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The Proposal:

The goal of the Senior Design Project is to research the solution to an open-ended interdisciplinary computer-science related design problem. One of the current issues in the gaming industry is figuring out a way to provide the user with a more immersive and enjoyable experience which has led to the development of technologies such as the Oculus Rift and Microsoft Kinect 2. We propose, as our senior design project, a real-time strategy (RTS) game that combines both virtual reality and a natural user interface while challenging the traditional take of RTS games.

The basis of our game is real time strategy, similar to the likes of Starcraft, which places the user in a fast paced competitive environment. The design choice for selecting an RTS was because that specific genre has yet to make any use of 3D space as a core element. Our system will utilize the Oculus Rift to immerse the player in the game by providing them a full view of the scene without the distractions that may lie in the real world. The Kinect 2 will provide the player a control interface for 3-dimensional space movement and combat without the use of a joypad as a peripheral.

While wearing the Oculus Rift, the user would have a view of the entire scene. Based on gestures, he or she will be able to control the camera view and perform unit selections and commands. These commands consists of movement, formation order, resource allocation, and combat. Contrary to the traditional two-dimensional RTS games, our interface will need to fluidly support a three dimensional navigation interface for all space-oriented commands.

We strongly believe that combining these two technologies we will be able to provide the user with a more enjoyable and immersive experience which many of the games that are available fail to capture. Current games restrict the user to a display which limits their field of view. Through the use of the Oculus rift we aim to provide the player an experience that does not have this restriction. Although it is true that some games on the market provide the user with motion based controls such as the Nintendo Wii, Microsoft Kinect, and the Playstation Move, none of these games were designed with the intent of using a virtual reality headset.

Baseline:
- RTS game using Oculus Rift and Kinect

Primary Goal:
- Working RTS system
  - 1 v 1 multiplayer capability
  - Move units, create units, strike enemy units with own units
- Use Oculus Rift to immerse player in the game
- Use Kinect as control interface for 3-dimensional space movement/combat

Technologies:
-Oculus Rift
-Kinect 2
-Unity Game Engine