

Computer Games Laboratory

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Alpha Release



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Introduction

The last 3 weeks our team was trying to bring together all the separate elements we developed and then make sure there are no loose ends in the core gameplay of our project. After doing some tests between friends, about half of them especially the ones that do not have much experience with games found it a little bit difficult and rarely managed to reach the end of the song. Also some people that played the game for a longer period of time pointed out that some visual effects that were added later on were not as smooth as others.

The overall feedback though from those short sessions was very positive and we are confident that our game turned out to be almost exactly what we imagined and from now on we will focus on adding more content and also correcting the bugs that will surely come out of the more thorough playtest sessions coming up.

In this report we will guide you through the different elements of our game that contribute to the final results and explain to you what is finished, what needs to change and overall what else we plan on adding.

Bellow you can see an overview of our tasks before we move onto further analysis.

Functional Minimum	Your Low Target	Your Desired Target	Your High Target	Your Extras
Loading Music	Loading Music	Loading Music	Loading Music	Loading Music
Single track uploading	Upload multiple tracks	Create playlists	Web Radio Stream	Youtube video stream
Enemies & AI	Enemies & AI	Enemies & AI	Enemies & AI	Enemies & AI
Simple enemies	Enemies with animations	Enemies with abilities	Boss Fights	Boss fights with mini events
Environment	Environment	Environment	Environment	Environment
Rock/Metal Level	Electronic Dance Music Level	Pop Music Level	Level to host all other music genres	Bonus Mini Game
Visual Effects	Visual Effects	Visual Effects	Visual Effects	Visual Effects
Lights	Volumetric Lights	Advanced Light behavior	Dynamic Particle Effects	Terrain manipulation
Materials	Camera effects	Shader Effects	Water/Fire elements	
System	System	System	System	System
Get the intensity of the sound	Get intensity of specific frequencies	Make our system interpolate between values for better visual results	Make levels react to different presets based on the songs category	Use machine learning in order to categorize songs
Character Modeling & Animations	Character Modeling & Animations	Character Modeling & Animations	Character Modeling & Animations	Character Modeling & Animations
Humanoid character with running animations	Add some fighting animations	Add spells & skills animations	Create different outfits for the player to choose	Add more characters
UI	UI	UI	UI	UI
Add a simple menu	Allow user to choose skills ,songs & levels	Health bars & skill cooldowns	Highscore tables	Online highscore tables
Fighting Mechanism	Fighting Mechanism	Fighting Mechanism	Fighting Mechanism	Fighting Mechanism

Simple melee hits	Combo moves	Variety of spells		
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Core Gameplay

Enemies

As it was pointed out in the last presentation everyone thought, including us of course, that if we add some beat related actions onto the enemies the gameplay would improve a lot. We went on and created a mechanic on our initial set of enemies that reacted to big bass drops and caused them to “teleport” to the middle of the distance of their initial position and the player if there was a big enough distance between them. This actually added a controversial difficulty to the level. We say controversial because some people enjoyed it a lot when the game was keeping them at the edge of their seats but others with less experience were struggling to stay alive from the very beginning only to find themselves restarting the game because they died a few seconds later. We immediately went and increased the cooldown of the enemy spawner. It turns out there is no golden ratio here. Some values made the game too easy were other made the game too hard. So we decided to introduce more skills that could satisfy both the casual players and the ones that enjoyed a more challenging approach.



Skills

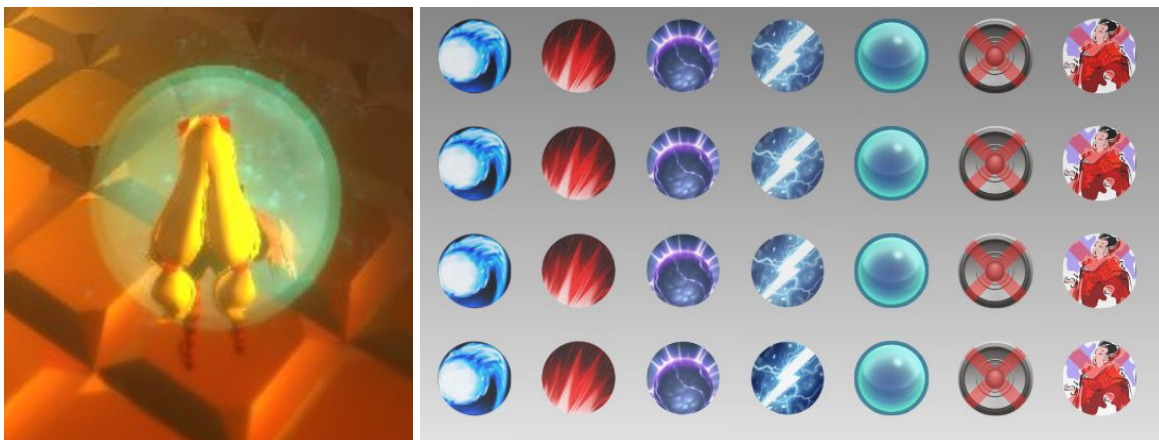
As we said when we first presented our game idea we wanted to have a variety of skills for the player to choose from and allow him to create his own strategy. Very quickly though after our prototype we found out that generating skills and keeping

the game balanced is much harder than what we thought, so we decided to put a halt on that part of the game.

Now though with the latest feedback we got we decided to balance the current difficulty of the game by introducing certain skills that would allow the player to cope with the enemies in an easier way instead of tweaking the enemies themselves.

Three new skills plus a new mechanic was introduced :

- Shield: With a cooldown of 15 seconds our player can create a shield around him that will take two damage points to be destroyed. It can be seen as if we give two extra health points to our player every 15 seconds
- Bass destroyer : This skill is supposed to be picked in bass heavy songs. With a cooldown of 10 seconds it will heavily reduce the amount of bass on the song thus having less enemies spawn.
- Shut the bard up : This skill works in the same way as the one above , but instead cuts of the high frequencies.
- Added a double jump mechanic so that our player can escape more easily in case he gets cornered.

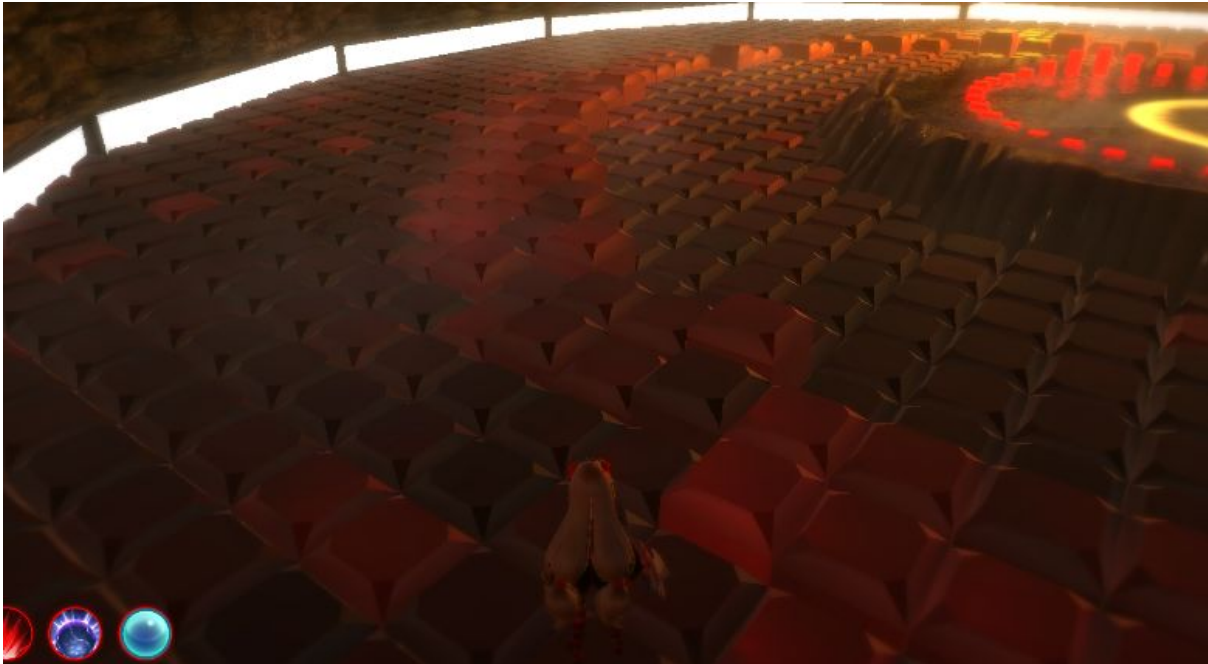


Visual Effects :

In this part of the report we will only introduce two of the new visual effects because they belong to the first level which we have already presented. The rest will be presented in the next pages where we will showcase our two new levels.

- Bass Wave: Whenever the bass “drops” meaning that out of a small value it jumps into a much higher one then from the center of the level a wave will emit. The wave will rise up any tiles in it’s path and if they hit the user then they slow him down.

- Tiles: When the level starts the tiles of the level get assigned randomly to different groups which also get assigned to different sound frequencies. When one of them a part of the tiles light up and then fade down.



Interface

There were also two changes done to the opening menu of the game.

Firstly we managed to allow the player to import a song that does not exist in his library but on some distant server/website. The challenge here was that windows does not play well with mp3 but only with .wav & .ogg files. We solved the problem by getting some help from external libraries that allowed us to make a conversion from mp3 to one of those two formats.

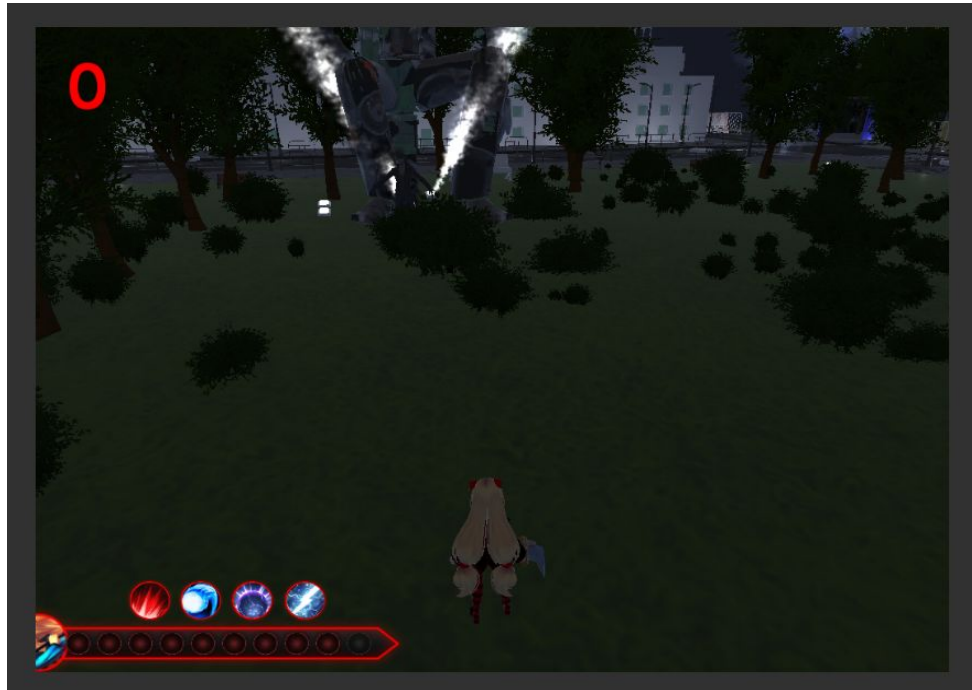
Secondly we introduced the highscore system that at the current version only operates on the local computer. At the end of each level and by clicking on the highscore button on the main menu, the player can look at the top scores.

Level No 2: Jazz Music Arena

Introduction:

After finishing and polishing the first and main level of our game, the “Rock Arena”, it appeared, of course, the need of creating a different one that would have another feeling and support a different type of music. As it was already discussed in the previous report, this was decided to be the Jazz music genre and the “Jazz Arena”. Deriving the ideas from cities and nightclubs and making out main villain, “The Joker” we developed a realistic representation of parts of a city during the night. In this part,

the main arena is located inside a dark part which the statue of Joker is located and the villain appears after the middle of the song.



As it can be shown in the included images, the park is surrounded by empty of cars streets, except some damaged ones, a lot of lights and decals on the streets that emit white smoke, as part of our game's visual effects. Near to the streets a lot of buildings like bars and restaurants are located that are not a playable area from the player but are contributing to the general atmosphere and the environment. In this arena, we paid attention to the realistic buildings and the lights so the player can truly feel like part of this city.

The visual effects that are introduced here are **three** directions; the lights of the environment, the effects like gas that change according to the player movements or the music and the effects that are used by the main villain, the Joker. As it was already pinpointed, the environment consists of many restaurants and bars among the other static models so the lights are dominating here as the action takes place during the night and create the nightlife atmosphere. The second part, that was developed was about the visual effects that will change according to the music (that also added to the technical part). White smoke that is emitted according to the "beats" of the music was introduced and some lights on the pavements that were activated when the player is stepping on that specific part. The last part that is yet to be further developed and polished is related to the enemies. As it was mentioned, the main idea of the enemies was to be in a zombie form and to damage the player. That is yet to be implemented inside the game as they have been developed but not tested yet in the current environment and according to the music. The final part regarding the Joker, as mentioned he uses three main attacks, the laughing gas (also part of the visual effects), the summoning of Harley Quinn and a gun. Those

three actions are yet to be polished inside the game as for now are partially working and not according to the music.

Concluding

-What has been done :

1. Jazz Arena -> stationary models and whole level design
2. Creating and importing stationary enemies
3. Adding lights for creating the realistic environment
4. Adding visual effects -> lights that change according to the music and smoke that is emitted
5. Adding new appearance for this level to the main character

So what needs to be further done, is to mix and relate the enemies with the current environment and the music and this will be completed until the next presentation. So the enemies and AI and fitting with the general environment would be the final part, before completing this level so it is absolutely playable and related to the general idea.

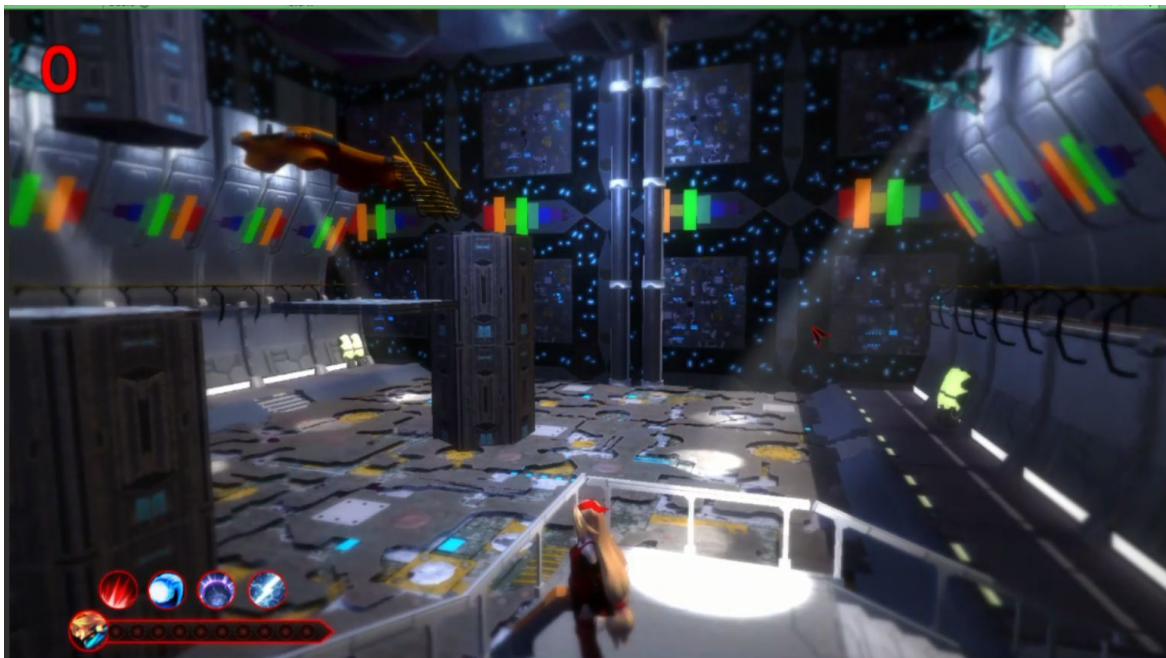
-What remains to be done :

1. Import enemies in the forms of zombie waiters
2. Improve enemies' AI
3. Add all the skills to the Joker and improve the fight
4. Add more polished attacks



Level No 3: Popsicle Arena

Popsicle arena is the third level in our game. It is located somewhere in outer space. We apply the appropriate skybox to make the environment look like an outer space. The design of the level is very futuristic. The station is designed to look like a space station from a sci-fi movie.



Visual effects:

Up high on the walls, we put *rainbow equalizers* that capture the whole audio spectrum (Sub-bass > Bass > Low midrange > Midrange > Upper midrange > Presence > Brilliance). For the convenience brilliance is subdivided into two bands making it 8 bands for rainbow equalizer. Changes were introduced to the audio analyzing script, adding buffer values, so that when the band goes up according to the appropriate frequency band, it goes down slower than the actual value of that frequency band. It gives a nice visual effect, without jittering and frequently changing values. Each bar is assigned a certain color that also gains brightness and emission according to the frequency band value.

Bass light panels were put on the bottom sides of the arena. They react to bass frequency band emitting white light accordingly. We can set a threshold in the setting so that it does not flicker for all the small values in bass (when the bass is almost nonexistent).

Volumetric light beams: We put in the arena futuristic looking projectors which emit volumetric light beams. In the object we can define the minimum and maximum intensity, and assign the frequency band it should react to. Currently, there are 8 projectors with 4 on every side. All of them are assigned 4 frequency bands (Sub-bass > Bass > Low midrange > Midrange) and change their intensities accordingly.

Additionally, several spotlights reacting to audio spectrum were placed in the arena to give a nicer look to the game in general.



Gameplay elements & future work: The level was designed with addition of a vertical gameplay in mind. We put several pillars, railings and stairs that lead the player

upwards. On top of them we plan to put collectibles that give extra points or health. Enemies are to be introduced and adjusted for the current scene.

