TEAM GRIKEN

Problem statement

- Education

Team members

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Description: -

The basic idea is developing a cross-platform educational application which will run on mobile phones, PC's and VR devices. On request of Universities and Educational institutes we will design 3D classrooms for better learning experiences. For example, if some institute wants to teach solar system in a 3-Dimensional vision for the students, then we will host the respective class-room session for them, and that course or lesson will particularly work for the institute. This will encourage the students to focus on the details and give them a new vision about the surroundings. Other than this, for a real classroom atmosphere the whole classroom will be created in such a manner that on VR every student will be given a particular bench and the professor will be given the board where he/she can upload the videos or content that he/she can play with the VR controller. The students will be able to repeat the lectures with the remote and all the in-app commands will be accomplished through VR remote.

On the other hand, the lectures can be recorded in both Casual and 3D manner and be uploaded to cloud with proper calendar for giving the exact date and time of the lecture for future reference.

After successful completion of the above application, we can add practical labs and coding labs to the VR system. We cannot predict the future. If another pandemic happens in the near future the students won't be the one to compromise their studies because of the pandemic. They will be able to calibrate their keyboards to the respective VR system and might even be able to give the examinations and the teachers will be able to monitor students comfortably.

Solution for the statement: -

This project will be completed using Unreal Engine 4 which uses concepts of C# and Blueprints to deliver the required classroom setup. The Unreal Engine provides powerful tools for animating characters and objects and for creating cinematics. With Skeletal Controls, we can directly control the bones of a Skeleton asset. Control Rig gives us the ability to create a dynamic and procedural movement for our characters. These tools work together with Sequencer to let you create complex looping and branching sequences of animations.

As well as the server is concerned the main server will be hosted by us while the institute will be given a Listen Server. UE4 multiplayer is based around the client-server model. This means that there will be a single server that will be authoritative over the game state, while connected clients will maintain a close approximation. The server is an important part of the UE4 multiplayer. It makes all the important decisions, contains all of the authoritative states, handles client connections, traveling to new maps, and handles the overall gameplay flow of starting a match, ending it, etc.

The server-client model used by Unreal Engine is used to create network multiplayer games with one server acting as the host of the game, and players joining that game as clients. The true state is moderated by the server, while each player controls their pawns remotely with an autonomous proxy. The server then replicates changes out to each connected client so that all players experience a very close approximation of the game being played on the server. Where a listen server represents a player hosting a game on their machine, a dedicated server is a server that runs heedlessly. A headless server

does not render any visuals, and nobody is playing on it locally. This enables a dedicated server to focus on gameplay logic and moderating incoming information from clients, making the most of its resources for hosting a game. Additionally, this ensures a level playing field between all players participating in a multiplayer game. While a listen server is often acceptable for casual multiplayer and cooperative play, dedicated servers are ideal for large-scale or competitive games.