21M.370 Digital Instrument Design
Lab assignment 9 - Due April 28 at 2:00pm

Deliverables:

1. A short video showing your minimal viable prototype using a photosensor

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Assignment description:

For this lab we will be using the photosensor from Lab 8 and making a minimum viable instrument. Our goals for this lab are to gain experience turning physical motion into digital data, to practice putting putting together a DMI framework, and to have all of the tools you need to complete your final project.

To complete this lab do the following:

1. Make a simple mechanical structure for our photosensor.
2. Create a basic pipeline to send the data from the photosensor to python and PD
3. Be able to monitor the photosensor data in PD
4. Create a simple mapping to an Automatonism synth

For our mechanical structure I want you to think about a specific mechanical movement that you think would be interesting to use as a controller. How would you configure the sensors to detect this movement? Some things to keep in mind:

1. Depending on the sensor configuration it might be best to work with a very small movement. For levers it is easy to configure the sensor so it is near the fulcrum. For other mechanical systems you will have to think carefully about how to get the sensor in the correct position.

2. Proximity sensing is always an option. You will want to use reflection mode for this, and just think about orienting the emitter and transistor appropriately.

3. Keep things simple for this, it doesn't have to be a very robust mechanical system but can just be an exploration of a particular kind of motion.

For the basic pipeline, you are going to start with the minViableInstrument files, located in the lab 9 folder on Dropbox:

https://github.com/collaborative-music-lab/NIME/tree/master/Class/Labs/lab9/minViableInstrument

You will need to add/uncomment/edit the relevant code for the Arduino, following the guide in this video:

https://youtu.be/hZcV8diRR_0

Then edit the Python scripts, and can use whatever PD patch you would like, or use the PD example provided. Here is a video covering editing the Python script, monitoring data in PD, and creating a simple mapping:

https://youtu.be/pqrlrhWxJsk

Once you have made your mapping, take a 1m video demonstrating your instrument.