9) Write a program to model a car like figure using display lists and move a car from one end of the screen to other end. User is able to control the speed with mouse.

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| --- |
| #include<GL/glut.h> |
|  | #include<math.h> |
|  | #include<stdio.h> |
|  | #define CAR 1 |
|  | #define WHEEL 2 |
|  | float s = 1; |
|  | void carlist() { |
|  |  |
|  | glNewList(CAR, GL\_COMPILE); |
|  | glColor3f(1, 1, 1); |
|  | glBegin(GL\_POLYGON); |
|  | glVertex3f(0, 25, 0); |
|  | glVertex3f(90, 25, 0); |
|  | glVertex3f(90, 55, 0); |
|  | glVertex3f(80, 55, 0); |
|  | glVertex3f(20, 75, 0); |
|  | glVertex3f(0, 55, 0); |
|  | glEnd(); |
|  | glEndList(); |
|  |  |
|  | } |
|  | void wheellist() { |
|  | glNewList(WHEEL, GL\_COMPILE\_AND\_EXECUTE); |
|  | glColor3f(0, 1, 1); |
|  | glutSolidSphere(10, 25, 25); |
|  | glEndList(); |
|  | } |
|  | void mykeyboard(unsigned char key, int x, int y) { |
|  | switch (key) { |
|  | case 't': glutPostRedisplay(); |
|  | break; |
|  | case 'q': exit(0); |
|  | default: break; |
|  |  |
|  | } |
|  | } |
|  |  |
|  | void myInit() { |
|  | glClearColor(0, 0, 0, 0); |
|  | glOrtho(0, 600, 0, 600, 0, 600); |
|  |  |
|  | } |
|  | void draw\_wheel() { |
|  | glColor3f(0, 1, 1); |
|  | glutSolidSphere(10, 25, 25); |
|  |  |
|  | } |
|  |  |
|  | void moveCar(float s) { |
|  | glTranslatef(s, 0.0, 0.0); |
|  | glCallList(CAR); |
|  | glPushMatrix(); |
|  | glTranslatef(25, 25, 0.0); //move to first wheel position |
|  | //draw\_wheel(); |
|  | glCallList(WHEEL); |
|  | glPopMatrix(); |
|  | glPushMatrix(); |
|  | glTranslatef(75, 25, 0.0); //move to 2nd wheel position |
|  | ////draw\_wheel(); |
|  | glCallList(WHEEL); |
|  | glPopMatrix(); |
|  | glFlush(); |
|  | } |
|  | void myDisp() { |
|  | glClear(GL\_COLOR\_BUFFER\_BIT); |
|  | carlist(); |
|  | moveCar(s); |
|  | wheellist(); |
|  |  |
|  | } |
|  | void mouse(int btn, int state, int x, int y) { |
|  | if (btn == GLUT\_LEFT\_BUTTON && state == GLUT\_DOWN) { |
|  | s += 5; |
|  | myDisp(); |
|  | } |
|  | else if (btn == GLUT\_RIGHT\_BUTTON && state == GLUT\_DOWN) { |
|  | s += 2; |
|  | myDisp(); |
|  | } |
|  | } |
|  |  |
|  |  |
|  | int main(int argc, char\* argv[]) { |
|  | glutInit(&argc, argv); |
|  | glutInitDisplayMode(GLUT\_SINGLE | GLUT\_RGB); |
|  | glutInitWindowSize(600, 500); |
|  | glutInitWindowPosition(100, 100); |
|  | glutCreateWindow("car"); |
|  | myInit(); |
|  | glutDisplayFunc(myDisp); |
|  | glutMouseFunc(mouse); |
|  | glutKeyboardFunc(mykeyboard); |
|  | glutMainLoop(); |
|  | } |

