This Screenshot is from Prey(2017). The effect is this: there are, in the game, breakable pieces of glass that give off the illusion of their being further physical space in the game world. They are called Looking Glasses, and they are used to often fool the player and bring a sense of paranoia in asking players to question what’s real or not.



The effect is cool to look at and it definitely brings home the themes of paranoia present in the game. What really makes it cool in my mind though, is that it is a double layered reference; Looking Glass refers both to Alice Through the Looking Glass and the video game developer Looking Glass Studios. Looking Glass Studios pioneered and specialized in the sub genre of immersive sim, to which Prey takes much influence from. Immersive sims primarily focused on immersing players in the game world by giving them many options on how to proceed. Having the technology in the game that immerses someone thoroughly that they cant tell what is real and what isn't is a clever reference, and one I appreciated.

I’m pretty sure what’s going on is that somewhere inaccessible to the player, there's a camera in the game world pointed to a specific segment, and the camera which is what the player sees when they look into the Looking Glass. That camera is synced up to the players movement and camera, so that is always changing depending on the players position. The glass in the game can be broken dynamically, and form different cracks depending on how the players hit it, with the effect still occuring on the glass. what’s on the in game Looking Glass… From what I can gather, the effect works similarly to how it’s done in Portal. The technique, called Portaling, works like this

Portal Effect

1. Convert the current camera position and look vector into coordinates relative to the portal.
2. Find this position and rotation in relation to the portal’s exit.
3. Move the camera to the point and rotation found in step 2.
4. Render the scene while culling all objects between the camera and the portal exit.
5. The render surface is now the source texture for the portal and the camera should be moved back to where it was before step 1.

To render the quad with the proper texture coordinates:

1. Convert each coordinate into screen space.
2. Copy the normalized screen space x and y components into the u and v coordinates of each vertex.
3. Render the quad.

To make the same effect in Unity, I would follow similiar steps as described above, although I am not sure how I would recreate the dynamic glass breaking effect.