Project: Chaos Coaster

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Where is the Rollercoaster?

One of the major criticisms we received during the Alpha Release milestone presentation was that the connection to the theme of Rollercoasters was not apparent. As mentioned in one of our earlier documents, our idea was not to take a literal Rollercoaster but to use a more abstract interpretation of the theme. We decided that our game would take place in a spaceship that is flying around space in a track, like a Rollercoaster would, and that the objects inside would experience this by getting thrown around with its turns, thus putting the chaos in Chaos Coaster. This part of the project had clearly fallen to the side for our build at the time in an effort to get everything else working properly. We decided to address this issue before the playtesting as we wanted them to experience the proper vision of our game.

First, we modified the very basic track for a more extreme one that uses more elements of Rollercoasters, like loops and sharp assents / descents. This will add very chaotic moments during gameplay where, for instance, during the loop all objects get thrown towards the roof and it is possible to fall off of the level, resulting in a game over. Additionally we decided to visualize the track properly, so that instead of the ship flying through space it is actually following a track that the players can observe.

We had some issues with the track, since the arena was quite big, turinng on the track lead to the track being visible inside the arena. To avoid the track clipping into the arena, we had to add another camera, which only renders the track and the background. This camera then got a higher depth than the main camera rendering the arena. Thus the arena was always in the foreground.

In order to make it very clear what is happening and where the game is taking place, we implemented an establishing shot that would transition into gameplay at the start of the level. This shot shows the stage / ship from a distance as well as the track that the ship is going to be traversing. An additional particle effect was meant to show that the ship is actually moving along the track and not just standing there. Finally, a planet was added to the center of the track to serve as a reference point for the player, instead of simply flying through empty space.

Separable Limbs

Like in the timeline defined, we implemented limbs that can be shot off by the player`s projectiles. After the spider loses a limb, it can still move.
This was done by training two models: one that optimizes walking with all limbs attached and another one that was trained on potentially every combination of missing limbs.
It introduced many challenges; the most important one was to respawn every limb set and in place at restart and keeping all states and dependencies valid (deleting them would have been much easier), turning out to be the most complex part of the project.

Other Changes made before playtesting

Along with the aforementioned changes, the final playtesting build included several bug fixes, many smaller ones but also some more severe bugs that needed to be fixed as they would really damage the experience of the testers. Some other changes that made it in include some visual changes to the weapon, track and UI, stat balancing for the player (particularly the movement speed) and for the weapons (total ammo, damage, force on hit) and the feature that enemies drop ammo boxes when they die.

There was also a considerable issue regarding the framerate, which we identified to come from the enemies and their sensing the environment taking too many resources. We were able to create a more simplified version of the enemies that had comparable effectiveness in moving around the map but required considerably less resources to make, thus reducing the performance cost and increasing framerate. This current solution, however, is still relatively costly and would not allow us to spawn many enemies at once.

Conducting the Playtesting

Playtesters

For playtesting we recruited a total of 10 players. The players were all between 21 and 32 years old. While all of them already came in contact with games, 4 of them play less than 1 hour a day. Four play between 1 and 4 hours a day and the last 20%, play more than 4 hours a day. Two had no experience at all with shooters, 7 occasionally had played shooting games and 1 would say their main game genre are shooters. The online participants who were involved in the playtesting were all experienced gamers but only two of them were experienced FPS gamers. They were all young adults between 24 - 28 years of age.

Location

For playtesting I invited all of the playtesters into a house in the mountains.

Playtesting

The playtesting was done one by one. I instructed all of the players to not talk about their experience, until all have played the game. The players were respectively invited into a room or place which was disconnected from the others. There the players got told that only the game was under test and not their gameplay. Also they were told to talk during the test and express what they feel and think, even though questions could not be answered. The only instructions were that the players should play the tutorial first and then jump into the game, once they think the tutorial taught them enough, or they think there's nothing else to get out of the tutorial. They also were told that if they die they could start again, as often as they want. Testers got only instructed if they were really stuck and didn't know how to continue, which was very rare. The tests were conducted on a laptop. During the playtesting the one conducting the test was sitting next to the players and taking notes. After the playtests the players got asked about immediate reactions and feelings they had and if they had something specific they wanted to tell. Afterwards they were asked to fill

out a google form with the questions listed below. Additionally to the 10 playtesters in person, we asked for asynchronous feedback from friends. Those got the game with the same instructions the other playtesters got, but they could play whenever they wanted without supervision and just filled in the form.

Questions

Here the list of questions in that were part of the google form:

1. What's your overall impression of the game out of 10?
2. Do you think the tutorial prepared you enough for the game?
3. What could be improved in the tutorial?
4. Do you find the gameplay and game itself intuitive?
5. What's your overall impression of the combat system?
6. How challenging were the enemies?
7. What could be improved in terms of combat (suggestions could be things that are regarding the player controls, the weapons, enemies etc.)?
8. Do you think the arena moved as you would expect from a roller coaster?
9. Did the incoming movement signs of the roller coaster (turns, drops etc.) help you prepare?
10. Did the the fact that arena constantly moved improved the overall experience or hinder it?
11. As the arena moved, did you lose your sense of orientation or were you able to keep it?
12. As the arena moved, did visuals such as seeing the track or the planet in the middle help you orientation wise?
13. What could be improved in terms of the arena movement (suggestions could be things that are regarding the orientation, the overall roller coaster movement or visuals etc.)?
14. What are the things you like about this game?
15. What are the things you dislike about this game?
16. What other suggestions do you have?
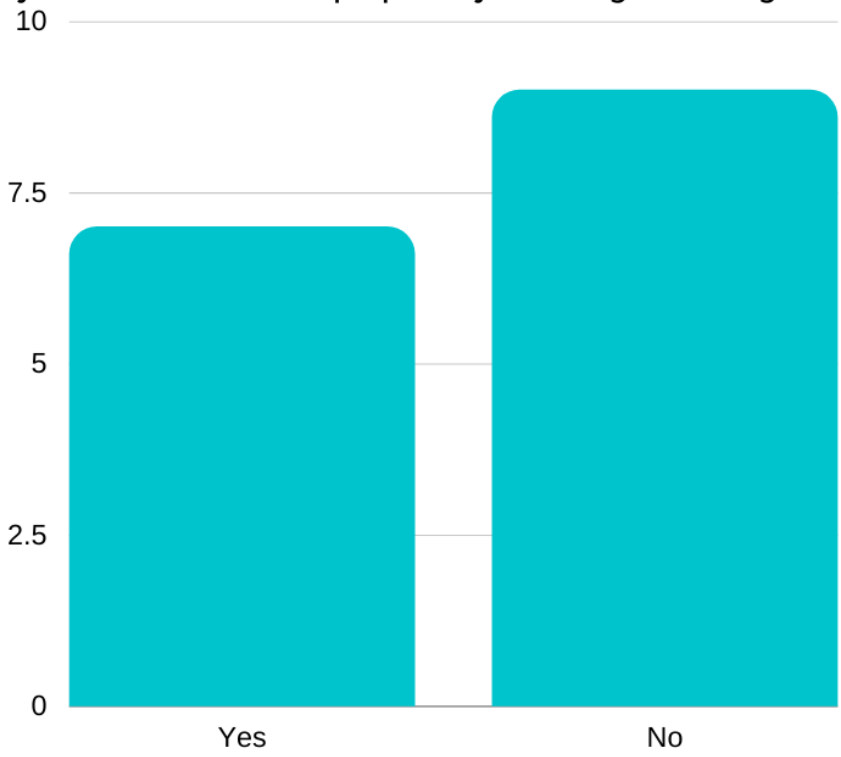17. If the game were to be published, what do you think should be its price tag?
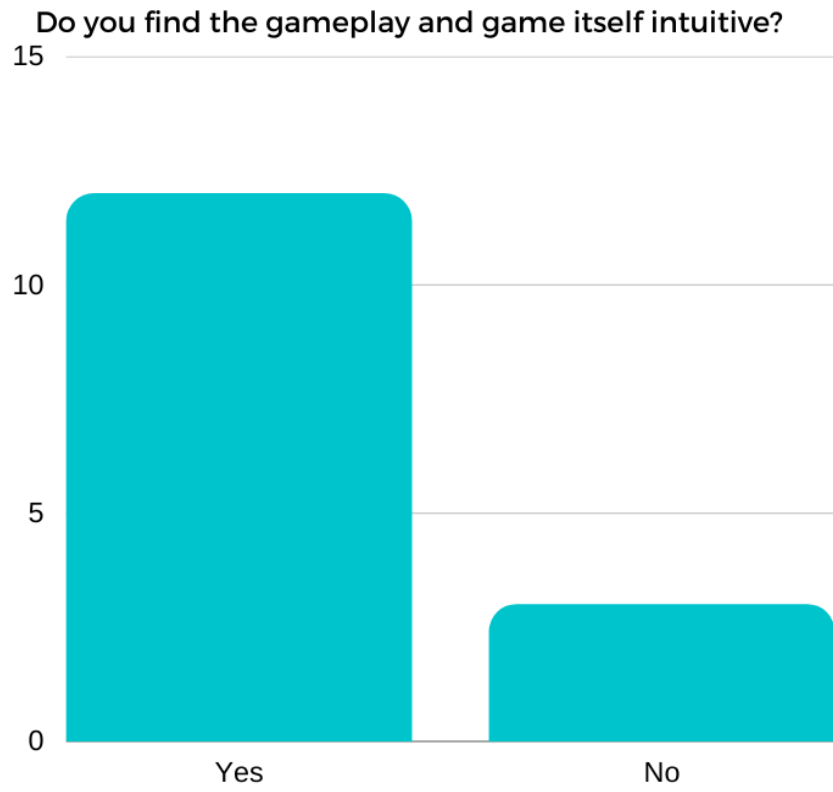
All answers from the playtesters can be found here.
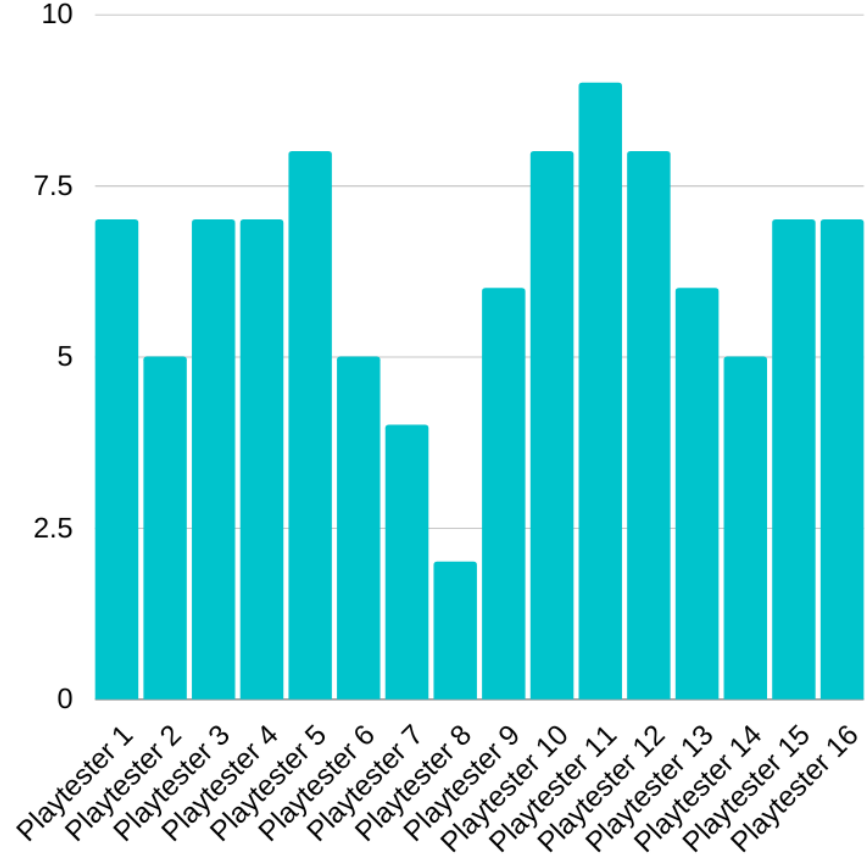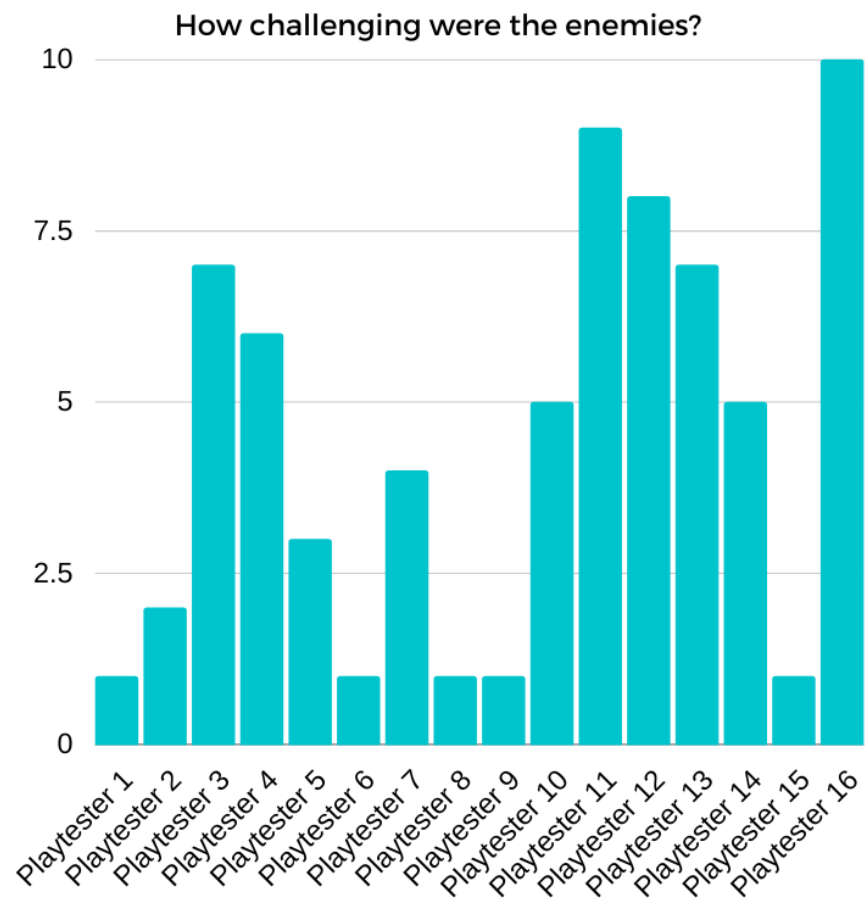
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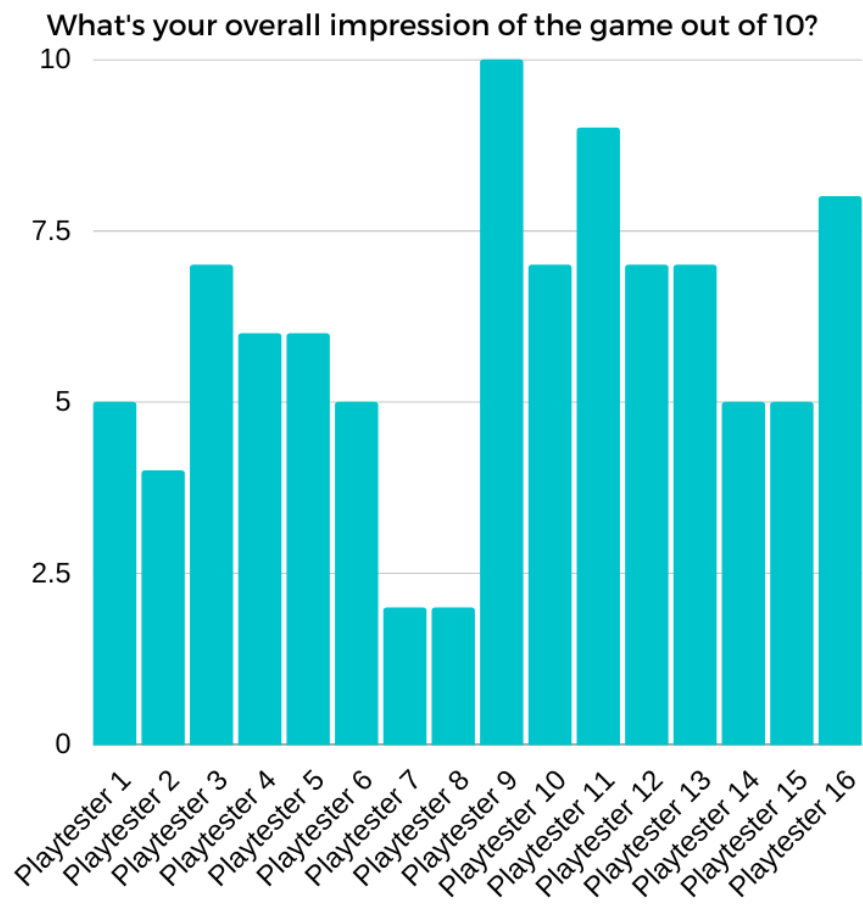
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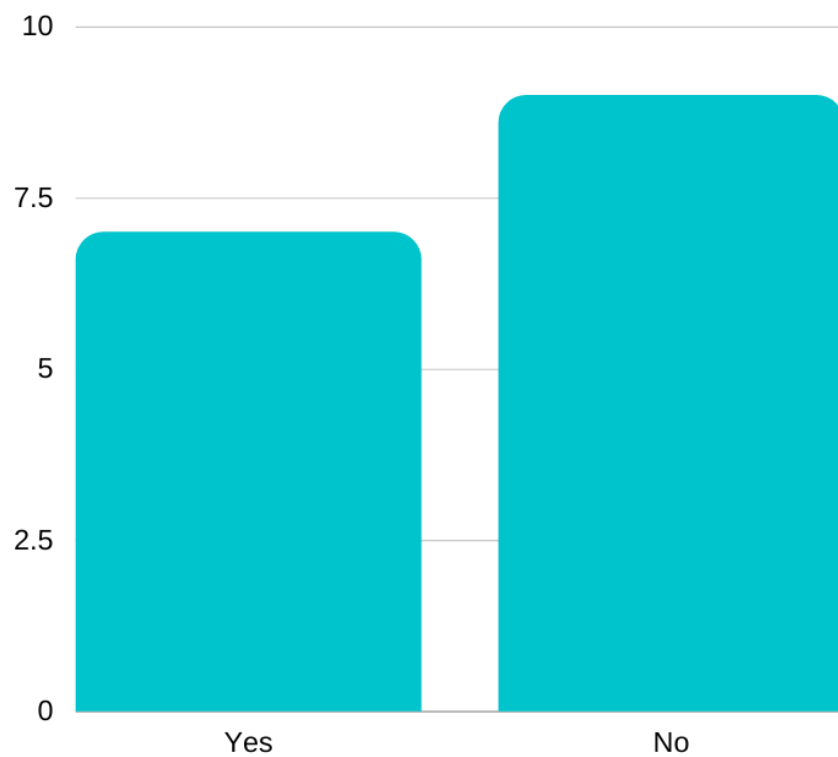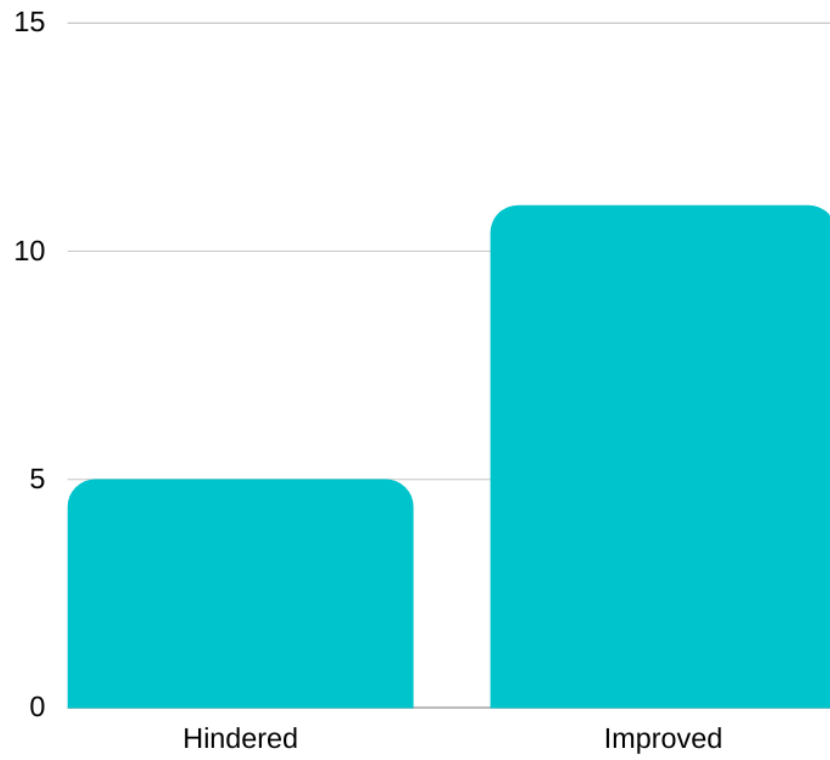How challenging were the enemies?

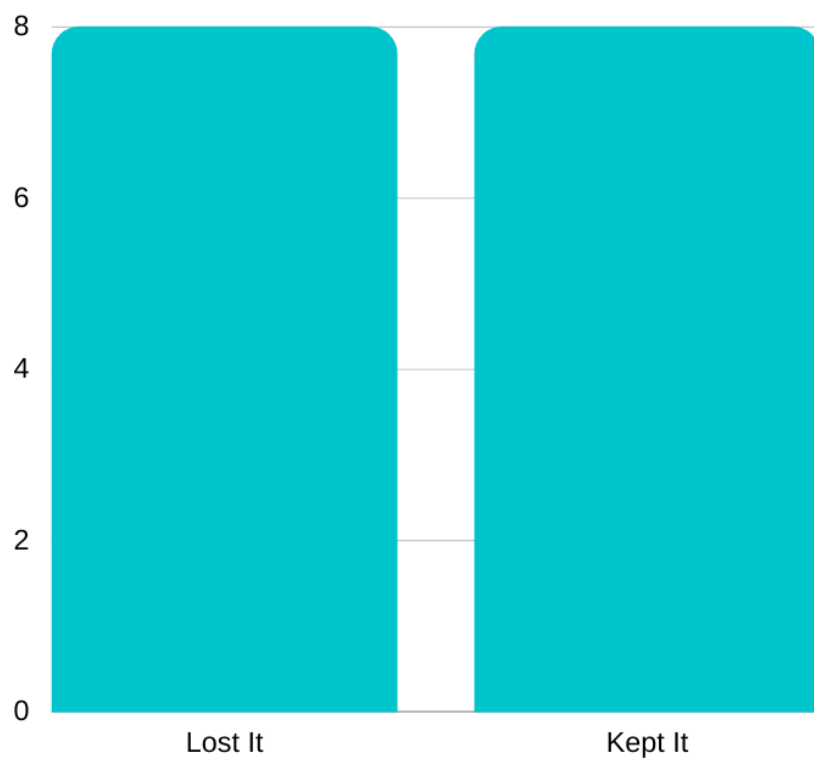## Do you think the arena moved as you would expect from a roller coaster?
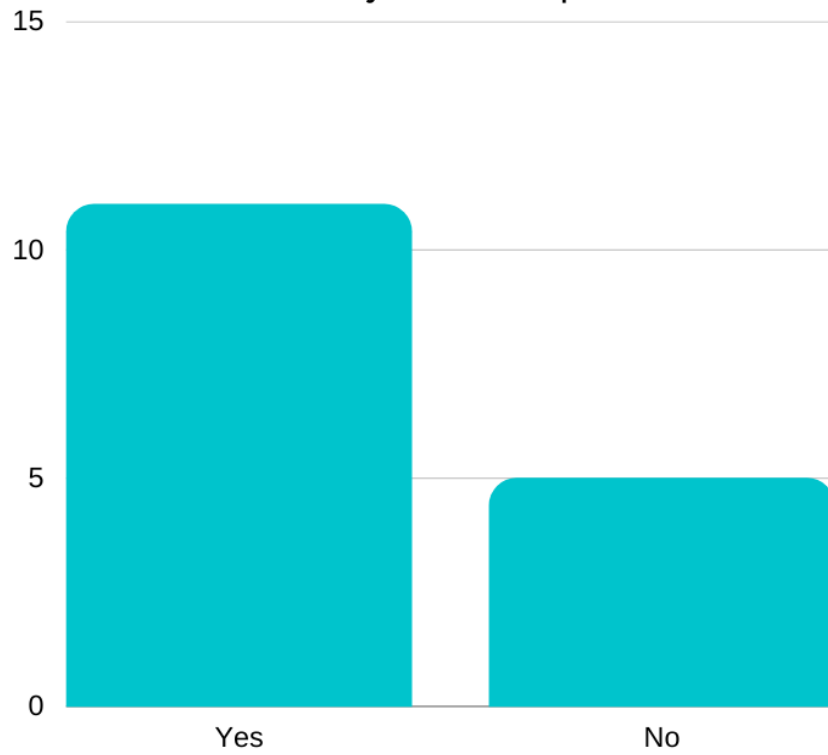
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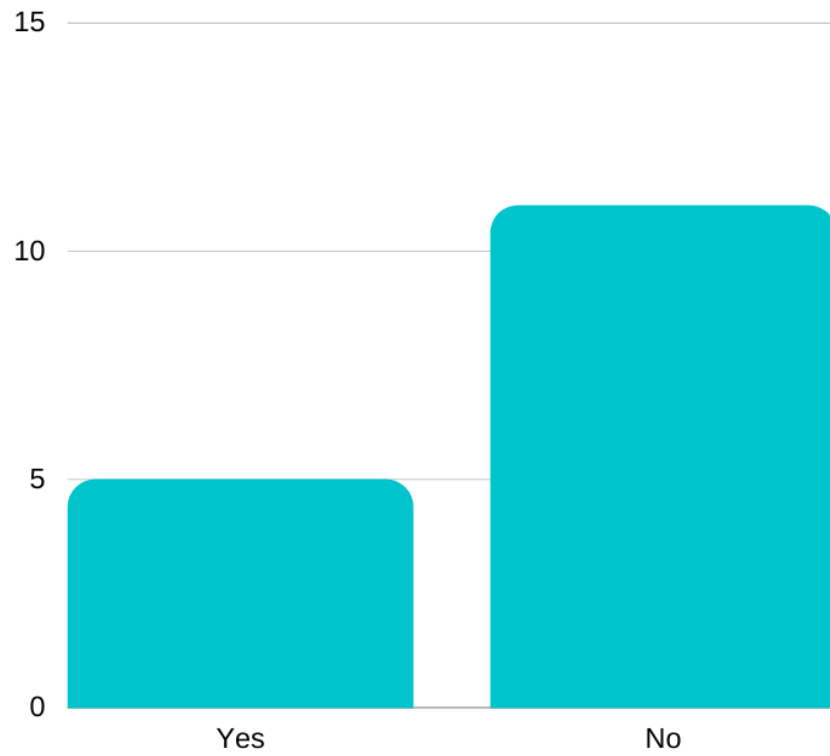
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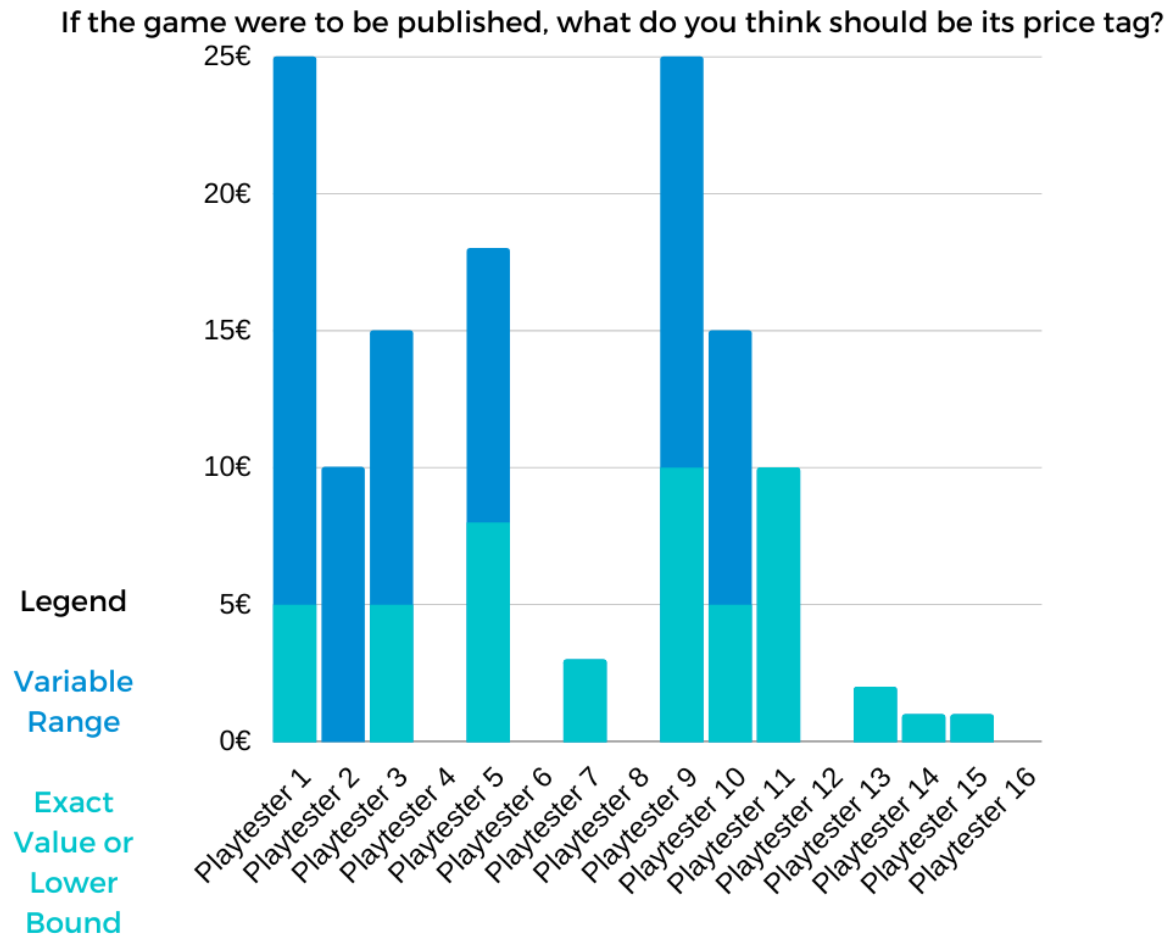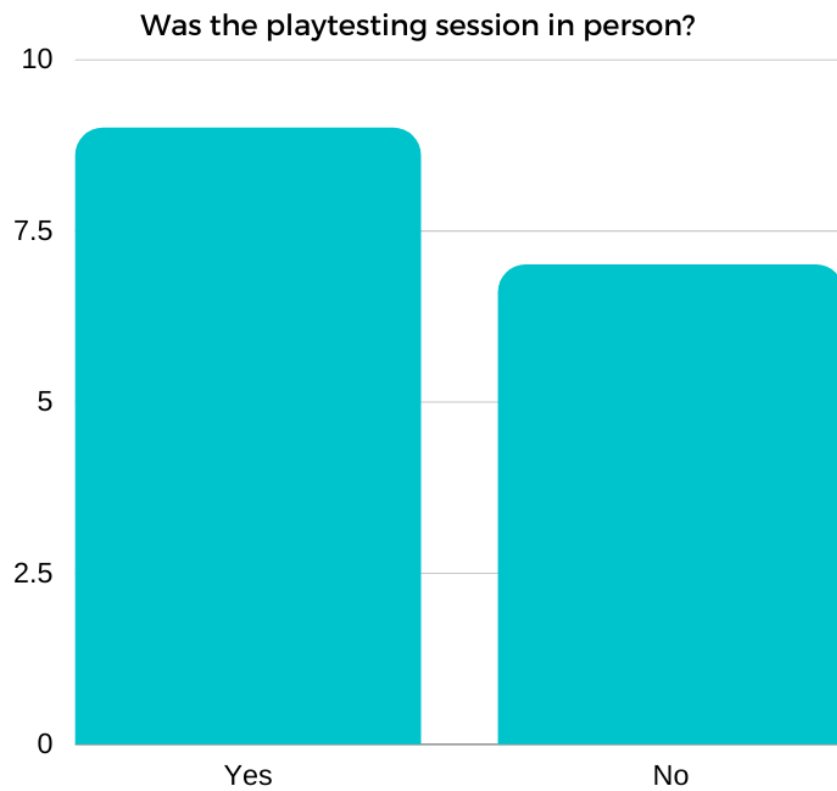
As the arena moved, did you lose your sense of orientation or were you able to keep it?

As the arena moved, did visuals such as seeing the track or the planet in the middle help you orientation wise?

If the game were to be published, what do you think should be its price tag?

Legend

Variable Range

Exact Value or Lower Bound

Was the playtesting session in person?

What could be improved in the tutorial?

What are the things you like about this game?

The idea is fun

The cute spiders

I like the gravity gun, it is a fun concept.

What are the things you dislike about this game?

Incoming movement signs could be more significant

A lot of things I was not prepared for by the tutorial (the arena movement etc)

Lack of mouse sensitivity control

Observations

One of the immediate reactions and obvious complaints for a shooter was that there was no mouse sensitivity option. They had the option to adjust the dpi of the mouse, but for a lot of them this wasn't enough. There also were a few minor bugs in the tutorial, like a typo, boxes flying away too fast, or ammo not being collectible/having the wrong color. The main point that can be taken away from the tutorial is that players don't like to read. Even though the second line describing the secondary weapon mentioned how to swap weapons only 1 of the players actually read it the first time he looked at the wall. Also the way the singularity weapon works was explained, but only 20% understood how it works. Which means the tutorial has to have more visual and maybe auditive features to explain the weapons and the movement. It also probably should be split, so the player doesn't get overwhelmed by information. During the game there were also a few bugs, like enemies or ammo clipping into the ceiling, or enemies still shooting and doing damage after death. But apart from the occasional frame drops the play sessions went pretty smooth. Our main feature, the roller coaster movement, was very surprising for all players and the intro scene showing the track only helped on the second playthrough, to understand what was happening. The movement indicator as it is, didn't get used at all. Partly because it wasn't explained in the tutorial, but even the players that looked at it, didn't get what it is supposed to do. The signs were more intuitive even though they got ignored very often, most players got what was happening after they looked at them. But what worked on nearly all players, was the auditive warning sign. Summing up, we have to do a way better job at explaining what is happening/aiding the player at predicting movement. At least if we

want the player to know it. The surprise definitely added to the fun in most cases, but having the player completely oblivious of what is actually going on is not our intention. The next most important point is probably a hit indication, on yourself and the enemies. The guns as they are feel pretty good, but without feedback on what and how hard you hit, it is only half as cool as it could be. Players were often unaware of what hit them, or if they hit an enemy. And if they hit the enemy they didn't know how hard and if the enemy was dead. The spawning of the ammo packs and the dissolving animation helped, but because the enemies still did damage as long as the body was visible, a lot of players got confused. Of course there were a ton of other problems ranging from the volume slider being too small, to enemies just tripping over by themselves. But all in all I think our 3 big pain points are the on hit feedback, the explanation of the arena movement and a better tutorial.

For a full list of observations and occurrences you can have a look at this sheet.

Planned Changes

Here are the planned changes we extracted from the suggestions and feedback we got from the playtesting.

Final Release Changes

1. Fix tutorial typo
2. Add canvas with movement buttons in the tutorial
3. Make arena more transparent to see track and planets
4. Remove movement indicator and make the signs bigger
5. Make ammo respawn in the tutorial
6. Make enemies don't do damage once they are dead
7. Add sensitivity slider in pause menu (make it carry over from scenes)
8. Stop Spiders from shooting once dead
9. more clear enemy killed indication
10. Adding Grunt and Boss
11. Add health point bars to the enemies

Future Changes

1. Full Tutorial Rework
2. More Maps
3. More Weapons
4. Better sound
5. Multiplayer over Network

6. Infinite waves mode
7. Highscore Leaderboard
8. Feedback on hitting enemies and getting hit
9. More sophisticated movement indicator with the track in the background
10. Some indicators for attacks and enemies behind you
11. Better looking projectiles using particle systems
12. Intro scene explaining the story and the objective
13. Fully random spawn points for enemies that also consider whether those points are close to the player or not