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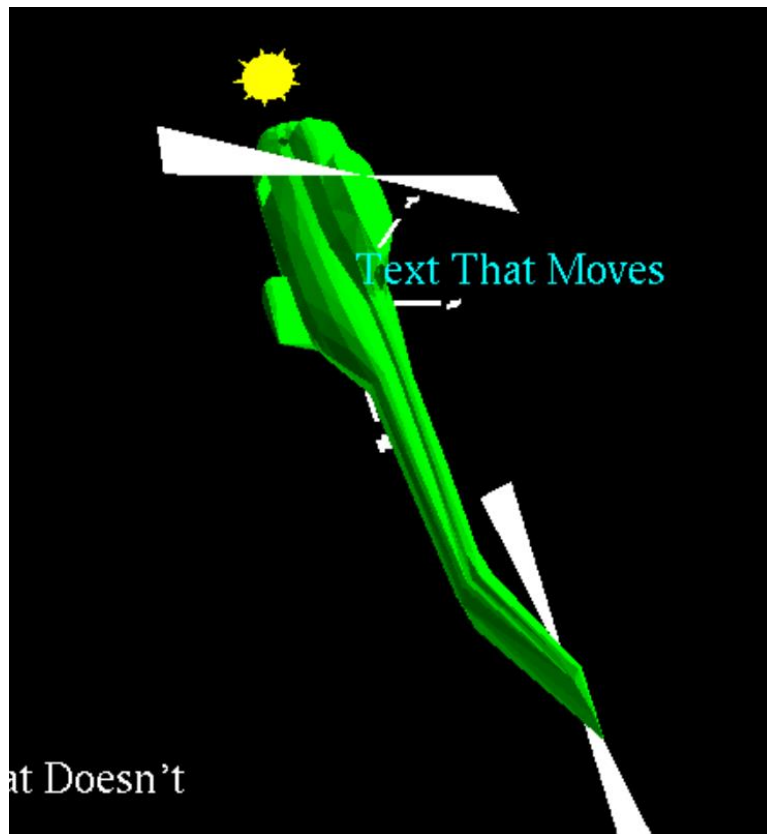
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Project #2

Animate a Helicopter!

Aim to the sun!

#1 Correctly draw the helicopter body



#2 Correctly scale the blades

#3 Correctly position the blades

```
glMatrixMode(GL_MODELVIEW);
glLoadIdentity();

// set the eye position, look-at position, and up-vector:
if (WhichView == 0)
    gluLookAt(0., 0., 3., 0., 0., 0., 0., 1., 0.);
else if (WhichView == 1)
    gluLookAt(-0.4, 1.8, -4.9, -0.4, 1.8, -10., 0., 1., 0.);

// rotate the scene:
```

```
#define BLADE_RADIUS      5.0
#define BLADE_WIDTH      1.5
```

```
// draw the helicopter blade with radius BLADE_RADIUS and
// width BLADE_WIDTH centered at (0.,0.,0.) in the XY plane
```

```
glColor3f(1., 1., 1.);
glBegin(GL_TRIANGLES);
glVertex3f(BLADE_RADIUS, 2.9, (BLADE_WIDTH / 2. - 2.));
glVertex3f(0., 2.9, -2.);
glVertex3f(BLADE_RADIUS, 2.9, (-BLADE_WIDTH / 2. - 2.));

glVertex3f(-BLADE_RADIUS, 2.9, (-BLADE_WIDTH / 2. - 2.));
glVertex3f(0., 2.9, -2.);
glVertex3f(-BLADE_RADIUS, 2.9, (BLADE_WIDTH / 2. - 2.));
glEnd();
```

```
// rear blades:
```

```
#define BLADE_RADIUS_R    3.0
#define BLADE_WIDTH_R    1.0
```

```
// draw the helicopter blade with radius BLADE_RADIUS and
// width BLADE_WIDTH centered at (0.,0.,0.) in the XY plane
```

```
glColor3f(1., 1., 1.);
glBegin(GL_TRIANGLES);
glVertex3f(.5, BLADE_WIDTH_R / 2. + 2.5, 9. + BLADE_RADIUS_R);
glVertex3f(.5, 2.5, 9.);
glVertex3f(.5, -BLADE_WIDTH_R / 2. + 2.5, 9. + BLADE_RADIUS_R);

glVertex3f(.5, -BLADE_WIDTH_R / 2. + 2.5, 9. - BLADE_RADIUS_R);
glVertex3f(.5, 2.5, 9.);
glVertex3f(.5, BLADE_WIDTH_R / 2. + 2.5, 9. - BLADE_RADIUS_R);
glEnd();
```

#4 Correctly rotate the blades

I don't remember how to do that, I only find this slide about the `Animate()`.

When I google it, I couldn't find a good example for it. Although I had tried some methods, like change the coordinates of $x's'$, $y's'$ and $z's'$ with the Time under for loops. But I failed.

So, I haven't completed this mission.

The *Animate* Idle Callback Function

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The Idle Function gets called when the GLUT event handler has nothing else to do

```
glutSetWindow( MainWindow );
glutIdleFunc( Animate );
```

Setting it up in `InitGraphics()`

We'll talk about this later. This is a good way to control your animations!


```
void
Animate( )
{
    // put animation stuff in here -- change some global variables
    // for Display( ) to find:

    int ms = glutGet( GLUT_ELAPSED_TIME ); // milliseconds
    ms %= MS_IN_THE_ANIMATION_CYCLE;
    Time = (float)ms / (float)MS_IN_THE_ANIMATION_CYCLE; // [ 0., 1. )

    // force GLUT to do a call to Display( ) next time it is convenient:

    glutSetWindow( MainWindow );
    glutPostRedisplay( );
}
```

`glutPostRedisplay()` forces your `Display()` function to be called to redraw the scene with the new display parameter values

 Oregon State University Computer Graphics

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#5 Recognizable Inside View

Unable to use `Xrot`, `Yrot`, and `Scale` in the Inside View

