COMP 465

Fall 2013

Warbird simulation project.

**Team members** Ian Graham

Shawn Jones

Ronen Adam

**Tools used**

Microsoft Visual Studio 2012 was used as the development IDE. Stepping through debug mode was used to troubleshoot run-time errors as well as for checking expected values of variables.

AC3D was used as the 3D modeling application. All models consist of a single surface.

Models were built using primitives such as spheres, cubes, or cylinders as base geometry.

These primitives were primarily extruded and scaled as necessary to achieve the final models.

Images were used as rough guides in the orthographic views for the warbird. Other models were built freehand.

GitHub was used for version control and collaboration.

If this project were to be revisited, separating implementation of game-related and 3D object-related functions in an object-oriented approach would likely make the program easier to modify.

**Code notes**

|  |  |
| --- | --- |
| File | Role |
| *ruberSysemt.cpp* | * 3D objects are initialized by ID in an array of VAOs. * Keyboard commands are processed. * 3D objects are rendered. * Game state is controlled including time quantum. * 3D Camera settings. * Collision detection. |
| *Shape3D.hpp* | * Object properties such scale, translation, and rotation are set according to an object's ID. * Changes to position and orientation of the warbird and missile including warping. * Target detection and firing. |

**Key commands**

|  |  |
| --- | --- |
| Key | Description |
| ***1*** | Prints out the position of each of the missiles and the warbird for debugging purposes. |
| ***q***  or ***Q*** | Exits the program. |
| ***v*** or ***V*** | Switches the world camera view sequentially through  *Front view*, *Top view*, and *Bottom view*. |
| ***p*** or ***P*** | Switches the planet camera views sequentially through  *Unum view* and *Duo view*. |
| ***w*** or ***W*** | Warp the warbird to different locations. Caution: Warping to a planet will trigger an enemy missile launch. Be ready to avoid it. |
| ***f***  or ***F*** | Fires the warbird's missile. |
| ***t*** or ***T*** | Changes the time quantum or game speed. |
| ***g*** or ***G*** | Toggles gravity on and off. |
| ***r***  or ***R*** | Resets missiles and the player's life. |
|  | Warbird controls |
| ***Up arrow*** | Move *forward*. |
| ***Down arrow*** | Move *backwards*. |
| ***Left arrow*** | Rotate *left*. |
| ***Right arrow*** | Rotate *right*. |
| ***CTRL +***  ***Up arrow*** | Tilt *up*. |
| ***CTRL +***  ***Down arrow*** | Tilt *down*. |
| ***CTRL +***  ***Left arrow*** | Roll *left*. |
| ***CTRL +***  ***Right arrow*** | Roll *right*. |