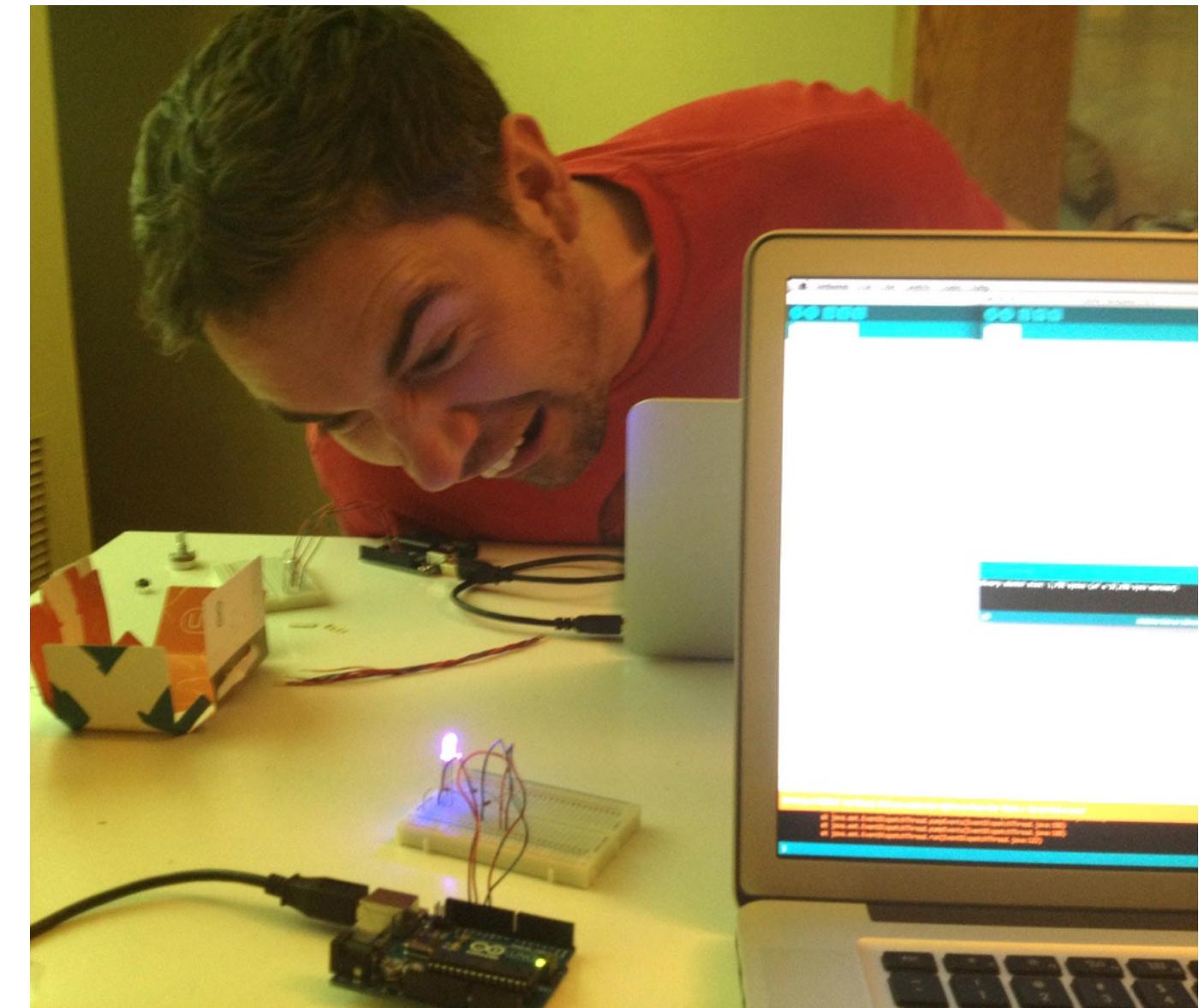
- Playing 45 RPM vinyl at 33 1/3.
- It sounds rad... sometimes.
- Originally I considered MIDI controlling a turntable's speed



# Goals

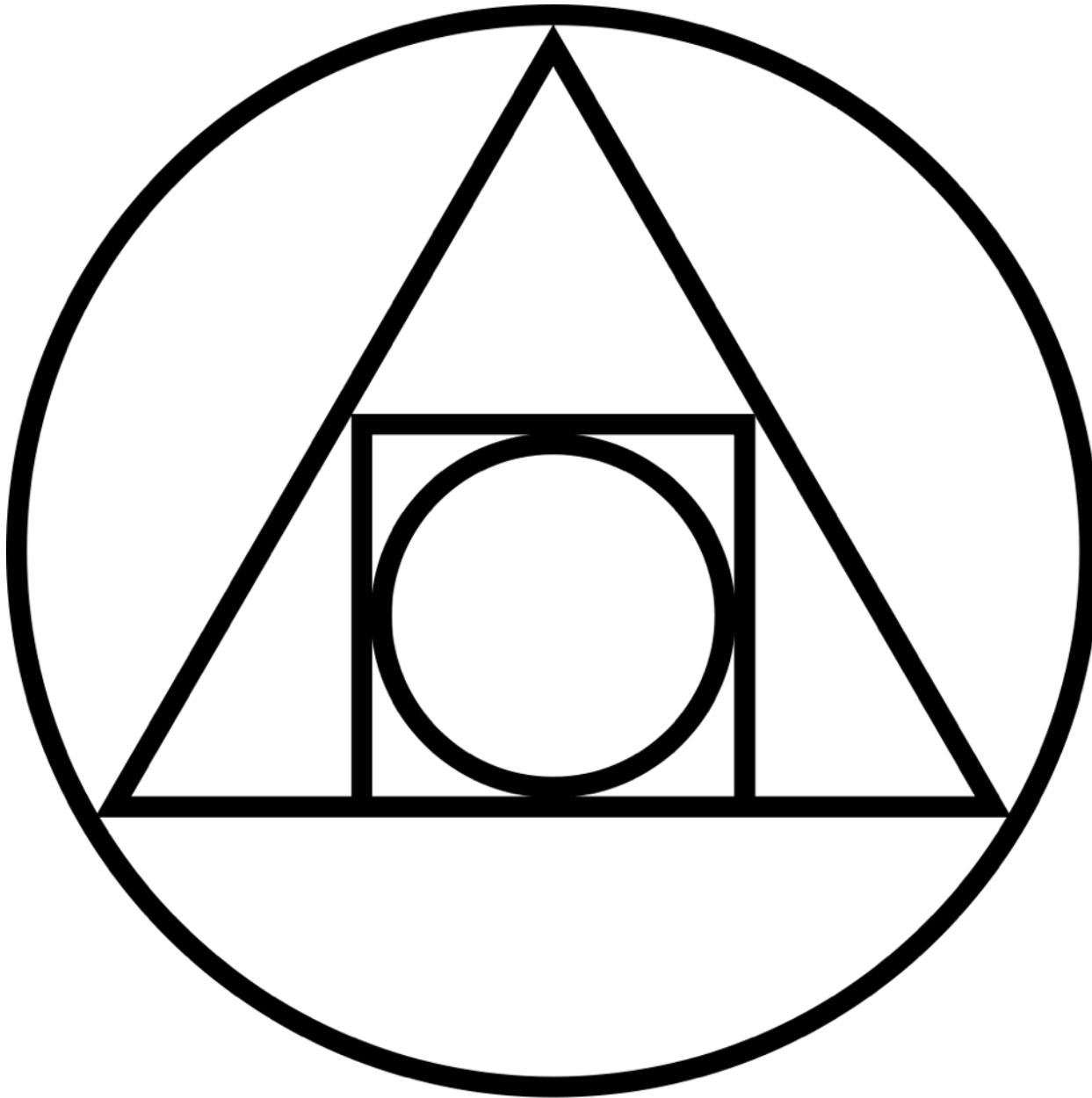
# First project with Arduino

- Took intro class at Metrix on August 8th
- “The jQuery of Electronics”
- An API to the *physical* world





# Analog



Alchemy



# Getting Started

# Reading and Waiting

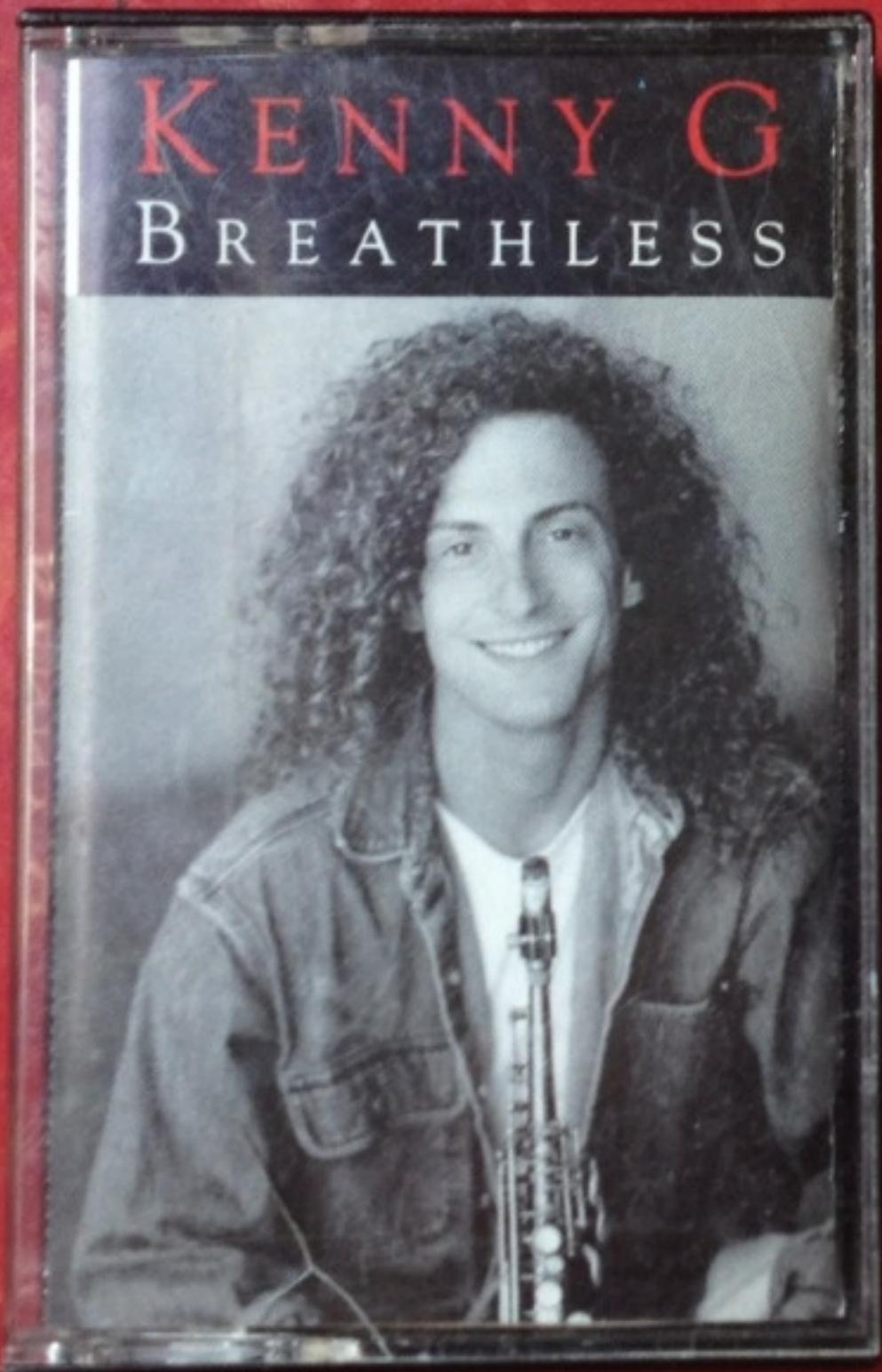
- A lot of time spent researching and waiting for parts
- Suggested Reading:

*MAKE: Electronics, Getting Started With Arduino, arduino.cc*

- Parts: **Sparkfun, Digi-key**

# Value Village

- Thrift Stores = Lots of cheap electronics to experiment with
- Walkmen were reasonably easy to find
- Pro tip: Take batteries along
- *Alchemy++*



# Synth Tapes

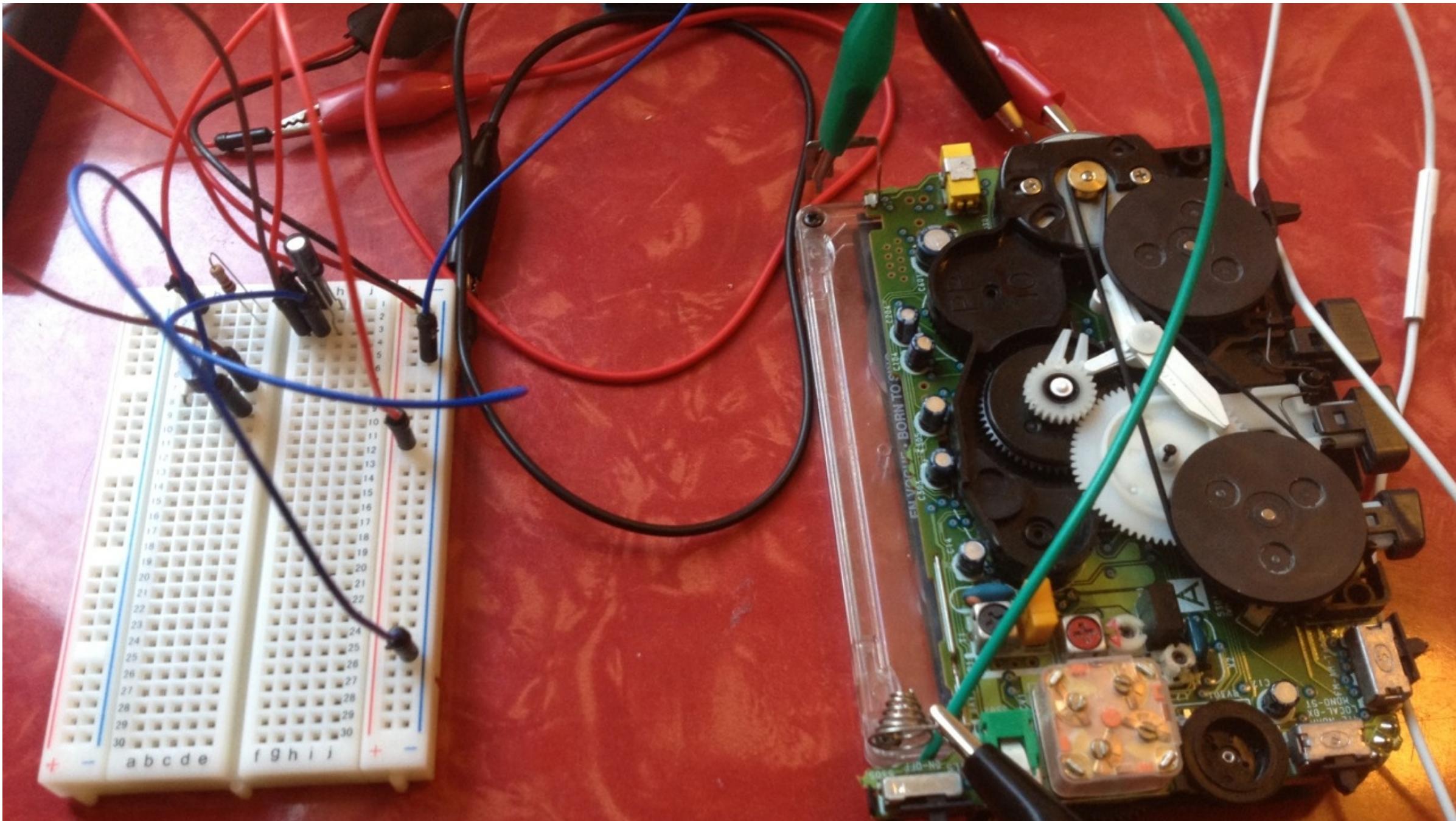
Sustained pads from the JX3P recorded onto cassettes



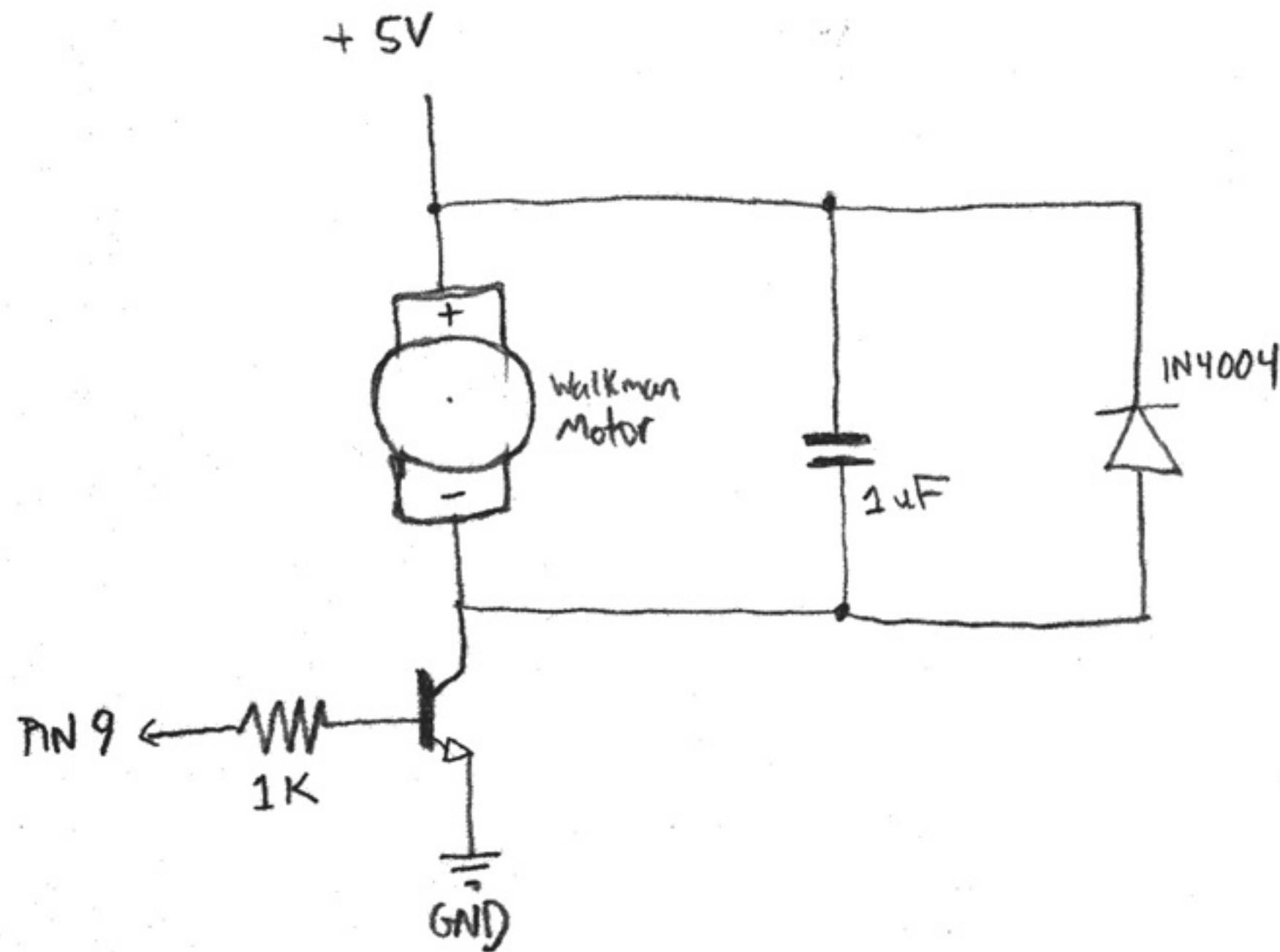


# Building the Tapestrument

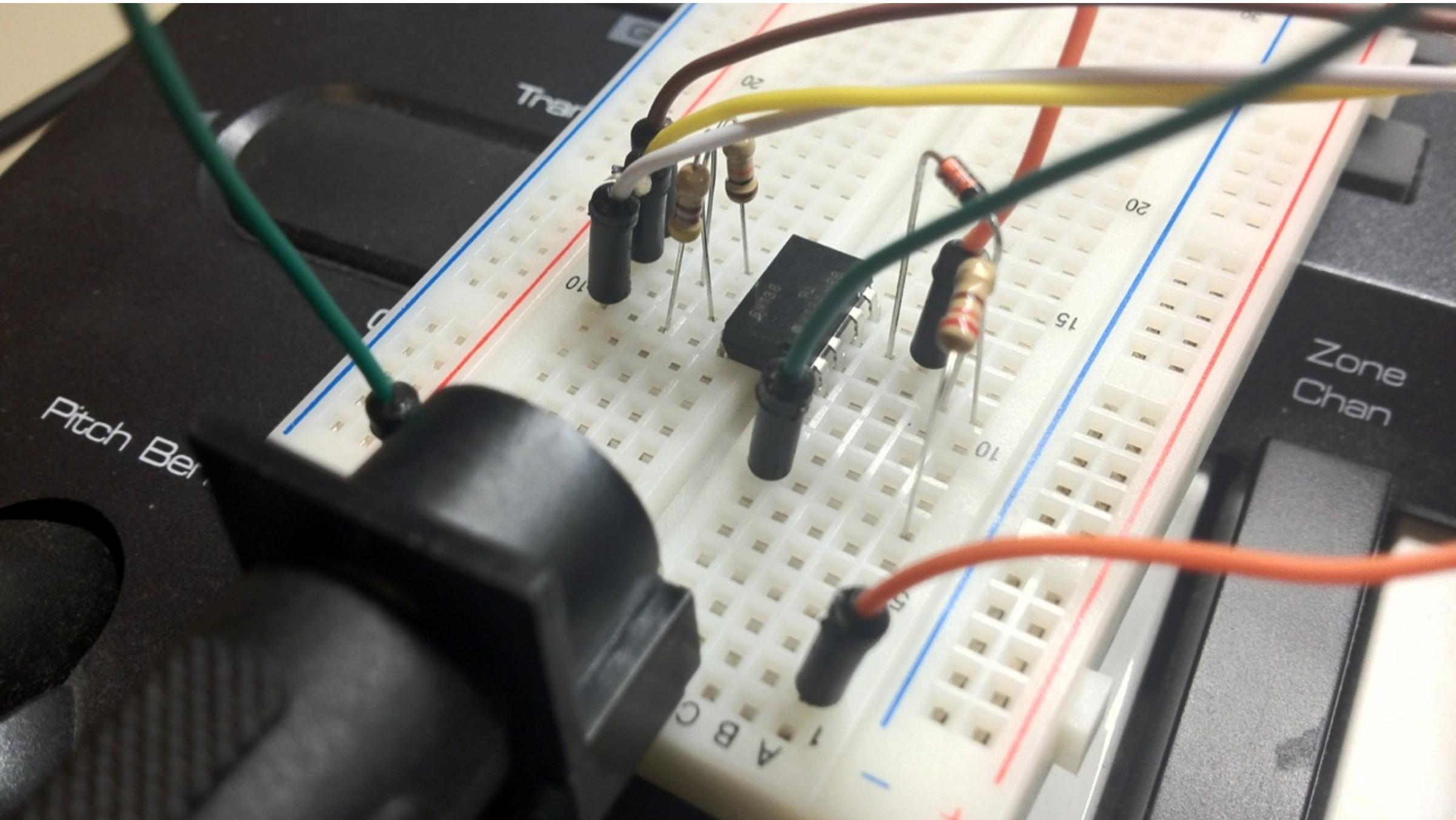
The 2 Basic Modules



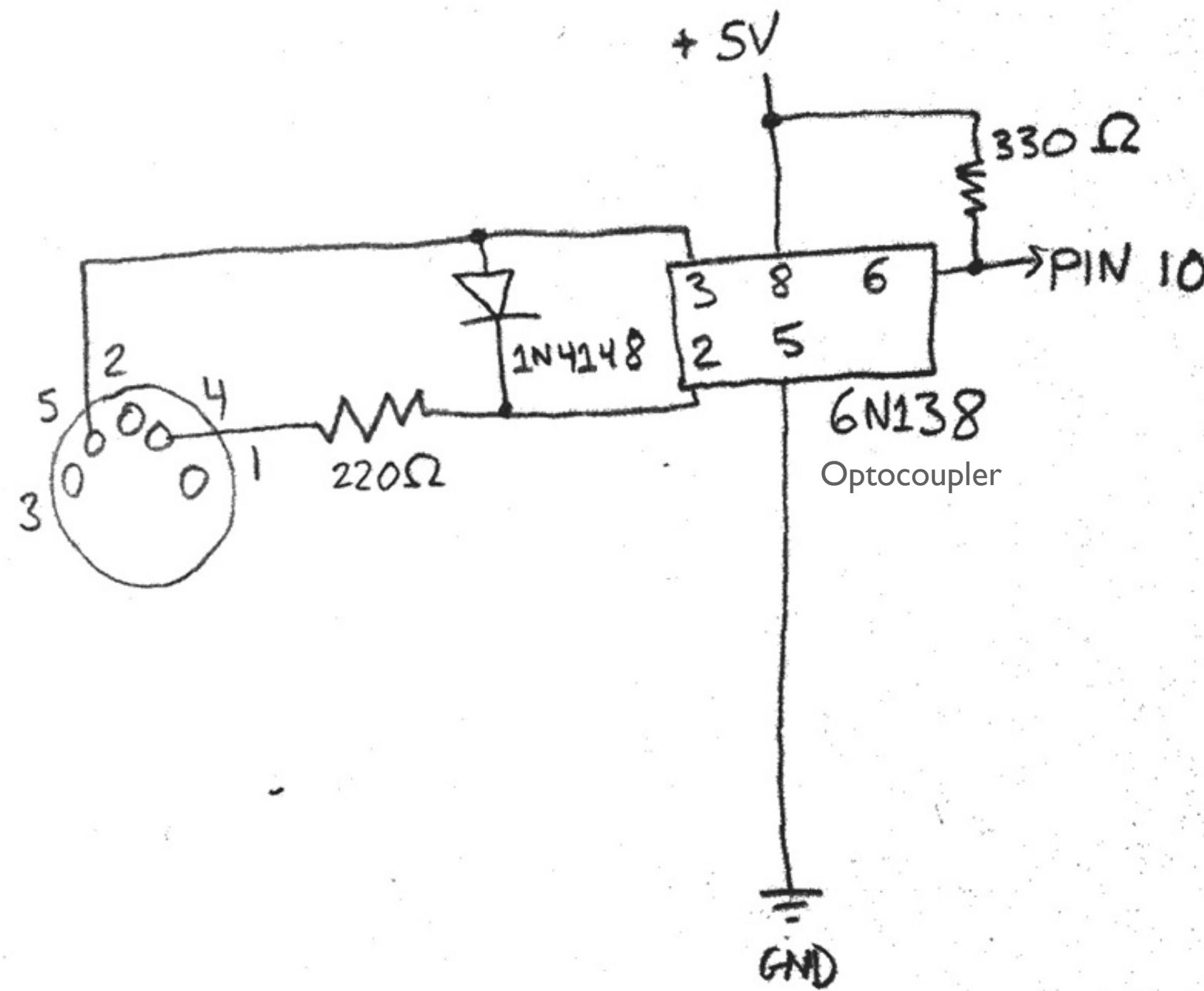
# Motor Control



Based on: <http://www.jeremyblum.com/2011/01/31/arduino-tutorial-5-motors-and-transistors/>



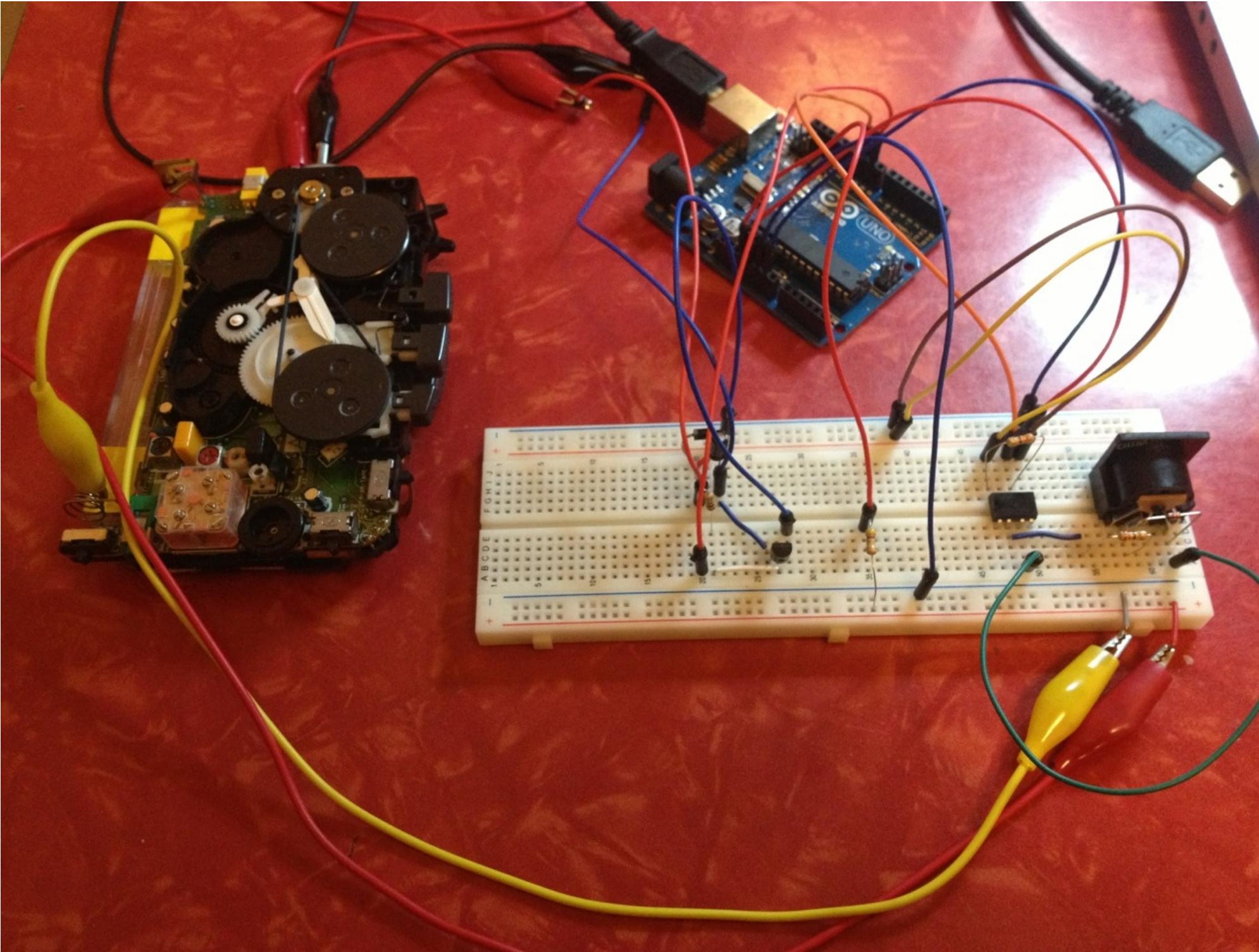
# MIDI Control



Based on

<http://www.instructables.com/id/Send-and-Receive-MIDI-with-Arduino/>

<http://www.notesandvolts.com/2012/01/fun-with-arduino-midi-input-basics.html>



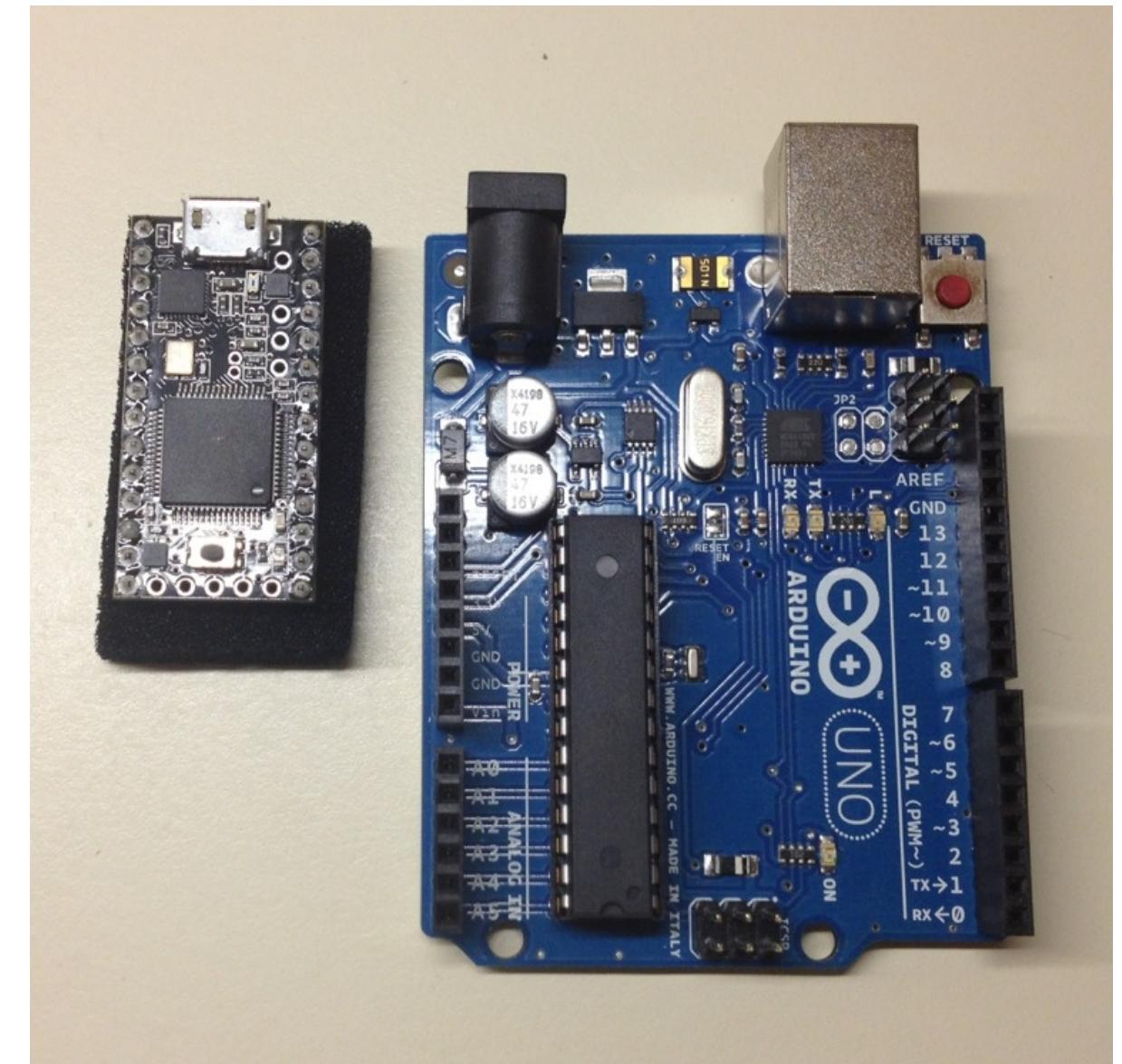
Connected to Arduino Uno

# Source Code

[github.com/gvn/tapestrument](https://github.com/gvn/tapestrument)

# TODO

- Annoying 400hz buzz
- Increase motor control range and tune intervals
- Move to Teensy 3.0
- ADSR Envelope or simple muting on noteOff
- Build an enclosure



# Questions?