Name - Ameya Barapatre DS
Roll No - 06

SARASWATI Education Society's
SARASWATI College of Engineering

PAGE NO. :
DATE :

Experiment No. 1

10

Aim : To implement DDA algorithm for drawing a line segment between two given end points (x_1, y_1) and (x_2, y_2).

Theory :

To any 2-D plane if we have two points (x_1, y_1) and (x_2, y_2) we get a line segment.
But in case of computer graphics we cannot directly join any two coordinates points for that we should calculate intermediate point coordinates and put pixel for each intermediate point of the desired colour with the help of function like put pixel (x_1, y_1) in C, where (x_1, y_1) is our co-ordinate and K denotes same colour.

For using graphic functions, our system output screen is treated as a co-ordinate of the top left corner is (0,0) and as we move down our y-coordinate increases as we move right our x co-ordinate.

Now for geneating any line segment we need intermediate points and for calculating them we can use a basic Algorithm.

→ Algorithm

Step 1: Read the line on points (x_1, y_1) and (x_2, y_2).

Step 2: Calculate $\Delta x = x_2 - x_1$
$\Delta y = y_2 - y_1$

Step 3: If $(\Delta x > \Delta y)$
then steps = Δx
else steps = Δy

Step 4: $x\ inc = \frac{\Delta x}{steps}$

$y\ inc = \frac{\Delta y}{steps}$

Step 5: $x = x_1 + 0.5 * sign(\Delta x)$
$y = y_1 + 0.5 * sign(\Delta y)$

Step 6: Now plot the points
for (i = 1; i <= steps; i++)
{
Plot (integer x, integer y)
x = x + x inc.
y = y + y inc.

→ Conclusion: Thus we have implemented a program to understand DDA algorithm.