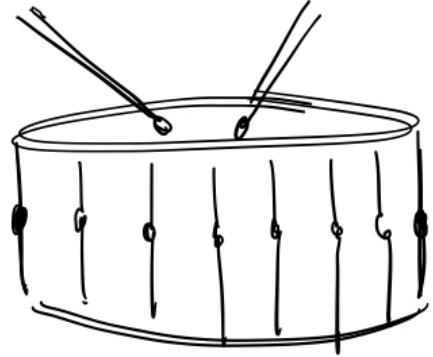


Rhythm Transcriber

PHYS 319 FINAL PROJECT - YUKA



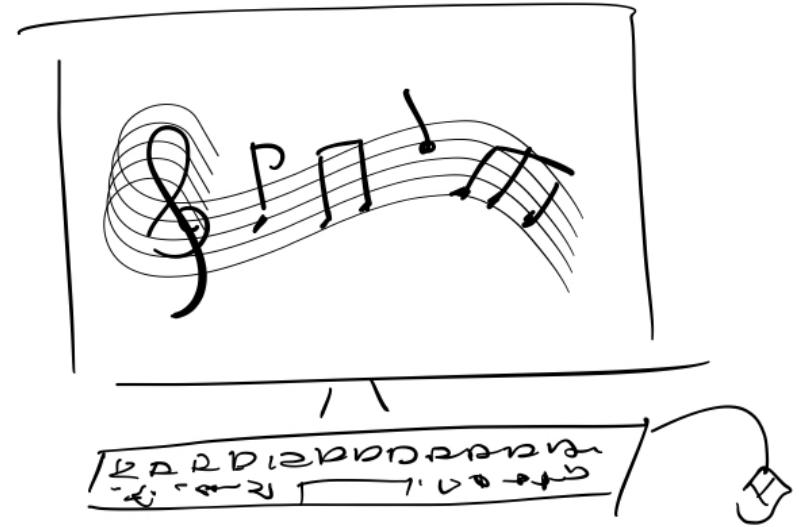
Formulating a goal



+



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Rhythm transcriber for snare drum

PROJECT GOAL



Explaining sheet music

Simplifying the problem

- all notes are on the same line
- notes are easily recorded
- but some things can't be transcribed!

A handwritten musical staff on a five-line staff system. The time signature is 2/4. The staff contains several notes and rests. Handwritten annotations above the staff include "rests!", "triplets!", and "complicated rhythms!". A red circle highlights a rest, another red circle highlights a triplet, and a third red circle highlights a complex rhythm pattern. Below the staff, the word "not possible" is written. At the bottom of the page, there is a simplified version of the staff with vertical strokes on each line, followed by the word "possible".

UPDATED GOAL: Warmup helper

01

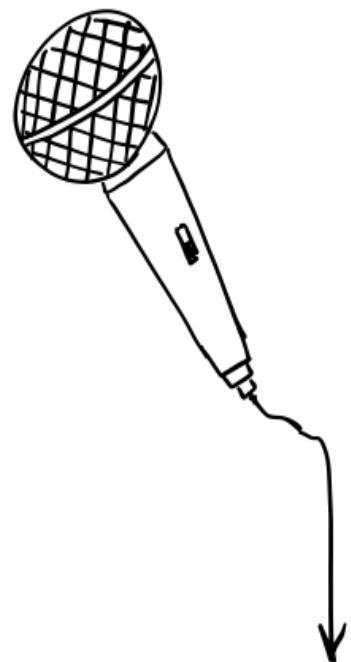
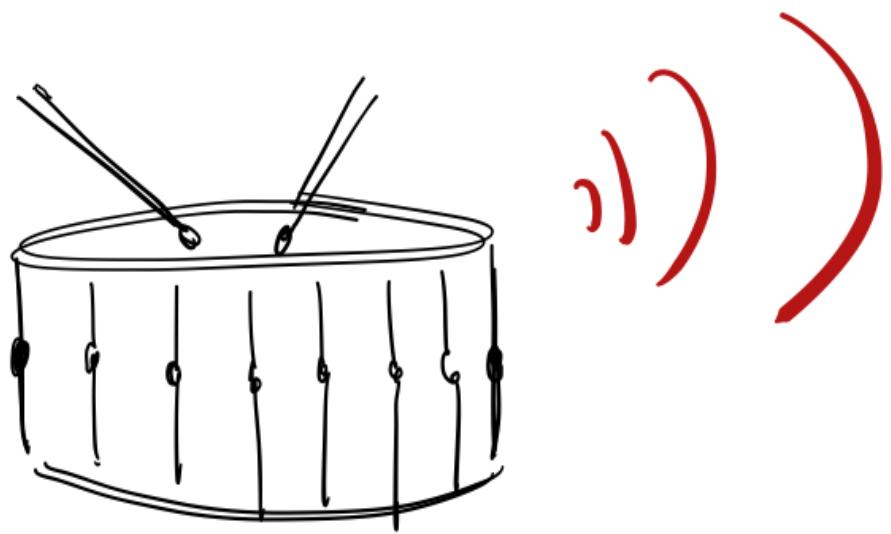
Set a tempo

02

Practice basic
drumming
rhythms

03

Check tempo

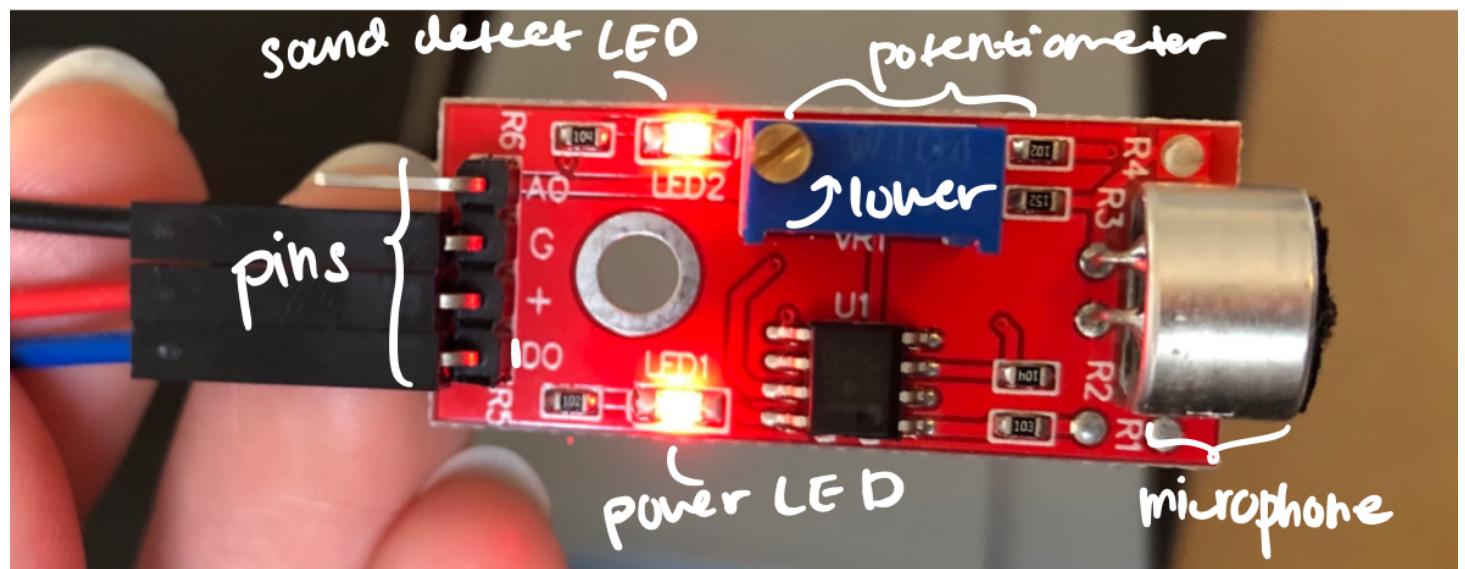


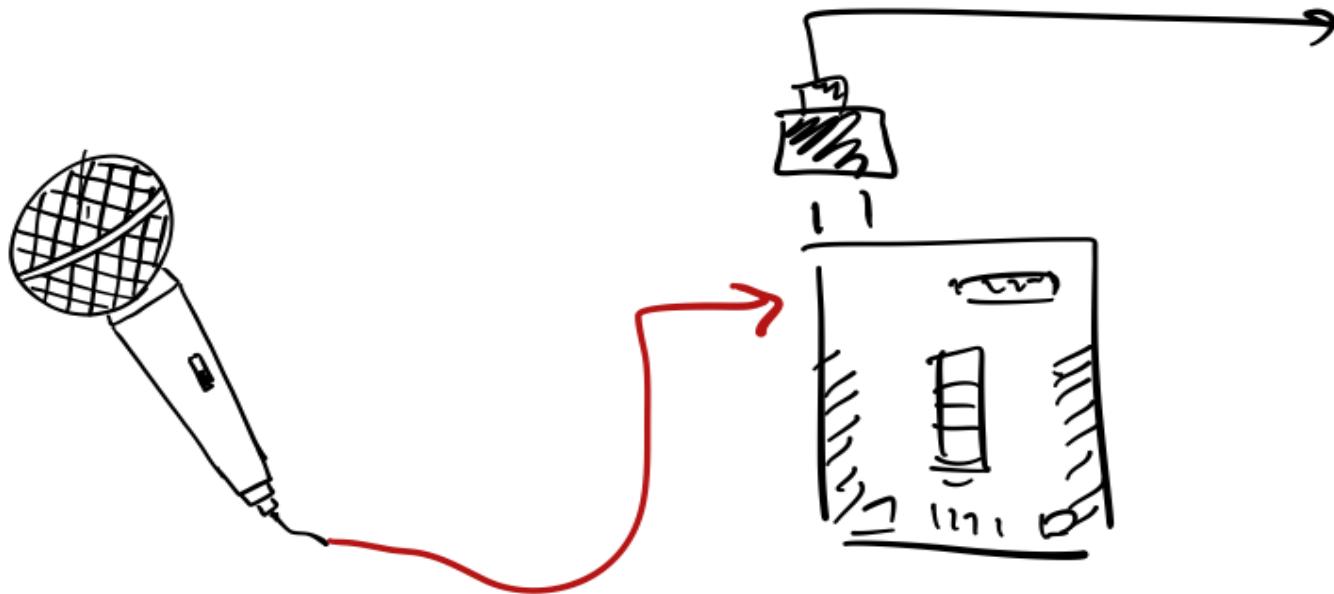
Step 1

HOW IT WORKS

Microphone

- Records “how loud” something is
- Analog output





Step 2

HOW IT WORKS

1

10-bit Analog to
Digital Converter
(ADC)

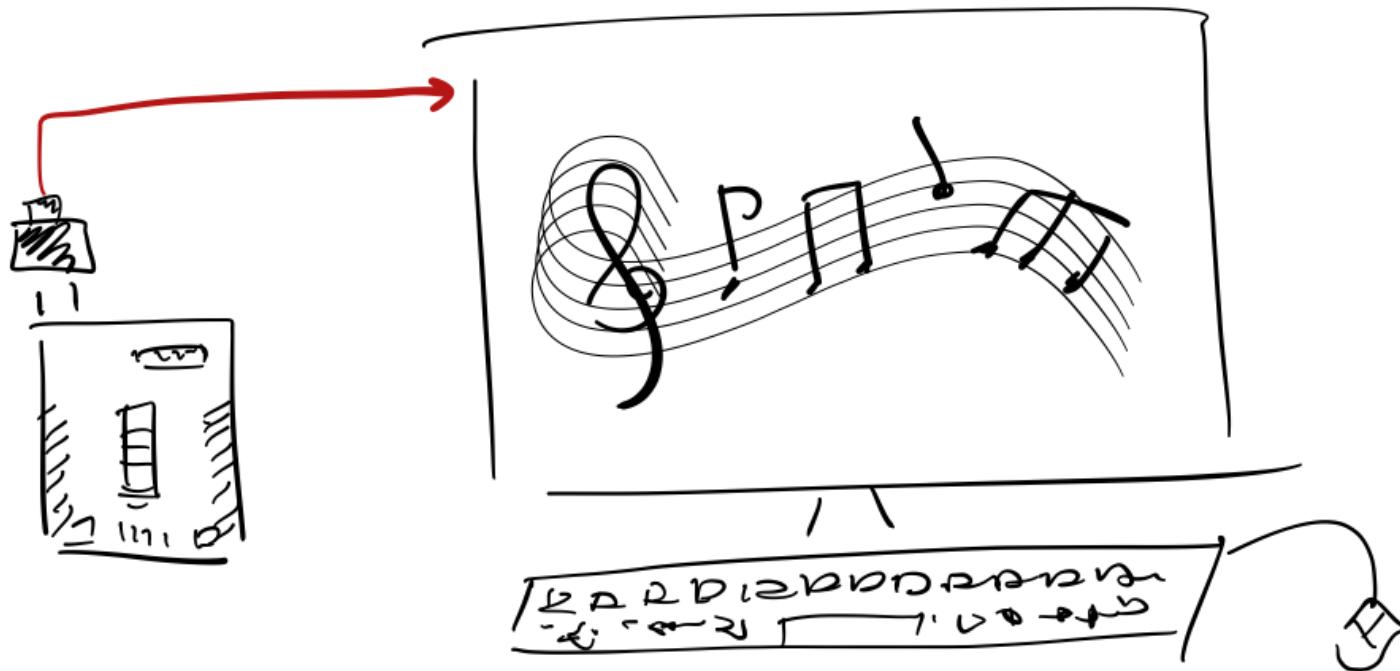
2

Filter noises
(talking, car driving
by, etc.)

3

Store signal

MSP430: C code



Step 3

HOW IT WORKS

1

Set tempo: first four
beats (metronome
recommended)

2

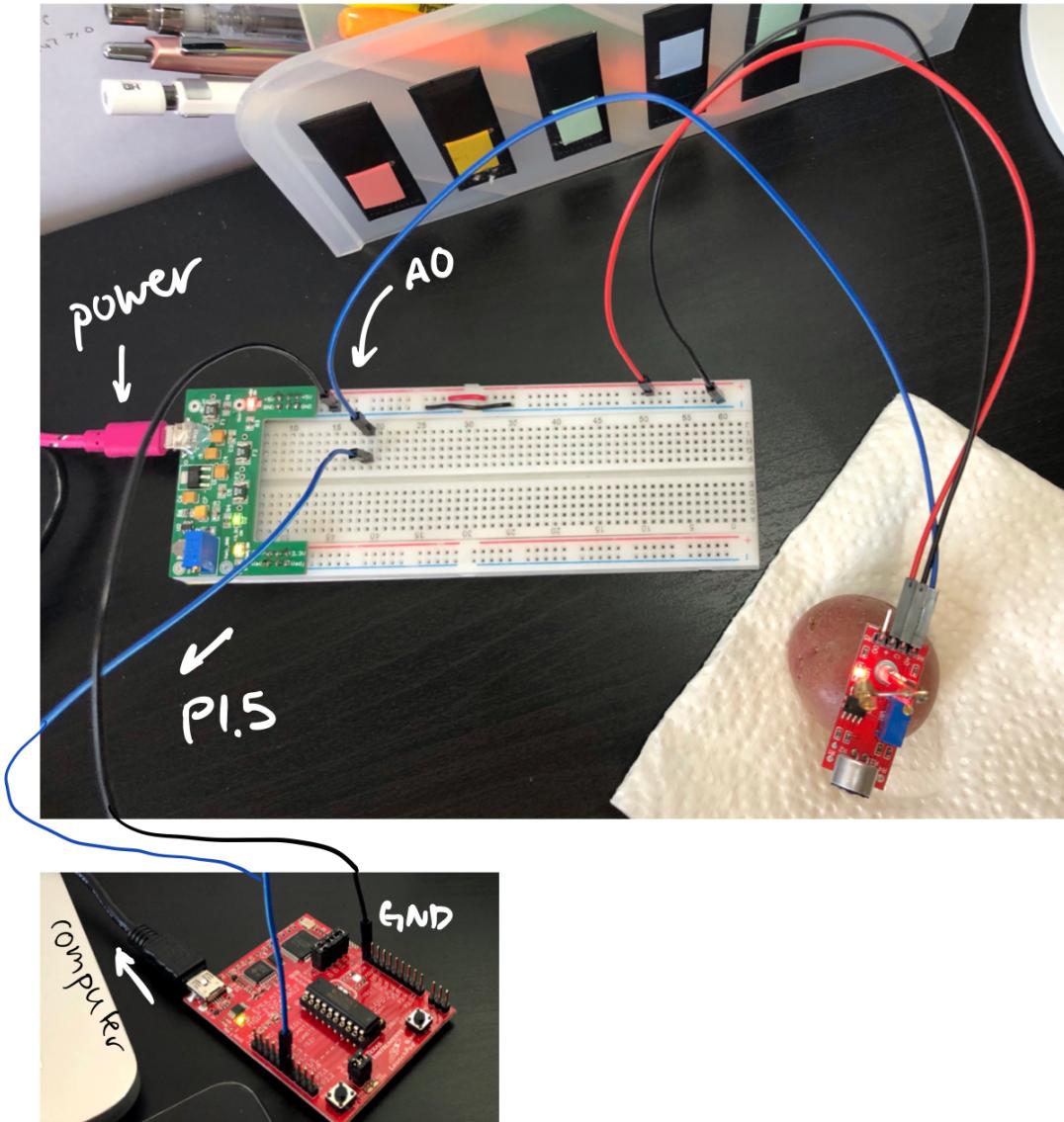
Plot notes, four
measures per line

3

Store & compare

GRAPHING: Python

Project demo



Limitations / Improvements

Drum rolls or faster notes cannot be recorded

Better noise filtration

Sending >1 byte to serial port

User interaction: input desired time signature

Graphics

- Plot music note
- Plot staff

Represent rests and different rhythms



Thank
you
