Assignment - 4

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Texture mapping has been implemented using bilinear interpolation. In bilinear interpolation we have to find out the (R,G,B) values of the pixel in the mapping texture from the image.

Bilinear interpolation is an extension of linear interpolation for interpolating functions of two variables (e.g., x and y) on a rectilinear 2D grid. The key idea is to perform linear interpolation first in one direction, and then again in the other direction.

For the A-section of this assignment

Run

1. make
2. ./texture <filename of the bmp file/>

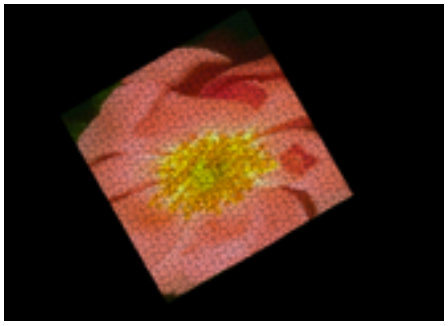
Midpoint of the mapping texture surface can be changed in both X and Y using the following keys:

Midpoint shift right : Press ‘x’
Midpoint shift left : Press ‘X’

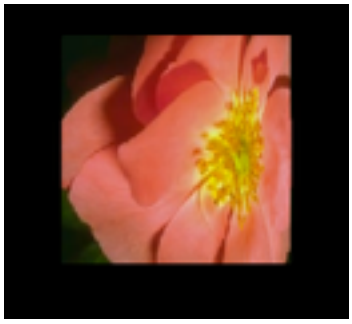
Midpoint shift down : Press ‘y’
Midpoint shift up : Press ‘Y’

Rotate the object with Z axis : ‘R’

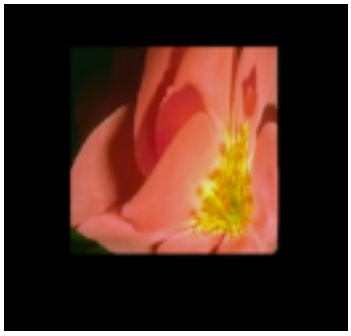
ORIGINAL MAPPING OF TEXTURE ON SURFACE



Rotate the Image (Z-axis)



Midpoint shifted towards X



X and Y deformation

2. The second part of the assignment is loading a 3D object by reading the points from .obj file. I am loading the teapot.obj file from the folder and forming triangles using ‘V’ and ‘F’ co-ordinates and plotting the triangles on the screen to form the 3-D object.

Run:

1. make
2. ./object

The object can be rotated and zoom and zoom out operations can be performed on the objects by using following hot keys

ROTATE THE OBJECT : ‘r’
ZOOM IN : ‘z’
ZOOM OUT : ‘x’