Project C: Otherworldly Orbits

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User Goals:

The goal of this system is for a user to be able to explore the orbits of some planets that are rotating around each other. The user can look around the whole system, move, and watch the planets move. A headlight is attached to the user position and follows the user wherever he/she moves, but there is also a second fixed light. The user can control this with the small form on the side of the page. Some metrics about the user position and light position are displayed as well.

In order to manage this variety of allowed actions, there are a few controls implemented that the viewer may use to control her/his interactions with the system. First, there are the actions associated with actually *moving* around in space. The up key moves the user towards the direction in which the user is currently looking. The down key does the exact opposite, it backs the user up along the direction in which the user is looking. The 'R' key increases the vertical position as well as the vertical look at point, and the 'F' key decreases both these values. This was allowed so that users could easily change their height instead of having to look at an approximate point above/below, moving, then readjusting their view.

The next four controls deal with controlling where the user is looking. The 'W' and 'S' key control the looking up and looking down actions, respectively. These will not change the actual location of the user, merely where the look at point is placed. The 'A' and 'D' key control the turning left and turning right actions, respectively. If held down, these will result in a complete 360^{o} rotation and the user will see the same view where she/he started.

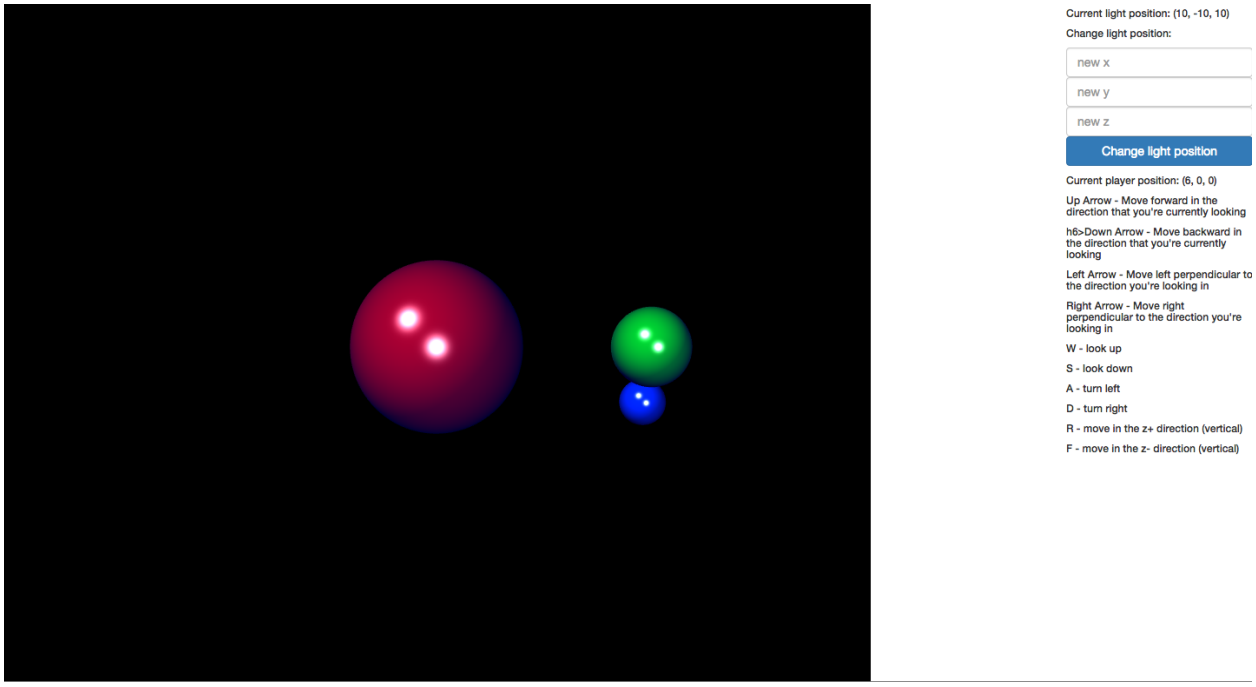

Image 1: A screenshot of the planets in motion.

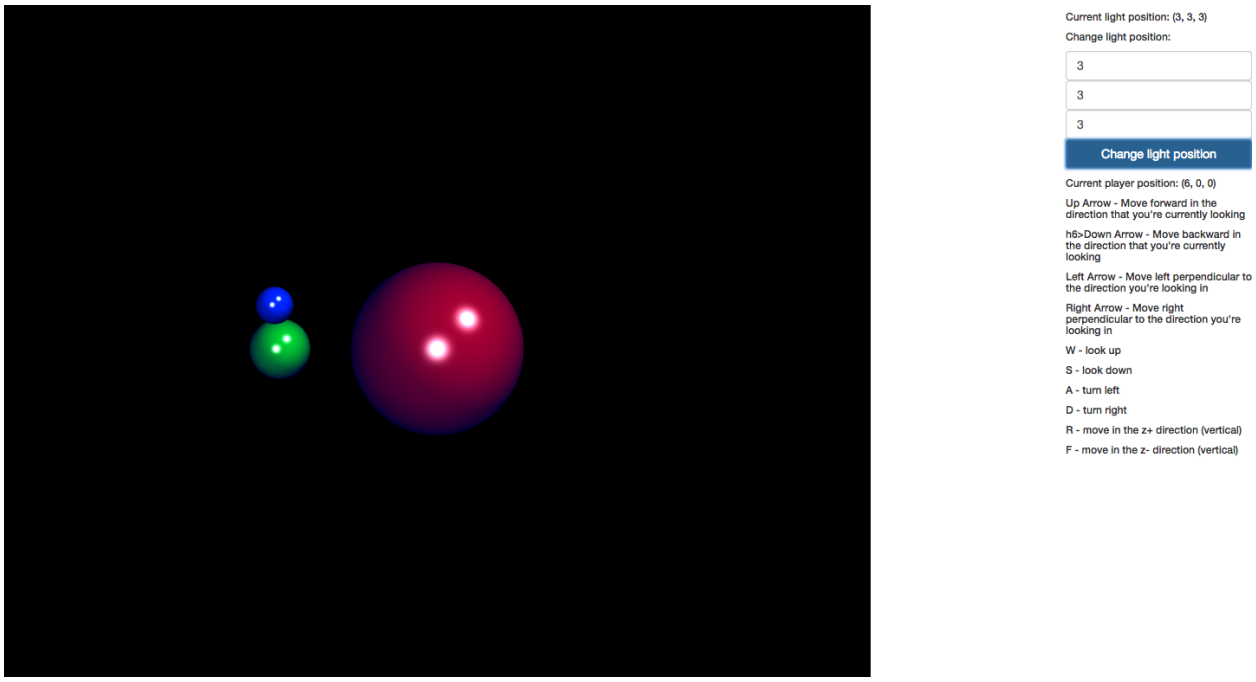

Image 2: An example of a user changing the light position.

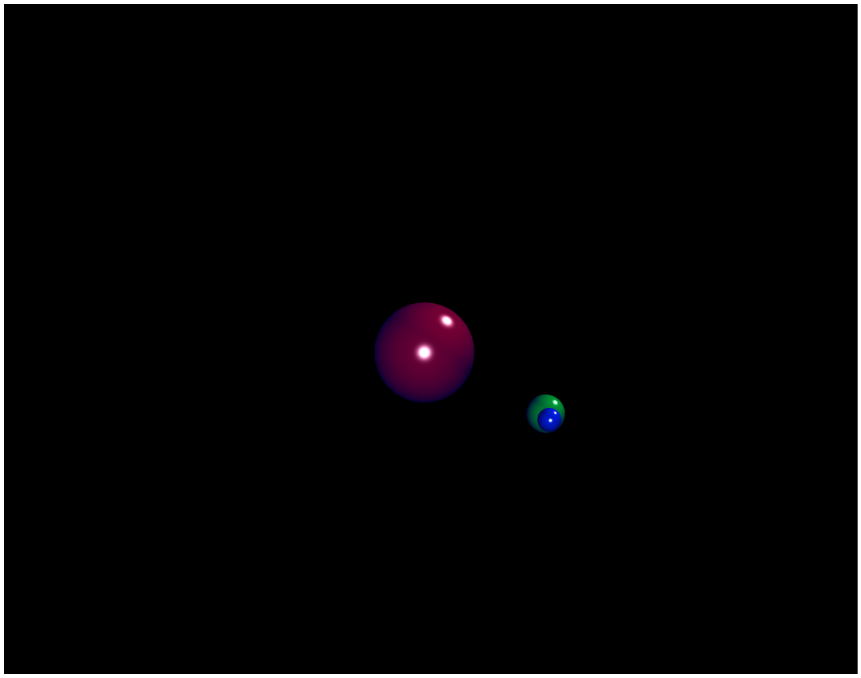

Image 3: A view from underneath the orbits of the planets. Note the user position on the right side.

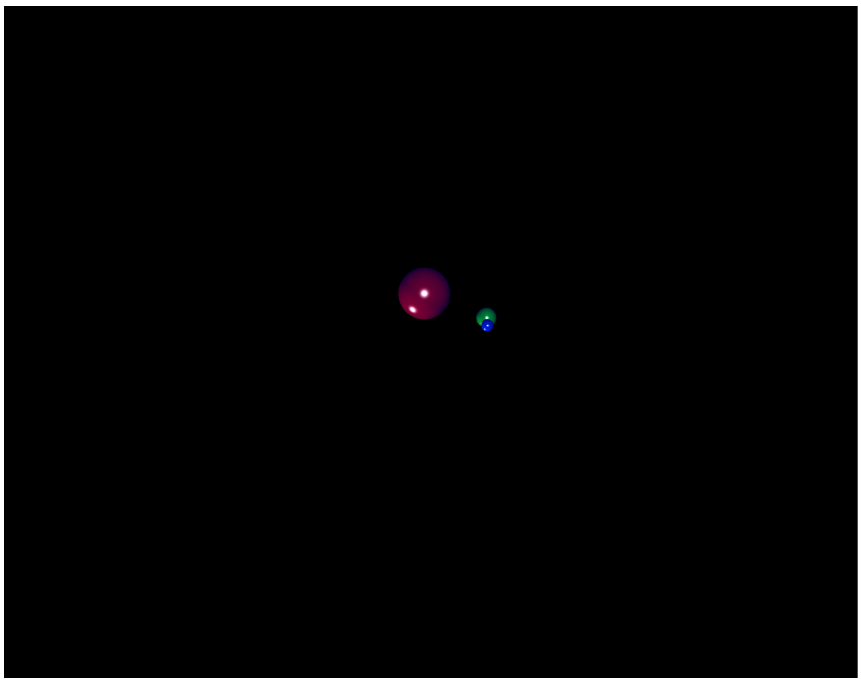

Image 4: changing the light source!