Goal of the project:

Create a program, which allows the user to traverse the screen to press something on the screen. This project can be implemented with someone with a disability, such as someone who cannot use a mouse (let alone a computer). With an implementation like this (any button size, shape, or location of the button boxes) the program can be perfect for navigation.

As shown in the program and pictures in this document, the numbers that increase based on a button input can represent a position of a cursor on a screen (x and y axis) and represent a value. The LED’s, button position, location, size and sounds associated with them (along with specific purposes of the program) can be changed based on the persons specific disabilities. The reset button(s) (left and right) reset the cursors’ position to the bottom left of the screen. Values of the increase for the Y and X values can be changed based on the application of the system.

Below is pictures of the described project working. A video is also linked within the submission to show this project working.

Here, each button lights up an led and increases X or Y values of the ‘cursor’ on the screen. The longer the button is held, the higher the value. The LEDs also flash for each press and a sound is played to let the user know they are pressing the button (in this case). These can be changed based on the persons limitations, such as size of the button, tone played, LEDs or no LEDS, purpose of the program, etc. All buttons work the same, but button 3 selects the position of the ‘mouse’. The position and X and Y values can be reset with the press of either the left, or right button on the Arduino. In this final version, to reset the value the Xvalue and Yvalue buttons are pressed at the same time. This used to be the left or right button on the board, but the board is encased within the box.

The box designs were created using a box creator for illustrator. An initial prototype was built out of balsa wood and tape, to ensure the cuts were perfect for wire holes, for holding the Arduino and holding the buttons correctly. I ended up throwing away the prototypes shortly after creating them as I cut the final plastic boxes with hot glue right after. However, they were essential in figuring out these elements and proved if any changed needed to be made for the final creation.

A picture containing cable, electrical wiring, electronics, electronic engineering

Description automatically generatedA blue box with wires

Description automatically generated with low confidenceA picture containing gadget, computer, computer, electronic device

Description automatically generatedA picture containing cable, tool, plastic, electrical wiring

Description automatically generatedA blue box with wires

Description automatically generated with low confidenceA picture containing computer, indoor, text, gadget

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