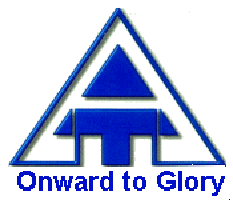
**COMPUTER GRAPHICS MINI PROJECT REPORT**

TRAFFIC SIGNAL SIMULATION USING GRAPHIC API



**ARMY INSTITUTE OF TECHNOLOGY**

**(DEPARTMENT OF COMPUTER ENGINEERING**

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SUBMITTED BY :-

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* **Software and Hardware Requirement**:-

Linux based OS , g++ compiler , IDE (gedit), Opengl library

The project is about creating a traffic light simulation using opengl graphic API. Open Graphics Library (OpenGL) is a cross-language, cross-platform application programming interface (API) for rendering 2D and 3D vector graphics. The API is typically used to interact with a graphics processing unit (GPU), to achieve hardware-accelerated rendering.

* **Major OpenGl function used :-**

**1.For fonts** –

1.1 - glutBitmapCharacter(GLUT\_BITMAP\_TIMES\_ROMAN\_10, \*c) which takes as an argument the font type and the character to be displayed. The font type can be one of the following fonts like GLUT\_BITMAP\_8\_BY\_13

GLUT\_BITMAP\_9\_BY\_15

GLUT\_BITMAP\_TIMES\_ROMAN\_10

1.2- void glRasterPos2f(float x, float y) : When you draw a text you have to define “Where” it will be drawn, the following functions are responsible for this role

**2.Matrix**-

2.1 - glTranslatef( tx, ty, tz ): shift moving an object to a different position on screen

2.2 - glRotatef (A, x, y, z) : To rotate matrix at x,y,z by angle A.

2.3 - glScalef(float x, float y, float z) : Zooming in and out across different axes.

**3.Others**

3.1 – glutSwapBuffers (void ) : glutSwapBuffers swaps the buffers of the current window if double buffered.

3.2 - void glPushMatrix(void) :It pushes the current matrix stack down by one, duplicating the current matrix. That is, after a glPushMatrix call, the matrix on top of the stack is identical to the one below it.

Snapshots:-

A screenshot of a cell phone

Description automatically generated

A screen shot of a computer

Description automatically generated