



LASER HARP

JENNIFER FLEITES, TAYLOR HOWARD, YOOJIN KIM

TA: CHANCE BAYLES

CONCEPT

Explore a new way of experiencing music through enhancing features of the already existing versions of the laser harp by using Arduino and MIDI.

GOAL

Create a laser harp replicating the form of an actual harp using 3D printing and Arduino to produce multiple sound effects through the adjustment of keys and scales.



OBJECTIVES

1

Learn how to use Arduino and MIDI.

2

Build a circuit connecting the laser diodes to the Arduino.

3

Determine which notes or sounds are feasible based on options available on MIDI.

4

Create code or adapt code from the reference source to work the Arduino microcontroller.

5

Build a frame for the harp through woodworking or 3D printing and assemble the parts.

MATERIALS/BUDGET

Supplied

- Switch
- Wires
- Mulab
- 4.7 k Ohm resistor
- 220 Ohm resistor

Purchase List

- Lasers - \$5.48
- Photoresistors - \$9.55
- Arduino Proto Shield - \$11.99
- MIDI Interface - \$32.39
- MIDI Cable - \$4.99
- Pin Headers - \$5.48
- Din Connector - \$9.23
- Power Supply - \$7.90
- Speaker - \$NA

Temporary Total: \$87.01



CHALLENGES

- Software
- Controlling Midi system with Arduino
- Writing and understanding code that is executed in the different cases that occur when a laser is tripped
- Hardware
- Reliably aligning lasers to photoresistors
- 3d printing a case that is reasonably sized or building one using other methods that is consistent and accurately sized
- Cord management

