The Floor is LAVA

Design Document

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Repository:

Status Report:

Overview:

The Floor is Lava is a competitive platformer based off the childhood game of the same name where furniture is your only safety and everything is dangerous. We are attempting to bring it to life in a digital way.

Base Gameplay:

Gameplay is quick and easy: simple run and jump around on platforms. Players goal is to get to the end of each linear elvel by bopping around on each platform and trying not to fall in the lava. If they do they will respawn and have to try again. With the game being networked it is multiplayer and competitive to beat each other to the end. Controls are simple, WASD to move forward/backward left/right respectively, and spacebar to jump.

Win Condition:

Once the player reaches the final destination, they are teleported back to the lobby and their elapsed time is displayed at the very top of the screen. This was accomplished by creating an empty/blank object inside of the lobby, and linking its location to the win condition block so that the game knows where to send the player after they reach the finish line.

Support Abilities:

Double Jump:

In game we currently have implemented a support ability called Double Jump, just wait till I tell you what it does you'd never guess. Double jump, makes players jump twice. This jump can be used mid air for player to extend a jump if they aren't going to make it or course correct mid air. Double Jump is on a cooldown of 3.5 seconds, which is of course subject to change with playtesting- as well as the force used for jumping could change.

Low Gravity:

The low gravity support ability is one of two (this and Emergency Platform) bound to mouse 1. The scroll wheel will cycle between the two. Low gravity is an Area of Effect(AoE) ability that once throw will grow up to full size, hold that size, and then shrink away into nothingness. Within the AoE players will have, you guessed it, low gravity. They will fall slower and jump higher within the AoE bubble. The bubble can be seen in the image below.
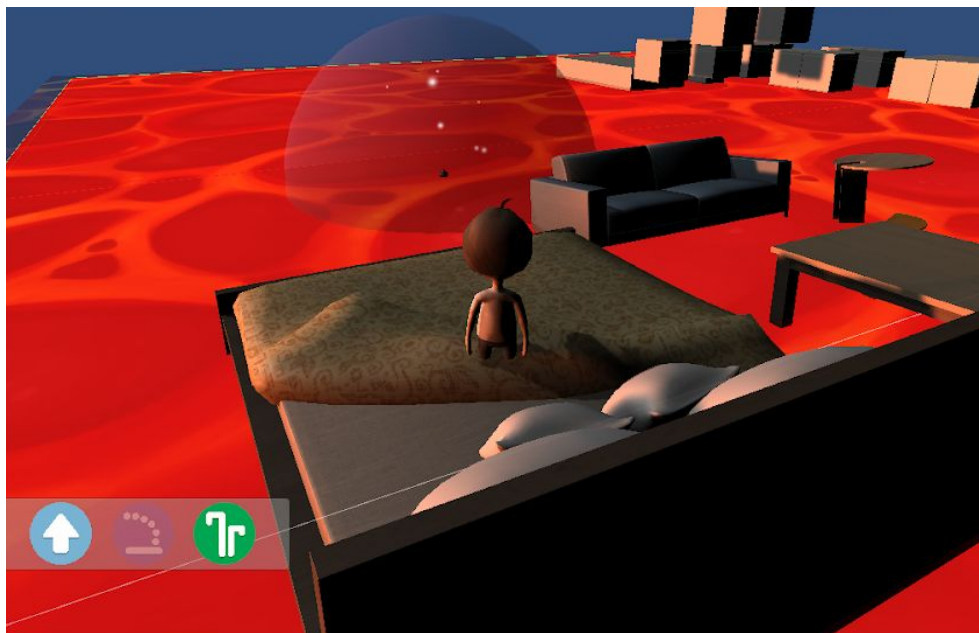

The HUD element for low gravity is the green icon with upward sprouts. It is not a finalized icon but we believe it works for giving the idea of an upward draft or force. The circle

will grey out (like the icon to its left) when not active. On top of this it also has a cooldown timer shown by a shadow overlay.

Emergency Platform:

The emergency platform ability is another thrown ability bound to mouse 1, and cycled between with scroll. Emergency Platform is a pillow that can be thrown onto the lava to create a new temporary platform. This platform lasts for a little while, but not forever, and once stepped on it will sink into the lava. So really it's good for a hop to save oneself, or bridge a tricky gap.
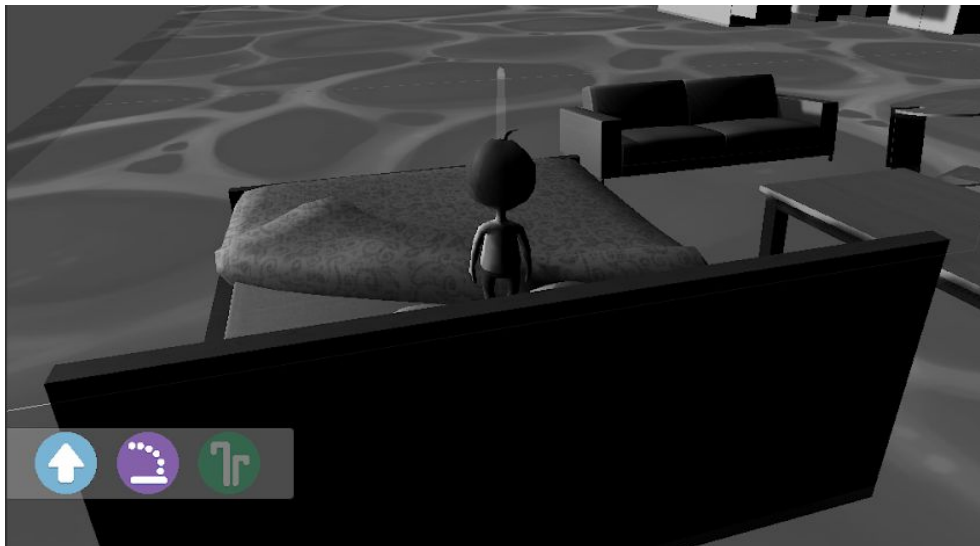
The HUD element for the emergency platform is a purple circle with an arc icon and a platform at its bottom. While holding mouse 1 and aiming the screen will go black and white as seen above. This was originally to support the idea that its an *emergency* but because it can be used outside of that it's also to be a reminder to players of which ability they are using at the moment.

Throw Mechanic:

Both the Emergency Platform and Low Gravity ability use this underlying mechanic. This mechanic does a few things, firstly it will "throw" whatever ability is currently enabled. Secondly to help this throwing action, it provides a throw arc that shows what path the thrown ability will take. This arc can be adjusted with the scroll wheel to add or remove force from the throw while holding mouse 1. To allow players to have more time to figure out their throw time

slows in game, to allow players to leniency and better reaction time. Finally, depending on the enabled ability, a screen affect will be in place during the throw period. These are put in place in order to reinforce what ability is enabled so players don't use the wrong one on accident. Of course we also show which is enable don the HUD, but more elements supporting this can't hurt.

User Interfaces:

Main Menu:

We designed a menu system to replace the base Unity networking UI. Now, this menu system is mostly functional and will be overhauled later on to look more visually appealing. This enables players to Host games, join games, and exit the application. From the Hosting submenu, players can just start a new game or select a specific level. Each level button will be an image of the level itself, currently they are just fun colour to help differentiate. On top of that the name of the level is also displayed at the bottom.
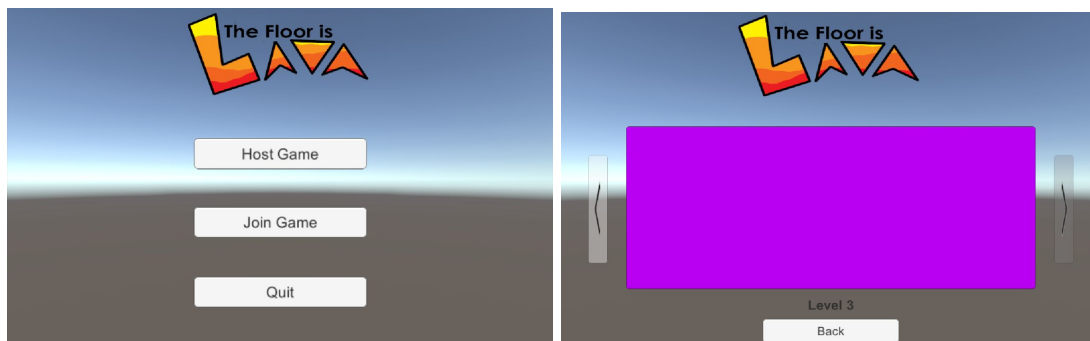
HUD:

We also began a HUD to display the cooldowns for our support abilities. The format as it stands now, is a round icon with a grey overlay, this grey overlay shrinks in a radial fashion to show how much time until it can be used again. The timers are tied to their respective ability and only go down while that ability is active. Double Jump, is of course always active. However ,emergency platform and low gravity cycle between each other. They will only charge while they are the active ability. The inactive ability with become transparent, however will still show the

amount left on the shadow cooldown overlay while inactive. The abilities HUD element lives in a little slightly transparent dock in the bottom left of the screen. All of this can be see in the image below

In the top right of the screen is the "Time" element. This denotes how long the player has spent on the current level. Once they pass the finish line a pop up will appear and display their final run time.
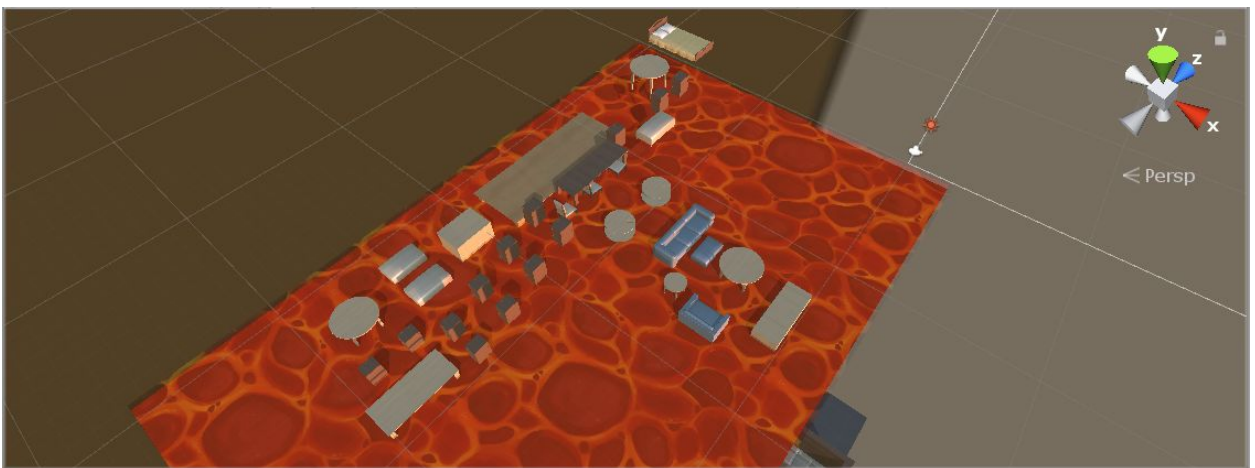
Level Design:

Tutorial:

For the tutorial, I designed to simple and for the level that this is the very first video game they picked up. As such, there is text explaining exactly what the controls are at spots where you would use them. For example, when the double jump is explained to players, there is a gap between platforms that only a double jump could get across.
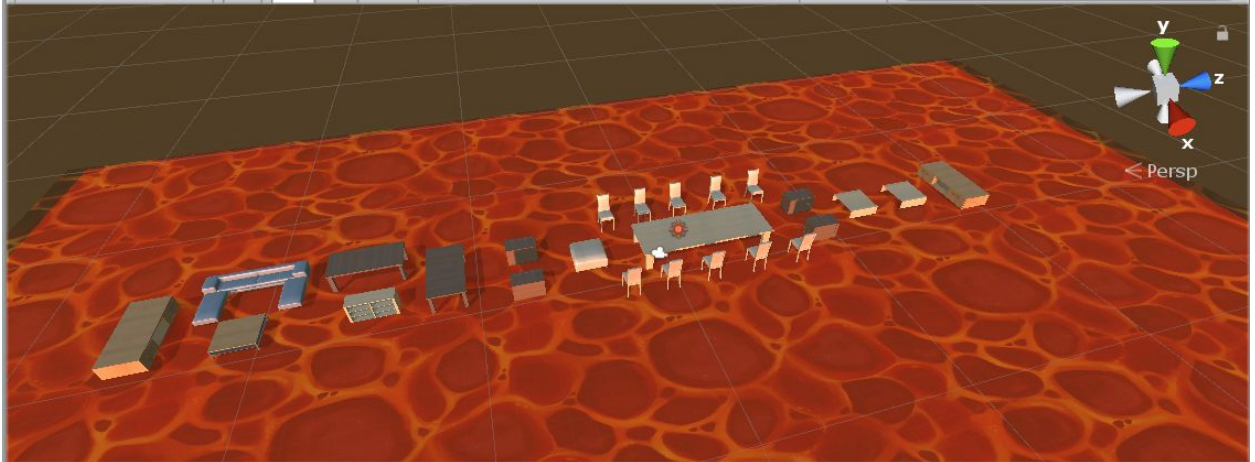
Level1:

As this game is based on the classic kids game of The Floor is Lava, I decided to base the designs for these levels off of the designs for actually rooms and houses. For this level, I decided to make up a race from the living room, up the steps, to someone's bedroom. Since you'll be able to see the starting point from the upstairs hallway, due to a

balcony, we are currently trying to decide if we should put a railing there for players' safety or leave it out so players can screw each other over near the end.

Level2:

Similar to how the previous level was meant to be a race through a house, this one is going from a living room through a dining room to the end. It distinguishes itself from the previous level by being a straight shot through, but with difficult shortcuts that can let a skilled player get ahead and wide areas leading into choke points of conflict.

Level3:
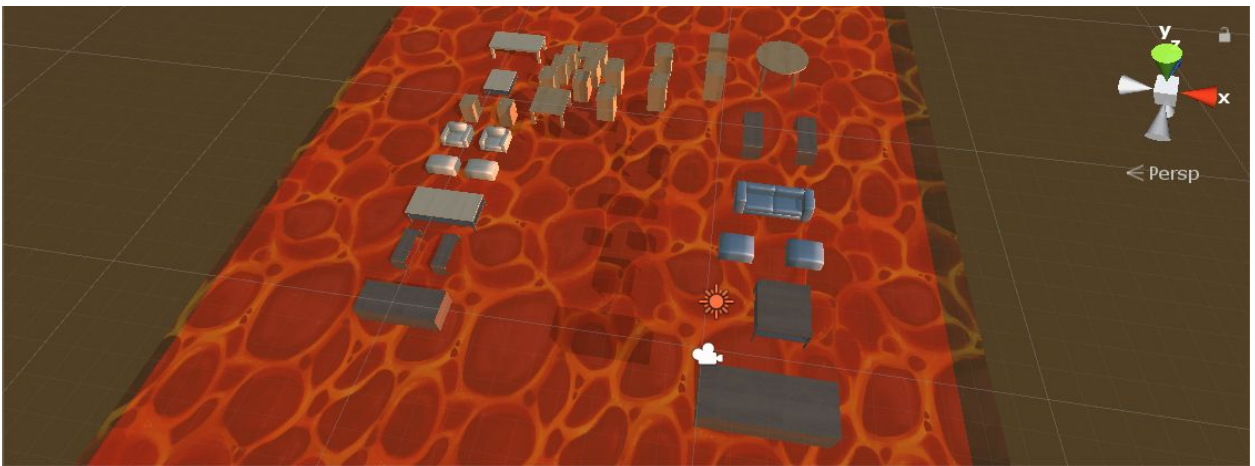
For this level, the idea behind it is doing the opposite of the first level, racing from the living room to the basement. One thing this changes is that players could try for a much larger leap to even lower levels, at the risk of not seeing exactly where you'll land. Level 3 started out mostly as a concept by the last milestone and has been fleshed out since then. I decided to make it a race to the basement to contrast with the first level's

race to the top. It also adds an additional risk/reward where you can leap down the stairs further to get ahead, but not be sure where you'll land.

Networking:

Networking Manager:

Our game is fully networked, and with each new feature we expand on the extent in which the networking reaches. Currently we have a networked game hosting system, networked players, and network dependant spawning system. We had to build a custom network manager to handle some issues with scene changing when using the basic network manager. This is also good because it will allow us to do more custom elements as we update the game, such as when we add our proper player models we will have to load in different models depending on network player ID and not just use clones of the same object for each player.

Lobby System:

Our game now has a new Lobby system, this allows players to load in and only start their race once all players have joined. This lobby area is also the area in which players are sent to once they pass the finish line of a level. The Lobby is just a small room populated with props, and a single doorway opening. This doorway is the "portal" which sends players into the actual level or goes to the next level. Players can't actually pass through the doorway and leave the lobby but if the Host approaches then the level will start, other players will just a hit a wall.
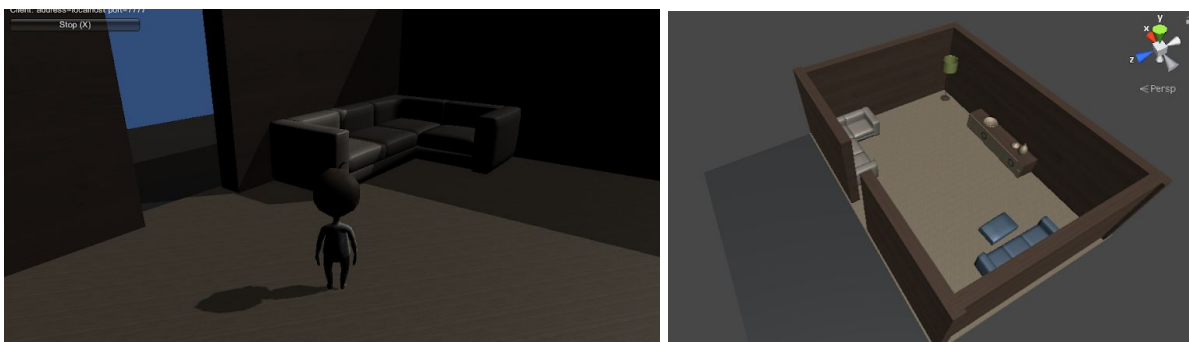
Narrated Video:

Milestone 1 (Proof of concept):

https://youtu.be/WOol1j_qm_k

https://youtu.be/b2hIfCJdne8

Timeline:

Week:	Tasks:
1	Initial Design Doc
2	Expand initial design, create repository, setup workflow, logo designed
3	Establish base design, decide if networking is within scope (w/ networking test), level 1 designed and greyboxed
4	Continue making game, have networking in full swing, level 2 designed, 1 support ability ingame
5	Tutorial designed, main menu implemented, basic UI
6	[MILESTONE 1 DUE] Have a basic prototype ready, get ahead on next weeks tasks if possible
7	Level 3 implemented, lobby system, win condition (w/ networking in mind), replace dev models w/ proper
8	support ability 2(emergency platform) ingame, replace dev models w/ proper
9	support ability 3(low grav) ingame, replace dev models w/ proper
10	Clean up HUD, fun lighting, replace dev models w/ proper
11	[MILESTONE 2 DUE]Have main menu, 4 different levels	start endless mode - feature freeze
12	cool lava effects (perlin noise mesh, shaders), continue endless, final worldbuilding for levels (polish & bug fixes)
13	Update images of levels in main menu, balance abilities, fun lighting, code cleanup (polish & bug fixes)
14	Audio, Polish and bug fixes
Finals	[COMPLETE PROJECT DUE] [POST MORTEM DUE]