Bangladesh University of Business and Technology (BUBT)

Final Project Report

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Submit To:

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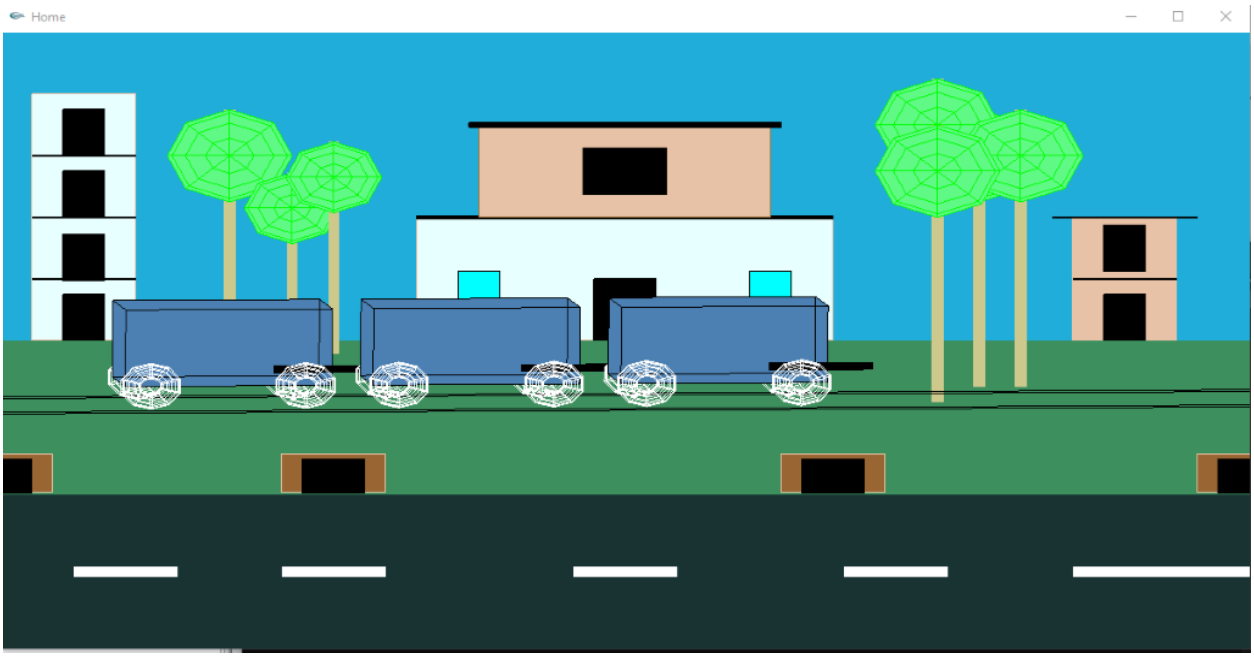
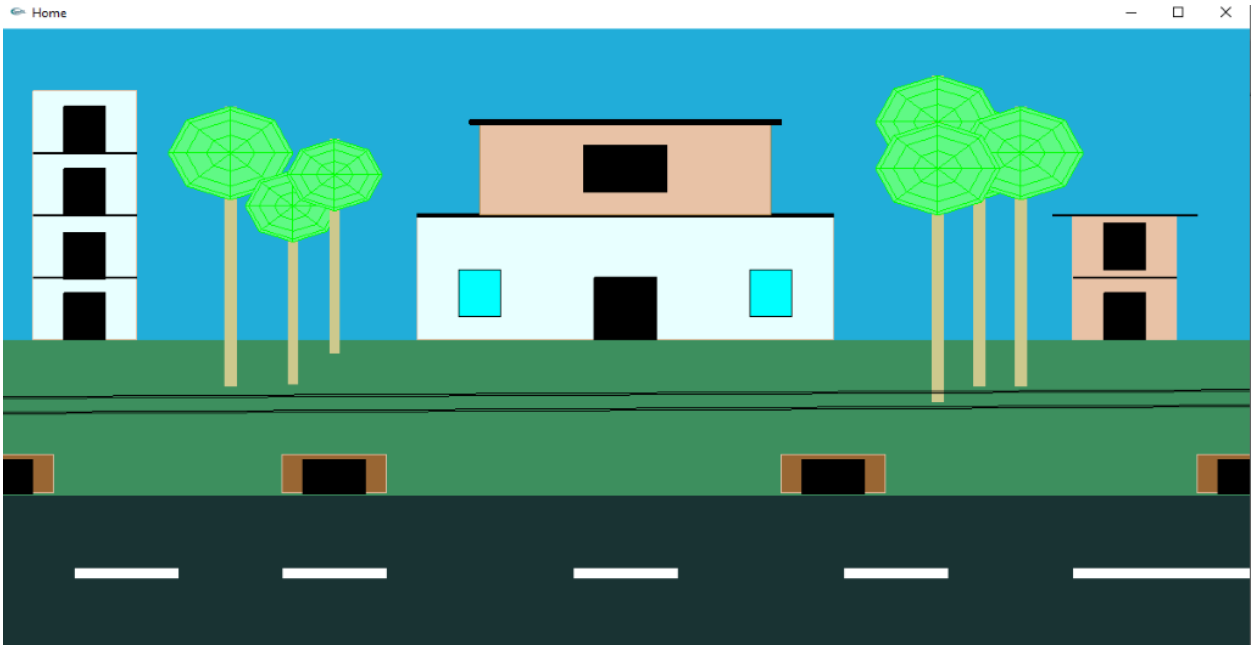
Project Name: Home Town Scenario

Layout: 01



Layout: 02



Short Brief How To Works:

Hometown is a small city. It is both traditional and modern, and at the same time it is starting to be developed with increasing number of infrastructures and establishments. Hence we are going to see a program in OpenGL that implements Hometown in C++ programming with OpenGL .

Tools Required:

- CodeBlocks
- OpenGL and GLUT using CodeBlocks.
- Windows or Mac/others Machine

Expected Skills:

- knowledge about C/C++ programming
- Clear idea about OpenGL

Home Town OPENGL:

This Project we show you a small area of Home town. where has three small and big building, some trees and a rail line with live train animation, and front side has a beautiful Highway which those side have some sitting place for public.

Home Town Scenario Object List:

- Three Building
- Train
- Railway track
- Side sit bench
- Small and big tree
- Highway
- Grass
- Sky

OPENGL C++ PROGRAM Implementation:

This program implements with CPP programming language with windows machine.

1. **Init function** - this initializes the opengl program.

2. **(Revolution) in Home Town OPENGL:**

3. Main function - this is the must and common program for each and every opengl program.

It is also a display function which is called from the main function which is responsible for sending graphics to the display window.

OpenGL program for Hometown Animation (Revolution) in C++

#include <GL/glut.h>

First of all, we are including library of utilities for **OpenGL** programs which primarily perform system-level I/O with the host operating system. Functions performed **include** window definition, window control, and monitoring of keyboard and mouse input.

- **#include <GL/gl.h>**

We also included the GLUT header, which is guaranteed to include "glu.h" (for GL Utility) and "gl.h" (for Core OpenGL).

- **#include<windows.h>**

The header "windows.h" is needed for the Windows platform only.

Some Function Use to Help us Implement This Program

void home ()

Initialize OpenGL Graphics

glPushMatrix();

OpenGL keeps a stack of matrices to quickly apply and remove transformations.

glColor3f()

glColor3f can be called in between glBegin and glEnd. When it is used this way, it can be used to give each vertex its own color.

glTranslated()

The **glTranslated** function produces the translation specified by (x, y, z). The translation vector is used to compute a 4x4 translation

glRotated()

The **glRotated** function computes a matrix that performs a counterclockwise rotation of *angle* degrees about the vector from the origin through the point (*x*, *y*, *z*).

glPopMatrix();

The **glPushMatrix** and **glPopMatrix** functions push and pop the current matrix stack.

glRotated()

The **glScaled** and **glScalef** functions multiply the current matrix by a general scaling matrix.

/* Main function: GLUT runs as a console application starting at main() */

int main(int argc,char argv)** {

glutInit(&argc,argv); // Initialize GLUT

glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGBA); // inits display mode allows for display on the double buffer window, shows color (Red, green, blue) and an alpha

glutInitWindowPosition (10,10); // Position the window's initial top-left corner

glutInitWindowSize (1200,600); // Set the window's initial width & height

glutCreateWindow("Home");

glutDisplayFunc(renderScene); // callbacks for main window

glutIdleFunc (renderScene);

glClearColor(1,1,1,1);

glutMainLoop(); // Enter the event-processing loop

return 0;

}

And last Implement This Program and Pop up window give us a beautiful Home Town View Animation which animation we can use gaming or others commercial purpose.

Thanks