

# Marshall Classroom UGRADS Presentation

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*College of  
Engineering, Forestry  
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*Creative Technologies  
Worldwide*



# Overview



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# Introduction

- Sensory Board
- Children with Disabilities
- Learn skills
- Sponsor: W.L.Gore
- Clients : Ms.Eva and Ms.Krista





# Project Goals

- Creative Sensory Board
- Attractive device
- Educational
- Entertaining

# Images of the design

Abdullah Ali - 5

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Figure1-Right Side of the design



Figure2- left Side of the design



Figure3- inside the design

# Research for Existing Designs



Figure4-Small rectangular sensory board



Figure5-Semi cubic sensory board



Figure6-Rectangular sensory board which can be folded and have two sides



# Customer and Engineering Requirements

Customer Requirements	Engineering Requirements
Dimensions	3x4x3ft
Safety	<ul style="list-style-type: none"><li>● Avoid sharp corners</li><li>● Doesn't tip over</li><li>● Screws do not go through the other side of the wood</li></ul>
Entertaining/Educational	<ul style="list-style-type: none"><li>● Small teaching boards</li><li>● Sound puzzles</li><li>● Ipad</li></ul>
Durability	High quality of wood
Cost	The whole device does not exceed 1000\$

# Design Considered

- Semi-rectangular sensory board hollow from inside.
- The design allow children with disabilities to play on the inner and outer sides.
- Electrical parts will work using a car battery.

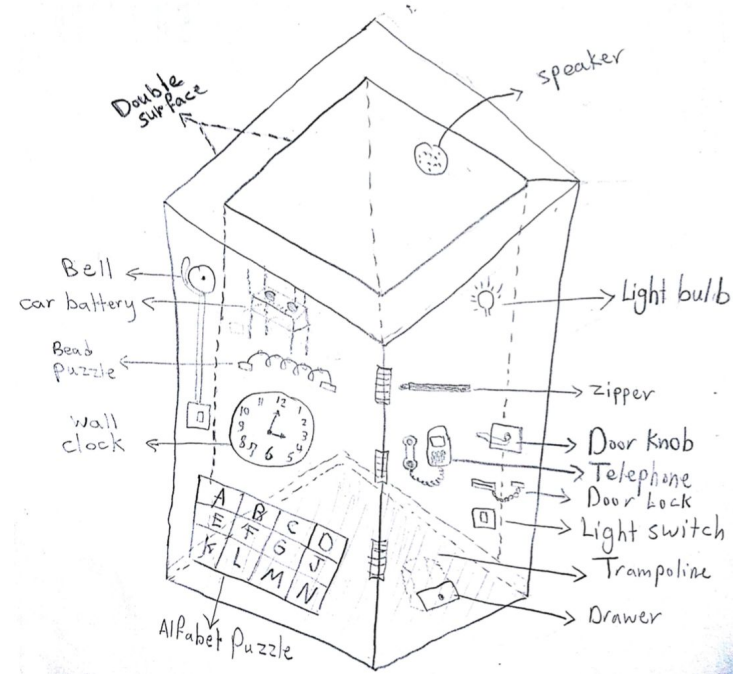


Figure7-Primary sketch for our sensory board design





# First Design

- Three double wooden surfaces attached to each other and a fourth single surface is the door.
- Trampoline attached to the base
- A car battery installed between the double surface
- This design was failed due to complicated electric circuit and the lack of safety



Figure8-First CAD

# Final Design



Figure9-Final CAD



Figure10-Another view of the final design



# Design Components

- The design is consist of two main components:

1- Wooden box

2- Sensory Parts



Figure10-The outside view of the design

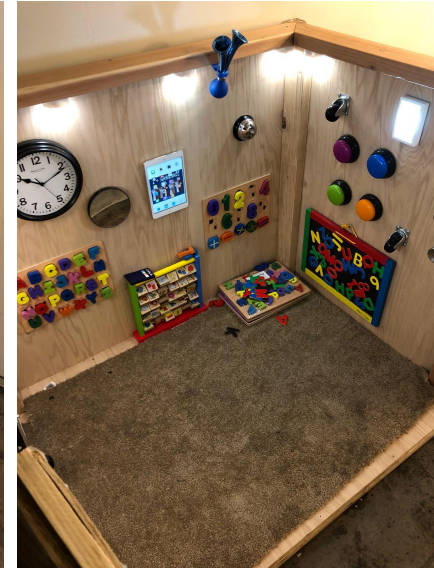


Figure11-The inside view of the design

Yousef Alkatan - 11

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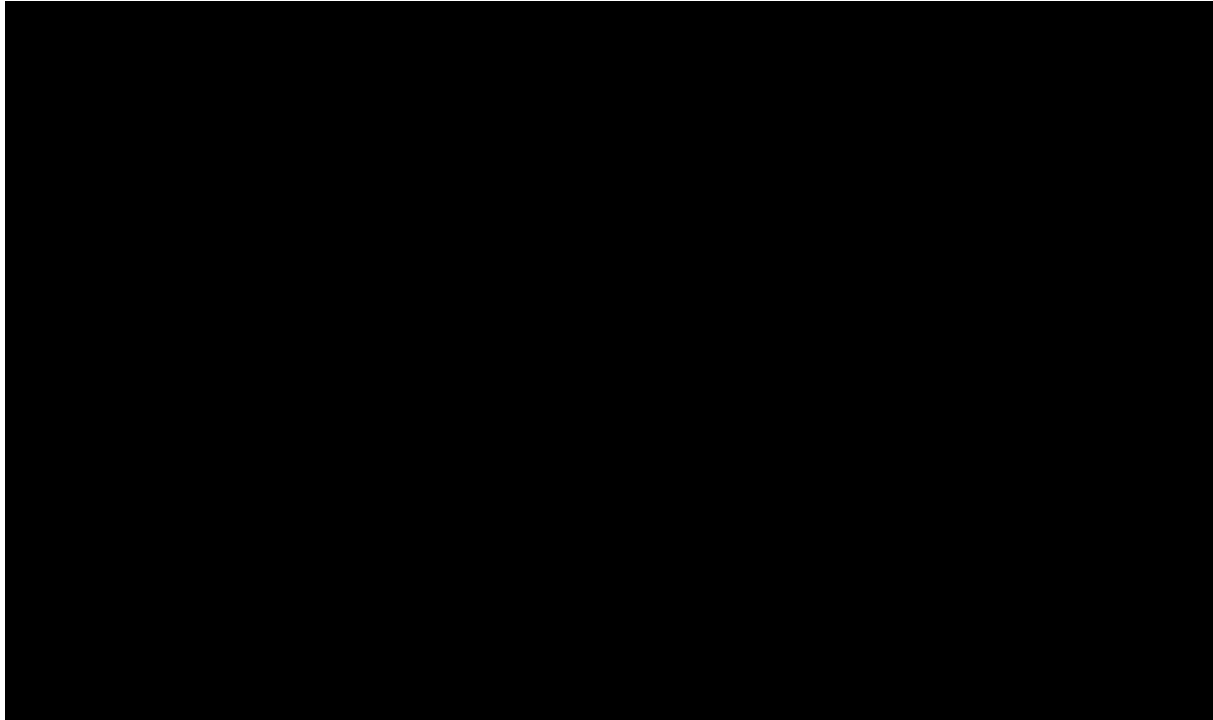


# Video

Yousef Alkatan-12

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# Manufacturing

- Types of wood
  - 3\4 in Red Oak
  - 2x4 in Redwood
- How parts are attached to the board?
  - Fastened using screws
  - Glued
  - Velcroed
- Duration

# Testing

<b>Parts Tested</b>	<b>Strategies</b>
Corners	Plastic corner capping
Stability of the device	Used supports as shown in figure12
Base	Resists more than 1000 lbs
Wood Sides	Sanded all sides of wood

# Results

- Play and learn at the same time
- Good quality and safe project.
- Valid for use by any type of disability
- Valid for use by kids from 5 to 15 years old



Figure12-Another view of the final design

Taha Alansari- 15

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# Obstacles

- Make the device safe
- Meet the budget limit planned
- Entertaining & educational device
- Avoid tipping over



Figure13- Plastic corner capping





# Reference

[1] Chang, Yao-Jen, Shu-Fang Chen, and Jun-Da Huang. "A Kinect-based system for physical rehabilitation: A pilot study for young adults with motor disabilities." *Research in developmental disabilities* 32.6 (2011): 2566-2570.

[2] Fichten, Catherine S., and Claudia V. Bourdon. "Social skill deficit or response inhibition: Interaction between disabled and nondisabled college students." *Journal of College Student Personnel* 27.4 (1986): 326-333.



**Questions ?**