

CSE251: Graphics - Spring 2014:

## Assignment 4: 3D World in WebGL

Intermediate: April 4th, 7 pm. Final: April 14th, 7 pm.

### 1 The Problem

The fourth and last assignment attempts to familiarize you all with the latest technologies used for Graphics on the web. This is called WebGL. WebGL is supported by all modern browsers, is a part of the new HTML5 standards, and uses the client's graphics cards whenever possible, etc. Please read <http://en.wikipedia.org/wiki/WebGL> for a quick intro into WebGL. There is tons of online help available online. Please look at the demo repository [webgl/wiki/DemoRepository](http://www.khronos.org/webgl/wiki/DemoRepository) under <http://www.khronos.org/> too.

The core Graphics concepts of WebGL are same or very similar to OpenGL, but the framework on which to build applications is somewhat different. The TAs will provide all help including samples.

### 2 The World

The graphics contents of this assignment are kept simple and flexible. Create an “interesting” 3D environment consisting of what resembles a simple house, some objects (could be geometric) all around it, etc. Make it as rich as you can afford it. Include textures and lighting to one or more of the objects. Make at least 2 of the objects *animated*. One of them can move on its own and change its colour/appearance periodically in some predetermined fashion. Let the other one be moved using suitable keyboard commands or by clicking and dragging the mouse.

Place a camera that within the scene to navigate it from all around. Assign keys on the keyboard to move the camera around the house and to pan it sideways. Be creative with all these.

### 2.1 Optional

Feel free to include additional objects, animations, textures, etc. to make the world more realistic and rich. Additional interesting camera views may be provided. You should include at least one moving spot light in a dark part of the course, as well as shading effects to understand those in WebGL.

### 3 Submission

You submissions should include all sources (including textures) to make it executable. This is a web-based assignment and hence only standard components can be assumed. You need to include a manual file that describes any additional information that is needed in compiling/executing you code. Do not use any non-standard libraries. It is very important that your manual contains a section on the different techniques you used to create the world. This will be an important factor in deciding your grades.

An intermediate submission is due on April 2nd to ensure you get started early and the final submission is due on April 12th and evaluation will be done soon after that. The intermediate submission should contain a rough sketch of the final assignment.

### 4 Grading

Grading will be done based on the quality of the world created, set of techniques used to create the world (note that this should be part of your manual), and your understanding of the problems and techniques as demonstrated during your evaluation.