Accessible Controller

Building a more accessible controller

This controller was built to help my client, Robin, play the racing games they missed playing. It was designed to reduce time of holding and handling the device to near zero, something my client has difficulty for it. It features pedals for stop and go instead of buttons. It is desked mounted so It doesn't need to be help up at all.

A hud created to display the controller's functionality

A pedal fashioned from cardboard and pool noodle, and force sensor

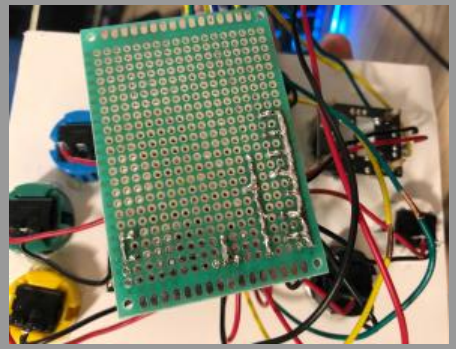
Holes fashioned for a peg for ease of steering/ use of other body parts to steer

This project was focused on working with my client Gabe who has limited fine motor function in his hands. I worked with him to design something able to rest on the leg of the player while also having buttons in locations that are easier to press.

Accessible Controller

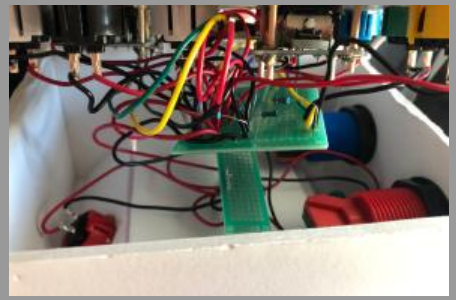
Creating a controller more focused on accessibility

The design we agreed on was to have a curved shape on the bottom to fit on his leg better, while also changing some of the button layout of a normal controller to better work for him while gaming. The D-pad was basically unusable for him so we rearranged the buttons to be in better locations. The side buttons and buttons on the bottom were also added in place of bumpers/triggers as regular controller layouts make it very hard for Gabe to utilize them.



Soldering for the buttons in progress

Side buttons are easier for Gabe to press rather than bumpers/triggers



Final soldering of all buttons + joysticks

Buttons were placed on the bottom to be pressed by moving the controller against the leg of the player

Accessible Game Controller

This project was focused on working with and for a client with disabilities. This controller is designed for Nick Green, who enjoys adventure games and first person shooters.

Currently Nick uses a modified keyboard and mouse, he asked for level buttons, and for it to have as little space between buttons.

The design is for left handed use, specifically to allow motion of the joystick with the palm of the hand and buttons pressed with the thumb. Due to his disability, most of Nick's motion is in his left thumb and shoulders.

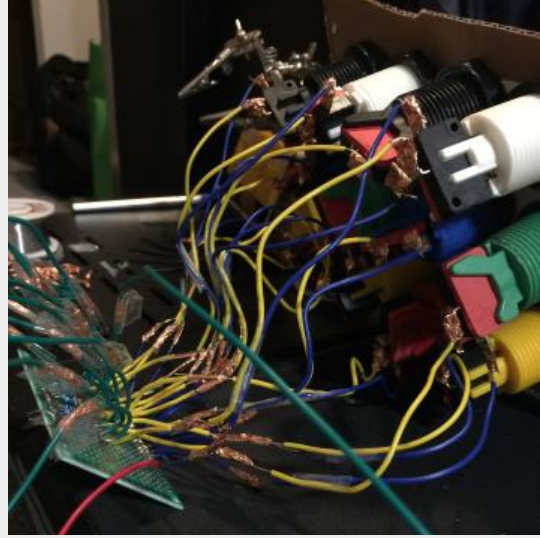
The joystick needed to be propped into position to allow for an even surface.

There are also 12 buttons wired within the base, and everything is connected to an arduino for easy connectivity to a computer.

Accessible Controller

The idea for this project was to make a controller for my partner, Justin, who has Duchenne Muscular Dystrophy. While he has lost strength in his arms, he is still able to use a keyboard to game. However, Justin wanted to play racing games, which aren't keyboard friendly. Controllers can make his hands lock up, so I designed a controller based on the controller he uses to drive a real car.

The bulk of the wiring and soldering came from the buttons



Lever was made with an arcade stick on a PS2 joystick, it controls the speed/brake

Pieces are mounted with command strips

Steer control is made with a potentiometer

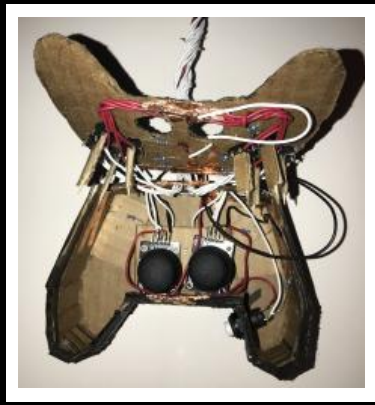
Accessible Controller

The goal of this project was to modify the “average” controller to work for Gabrielle, a gamer who has difficulties with button mashing and bulky controllers due to Spinal Muscular Atrophy.

This side button allows Gabrielle to toggle button mashing without having to repeatedly press any button.

The top bumpers were moved to the back of the controller so Gabrielle could access them easier.

Gabrielle struggled with Xbox controllers being too large to use all of the buttons. To address this, each side was taken in half an inch compared to the standard Xbox controller measurements.

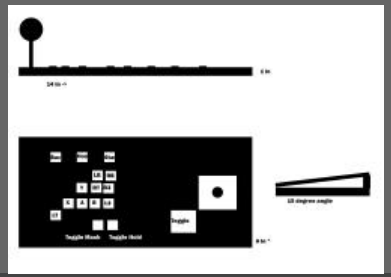


The controller consists of 13 buttons total. Each button had to be soldered because of the restricted amount of space. All of the power wires ran to the bottom of the controller, and the ground wires were organized at the top.

Accessible Controller

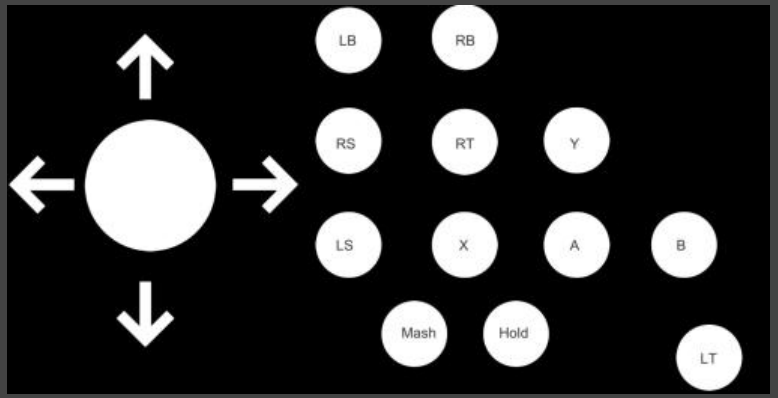
The goal of this controller was to allow my client, Kyle, who has cerebral palsy, to play a game that requires a joycon and also all the buttons be on the front for ease of access.

The controller emulates an Xbox controller, the buttons are arranged this way for best use in Destiny 2



Original sketch. I had to flip everything per Kyle's request for ease of use.

I positioned the buttons and joystick in such a way so that Kyle can efficiently use it based on physical ability.



A HUD I made to work with the controller to show which inputs are being used