Rendering Engine Proposal

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Abstract:
We will be creating a rendering engine for 3D objects coded in Javascript using OpenGL. We will be able to load in a sample 3D object then apply various lighting, shading, and post processing effects to the object. We will then implement four different features from the features list to add additional effects to the 3D object.

Introduction:
As our final project for game engine construction we will create code that read in a 3D object and then apply effects to it such as a decal or shadows.
We will be rendering a 3D object by reading an input file that contains information such as vertices and their relation to each other. Our file format will most likely be .obj as it will be simple to read and implement. The project will need to implement several classes either from scratch or from previous projects we have done. Things like a Camera class and a Coordinate System class have had previous implementations in our past projects we could use. However for things such as the scene graphs and texture classes we would need to code from scratch.

Methods:
We will load obj files into a brows and then apply the features we work on, onto the model. Ovidiu is planning to work on 2 of the following features: decals, camera controls, collision detections, or physics. Nathan will work on Flare and glare effects with Hierarchical view-frustum culling, and Particle systems a backup choice if one of those doesn't work out.

Programming Resources:
If we were to use an external API we would find out during the project as neither of use know of what we would use for the project at the moment. Any API we will use will be written down and presented to the instructor in the final report.

Tools:
The main programming language we will be using is javascript like we have for previous projects. We are choosing this language as it is the programming language that we have the most experience programming OpenGL in, and using javascript allows us to reference our work with previous graphics programming projects.

Plans for communication:

Our main method of communication will be over Discord, a text messaging and voice chat system similar to Skype. We will also be communicating between classes as we share a class everyday so we will be able to have daily progress checks. To keep track of who is working on each feature and our overall progress we will use a project planning and milestone management site called HackNPlan.

References:
No references currently need to be cited