

Hardware Exam
Written Component/Explanation

Lauren Olivier

100870329

December 5th, 2024

When asked to create a controller using my initials, the first thing that comes to mind is “LOL” as my initials are LO. So I decided I wanted to design a controller based around laughing and having fun while using it.

Ultimately I decided that I wanted to make a controller that could be used with my GDW game this year. My group has decided to develop a rhythm game, so I wanted to come up with a controller that is both easy and fun to use.

What I came up with is a keyboard-like controller that contains:

- Large arrow keys as directional input for dodging enemy attack sequences.
- Lighting that flanks the largest button on the board, indicating when you can use your special ability by lighting up
- A large bar-style button that can be tapped to the beat of the music at all times, and slammed once the lighting indicates that your strongest ability is ready.
- Holes for speakers to be placed into the controller which allow music from the game to be played through the controller itself as well as other speakers, to increase the ability of the player to hear the beat clearly.

I created this design based on what I thought would be easy to understand for the player, and what people would have fun interacting with. I figured that if people get into the music, they would feel a big payoff when slamming the largest button to activate their special attack because it feels different than the regular controls they use otherwise. The hope is that almost anybody can play it so long as they can apply pressure to the buttons, and are able to produce more pressure at times when you can activate your more powerful ability.

I wanted it to be large so that it isn't easily toppled or moved while in use, with plenty of space to add grippy surfaces to the bottom of the controller for support. Fine motor control is not necessary, and people can happily whack away at the controller to the beat of the game's music.

The design I am submitting is not created to actual size specifications as I did not have a way to measure properly, in person. Instead, the controller is proportionate and may be scaled to the desired size at a later time.

I could not figure out how to access the mechanical components in Fusion, but I would need LED's, 5 button components (4 for directional dodging, one for the large attack button), a pressure sensor to differentiate between a button click and a stronger hit, and an Arduino Uno to run it all. I would also need foam for the buttons so that players don't hurt themselves when using force.

