

Puzzle Game Board

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Abstract

My project is to help kids understand and put puzzles together by 3D printing shapes and a game board. In most cases there is only one way to solve puzzles but in this case since there are multiple all the pieces can go with each other and be move and turned around there's no wrong or right way to solve I feel like kids learn also by colors so the game will have a pattern of five lights with a microcontroller and LEDS and as you work through the puzzle the LEDS will be changing color putting a time limit so it starts on red goes to yellow and green, etc. There are five colors but if they don't finished by the time all five are on your take the pieces out and re- start. When you are done there is draw to be pushed out to store pieces

Introduction

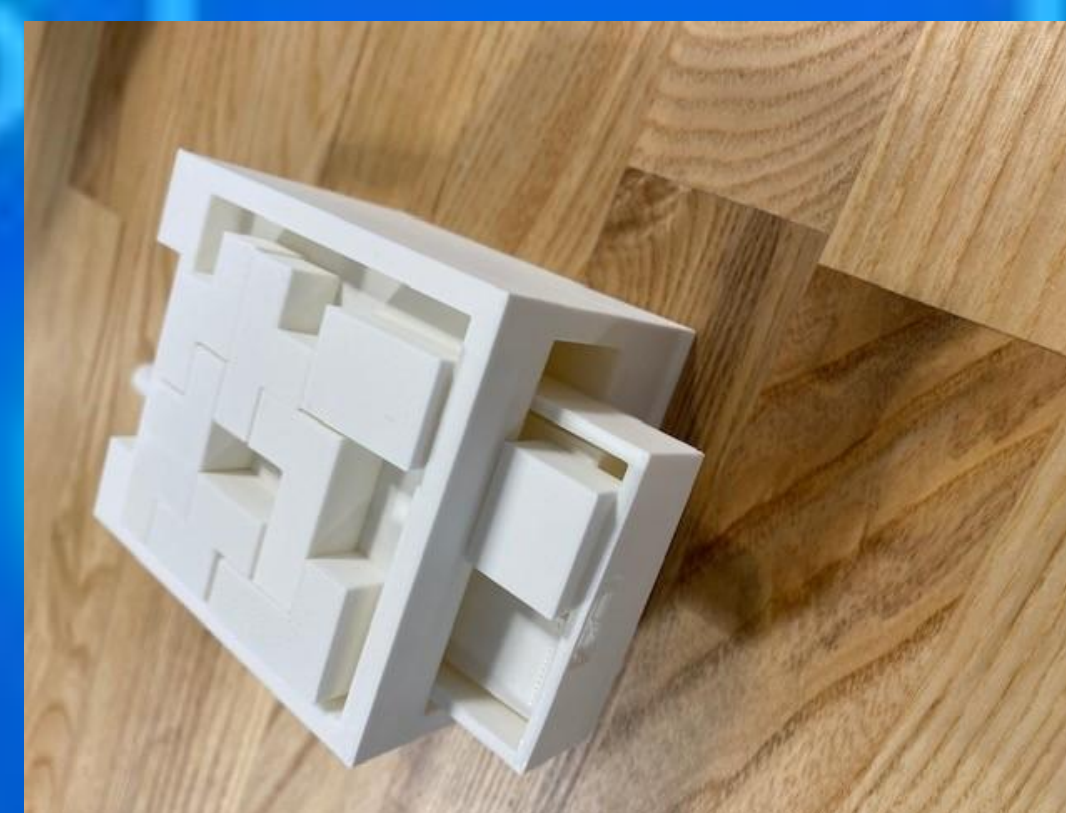
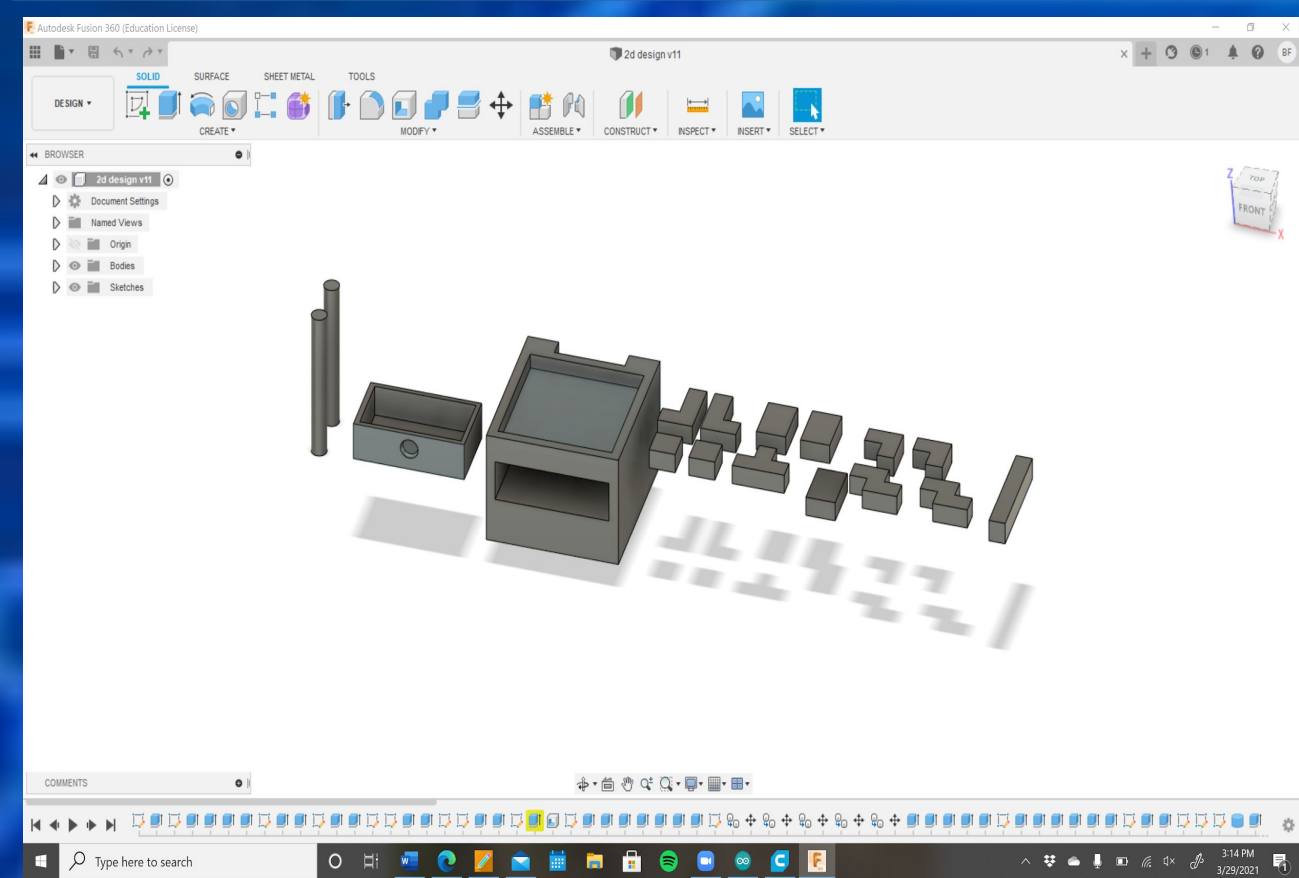
3D printing is used in many ways, but my print was designed to help kids learn by challenging them to solve a puzzles while under a time restraint with colors changing making them have a visual. I feel like little kids learn best by touching and seeing and this is essential because theses and kids prime years of learning shapes and time management.

Methods and Materials

The materials used are an arduino, wires, led diodes, 220 ohm resistors, photoresistor and a 3d print to display the signal. The arduino was used for the lights and sequencing of the lights for a timed game.. For the puzzle board itself it was 3D designed on program called fusion 360 that we would then take those models and send them to the 3d printers to be printed in layers.

Results

The results of my builds were very good each failed build helped me realized what i did wrong and got me closer to my final build. The designs before all had a mistake within them one was the shapes didn't fit they were all too small, another fail was the shapes were big but the board was too small to hold the shapes.. What you don't realise though is if you change one thing it is best to change the rest so they are all the same dimensions. The game board had a draw for the extra shapes and was able to push the draw in and out. The electronics fit well within my build and so did the shapes allowing the game to be played within the person solving the pieces before they run out of time.



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