

Experiment 3

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Introduction

In this experiment, there are two parts of tasks for us. In the Part1, we are expected to do some changes on the given project. The changes are about the shape the shape's color. Shortly, we are expected to understand a given project, and change the project correctly to the given information. In the Part2, we are expected to do totally three steps. First step is the spin movement of the emoji which we draw in the experiment2. Second step is scaling this shape like a heart beat. Third step is the spiral movement of the shape.

Experiment

Part1

In the Part1, there is a project which is named 'rotatingSquare1'. In this project, there are a square with has rotation . We are expected to change this square to triangle.Also, we are expected to add four buttons for some features.One button is for changing the directon of the animation. One button is for increasing the speed of the animation, one button is for decreasing the speed of the animation, and the last button is for changing color of the shape randomly.

For changing the square to triangle, I changed the drawArrays parameter TRIANGLE to LINE_LOOP and also I changed the location point of the vertex and decrease the vertex amount from four to three.

For changing the direction of the animation(rotating direction), I used a control variable (1 and -1). When the control variable changes 1 to -1 or vice versa, the direction of the animation changes.If the value of control variable is 1 , I add the speed to the theta. If the value of control variable is -1, vice versa.

For increasing the speed of the animation, I add a button and speed variable. If the user click the button, the speed variable increases and the speed of the animation increase.

For decreasing the speed of the animation, I add a button. If the user click the button, the speed variable decreases and the speed of the animation decrease.

For changing color randomly, I add a button. If the user clicks this button, the color array of all vertices changes randomly, and the animation buffers this changed array, that's why the color changes randomly.

Part2

In this part, we are adding new features with using own previous project. There is buttons for some features, and also input areas. Start Spin button is for starting spin rotation, Stop Spin button is for stopping spin rotation, input of these button is for speed of the rotation. Start Scale button is for starting scale like a heart beat, Stop Scale button is for stopping the scale. Start Spiral button is for starting spiral movement of the shape, Stop Spiral button is for stopping the spiral movement of the shape, and finally input of these buttons is for speed of the spiral movement.

For Spin movement, I used a matrix with using sin and cos according to the angle of the movement, if the input of the speed will be changed, I multiply the matrix with this speed.

For scaling the shape, I used scale variable between 0.5 and 1.5 (at the beginning 1) and when the scale started the scale variable is changing between these values.

For spiral movement, I used an angle variable for movement, and I send this variable to the vertex shader, in the vertex shader, the sin and cos values of this angle are added to the x and y of the shape, and also the speed variable of this spiral movement is send to the vertex shader and multiply the cos and sin value of the spiral variable with these speed.