UTM

UNIVERSITI TEKNOLOGI MALAYSIA

SECV2213 FUNDAMENTAL OF COMPUTER GRAPHICS (SECTION 01)

LAB EXERCISE 5

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Coding :
https://github.com/nurainabalqis/Lab-Exercise-5-Fundamental-Of-Computer-Grafics
[Click the link to view the coding on GitHub]

Output :
https://youtu.be/N_TC13wdNU8
[Click the link to view the output]

Reflection :

In this project, I created a textured 3D cube using OpenGL and enhanced it with interactive features to make the experience more engaging for users. Based on what I've learned in previous classes, especially those covering user interaction, multimedia integration, and basic animation, I was able to combine those concepts into a cohesive program. The core of the program involves rendering a cube where each face is mapped with a different texture using BMP images. I utilized glTexImage2D() and custom texture loading functions to handle this.

To make the cube interactive, I implemented keyboard controls that allow users to rotate the cube along the X or Y axis by pressing the 'x' or 'y' keys. This is handled using simple boolean flags (rotateX, rotateY) that control the rotation angles in the update() function, which is continuously triggered using glutTimerFunc() for smooth animation.

In addition, I added on-screen text instructions using renderBitmap() to guide users, making it clear how to interact with the cube. This was done using bitmap fonts and orthographic projection to position the text overlay properly without affecting the 3D rendering. Another highlight of the program is the integration of background music using PlaySound() from the Windows API. Users can toggle the audio on or off with a mouse click, adding an extra layer of interactivity and fun. For instance, clicking the left mouse button plays or stops the "Conan Detective" theme, creating a lively atmosphere that makes the program feel more dynamic and less static.

Overall, this project reflects my ability to combine texture mapping, lighting, animation, user input, and sound skills I've gained progressively from previous assignments and class exercises. I really enjoyed seeing how these components come together to create something interactive and visually appealing.