Intro to Computer Graphics

Project C => Lights & Materials

CHICKEN & SPHERE AROUND WORLD

Pooja Bala Nehru
(Net ID: pbn6412)

Hi! Welcome to the Project Report for the subject Introduction to Computer Graphics.

The following report is presented to fulfill the requirements of Project C as part of the course.

Please find the following available in the subsequent pages of this report:

(1) User's guide to navigating the project

(2) 'Results' section to showcase the screenshots

Thanks!

(1) User's Guide for Project

Please find the following detailed instructions for User controls for the Chicken traveling in Canvas screen:-

>>> GOALS

> Below is provided a brief with detailed explanation about the project presented.

> In this project you can view 3 assemblies and a large Sphere

> Also User inputs and other interactions are provided as instructions.

>>> PROJECT REQUIREMENTS FULFILLED

=> 3D Assemblies (4):

>> moving assembly of chicken

>> A large slowly rotating Sphere

=> 4 Shading Methods with Lighting

(1) Gouroud shading - with BlinnPhong Lighting

(2) Phong shading - with BlinnPhong Lighting

(3) Phong shading - with Phong Lighting

(4) Gouroud shading - with Phong Lighting

=> Materials

The following materials are used for the assemblies:-

> MATL_RED_PLASTIC, MATL_OBSIDIAN, MATL_RUBY, MATL_GOLD_SHINY

=> Light source

The light source is set at 0,0,100 to illuminate the spheres.

=> User onscreen Interactions:

Details regarding User interactions are given below and on the HTML page to the User for reference.

=> Flexing/Spinning Joints:

The Chicken has 3 flexing/spinning joints connected with 4 3D parts drawn from the VBO:

>> Body >> Legs >> Feet >> Web feet

=> Ground grid:

Ground grid for the world has been created with +z up

=> Viewports

Perspective view with 30 foxy created for 66% window

Browser resizing is performed effectively without squashing/stretching contents

=> Smoothly adjustable 3D View Control:

Required 3d controls are present on screen for smooth traveling in the world.

=> User navigation into the world

We can explore the world by using user controls and moving into it.

>>> USER CONTROLS

=> Buttons

Use the buttons to navigate the different Shading/Lighting in program

STEPS:

1> The default view once you reload the page is Gouroud Shading with BlinnPhong Lighting

2> Click the first button to remove this view

3> Then click on any other button to view that particular shading

4> Continue for all user controls

(Please hide one view before choosing another button)

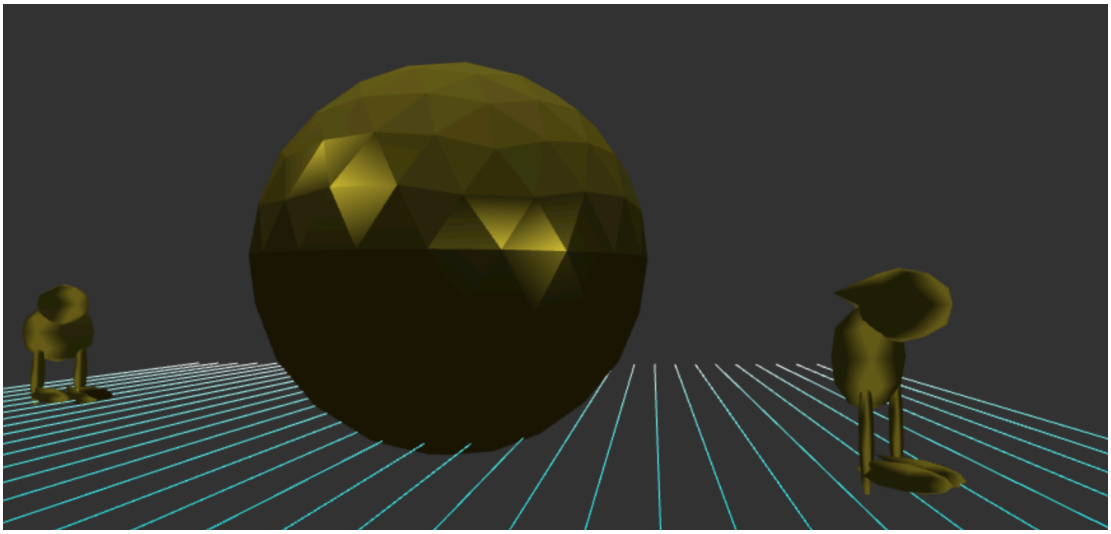
=> Keyboard controls:

Use the following navigation for the above views:
Up Arrow >> Move forward
Down Arrow >> Move backward
Letter 'a' >> Steer Left
Letter 'd' >> Steer Right
Letter 'w' >> Tilt Up
Letter 's' >> Tilt Down

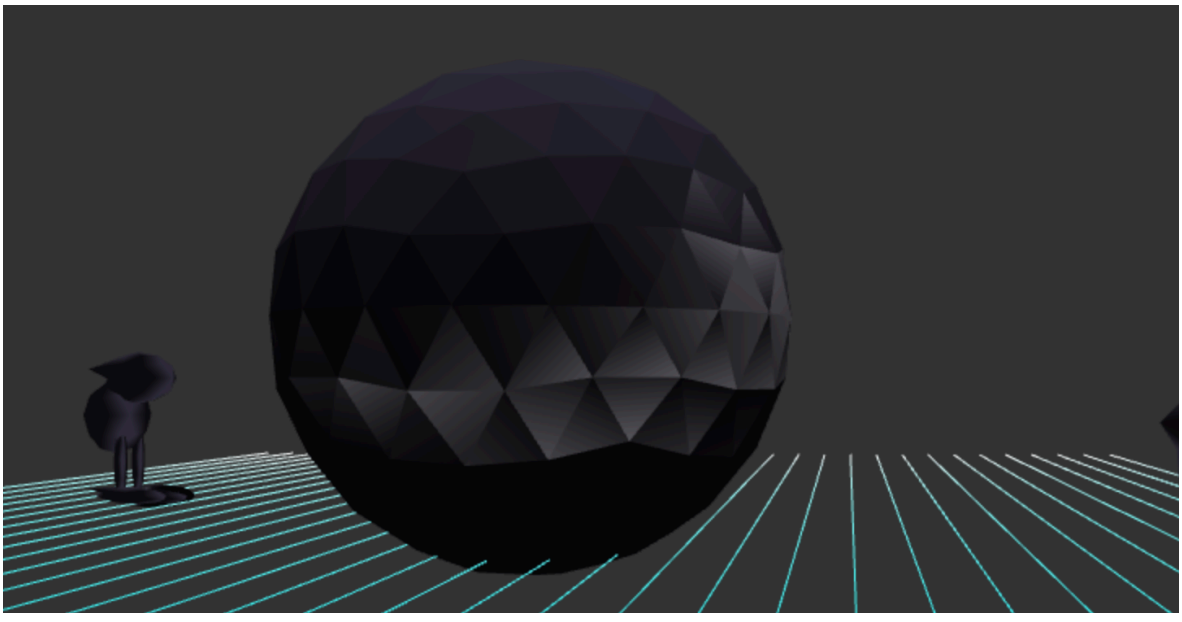
>>> RESULTS

The following results for Shading/Lighting are achieved as required:-

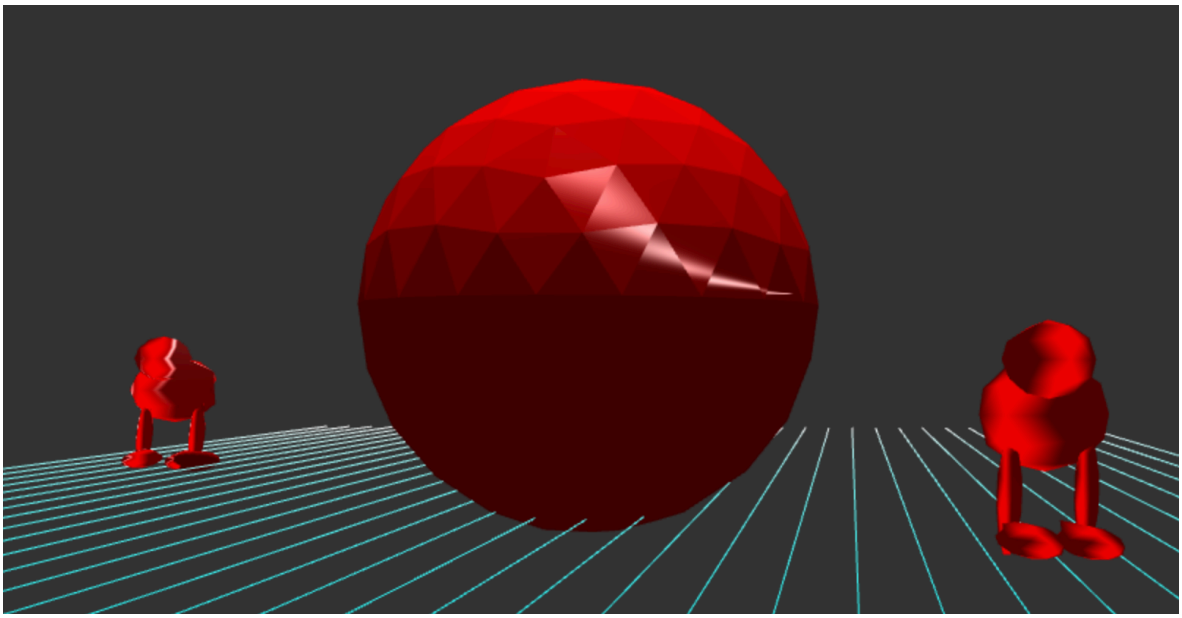
(1) Gouroud shading - with BlinnPhong Lighting



(2) Gouroud shading - with Phong Lighting



(3) Phong shading - with BlinnPhong Lighting



(4) Phong shading - with Phong Lighting