Project 3 – Lighting

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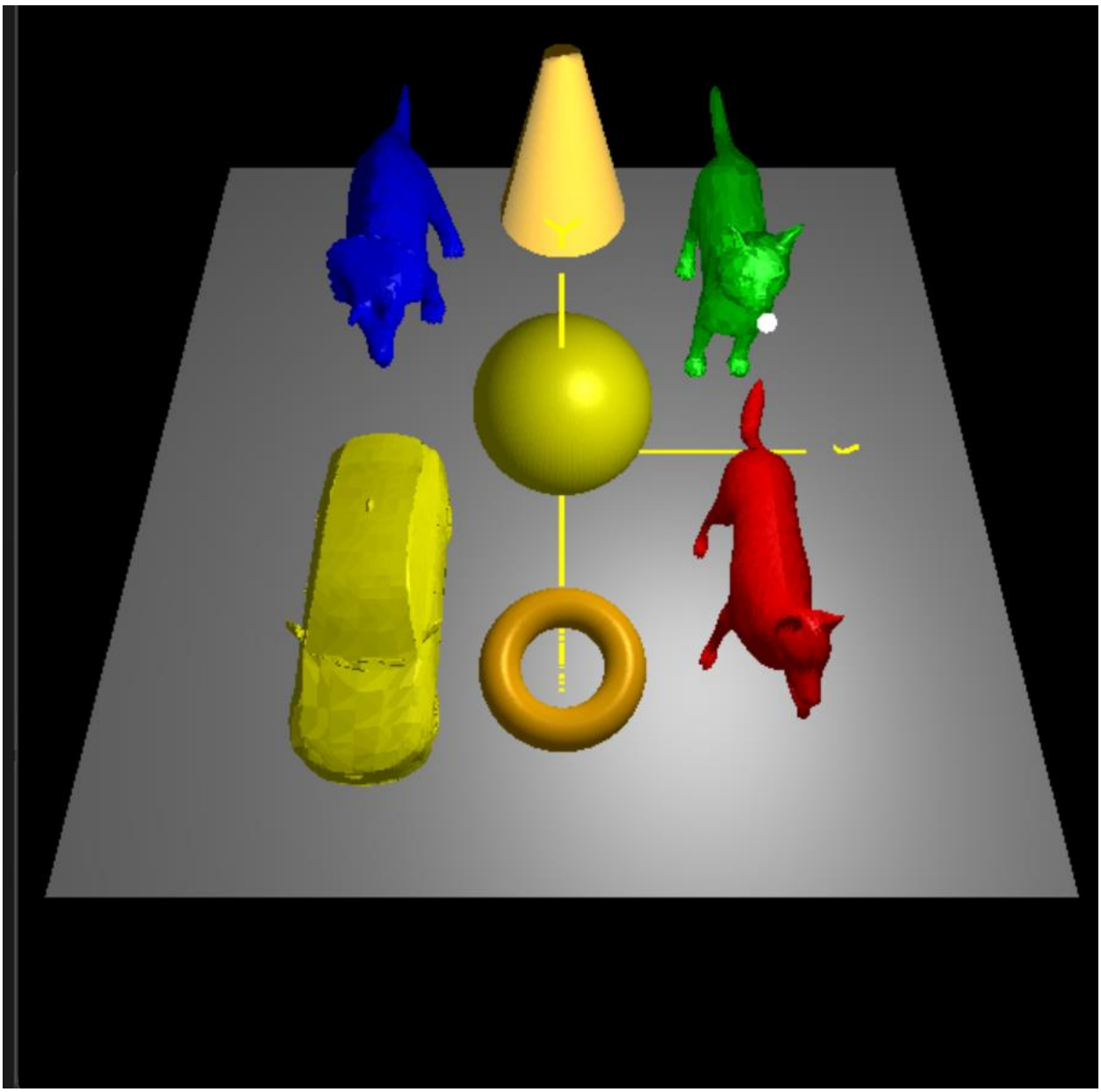
Description:

I used obj files and implemented Lighting functionality on them using different openGL transformations. I listed down the steps accordingly.

1. **Grid Creation**:
    - I started the project by creating a base grid using code from the website. I formed the grid by using 1000 points in both the X and Z planes, resulting in a grid with a side length of 5.
2. **Light Source Creation:**
    - I enabled lighting in the Display function. Then, I used SetPointLight and SetSpotLight functions from "setlight.cpp" to position the light accordingly.
3. **Creating a Moving Light Source:**
    - I translated the OSU Sphere according to the light source and applied y-axis rotation using Time so that the light moves in a circle.
4. **Rendering OBJ files:**
    - In the InitLists function, the OBJ files are rendered and transformed using OpenGL to ensure objects are on separate planes. Also, the level of shininess and material color is individually set for each object using the SetMaterial function.
5. **Adjust Viewpoint:**
    - Improved the view by changing the eye position to **13** on the Z-axis and **8** on the Y-axis.
6. **Assigning Colors and Keyboard functionalities:**
    - Colors are assigned based on keyboard keys and the light source and blob colors change accordingly. Keys are also defined for switching between point and spotlight.
        1. ‘w / W’ - Turns the light source color to white.
        2. 'r / R' - Turn the light source color to red.
        3. 'g / G' - Turns the light source color to green.
        4. 'b / B' - Turns the light source color to blue.
        5. 'y / Y' - Turns the light source color to yellow.
        6. 'p / P' – Will make the light source a point light.
        7. 's / S' – will make the light source a spotlight.
        8. 'f / F' - Freezes/Unfreezes the animation



Kaltura Video Link: https://media.oregonstate.edu/media/t/1_hbm86nhr