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Write Up for Prototype 2

Dynamic Lighting and Time System

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Write Up for Dynamic Lighting and Time System

The idea for a Dynamic Lighting and Time System tool came to me after I saw what my good friend had developed for his tool last week (he designed a terrain generator that can modify the shape of terrain based on algorithms like Diamond Square and Perlin noise). So I thought, “How great would it be to add a lighting system that complements his terrain generator or any game world for that matter?” Not only would it be cool to have the entire world reacting to the time of day but it would be incredibly useful for someone developing a 3D game that takes place in an indoor or outdoor setting. With this tool they will be able to make the game world feel more realistic and engaging.

The first iteration of my tool was similar to the second iteration but in the second iteration I tried to make the scripts and prefabs more intuitive and the actual usage of the different systems easier. The first tool however, did not have a central time system that linked to both the sun and the Environment Light prefabs. This caused a lot of issues with making the lights on the terrain respond simultaneously with the sun’s position so I decided to add a centralized time system (FatherTime). Originally, in the FatherTime script the Game Time and Multiplier variables took input but did not have a slider bar. This made using the FatherTime prefab more complex for people to use because they did not understand what types of values GameTime and Multiplier could take. Another addition I made between the first and second iterations of my prototype was to add directions for the sun rotation. Originally the sun would only rotate one way but I realized later on that other game worlds might benefit from being able to make the sun rotate in different ways.

I also found that the environment lights in the first iteration were confusing to use so I added slider bars for the Time, Range, and Intensity variables for each ELO (Environment Light Object) in the List of Light Changes associated with each Environment Light. People that looked at my tool really liked the interface for the ELO now but someone suggested that I allow for the dynamic change of light color as well so I changed the EnvironmentLightOptions to include color.

Another change I made in the second iteration was the addition of the ClockText prefab that displays the in-game time to the player. Then, after I added the ClockText prefab I modified the display to show a digital clock instead of the time in seconds (which is what the time system is based on).

Once I made all of these changes I decided that for people using my tool to really appreciate the power of my Dynamic Lighting and Time System they should have example prefabs under the EnvironmentLight folder that had EnvironmentLights attached to them and so I decided to include an example streetlamp and an example building with a preset ListOfLightChanges corresponding to the system time. I then made an example Scene with these objects to give a feel for what the lighting system could look like in a 3D game and I have to say, the results are very nice.

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To use the Dynamic Lighting and Time System please take a look at the README in the project folder