

Constructive Interference Technical Guide

INTRO

Constructive Interference is an electro-mechanical game that tests 3 people's problem-solving skills, teamwork, and ability to withstand high-pitched noises. The game presents players with a colored light, and they are challenged to match its hue and brightness through shared control of a second light, all while the game angrily screams at them in discordant tones. The screaming is technically there to help colorblind people find their corresponding match, but the audio is a touch buggy and mostly just screams incomprehensibly.

TECHNICAL INFORMATION

The game consists of 4 main pieces, which are all controlled by an Arduino Mega.

CONSOLE

The console consists of two RGB LEDs, which we will refer to as “target” and “player”. We **STRONGLY** recommend diffusing the light from the LEDs, or they will give you headaches and mess with your vision. Ping pong balls work great for this; just cut holes in the balls, and fit them over the LEDs. You can also use plain white paper, folded and taped into a box shape.

Also on the console is a 7-segment display, which we will refer to as the “counter”. Each data pin on these requires a 220K resistor; just follow the wiring diagram and pin assignment chart included in this folder, and you'll do fine.

If you are making a polished version of the game, the console is a great place to hide your Arduino Mega

CONTROLLERS (x3)

Each controller consists of a potentiometer and a piezo-electric buzzer. We put these on separate breadboards from the console, and attached them with long wires that we bundled together with tape.

Once you have everything assembled, you'll need to upload the program to the Arduino Mega. You'll know if it's working correctly if it lights up and screeches like a banshee, and the counter displays a “1.”

NOTES ON WIRING

The wiring diagram shows how to wire up individual components, and can be used in conjunction with the pin assignment table to wire up the device.

Any time you see "V", that pin needs to be attached to a 5V power supply (there are pinouts for that on the Arduino Mega).

Any time you see "GRD", that pin needs to be grounded (there are pinouts for that on the Arduino Mega).