CS 559 Project 2

# Basic Features

1. Basic Ship Mode, Third Person Mars Mode, First Person Mars Mode, Mars with Ship, Starfield

# Bonus Features

1. Object-oriented design
2. Ship Texture – Metal
3. Mars Texture – Black and White Mars image times Color
4. Light converted from Camera Coordinates to World Coordinated so that there is a Dark Side of Mars
5. Advanced Shaders
   1. Added Spotlight that shines on the Dark Side of Mars, adds light together with primary light. Spotlight also diffuses based on distance from the center
   2. Material uniforms (Ka, Ks, Kd, Shininess) – Spotlight only
   3. Advanced Wireframe mode using a Geometry shader, ‘W’ to change line width and thickness
   4. Can manipulate main light source position (move along x, y, z axes)
6. First Person View - Up/Down angle
7. Post Processing Effects
   1. Frame Buffer Object that renders space scenes to texture – final scene viewed

Is texture drawn to screen with various image effects:

* + 1. Normal (no effect – scene as drawn to texture)
    2. Posterization/Cartoon Effect – flattens colors to parameters
    3. “Predator” Mode – samples and mixes colors to create a faked thermal style vision
    4. Faked Chromatic Aberration + Scanlines – offsets color channels + adds in lines, going for the look of slightly off sci-fi style hardware displays
    5. Noise – random noise added to texture in shader based off of texture cords, something like static film grain

1. “Flickering” Starfield
   1. Starfield drawn with points whose sizes are randomly determined inside shader
   2. Stars are stuffed with new colors (within a certain range so the effect is not glaring) each

update (to cheaply simulate some kind of twinkling)

We forgot to sign a Partner Agreement, but we both significantly invested time into this project and agree that the code we created can be used by either of us for any purpose.

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