

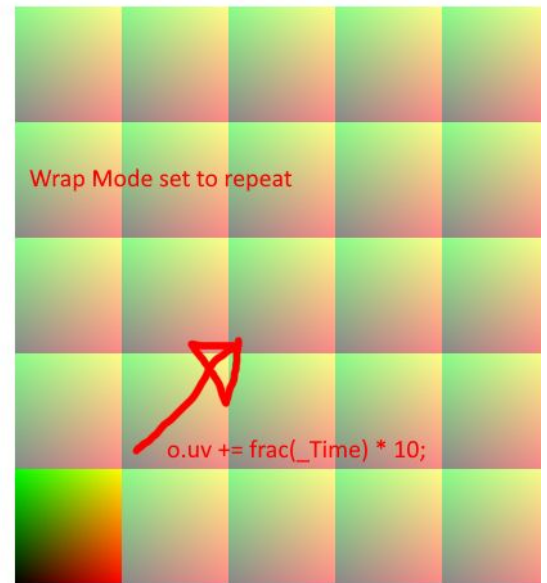
Graphical Enhancements

- Scrolling Texture
- Color Correction (can be toggled on and off with E)
- Outline Shader
- Dither Shader
- Toon Shader

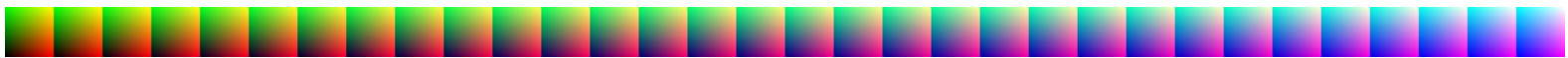
Visual Effect Explanations

-Scrolling Texture

The wrap mode is set to repeat and then the tiling offset is being added to every frame to increase the offset. There's basically infinite copies of the texture and changing the offset every frame changes where you are viewing



Scrolling Texture
Visualization



-Color Correction

Color correction using an LUT uses a 3d texture known as a lookup table. A vertex determines what color it should be and then looks at the lookup table to see what it should change to. A light color could look at a lookup table and determine it should be more blue and then applies that in the fragment shader

-Outline Shader

The outline actually works differently from the example from class. It uses the same base shader to get the outline effect, but the render settings in the Universal Render Data asset are setup in a way that draws everything first, then draws the outlines, then draws the object on top. This makes the outline look more consistent especially with areas of high detail. You can't potentially see the outline from a face the camera is parallel to. It's hard to explain with just text but basically it looks better especially with more complex objects.

-Dither Shader

Full screen render pass that posterizes all the colors and then dithers between them. This helps keep the retro old school look of the game. The game is also rendered at 640x360p to give it a low resolution similar to the original game

-Toon Shader

Toon shaders essentially section off the light value into different distinct sections. If you had a color ramp with 2 colors for example then anything between 0 and 0.5 would be rounded down to 0, and everything from 0.5 to 1 would be rounded to 0.5. The amount of light a specific vertex receives indicates how bright it is but if you clamp it between different values it creates a toon shader effect.

These could be color bands for example. Any number falling between 0 and 0.2 all will look like the exact same color, same for 0.2 and 0.4 and so forth.

0 - 0.2

0.2 - 0.4

0.4 - 0.6

0.6 - 0.8

0.8 - 1.0

