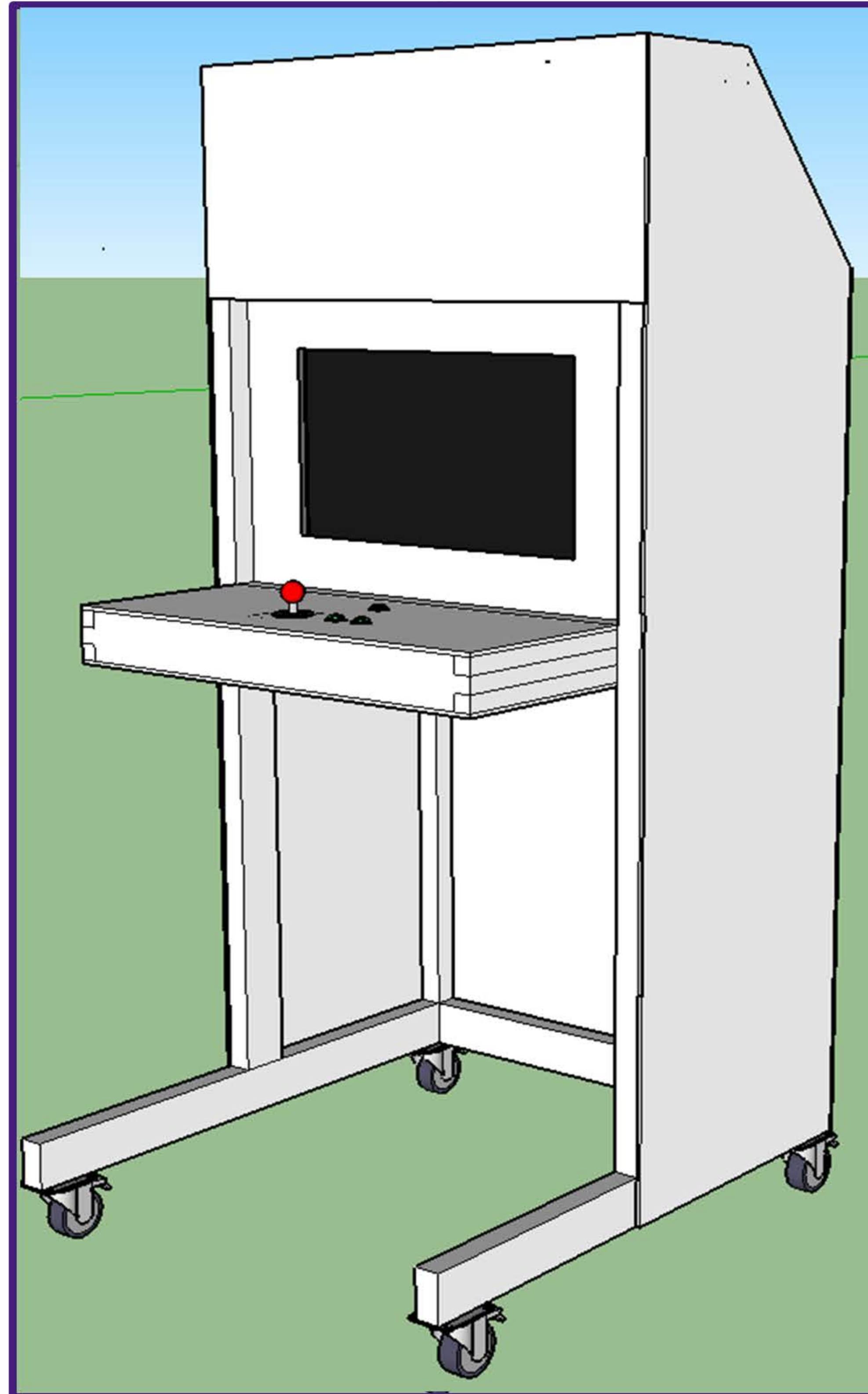# Team #9: Easy Access Arcade Games

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Overview

The children of St. Lillian Academy have varying disabilities that make doing everyday things more challenging. Our arcade system will allow them to have fun while improving their muscle memory and challenging their cognitive abilities.

Objectives

- Provide access to games tailored to children with limited processing capabilities.
- Make system accessible for all children regardless of physical disabilities.
- Create the familiar feel of a classic arcade system.
- Provide an enjoyable experience.

Engineering Specifications

Physical Constraints
- Width of doorways at St. Lillian's with door open 90° is 34"
- Wheel chair/table height ~29"
- Easy to use controls
- Easily maintained and moved
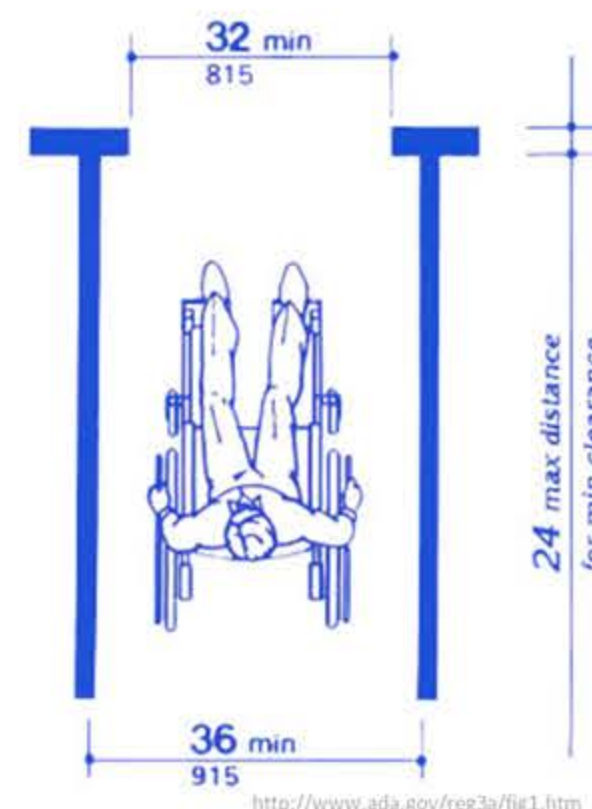
Software Constraints
- Slowed down gameplay
- Easy to use game selection interface

Safety

	Physical	Electrical
Hazards	• Pulled down/Knocked over • Sharp corners and edges	• Shock • Fire
Engineering Control	• Statics equations performed on arcade frame • Rounded trim on edges and corners	• Restricted access to electronic components • Properly shielded wires
Behavioral Control	• Labels indicating that incorrect handling could cause machine to fall over	• Warning labels indicating what components are dangerous

Testing

Structure Testing
- Once constructed, ensure that statics calculations were correct and unit is hard to topple – The structure's weight is balanced; the frame is sturdy.
- Ensure enclosure is properly attached and corners and edges are alleviated – The edges of the aluminum are rounded; the control board has plastic, rounded trim to remove sharp edges.

System Testing
- Test for properly set up computer components – The computer components properly work together and the software is configured to boot straight to the arcade menu for simplicity and ease
- Test UI and games for seamless transitions and appropriately paced gameplay - Using MAME and MaLa, the games are easily accessible and their pacing has been slowed for easy play

Budget & Timeline

Pie chart:
- Additional Costs, $340.42
- Frame, $749.77
- Arcade Controls, $88
- Computer, $585.76

Timeline (2016):
- Parts ordered 2/28/2016
- Begin assembly 3/18/2016
- Begin testing software and gameplay 4/6/2016
- Finalize product for delivery 4/24/2016

| February | March | April |

Sponsors: St. Lillian Academy $100, Marathon Petroleum $1000, LSU ECE Department $500

Adviser: Dr. Robert Kooima