Name : Chakradhar Reddi Vitta

Mail Id : vittac@oregonstate.edu

ID : 934595987

Project 04

Description:

In this OpenGL project, I designed a 3D scene with a turquoise skeleton model positioned diagonally toward the upper part of the frame, floating against a multi-colored background comprising six colors, including yellow, to create a vibrant, Halloween-inspired ambiance. The skeleton model incorporates movements along the X, Y, and Z axes, enhancing the perception of depth as it drifts dynamically across the space. To aid orientation, I included labeled X, Y, and Z axes in dark brown in the lower-left corner, helping viewers interpret the skeleton's 3D positioning. Through nine key animations, I achieved a lifelike and immersive effect: Position Animations along the X, Y, and Z axes direct the skeleton's motion in space; the Rotation Animation changes the viewing angle, adding complexity to the perspective; the Scale Animation varies the skeleton's size, simulating changes in proximity as it appears to grow or shrink; Color Animations R, G, and B shift the hues dynamically, giving the skeleton a spectral, otherworldly glow and the Light Color Animation adjusts the red, green, and blue lighting components to create a soft, glowing effect around the model. These elements, enhanced by basic lighting and shading techniques, make the skeleton appear animated and ethereal. Inspired by Halloween, I had planned to further decorate the skeleton but couldn't due to midterm exams. This project demonstrates my proficiency with 3D transformations, model loading, and the use of lighting and shading in OpenGL. Belated Happy Halloween!

The 9 quantities that I have used in animated must be

Positioning, scale, Rotation, color, Light color, eye position.

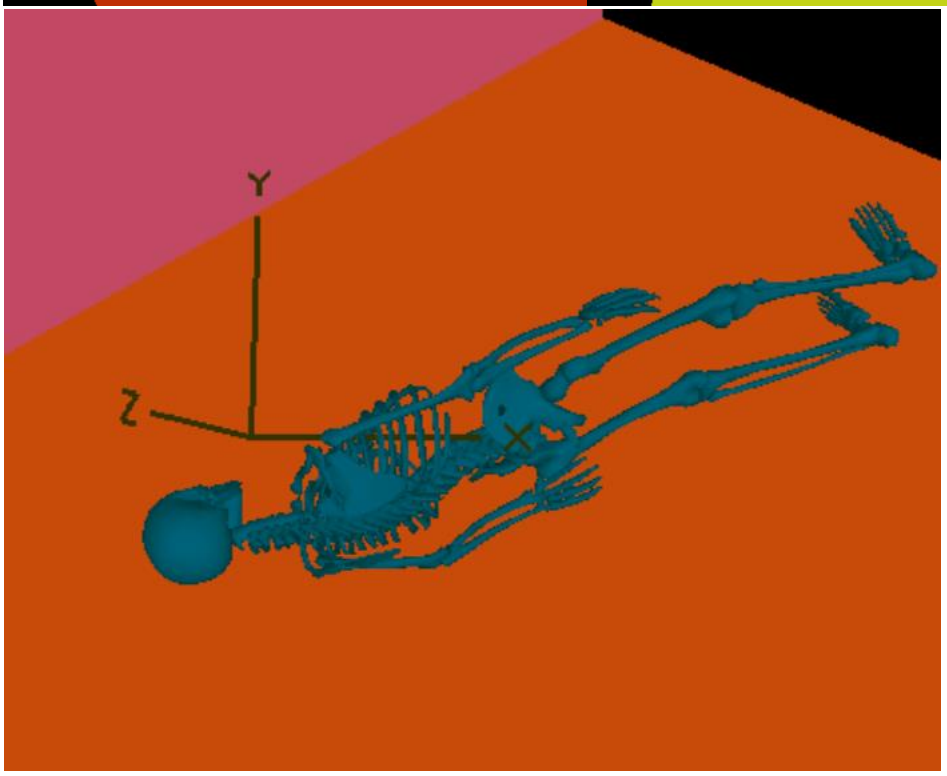
That are

```
Xposition_1.Init();
Xposition_1.AddTimeValue(0.0, -2.0);
Xposition_1.AddTimeValue(1.0, -2.0);
Xposition_1.AddTimeValue(3.0, 3.0);
Xposition_1.AddTimeValue(6.0, 3.14);
Xposition_1.AddTimeValue(9.0, -3.5);
Xposition_1.AddTimeValue(10.0, -2);

Yposition1.Init();
Yposition1.AddTimeValue(0.0, -2.0);
```

```
Yposition1.AddTimeValue(1.0, 2.0);
Yposition1.AddTimeValue(3.0, 3.0);
Yposition1.AddTimeValue(6.0, -3.14);
Yposition1.AddTimeValue(9.0, -3.5);
Yposition1.AddTimeValue(10.0, -2);

Zposition_1.Init();
Zposition_1.AddTimeValue(0.0, -2.0);
Zposition_1.AddTimeValue(1.0, -2.0);
Zposition_1.AddTimeValue(3.0, -3.0);
Zposition_1.AddTimeValue(6.0, 3.14);
Zposition_1.AddTimeValue(9.0, 3.5);
Zposition_1.AddTimeValue(10.0, -2);

Rotn.Init();
Rotn.AddTimeValue(0.5, 0.0);
Rotn.AddTimeValue(2.0, 45.0);
Rotn.AddTimeValue(3.5, 90.0);
Rotn.AddTimeValue(6.5, 90.0);
Rotn.AddTimeValue(8.5, 90.0);
Rotn.AddTimeValue(10.0, 0.0);

Scaled.Init();
Scaled.AddTimeValue(1.3, 0.1);
Scaled.AddTimeValue(3.6, 0.20);
Scaled.AddTimeValue(5.4, 0.6);
Scaled.AddTimeValue(6.0, 0.28);
Scaled.AddTimeValue(8.2, 0.10);
Scaled.AddTimeValue(9.3, 0.10);


Color_R.Init();
Color_R.AddTimeValue(1.0, 1.0);
Color_R.AddTimeValue(3.8, 1.0);
Color_R.AddTimeValue(5.5, 0.0);
Color_R.AddTimeValue(6.8, 0.0);
Color_R.AddTimeValue(7.8, 0.0);
Color_R.AddTimeValue(10.0, 1.0);

Color_G.Init();
Color_G.AddTimeValue(1.0, 1.0);
Color_G.AddTimeValue(3.8, 0.0);
Color_G.AddTimeValue(5.5, 1.0);
Color_G.AddTimeValue(6.8, 0.0);
Color_G.AddTimeValue(7.8, 1.0);
Color_G.AddTimeValue(10.0, 0.0);

Color_B.Init();
Color_B.AddTimeValue(1.0, 1.0);
Color_B.AddTimeValue(3.8, 0.0);
Color_B.AddTimeValue(5.5, 0.0);
Color_B.AddTimeValue(6.8, 1.0);
Color_B.AddTimeValue(7.8, 1.0);
Color_B.AddTimeValue(10.0, 1.0);


Light_Color_R.Init();
Light_Color_R.AddTimeValue(1.0, 1.0);
```

```
Light_Color_R.AddTimeValue(3.8, 1.0);
Light_Color_R.AddTimeValue(5.5, 0.0);
Light_Color_R.AddTimeValue(6.8, 0.0);
Light_Color_R.AddTimeValue(7.8, 0.0);
Light_Color_R.AddTimeValue(10.0, 1.0);

Light_Color_G.Init();
Light_Color_G.AddTimeValue(1.0, 1.0);
Light_Color_G.AddTimeValue(3.8, 0.0);
Light_Color_G.AddTimeValue(5.5, 1.0);
Light_Color_G.AddTimeValue(6.8, 0.0);
Light_Color_G.AddTimeValue(7.8, 1.0);
Light_Color_G.AddTimeValue(10.0, 0.0);

Light_Color_B.Init();
Light_Color_B.AddTimeValue(1.0, 1.0);
Light_Color_B.AddTimeValue(3.8, 0.0);
Light_Color_B.AddTimeValue(5.5, 0.0);
Light_Color_B.AddTimeValue(6.8, 1.0);
Light_Color_B.AddTimeValue(7.8, 1.0);
Light_Color_B.AddTimeValue(10.0, 1.0);

Eye_Pos_X.Init();
Eye_Pos_X.AddTimeValue(1.6, 2.0);
Eye_Pos_X.AddTimeValue(3.2, 2.0);
Eye_Pos_X.AddTimeValue(4.8, 0.0);
Eye_Pos_X.AddTimeValue(6.4, -2.0);
Eye_Pos_X.AddTimeValue(8.0, -2.0);
Eye_Pos_X.AddTimeValue(10.0, 2.0);

Eye_Pos_Z.Init();
Eye_Pos_Z.AddTimeValue(1.6, 0.0);
Eye_Pos_Z.AddTimeValue(3.2, 2.0);
Eye_Pos_Z.AddTimeValue(4.8, 2.0);
Eye_Pos_Z.AddTimeValue(6.4, 2.0);
Eye_Pos_Z.AddTimeValue(8.0, 0.0);
Eye_Pos_Z.AddTimeValue(10.0, 0.0);
```

Output:



Kaltura link : https://media.oregonstate.edu/media/t/1_yngumut9