COMP180H/580 Enabling Technologies - Final Project: School Escape
http://wwwx.cs.unc.edu/~sortman/SchoolEscape

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Description

Escape the School is a classic escape the room style game with custom integration for motion impaired users. There are two methods of game control: two-switch control and EyeGaze control. With these specialized features, the user is not required to rely on the traditional mouse and keyboard to navigate his/her way through the game and is given complete control despite only using two buttons or his/her gaze.

Targeted towards children ages 7 through 12, Escape the Room immerses the user within a confined environment but provides the necessary tools to find release. Through the puzzling levels, the user will encounter the customary headaches and frustration of puzzle games as well as the much desired euphoria of success.

Each of the eight levels feature fully colored backgrounds, hidden objects, and delightful commentary. Each level is just a tad harder than the level before it. This difficulty progression encourages users to strive for more challenges and to reach one step further. The levels also feature common locations within a school including classrooms, a cafeteria, a computer lab, the principal's office, and a gym. Together the levels bring together a gripping story about one's journey to from the mundanity of classroom existence to the greater freedom of RECESS!

Purpose & Motivation

The purpose of our Escape the School project is to create an escape style game accessible to motion impaired students. Currently, most online games available to children require precision clicking, mouse gestures, and keyboard control. Our game will eliminate this extensive use of mouse and keyboard but retain the challenge and excitement of a game we all enjoyed as children.

Instructions & Game Play

The goal of the game is to escape the room the in which the student is currently located. However, the doors always seem to be locked! The player must use the tools scattered around the room to find keys, or possibly other, more creative ways to escape!

If at any time during the game a player needs help, they can select the on the "click for solution" button and be guided on how to complete the level.
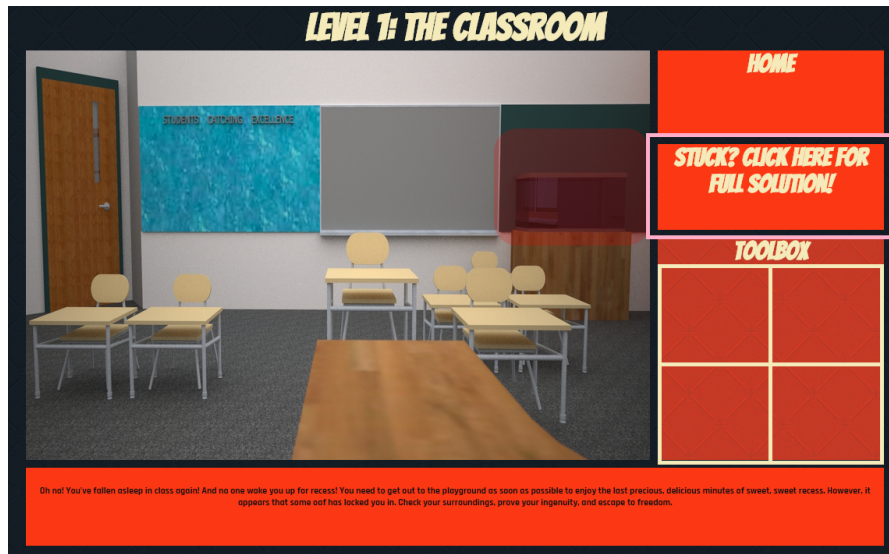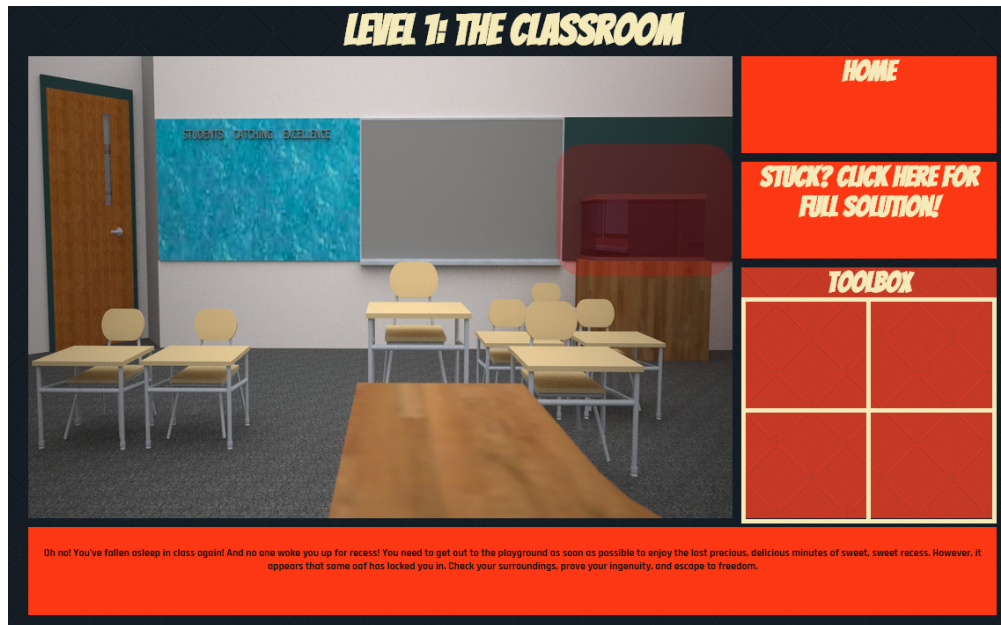
There are two ways to play the game: EyeGaze and with two switches.

EyeGaze

- To begin, the user will click on Play.

- The user will then scan around the screen looking for objects on which they may click. When a clickable object is hovered over, a red box showing the clickable area will surround the object.

- The goal is to find a way out of the room. Some rooms have keys for locked doors, while others may require more creative ways to escape.
    - This can be done by clicking on the right objects scattered around the room. In the picture above, the highlighted fish tank actually holds a key which is revealed once the tank is clicked on!

Two Switch Technology

The gameplay is similar to that of the EyeGaze section above with the following technical differences.

- **Switch 1:**
    - **Right arrow key, tab, or space bar** may be used interchangeably
    - Instead of searching for items, Switch 1 is used to toggle between highlighting each of the possible items.
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- **Switch 2:**
    - **Left arrow key, or enter** may be used interchangeably
    - Once an object the player wants to select is highlighted, they can use Switch 2 to select, or "click" on the item.

Gameplay Progression

The following is the "answer key" to Escape the School. Although there are many more clickable components and actions, performing the following actions in the specified order will allow progression to the next level.

Level 1: Classroom
1. Find key in fishbowl
2. Add key to toolbox

3. Open the door with key in toolbox

Level 2: Computer Lab
1. Find screwdriver in desk and add to toolbox
2. Click lockbox with screwdriver in toolbox to force open and find power cord
3. Click computer with power cord in inventory to unlock door and escape

Level 3: Cafeteria
1. Click on the ladle to add it to toolbox
2. Click on the pot of soup with ladle in the toolbox to fish out the key
3. Click on the door with the key in toolbox

Level 4: Math Classroom
1. Click on the book to reveal saying
2. Click on blackboard equation to solve automatically, solution moves to toolbox
3. Click on safe with solution in toolbox
4. Safe contains key, click on key to move to toolbox
5. Click on door with key in toolbox

Level 5: Principal's Office
1. Find the filing cabinet key hidden under the couch
2. With the key, find the hammer in the cabinet
3. Use the hammer to break one of the potted plants, revealing the door key
4. Once you found the key under the plant, reach the door to escape.

Level 6: Art Studio
1. Click on the pencil to add to toolbox
2. Click on the paper to add to toolbox
3. Click on the table with the pencil and paper in toolbox to reveal the markings on the table
4. Click on the marked paper to add password to toolbox
5. Find the lock while the password is in your toolbox to reveal hammer
6. Add the hammer to your toolbox
7. Use the hammer to break the window and escape.

Level 7: Library
1. Click the book on the table to reveal a bookmark with a code written on it
2. Click on the door to the office once you have the code to unlock it; this will automatically add a slip of paper in your toolbox like you found in the office
3. The slip of paper has "try the third bookshelf" written on it, so you check this out
4. Click on the third bookshelf to obtain the lockbox key
5. Use the key to unlock the box, revealing a battering ram
6. Use the battering ram with the locked door to plow through it

Level 8 Gymnasium
1. Click the box to reveal a stash of tennis balls
2. Move the tennis balls to your toolbox
3. Find the sheet of paper on the floor containing a password
4. Unlock the tennis ball machine using the password once you have the tennis balls
5. Click the filled ball machine to have it spit out a rope into your toolbox
6. Use the rope with a hook on the ceiling to attach the rope
7. Click on the attached rope to climb out of the room.

Implementation

This is a web-based application so there is no build or installation required. The game can be accessed at this link: http://wwwx.cs.unc.edu/~sortman/SchoolEscape

Team Member Contributions

Ronald & Zack (180H):
- Wrote storyline for game
- Worked with SketchUp 2014 to create and render all images
- Created item descriptions and room transitions
- Worked with testing the game in all phases
- Created presentations

Ronald:
- Created demo for inclusion in the site

Pearl (580):
- Responsible for all code (used HTML, CSS, Javascript & jQuery)
- Dealt with all accessibility constraints and programmatically ensured and tested accessibility of each web page using both two-switch technology and EyeGaze
- Designed the interface and created a cohesive theme for each level
- Assisted with presentations and documents
- Provided feedback and suggestions during images selection/rendering