Experiment 3

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1 Introduction

We had a emoji from previous experiment and we are expected to do some animations on it. These are rotating, scaling and spiral movement.

2 Experiment

There are three part of our Experiment. First part is, rotating the emoji in z axis continuosly and we can change the speed of rotation according to buttons on interface. I know about how to do rotation from previous experiment so that I figured out this easly. Next part is, making the emoji grow and shrink in size like a beating heart, continuously. That part is nearly same as rotation. I put a scaling factor to vertex shader and calculate the best scaling nubmers for not to cross the border. Based on the question our friend asked at piazza, my scale numbers exceed the limit of borders when they are between 1.50-0.5. So that I use differant scale numbers.The last part is, making the shape continuously rotate in clockwise direction around the global z-axis, as its center of mass follows a spiral path. For this part I use Archimedean spiral formula in my vertez shader. This the most complex part in my experiment. Generally, I made changes in vertex shader and use same methods from previous experiment and changed my animation() function to control three different movement.

Methods

posFace(): Void function, generates positions of face and color.Then calls draw()**.**
posLeftEye(): Void function, generates positions of left eye and color. Then calls draw()**.**
posRightEye(): Void function, generates positions of right eye and color. Then calls draw()**.**
posMask(): Void function, generates positions of mask's rectangle and color. Then calls draw()**.**
posArc(P0,P1,P2): Void function, Takes the given 3 xy points and create arc positions. Then calls draw()**.**
bezierCurve(t,P0,P1,P2): Takes the given 3 xy points and control point ‘t’ to using in spesific formula. Then return new x and y point only.
draw(position,color,boolean): Takes position,color arrays and boolean.Then draws it**.**
main(): Initilaize gl variable and manage window events**.**
animation(): Starts animation operation and It has some if-else statments to control three animation opertaion.

3 Conclusion

In conclusion. I have learnt about manipulation on vertex shader, spiral formula, create button on HTML file and use information on HTML to js file. The most difficult part in my experiment is, making spiral animation.

4 References

- https://en.wikipedia.org/wiki/Archimedean_spiral
- https://developer.mozilla.org/en-US/docs/Web/API/WebGL_API/Basic_2D_animation_example
- https://www.cs.unm.edu/~angel/BOOK/INTERACTIVE_COMPUTER_GRAPHICS/SEVENTH_EDITION/CODE/.