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CS 447/547

Project 2 Design Document

Game Overview:

Black Friday Blitz is a side-scrolling racing game where you race motorized scooters down store shelves. There will be two modes, 1 Player Time Trial and 2-4 Player Race. As you race down the shelves, obstacles, powerups, and speed boosters will help or hinder you. Players can switch between shelves into order to avoid or reach these objects. The goal of the race will be to reach the checkout counter first. The powerups will be usable items that can increase their capabilities or hinder their opponents’ (The latter will not appear in Time Trial mode). Players will play by connecting to the game via a LAN and will use their own computers to control their cart on screen.

Development Strategy:

The major sticking points of this game are that it will be a zanny four player networked experience. Currently there is some code reuse from the previous project but the architecture needs a major rehaul for not only a multiplayer game, but in addition to that networking and scrolling are issues that need to be addressed as well. Getting a well thought out infrastructure, especially one that works with networking, will be the biggest challenge. Another major challenge is the scrolling aspect of the game. Because the world is scrolling careful thought will have to be taken into account when working in world coordinates versus screen coordinates. Our current thoughts are to come up with a client server model where the server keeps track of the world and also keeps track of each player’s current window. The clients will act as the controllers to the server. They will tell the server what input they are getting from the players and the server will then make the correct changes to the world model. The server will then send render information back to the client via the network. This render information will consist of a serialized list of the placements of objects on the screen, the state of said objects, as well as where that clients window begins and ends in the world.

The project will have three phases these are listed as follows:

* For the first phase of the development one member will be gathering art resources and sound resources, another member will be working on the networking side of the game, and the last member will be getting the infrastructure of the game.
* The second phase will consist of getting the alpha version ready which hopefully will include a playable game with one person. This playable version of the game will later become the time trial mode. To get the alpha done one member will do level design, one member will work on the in game logic, and the third member will work on merging the networking into the game.
* The last phase will be to get a working version of the game. To do this all three members will need to focus on putting all the pieces together.

Technical Showpiece:

The project will have network play as its technical showpiece. We aim for 4 player real time multiplayer using a client-server type connection. Players should be able to see everything in their window of the world. This will include other players on the same part of the track as them. If the player is not within the same part of the track then they should know how far away the nearest players are. Players will also need to need some kind of indication that they are being attacked. When a power-up is picked up it should disappear for everyone. No two players should be able to pick up the same power-up.

High Bar Items:

* More levels, more weapons, more everything.
* Short cuts or multiple paths through the same track.
* Unique playable characters with different abilities.
* Better art. Currently, our search for usable art for this project is iffy at best. We might end up having to settle for placeholder art in order to make better use of our limited time.
* Competitive Time Trial (racing without interaction between players)
* Stage hazards
* More players or concurrent races of four players on the same server.

Low Bar Items:

* The game will have a scrolling world. The carts will be racing on store shelves. As they race through the world the screen should scroll horizontally.
* The player should only be able to go right. The left key will only cause you to slow down, while the right key will cause you to accelerate.
* There should be 3 collidable power ups. The players can use these power ups to their advantage.
* The player can jump between shelves. The up and down arrow keys should allow the player to jump up a shelf or fall to a lower shelf.
* The game will have 3 playable levels. Each level will be different in some way from the others. The hosting player will get to choose the level that all four players race on.
* There will be a separate program that acts as the server. The server will keep track of everything in the world and relay that information back to the clients.
* The game will be able to support up to four players. Four players will connect to the server and one of them will be chosen as the host. The host then chooses a level and all four players will race on that level.
* The game will have a time trial mode where the player will race by themselves down a level.