21M.370 Digital Instrument Design

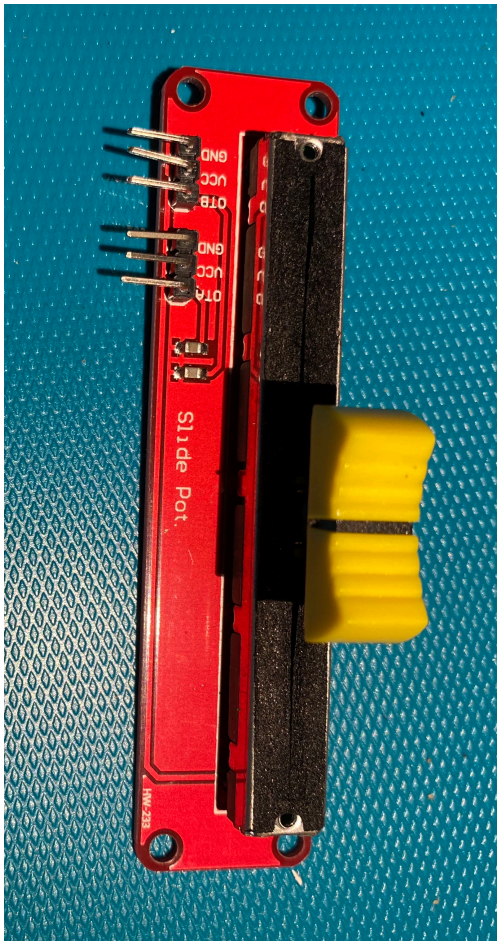
Lab 6 - for Apr 1

For Apr 1, you will create a simple photocell instrument and make a short video to share with the class. These sheets contains the specifics of what you will create, and at the end has photos with details for hooking up the standard control elements.

Here is what you should do:

1. Your instrument should use at least one photocell.
2. Your instrument should include at least one other standard control (button, potentiiometer, joystick, etc.)
3. You should choose one of the PD patches in the PureData/mappingExamples folder as the basis for your instrument
4. You should define one mapping between a sensor and one synthesis parameter, with the following details:
    1. Performance gesture
    2. Range of the sensor data responding to this gesture
    3. Target range of the synthesis parameter
    4. Clipping range for mapping the sensor data to synthesis
    5. Exponential curve for mapping the sensor data to synthesis
    6. These details should relate to the instrument as used in the video,
5. Make a 60-90s long video performing with your instrument and send a link to Ian (either youtube or download).

Working with standard controls



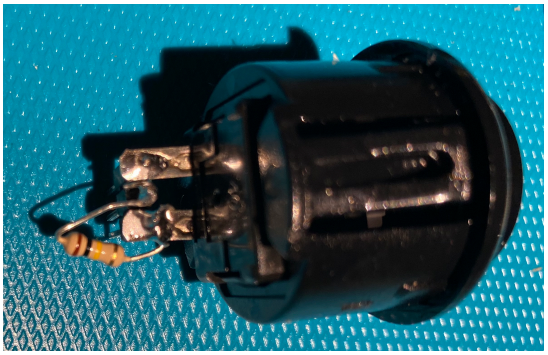
Fader:

- hook up only one of the two groups of headers
- it doesn't matter which group you use
- GND goes to GND on the PCB
- VCC to 3v
- OTA or OTB to analog IO

Button:

The buttons has two metal tabs. One tab should go to analog IO, the other to ground. You will also need to add a resistor to pull the analog IO tab up to 3v.

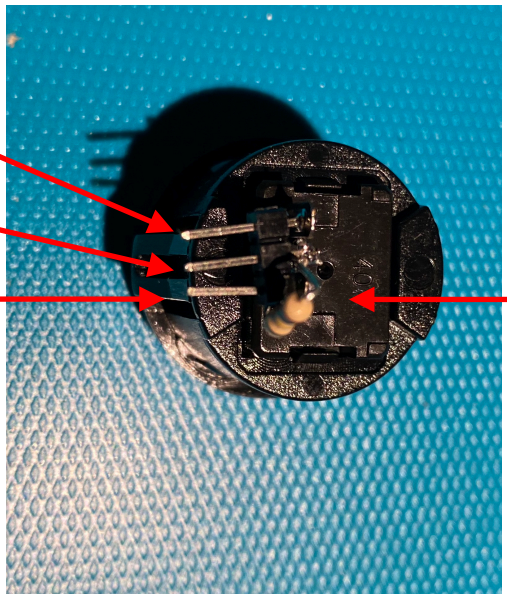
I recommend just using a group of three headers, with the outer headers soldered to the tabs and the middle pin in-between the tabs



GND

3v

AnalogIO



resistor between 3v and analogIO

Joystick:

Switch will need an added resistor to work.

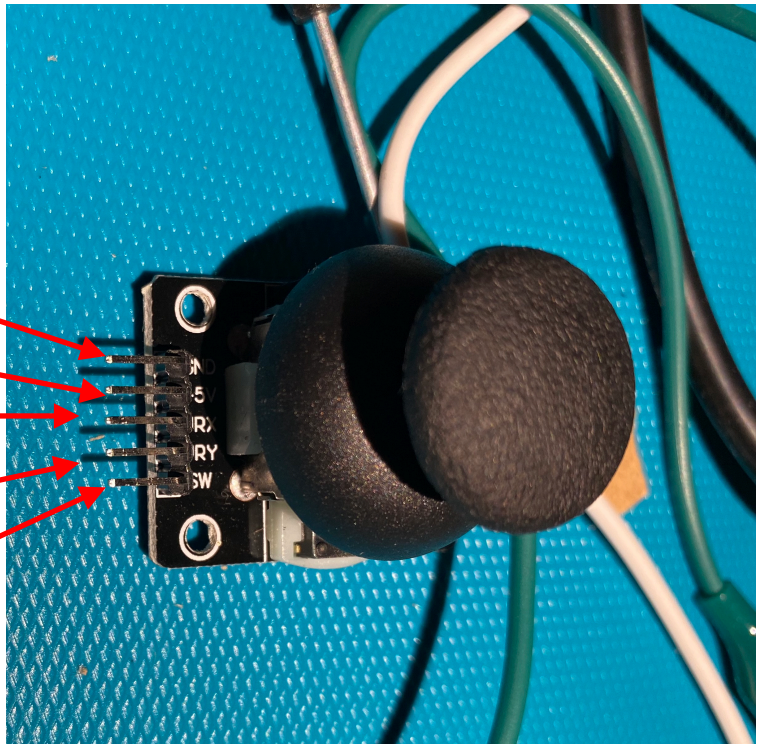
Gnd

3v/5v

VRX - analogIO

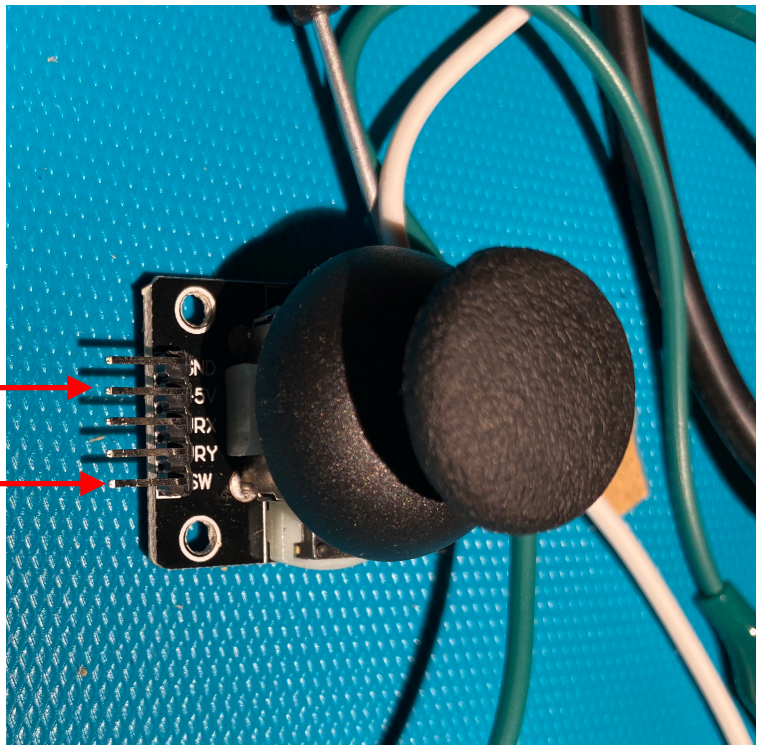
VRY - analogIO

SW - analogIO



Resistor between 3v/5v and SW pin to enable switch

resistor



Potentiometer:

The outer pins are connected to 3v and GND.

The middle pin is analogIO.