**Computer graphics**

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정유석

**Homework 1 : Render 2D image in 3D space**

***CODE***

// Prog10: image in 3D (HW #1)

// #include "stdafx.h"

#include <stdio.h>

#include <gl/glut.h>

#include <math.h>

#include <time.h>

static GLfloat theta, gradient;

static int delay = 20;

unsigned char pixel[240][416];

void init()

{

glClearColor( 1.0, 1.0, 1.0, 1.0 );

glColor3f ( 1.0, 0.0, 0.0 );

glPointSize(8);

glOrtho ( 0.0, 416.0, 0.0, 240.0, -500.0, 500.0);

glEnable ( GL\_DEPTH\_TEST );

theta = 0, gradient = 5;

}

void display()

{

int x, y;

glClear( GL\_COLOR\_BUFFER\_BIT | GL\_DEPTH\_BUFFER\_BIT );

glBegin( GL\_POINTS );

for(y=0; y<240; y++ )

{

for(x=0; x<416; x++)

{

glColor3f( pixel[y][x]/255.0, pixel[y][x]/255.0, pixel[y][x]/255.0);

glVertex3f(x \* cos(theta\*(3.14) / 180), 239-y, x \* sin(theta\*(3.14) / 180));

}

}

if(theta < 0 || theta > 80)

gradient \*= -1;

theta += gradient;

glEnd();

glFlush();

}

void timer(int t)

{

glutPostRedisplay();

glutTimerFunc(delay, timer, t);

}

int main(int argc, char\* argv[])

{

FILE\* myFile = fopen("testo.y", "rb");

if(myFile == NULL)

{

printf ("\nFile Could Not Be Opened");

exit(-1);

}

fread(pixel, 240\*416, 1, myFile);

fclose(myFile);

glutInit( &argc, (char\*\*)argv );

glutInitDisplayMode( GLUT\_SINGLE | GLUT\_RGB | GLUT\_DEPTH );

glutInitWindowSize( 500, 500 );

glutCreateWindow("Prog10: image in 3D");

glutDisplayFunc(display);

glutTimerFunc(delay, timer, 0);

init();

glutMainLoop();

return 0;

}

***Display***

 