Report.

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Game's requirements

- Appeal to 8-12 year old
- Navigate a character around an area
- Collect items which adds to score
- Avoid hazards, hitting a hazard will lose lives
- Include a timer
- Score is based on pick ups and time, i.e., quicker to complete the better the score
- Include levels of difficulty - easiest way is to create three levels - easy, medium, hard. The levels will then have more hazards and shorter time.
- Include some sounds, sprites for UI, and particle effects.
- Should be a start and end screen
- Robust testing.

Old Version of the design

The initial game idea:

Ballmania GDD.docx

New current idea:

Sprinter Cell GDD.docx

Improved Version of the design

Sprinter Cell GDD -
Improved Version.docx

Added time, person records, multiplayer functional.

Written justification of design decisions

Throughout the design phase to meet the client requirements decision

Navigate character around the area

Collect item which adds to score

Avoid hazards, hitting a hazard will lose lives

Include timer

Score is based on pickups and time

Design choices.
Camera perspective.

Controls. Running -> sprinting -> walking, jumping

Implementation design choices.
Game Manger object as prefab in charge of coin count, player score, game pausing, game resuming. Present is levels

Sound Manger object as a prefab in charge. Present in every scene – supports soundtrack, sound effects. Buttons switch sound, background soundtrack subnautica.

Application Manager object as a prefab in charge. Present in every scene
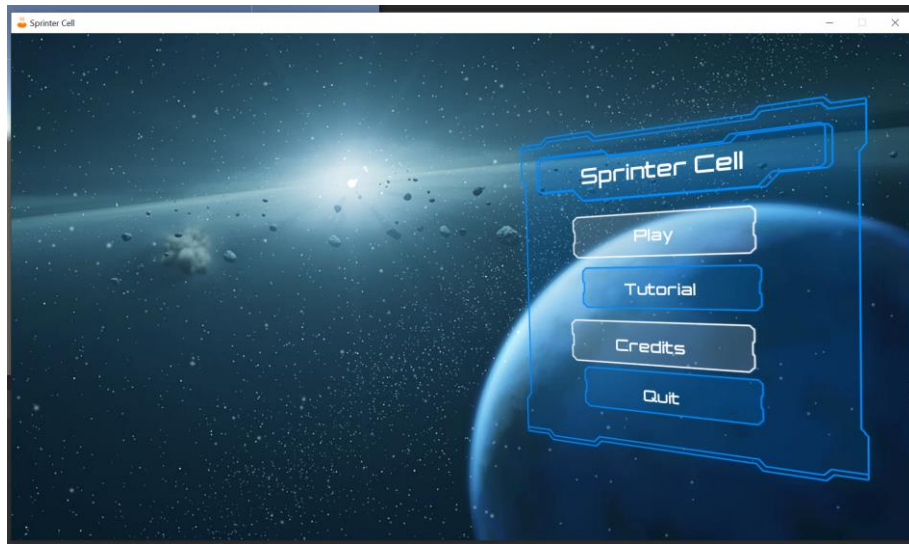
Removed gravity gun,

Removed chasing agent,

Removed city level,

Removed inner shop,

Screen shots of the game working

1. Main Menu Scene
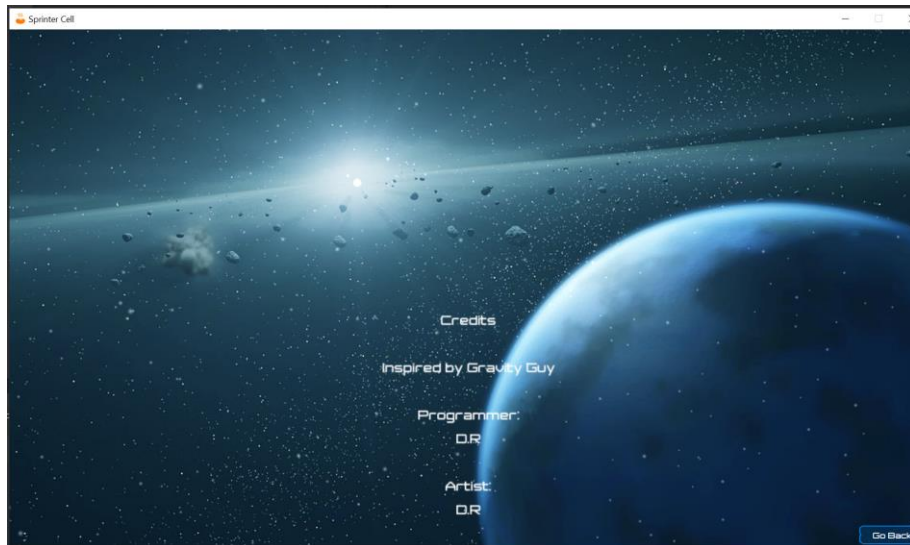
2. Credits Scene
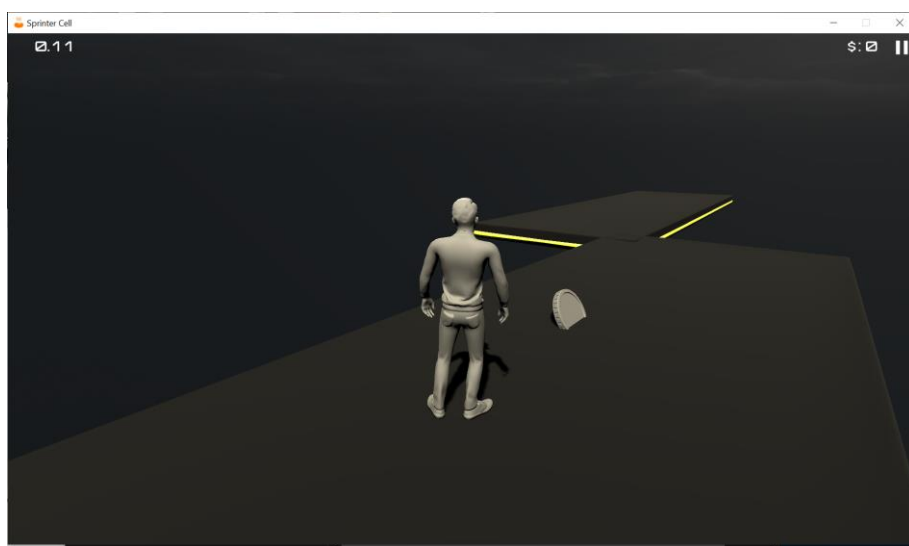
3. Main Level Scene
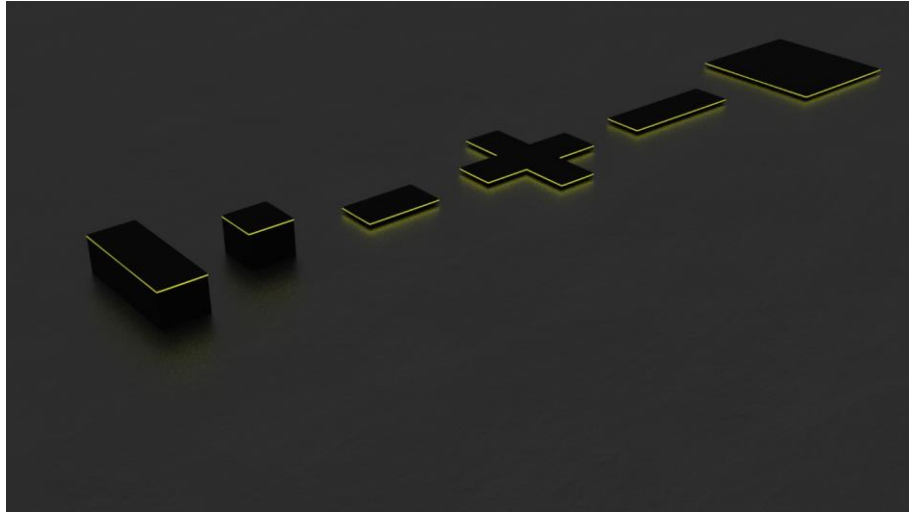
4. Main Level Scene Obstacle Design
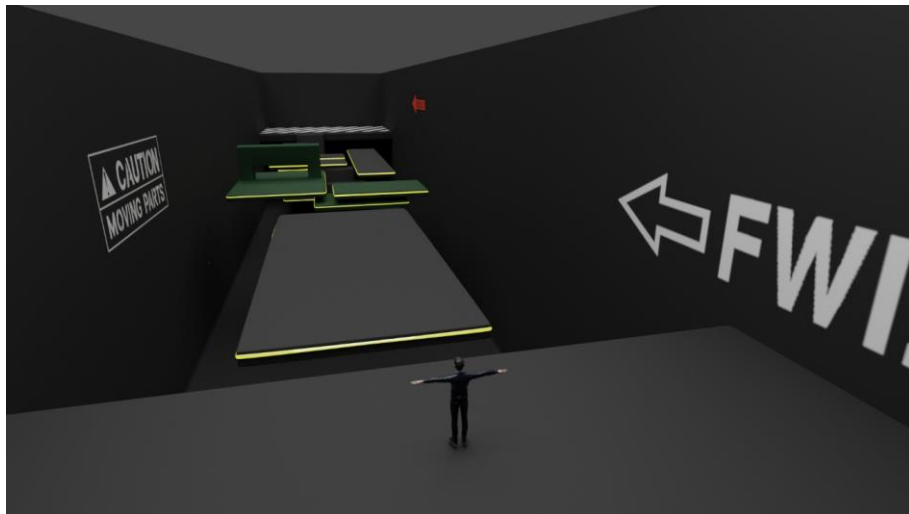
5. Tutorial Level Scene Design

6. Tutorial Level Scene

7. Tutorial Level Scene – Pause Panel
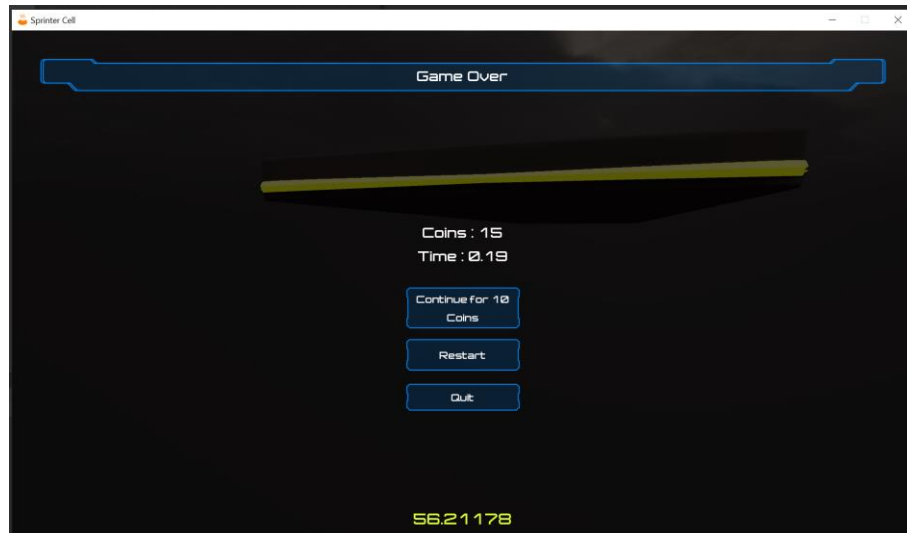
8. Main Level Scene - Game Over Panel

Analysis of feedback

Throughot the design stage 2 types of feedback were received – explicit overview of GDD and questionaire where questions and answes were straight-forward.

1. "I really like the idea of your game, the agent chasing the character forces the player to think quickly and should create some intense moment. I also like the idea of the inversing gravity gun, as its a very unique feature and will keep the game exciting. I think this will be especially fun if you can get the multiplier functional. I'm assuming the gems/coins will be collected throughout the level? which should add for alot of replay ability/grind for specific shop items. the menu and overlay designs are clean and simple. which serve their purpose and not distracting. The first level sounds easy to play and great for learning the game. The one thing i;d suggest is maybe a way to view your time on the level, to give the players a challenge and personal records to strive to beat," - from this feedback - the overall description of the GDD, seems to appear to be clear and understandable. More, the idea of the game and it's mechanics appealed to him very much. It was advised also to add timer as it is one of game requirements. The inner store, gravity tool, parkour features – all were encouraged.

2. Second feedback, from questionaire, there could be seen how people react differently to certain game mechanics which, of course, needs to be taken into consideration. The most decisive answers were from question "Do you think first person camera is appropriate for this type of game or 3rd person is better?". As seen in the reference Excel spreadsheet, majority said that 3rd person camera is more appropriate, however, there were also suggestion to make a toggle between different orientation cameras. And that is to be implemented but 3rd person camera will have priority. This also correlated with another

important game feature – gravity tool, where player can inverse gravity to jump over large obstacles or interact with platforms above.

Review the extent to which the computer game meets client requirements

Technically game meets all of the requirements, however, the quality of its implementation is not as good as it could be.

In the game score is based on the time – longer player stays alive the bigger the time (score). There is also an option to revive when game is over. To revive player has to spend 10 collected coins.

To stay alive and increase the score player has to move and jump from one platform to another. In other word, player needs to navigate around the area that is randomly spawned in front of him.

The game tests player's reaction speed as more time is gone the bigger the difficulty is. On the easiest difficulty platform will remain floating 1 second, on medium – 500 miliseconds and on hard – 0 seconds. After the countdown is done and player enters the specific trigger object platform will destroy itself.

Likewise, coins are spawned with the platforms. Their occurance is entirely random. With them player is able to continue the game after death by spending 10 coins. When coin is collected there also is triggered particle effect.

Commented [DR3]: Reference image of particle.

There is the issue with coin system as well. When setting, in Player Prefs, the current collected by player coin amount, in the GameOver panel Coins text sometimes is empty and sometimes infinetly increases. This can be explained by my GameManager, possibly, holding too much functionality and the seperation could help.

The player is navigating around using WASD keys and is able to run, walk, sprint, jump. However, there is present a bug – when player lands on a platform, the landing animation is not triggering immidietly.

Chasing agent is an idea that became troublesome to implement. If it were implemented then throughout the gameplay the hazard would not only be a dissapearing platform but also chasing agent who would use up player's life.

With the bugs mentioned above, the game is not exiting and fun to play, it leads to frustration. Visual appeal requirement is also not met because there was not enough time to figure out how to export and bake Blender textures to Unity.

The game does have the start and the end screen. The start screen being the Main Menu Scene and the screen being Game Over Panel.

Evaluation of the design, developement and optimisation process.

- Evaluate the design, creation and optimisation of the game considering its effectiveness in meeting the stated requirements. Your evaluation should be supported by evidence from all stages of the process and draw conclusions as to how the chosen techniques and processes produced a game that better meets the requirements compared to the alternatives

Design.

The design documentation included gameplay mechanics, story and gameplay description, and, according to feedback, provided very broad explanation of what the game is about. When first verison of was ready, with the help of the feedback, flaws of it were noticed such as:

- The camera orientation. As the player will be able to inverse gravity, player, ideally, should see the character and see the chasing behind agent as well. Hence, 3rd person camera would be more appropriate, but in perspective there could be added a toggle option between 3d and 1st person camera as immersion of parkour is better with latter.

- Timer. In the original design it was not thought of, but, with the feedback, it was clear that one improtant client requirement is skipped. Because of that, give player buy some time is also rational additon to game to make it more engaging.
- UI. Then, in Main Menu scene the exit button was abcent, but that significant perception of GDD did not change, correspondingly, desing remained as it is. In the developement stage, of course, it is implemented. Other than that UI contains all neccessary functionality.
- Controls. In initial design the walking ability of player was binded to ALT button. Howeverm, when it came to implementation it was apparent that it is not the best solution. The CTRL button subsituteed it as it allowed swiftly switch from sprinting SHIFT to walking CTRL. Liekwise, the positon of those buttons allows only one of them to be pressed, which is wanted.

Developement

In the developement stage. Unfortunatelly, due to poor organization and planning, limited time half of features were cut out such as:

Gravity tool.

Shop

UI design

Vaulting,

Sliding

Chasing agent

City map.

> **Commented [DR4]:** Reference of feedback Reference from game camera.

Difficulty level system

Coin system.

Optimization.

As long as optimization is consernced, following area were subject to optimization:

- Platform Manger Cooroutine
- Sound Manager
- Main Game, Game Over, Pause Panels as Prefabs
- Coin objects as prefabs
- Game Manager as prefabs – can applied to any level in the future

References:

- Locomotion code by (Graves, 2021)
- Sound Manager code by (DaggerHartLab, 2021)
- UI design – (Unity, 2021)
- Model and animations – (Mixamo, 2021)