GPR 430

Final Project Plan

Description

You and other players control a cube that you roll around a grid. When your cube touches a cell in the grid, it changes to your color.

Networking Architecture

Uses Unreal Sessions to handle joining servers (**async**)

In the server there is a cube simulation other people can join

- You send your inputs for your cube to the server (**remote agents**)
    - Server does its own simulations as well
    - The server sends data from other agents back (**sync**)
- Clients do their own simulations using dead-reckoning for other agents (**remote sim**)
    - Server has ultimate authority over where cubes end up (**remote correction**)

How we will handle the data:

- Agent movement
    - Will send 4 bits for the input given for a particular agent
        - This means a client can just do the actual simulation themselves with less error introduced by compression
    - Will send the compressed position, rotation for each agent
        - Don't need acceleration--found using force from input bits
            - Then also don’t need velocity--comes from acceleration above
        - floats -> shorts (half the bits)
- World state
    - Will send all the need info for a changed cell packed into a char
        - The index of the cell is the first 6 bits
            - This allows for up to an 8x8 grid
        - The index of the player is in the last 2 bits
            - This allows for up to 4 players