Lab Report – 3

Course Code : CSE 412

Course Title : Computer Graphics Lab

Experiment No : 03

Experiment Name : Implementation of DDA Line Drawing Algorithm

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Lab Report-03

Implementation of DDA Line Drawing Algorithm

Title: Drawing a Line Using DDA Algorithm in OpenGL

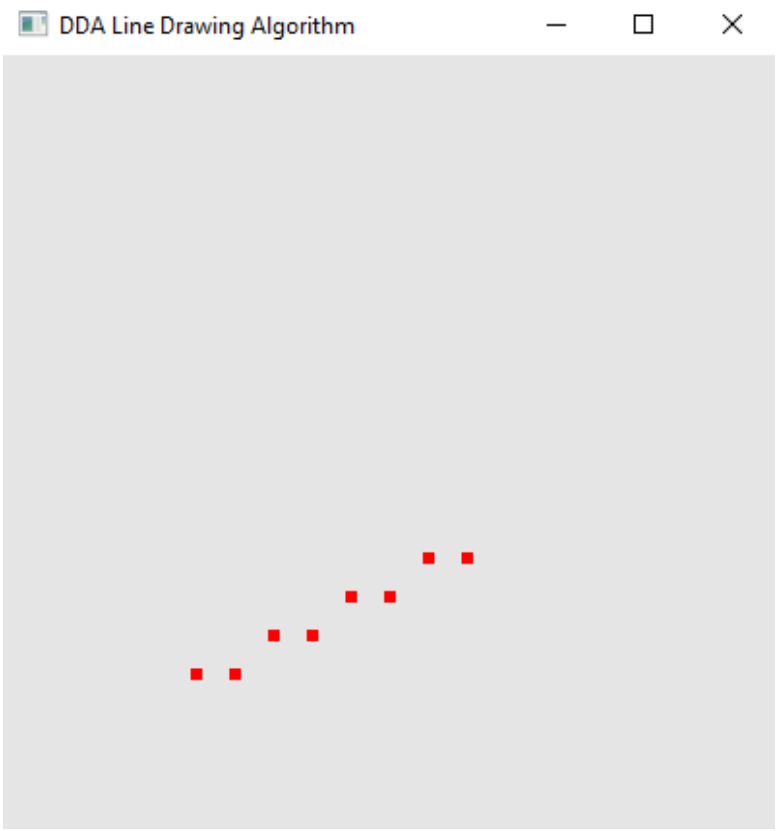
Introduction:

In this project, a line is drawn using the DDA (Digital Differential Analyzer) algorithm. The algorithm creates a line by plotting points between two coordinates.

Contents:

- **Functions Used:** `drawLineDDA(), glVertex2i(), glBegin(), glColor3f()`
- **Shape Used: Line (using DDA algorithm)**

Graph:



Draw X and Y axis. Mark two points (5,4) and (12,7). Join them with a straight line.

Code (Drawing Portion Only):

```
   void drawLineDDA(float x1, float y1, float x2, float y2)
{
    float dx = x2 - x1;
    float dy = y2 - y1;
    float steps = abs(dx) > abs(dy) ? abs(dx) : abs(dy);

    float xInc = dx / steps;
    float yInc = dy / steps;

    float x = x1;
    float y = y1;

    glBegin(GL_POINTS);
    for (int i = 0; i <= steps; i++)
    {
        glVertex2i(round(x), round(y));
        x += xInc;
        y += yInc;
    }
    glEnd();
}
```

Discussion:

The task was to draw a line using the DDA algorithm. I solved this by calculating small steps between two points and plotting them one by one.