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Project Proposal: SpellCraft

Vision:

SpellCraft is an multiplayer augmented reality video game.

Problem-

   With most video games and interactive media, the user or player spends most of their time sitting still. This can promote unhealthy habits and behaviors.

Solution-

   We are looking to experiment with new forms of gaming that innovate and explore different ways to interact with each other and their environment. Players of SpellCraft will battle each other or opposing teams using voice and/or gesture recognition to cast virtual spells at each other. Players will have to collect small, holographic 'magic orbs' to be able to cast their spells. These orbs will be scattered around the play space, requiring the players to move to their location to gather them. The players will also be encouraged to move around and use their environment to evade or block enemy spells cast at them.

Target-

   Gamers who would like to be active while engaging in their hobby.

Competition-

   There are already games which exist in a virtual environment, but very few require active movement and participation from the players. For instance, RoboRaid has first person shooter elements to the game where the players can dodge enemy projectiles, but player movement is very limited. Also, interaction with the environment is very limited and does not take full advantage of the augmented reality aspect of the platform. With this application, we are going to promote sustained movement and activity for the players as they explore their surroundings. Thanks to the technology of HoloLens, we will be able to create a new gaming environment based in the physical world. Players will be encouraged to battle each other in augmented reality, using both real and virtual objects.

   Another game, Fragments, is a first person crime thriller which has players explore their environment for clues to solve a murder mystery. However it is a single player game which does not involve as much movement or interaction with physical objects. SpellCraft will make extensive use of line of sight and physical barriers as part of the gaming experience.

Software Architecture:

Because this game will be built using augmented reality, it requires the use of AR technology, such as HoloLens. As a multiplayer game, it will need to take advantage of the ability to create and share holograms between players, and have those holograms affect other players or interact with the environment appropriately. One of the players will be required to host and others will connect as clients. This will be accomplished with the HoloLens SDK and the game will be built using the Unity engine. HoloLens has several built-in functionalities such as spatial mapping and voice recognition, with robust libraries to support those capabilities. Unity provides a framework that can readily model game physics and interactions between players, such as collision detection between players and spells.

Challenges and Risks:

The biggest challenge we predict for this game will be networking. In a multiplayer environment it will be essential to have good communication between players' devices so that the immersion of the game can be sustained. Potential solutions for this problem include creating a tool to create a dedicated server on a peripheral device such as a laptop or tablet. Additionally, the HoloLens SDK already provides functionality for sharing holograms and accessing other HoloLens coordinates. Because we are using the Unity engine, there will be a learning curve for people who are not yet familiar with the Unity toolset. We plan to overcome this with a good deal of cooperation with the more experienced team members and understanding of C# or Javascript. Unity is also very well documented and user friendly.