Circuits and Connections for an Example Laser Guitar (examples/guitar.py)
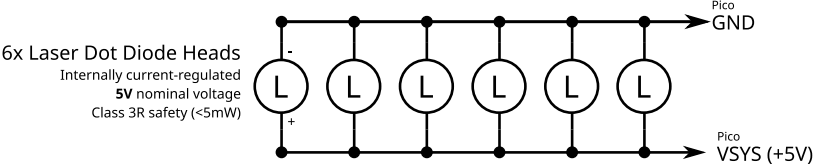
Diagrams created by Scott Feister on March 2, 2025 for the middle school Laser Harp project.
This guitar has six strings and four chord buttons.
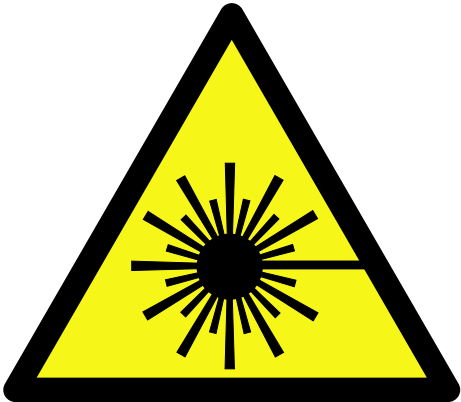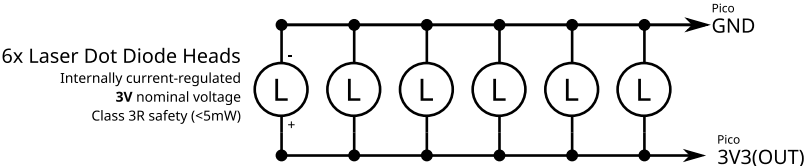
Laser Power Circuit

Option 1: using 5V lasers
This circuit powers on the lasers using the Pico's 5V output..

Pico
GND

6x Laser Dot Diode Heads
Internally current-regulated
5V nominal voltage
Class 3R safety (<5mW)

Pico
VSYS (+5V)

Option 2: using 3V lasers
This circuit powers on the lasers using the Pico's 3.3V output..

Pico
GND

6x Laser Dot Diode Heads
Internally current-regulated
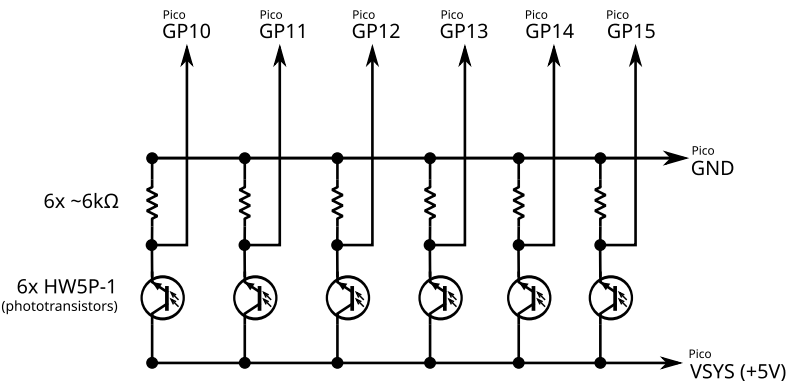**3V** nominal voltage
Class 3R safety (<5mW)

Pico
3V3(OUT)

LASER RADIATION
Adult Supervision Required
Read Laser Safety Guide
Before Proceeding!

Phototransistors Circuit

This circuit converts phototransistor resistance into a measurable voltage.
Phototransistor's effective resistance changes depending on incident light.

Pico   Pico   Pico   Pico   Pico   Pico
GP10   GP11   GP12   GP13   GP14   GP15

Pico
GND

6x ~6kΩ

6x HW5P-1
(phototransistors)

Pico
VSYS (+5V)

Chord Buttons Circuit

This circuit connects the five chord buttons to the Pico.

Momentary — Pico GP16
Momentary — Pico GP17
Momentary — Pico GP18
Momentary — Pico GP19
Momentary — Pico GP20

RaspPi
GND