

CAUSE AND EFFECT

Circuit CitEE

Our Team

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Introduction

- ADEC - Association for the Disabled of Elkhart County
- “working in partnership with all to help people with physical and developmental disabilities, live fuller, richer, more meaningful lives”

Problem Description

- A device to help demonstrate the cause and effect relationship of a physical action
- Usable on flat surface, or upright
- Easy to use for people with physical and/or mental disabilities

Proposed Solution

- “Whack-A-Mole”
- Large buttons that light up individually
- Pressing a lit button turns off that light, and turns on another
- Game continues until selected button is not pressed in allocated time
- Desktop keyboard format
- Scoreboard
- Several different levels: easy, medium, hard, progressive

Demonstrated Features

- The buttons are lit in an entirely random sequence
- Pushing a lit button is counted as a correct answer, and the user is credited with one push
- Pushing a button causes an effect, in that a light goes off and another button is lit
- The board can be placed and played on a flat surface
- The board can be placed and played in an upright position
- The different cases(levels) have differing degrees of challenge
- A screen that will display the number of correctly pushed buttons
- On/Off switch

Available Technologies

- Buttons
- AC power
- Screens
- Circuit that allows for input of buttons and output of lights and score
- Easily replaced lights/LEDs

Engineering Content - Physical

- Designing a board that will be easy for the target audience to use
- Designing a board that will be durable and safe to use
- Designing a board that will be easily repairable and replicable

Engineering Content - Circuitry

- Incorporate lights
- Have a screen for tracking scores and level
- Allow for multiple buttons
- Allow for use of AC power from a wall circuit

Engineering Content - Software

- Code that will randomize which buttons are lit
- Ability to vary between cases (levels)
- Logic design for progressive function
- Ability to track number of buttons pressed correctly (score), and display this number on the board
- Ability to end game if button is not pressed in allowed time

Questions?