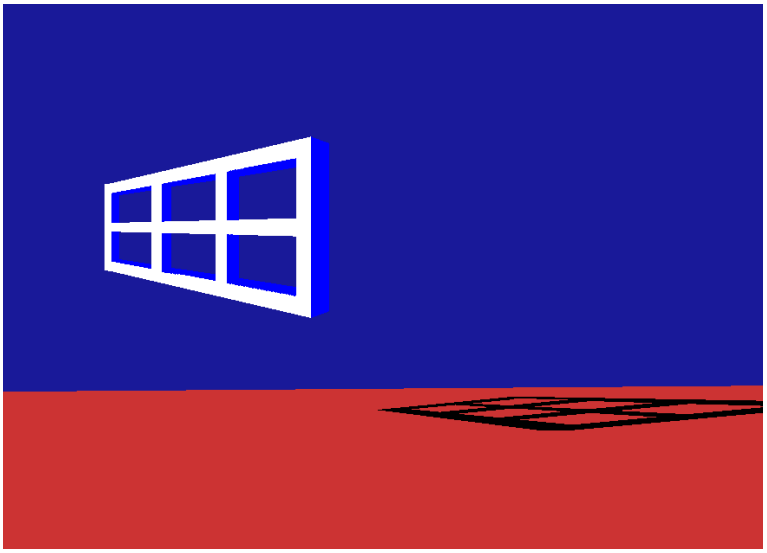
COSC363:
Computer Graphics Assignment 1
Optical Illusions Art Gallery

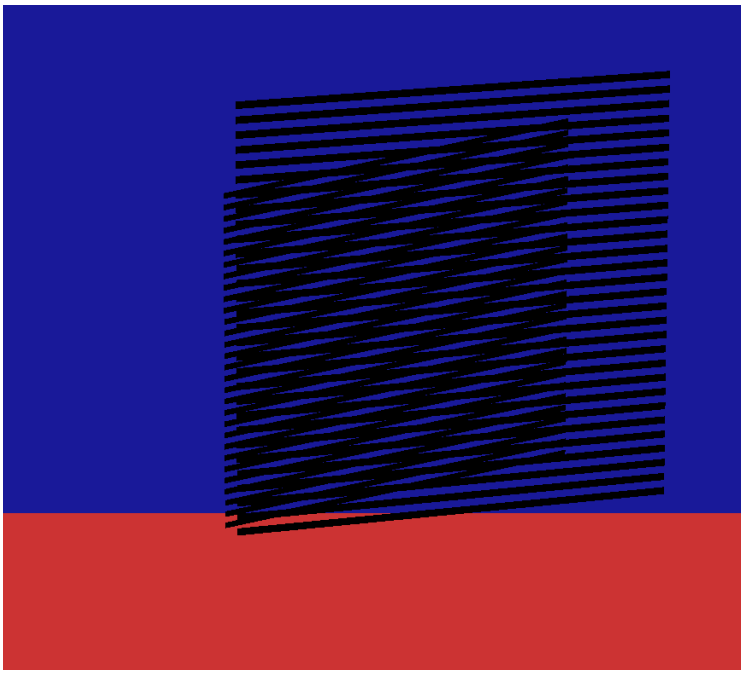
AA01:AmesWindow

The first model is the Ames window illusion. The Ames window creates an optical illusion that the window is turning back and forth when it is actually spinning around 360 degrees.



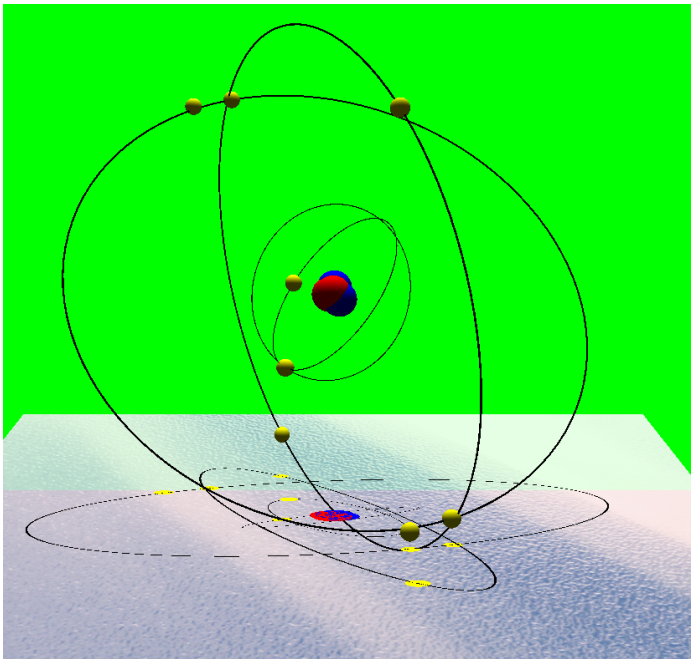
AA02:Moire Pattern illusion

The second concept is the Moire Pattern illusion, which is created by two simple horizontal line models. When one is rotating, the viewer gets an illusion of shapes and diagonal lines being built.



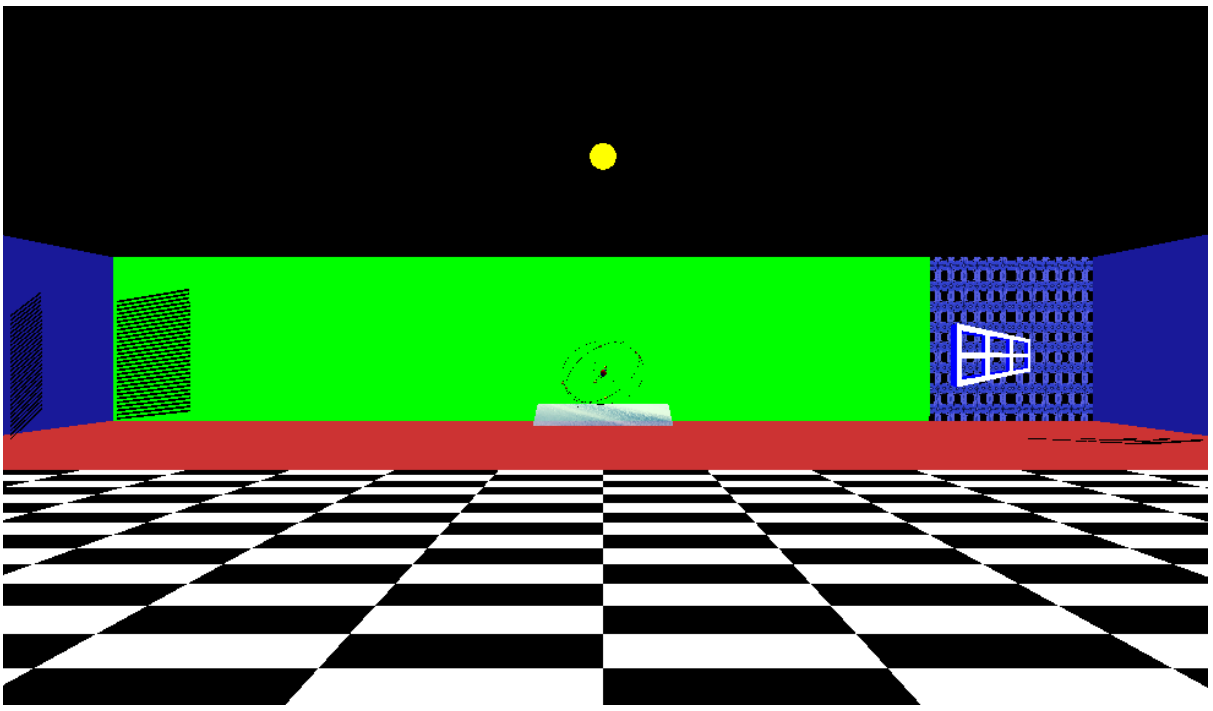
AA03: Atom(Oxygen Element)

The third model is an atom, which has a nucleus made up of protons (blue) and neutrons (red). It also has electrons, with each one being on their state level (2 on the first state, 6 on the second state). The electrons move around the nucleus at a faster pace.

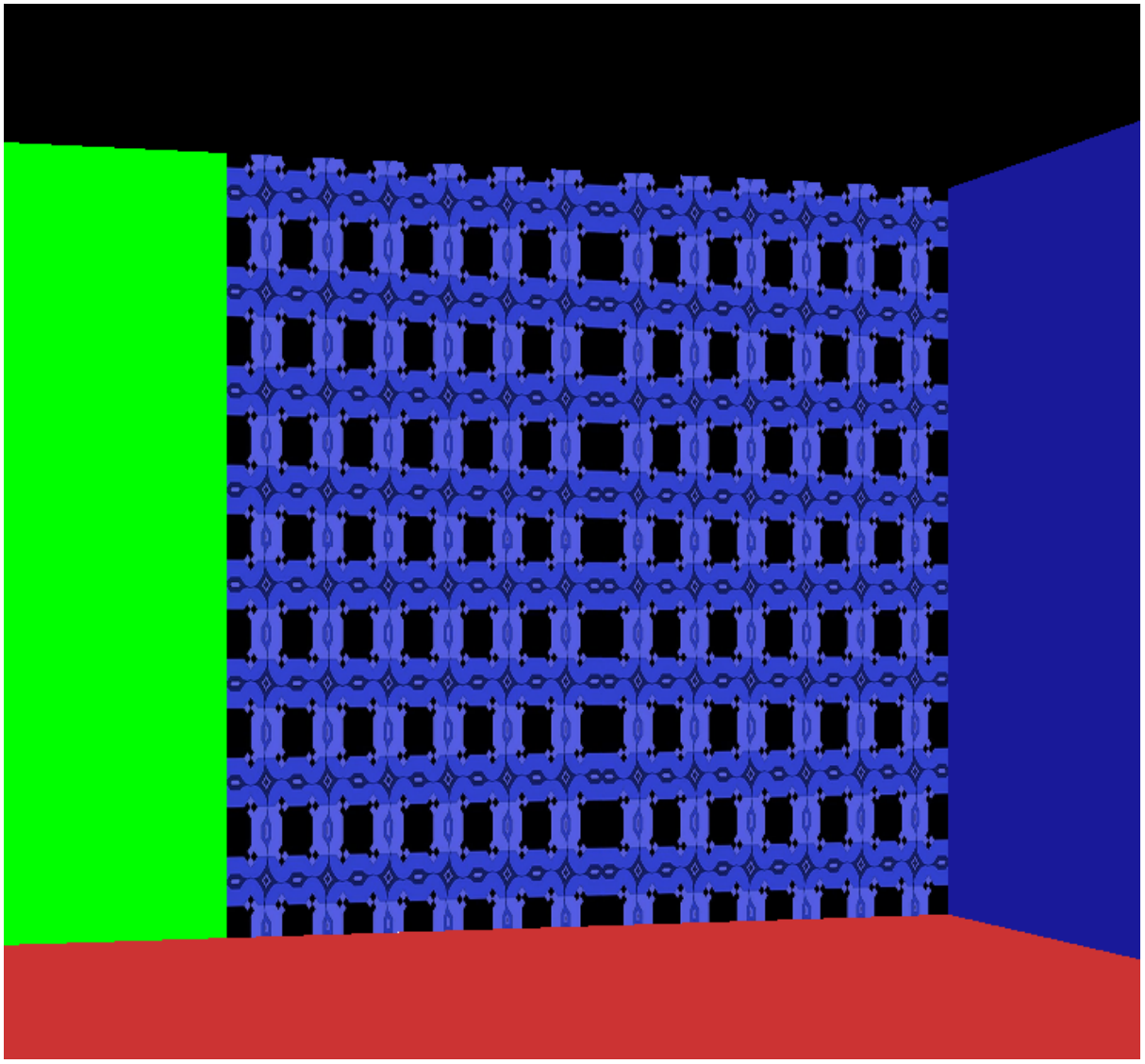


Gallery

The gallery contains the three models in a room closed by a green front wall and two blue side walls, with a red floor. There is also an object (sun) to show the light source. The light source casts a shadow on the Ames window, and there is also a mirror that shows the reflection of the atom.



There's also an optical wall that gives the illusion that the horizontal lines are not parallel when in fact it is!.



Features include a light source (the sun), a shadow cast by the Ames window based on the position of the light source, and a reflection of the atom in a mirror also based on the position of the light source.

Thee
Control functions include a special key function (camera_mov()) for user interaction to look left/right and move forward/backward. The buttons assigned for each interaction are the Left key (user looks toward the left), Right key (user looks toward the right), Up key (user moves forward), and Down key (user moves backward). The user can also switch between scenes by pressing the 0, 1, 2, or 3 keys (0 for gallery view, 1 for Ames window, 2 for atom view, and 3 for Moire illusion).

Build command : Geany

1. Set up the project on Geany by first configuring the build settings using the "Set Build Commands" window under the "Build" tab.
2. Compile with a command g++ Assignment1.cpp.

3. This will compile Assignment1.cpp into an executable file with the default name a.out. Then the program can be run with ./a.out.
4. Finally include the OpenGL (GL), OpenGL Utilities (GLU) and freeglut (glut) libraries: g++ -o program program.cpp-lGL -lGLU -lglut.

References :

https://www.opengl.org/

https://en.wikipedia.org/wiki/Ames_trapezoid

https://media-cldnry.s-nbcnews.com/image/upload/t_social_share_1200x630_center,f_auto,q_auto:best/newscms/2017_32/1274445/optical-illusion-tease-today-170810.jpg

University of canterbury 2023 labs

University of canterbury 2023 lectures

Declaration

I declare that this assignment submission represents my own work (except for allowed material provided in the course), and that ideas or extracts from other sources are properly acknowledged in the report. I have not allowed anyone to copy my work with the intention of passing it off as their own work.

Name : Ismail Sarwari

Student ID :73712637

Date : 31/03/2023