FLORIDA POLYTECHNIC UNIVERSITY

Coin Collector

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Graphics

1. Objectives

A. To make sure we have a strong understanding of object transformation.

2. Equipment

A. A computer that can run WebGL.

3. Lab Preparation

A. Make sure you have gone over the example code and the power points
B. Make sure you have the Game Engine code integrated with the WebGL shaders.

4. Lab Instruction

A. Phase 1: The Player (20 pts)
    a. You will create an object that will represent the player.
    b. There needs to be 2 colors at least
    c. You need to be able to determine which direction you are facing. (It will be a top-down game) (Needs to be more than a triangle)
    d. The character will move with respects to the x and y-axis and rotate around the z-axis.
    e. If the player presses “a” the object will rotate left
    f. If the player presses “d” the object will rotate right.
    g. If the player presses “w” the object will move forward IN RESPECTS TO THE DIRECTION IT IS FACING! (Hint: you need trig)
    h. If the player presses “s” the object will move backward IN RESPECT TO THE DIRECTION IT IS FACING.
B. Phase 2: Walls (10 pts)
    a. You will create some walls in the environment
    b. You will need to check to see if the players NEXT position would be colliding with a wall, if it is do not move.
    c. (The player can be modelled as a point, so it can overlap on a wall, just not pass through it. There cannot be any jitter when the player hits the wall).
C. Phase 3: Coins (10 pts)
    a. The coin objects must be circular.
    b. The coins objects must rotate around the y-Axis (not the z).
    c. If the player collides with the coin, the coin is destroyed and the +1 is added to the player’s score.
    d. The score should be displayed either on the canvas or on the HTML page.
D. Phase 4. The Bad GUY
    a. Make an object that looks like a bad guy. (I’ll let you get creative).
    b. The bad guy does not have to rotate, it will move one direction until it hits a wall, and then move in the opposite direction

c. If the good guy hits the bad guy, the good guy is destroyed and "Game Over" is printed either on the canvas or on the HTML.

E. If space the space bar is pressed you will create a bullet.
   a. The bullet will fly forward at double the rate the player moves.
   b. If the bullet strikes a wall, the bullet will be destroyed
   c. If the bullet strikes an enemy, the enemy will be destroyed. (Feel free to add HP on the enemy if you wish).
   d. You choose: The player can either shoot one bullet at a time, or shoot a bullet every 30 frames. (You can pick which).

5. Lab Rubric

	Perfect	Logic Errors	Syntax Errors but significant effort put into it	Not enough effort or not attempted.
The player renders correctly	10	5	3	0
The player moves correctly	10	8	5	0
Walls render and the player cannot move through them. (No jitter on collision)	10	8	5	0
Coins Spin around the y-axis (and are circular) and increase the score when collected. The score is shown	10	5	3	0
Bad Guy moves back and forth. If the player collides with them, then Game Over is printed and the player is destroyed.	10	8	5	0
The player can spawn a bullet and it moves correctly. The bullet can destroy enemies and will be destroyed if it hits a wall. The rate of fire is correct.	10	8	5	0
Total	/60			

6. Lab Report Requirements

There is no lab-report however, there will be a peer review.