GAME DEVELOPMENT METHODOLOGY | JUNE 2019

FINAL REPORT

GROUP 5

JOSÉ MAIÉ 74270 | PEDRO CORREIA 81002 | PEDRO MONTEIRO 90850 | RAFAEL MARTINS 82034

Playtesting Report

Playtesting plan

For the MOJO setup we used a laptop with the requested monitor, keyboard and controller Our setup worked well and the only issue we had was the controller disconnecting between games a few times but it was quickly solved.

Before playing the game we explained the purpose of the game, asked for controller preference and then explained the controls. During the gameplay we would reinforce the control layout and explain something if we thought necessary. In the first part of the day we made the mistake of also explaining and asking to choose the advanced abilities. Getting into the game and slowly introducing new elements was significantly more successful.

After the game, we conducted the interviews, which include the questionnaire used in the workshop to identify player's persona.

For each test, we recorded data (time, location, object/event name) for each in-game event. Each ability such as jumping and flying, each event such as collisions and deaths and each interaction such as high-fiving fairies and shooting another player are recorded. This allowed us to visualize all this information in-game as we show later in this report.

Here follow the aspects we planned to focus our testing on:

1. Are the challenges enjoyable/rewarding to overcome?
2. Does the challenge's difficulty progression match the increase in player ability to overcome them?
3. Is the player interacting with each challenge?
4. Are the players using the character's abilities to overcome their obstacles? If not, then why not?
5. Are the players interacting with each other?
6. Are players able to comeback and win when behind?
7. Do fairy items feel useful and balanced?

Presentation of the results

Interviews

We conducted 40 interviews during the day. Our participants were evenly distributed in the 2 personas we had identified. 11 Natalies (Low experience with games), 17 Mikes (Average experience with games) and 12 Elias (High knowledge about games). All of our reviews were positive or very positive and most attendees provided a few suggestions to continue development of the game. We now present the received feedback:

Objective 1 - Obstacles and challenges.

Most people were able to list and remember the NPCs obstacles of the course while the simpler obstacles like walls, barriers, holes were less memorable than what we hoped for. Regarding the feeling of reward of these obstacles, we had the opposite feedback. Simple obstacles were rewarding as expected while NPCs were underwhelming.

Objective 2 - Skills, abilities and controls.

Regarding controls everyone was reasonably pleased with the control schema. People who were not used to the controller had some difficulties and some people thought there were a lot of controls but as they played they got used to it. Simple abilities were amply used: basic movement, jumping, flying and double jumping. As previously mentioned, people gave different responses, regarding skills, based on our initial explanation of the controls. Most of them did not use them but the few that did were fairly well used, fun and useful.

Objective 3 - Multiplayer interaction

As items were not implemented in time the only interactions available were through the NPCs. Feedback on this aspect was that players did not know when the NPCs interacted with the opponent due to player action.

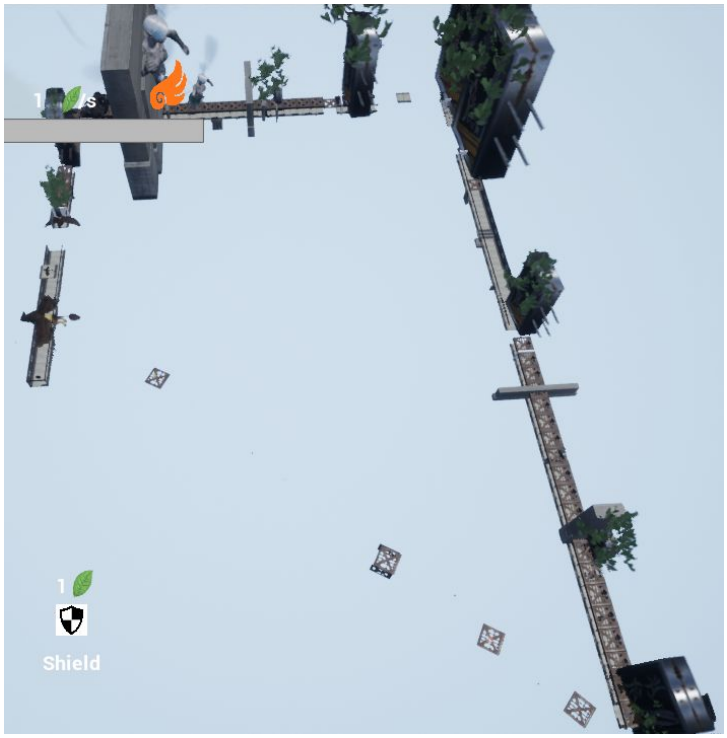
Additional suggestions:

Players had some problems with the use of energy. Suggesting a progressive recuperation of energy when depleted so as not to prevent progress through the level and less costs of energy for some actions such as flying or double jump. To address this we feel that respawn of energy after a brief moment would suffice to solve the issue.

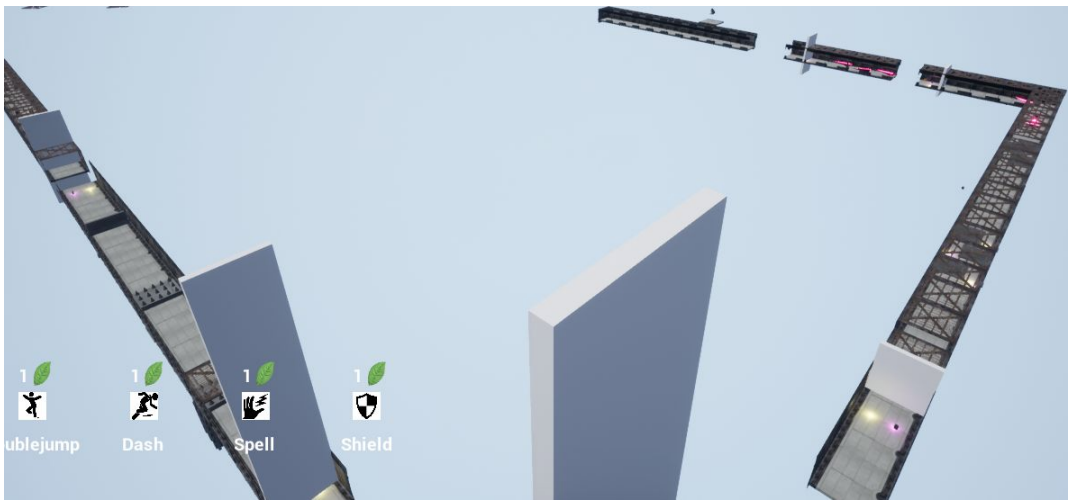
Regarding flying I think we improved considerably the experience but we still have to improve the falling after flying (which is too sudden) and the landing was unnecessarily difficult so we should add some shadow to make players understand where they’re landing.

In-game data

To answer objectives 2 and 3 we created this visualization of the level elements which were scaled proportionally to the amount of times they were collided/interacted with, over all our tests. This image shows the first level with the most interacted elements (which appear larger).



To answer where players died the most, we scaled the death location triggers in order to show where players respawn the most. These locations are represented by the white blocks.



To answer objective 4 we spawned a different cube for each action. Orange cubes for jumps, purple cubes for flying, white cubes for dashing and spells and shields as their usual representation.

Data analysis

Regarding objective 2, every player was able to finish the level. The areas that had more attrition were the second and third respawn points which correspond to the flying sections. We can also notice that there is a lot of jumping perhaps in hopes to get a little more progress after the flying ends. We think that the main struggle in the third respawn point was falling after flying (both the part of falling straight down and understanding where the character would fall). There are several possible solutions to this such as gliding and shadows. The obstacles that were, by far, the most collided with, were the two “double jump obstacles” with spikes in one of the first areas (not in Image 1 as they cover up everything). This level is supposed to be at mid-game difficulty, but it is being played as a first level so we think that this is fine. The other obstacles seem to be fairly balanced, including the robot attacks.

Regarding objective 3, fairies and robots where interacted with roughly the same number of times, at more than 1 per test. Spirits at 1 every two tests. There are also some tests where we see every fairy/robot being interacted with and others none. We feel that this has to do with getting used to the game. Some players quickly grasp the controls and realize the benefits of interacting with the npc’s, others take more time. In consecutive runs we see more interactions. The positioning of several robots in a group definitely makes players less likely to interact with them, as we see the first and second robot being interacted with much more often. We feel that the interaction with the spirits is also lower due to their positioning near the end of the level. The second spirit in the platform seems very out of the way for most players as well.

Regarding objective 4, by usage we have jump, fly, doublejump, dash, shield, spell. Jumping and double jumping was very intuitive. The amount of collisions with the double jump obstacles are more due to timing and we see a small improvement from first to last obstacle. Players were definitely trying to fly in the respective areas. There was also more dashing than we expected at more than 3 per run. Some players made very effective use of the shield to get past obstacles, while others didn't use it at all. We feel like this has to do with the way the explanation at the start was done. Overall the players intuitively used the abilities to get past obstacles, some of them more creatively than others.

Regarding objective 5, fairy items were not properly implemented so we couldn't test it as we wanted to. Kimono shields were used mostly to get past obstacles. We had a total of just 10 successful collisions, roughly a tenth of total fired projectiles. Even with bigger projectiles, the spells just don't work very well in the game as it is. The players were more inclined to use the shields and spells to get past obstacles and we feel that the solution for the multiplayer interaction is in the fairy items, which we couldn't test and analyse objective 7. There was also a lot of stealing the opponent's energy items and also some situations where the players made sure to interact with the fairies just to slow down the opponent.

Objective 6 is quite a hard question to answer. Overall in almost every test the difference between the two players is under 20 seconds, and in the interviews the players said that they felt like they had a chance to win. When a player is ahead he has the advantage of picking up all the energy and interacting with the npc's first. When a player is behind he has the advantage of not having to go through the obstacles that the other player collided with and have an easier time hitting his spells and fairy items. If it becomes a problem that the player behind has a low chance to come back it is something that can be mitigated by changing the way picking up energy works, the way npc interactions work, and fairy item balancing.

Development and exploitation report

Planning and schedule of the main tasks until a future release

For our game to be considered a product worth marketing several tasks would need to be completed. These tasks are described below along with its corresponding time estimates, assuming the developer team consists of 5 members.

Complete the development of levels 1 through 20

3 months

- This would require us to do the level design of all levels besides 10 and 17, as well as change the assets and sounds to suit the feeling we want for the game.
- Level two currently uses some assets that we don't have permission to use in a commercial product so new assets would need to be developed.
- It would require at least 4 members of the team including the artist.

Further develop features like achievements, high scores and speed run data

1 week

- A very important feature is replayability, as it increases the average play time without greatly increasing development cost and time, these extras would encourage and provide rewards for that aspect of the game.
- It is a simple task that would require 1 member and help from the artist.

Develop AI to compete against in single player

1 week

- Currently the singleplayer mode is lacking the competitive aspect that we want the player to feel, so for that to happen a non-player character would need to be introduced, this would require us to develop at the very least a basic AI that could get through the levels in a timely manner.
- This task would be accomplished by 2 members.

Test and gather feedback

1 week per 10 levels

- This task would consist on reiterating what has already been done throughout the semester but applied to all the levels that still need to be developed.
- It would take 3 members of the team.

Tune the game according to feedback

1 week per 10 levels

- Making the game harder or easier according to feedback, also tweaking any gameplay elements depending on said feedback.
- This task would require the whole development team in order to be complete as soon as possible.

Redesign existing UI and develop what's currently missing (like level selection and ability selection)

2 weeks

- Currently the UI we have is decent for a prototype but for a fully fledged product it would need a lot of tweaks and usability changes, the time also accounts for usability tests and feedback tweaks.
- This could feasibly be done with only one programmer and the artist.

Polish the final product and prepare deployment

1 week

- At this point the product would be complete, two members of the programing team along with the artist would enhance the user experience by adding small effects and an intro along with the credits and the necessary legal announcements, while the other two programmers would prepare the deployment of the product.

Since some of these tasks can be done concurrently, with some management of the development resources the final product would be completed in roughly 5 months.

Realistic development costs until release

The cost for 3 months of development (the expected time until release) would consist on the following:

- Salary for each team member
- Usability test = ~ 100€
- Deployment costs: Steam fee 86€ + any unforeseen costs = ~ 100€
- External game assets such as textures and models that could be needed = 50€ to 100€
- Development office: A public space could be used for the occasions where the whole team would need to meet = 0€
- Marketing materials: This would be to cover the costs of running a social network account, any physical materials and possibly a few advertisements = 50€

So adding it all up, we reach a final cost of about ~300€ for development related costs, not counting the salary for each member.

Realistic discussion of the revenue sources and pre and post marketing and distributions channels

The usual revenue sources in games are ads (used mostly on mobile gaming platforms), paid DLCs, sales of the game and in-game purchasable items (like cosmetics). With this in mind, our revenue would be mainly from game sales and any development and marketing pre-release would need to be funded by either investors or the development team, on top of that since the platform we're aiming to release is PC, having ads to cover the prerelease costs is not an option. This leaves us with Paid DLCs and In-game sales as extra sources of revenue post-release, both options would require further development time.

Regarding the distribution of the product, our best option would be to release it on Steam™ as this would make it widely accessible and would make it so no time is used in developing a distribution platform. This would require however a payment of 86€.

Both Pre-release and Post-release Marketing would mainly consist of social media usage, this option is the least expensive while also being able to reach a wide audience, depending on the success of word of mouth, ads could also be used to amplify this effect, but would greatly increase the marketing cost.

With all these points in mind the cost of the game should be of about 10€, with a 25 to 50% discount on release day. Some market research would need to be done closer to release to assert if the price still fits the market.

Postmortem report

We began our journey by deciding the type of game we wanted to do. We ended up agreeing on using the 3D endless runner genre as a base, as it was versatile and could go in any direction we wanted. We then had to decide what technology we wanted to use, in order to develop the game. Pedro Monteiro suggested Unreal Engine 4 and José suggested Unity. We ended up choosing Unreal Engine 4, which proved to be a good choice as it allowed us to build and test prototypes very efficiently.
The following weeks we individually thought about what we wanted as the game concept. In the end we decided to go with Pedro Correia's suggestion of a competitive racing game in a cyberpunk atmosphere.
The development phase raised some challenges, from lack of commitment to difficulties getting used to Unreal Engine, but in the end we were able to present a prototype at MOJO which we believed captured quite well the essence of our game.
We can still, however, provide more details on some key aspects that went right and some that didn't go as we wished.

What went right

Game being fun
One of the main challenges in creating a game is making sure that it provides a "good" experience to the players, and that they feel engaged with the gameplay, temporarily immersing them in the game. While an idea in the game designers' heads or put in the paper might sound fun, the only real way to assess it is with a playable prototype. This way, it was good to verify that Winged was indeed fun to play, and that the players felt motivated to keep playing the game.

Making it competitive
Even though the game incorporates a single player mode as an alternative, our main focus was the development of the multiplayer experience and making sure we created a game that would really motivate the players to win against their opponent and feel rewarded for doing so. As the playtests in MOJO allowed us to verify, we were able to successfully implement a competitive gameplay, where the players felt challenged to finish before their opponent. While we could still incorporate more mechanics in the game to maximize this feeling, the players also said they always felt like they had a chance to win even if they were falling behind.

Collaboration with Belas Artes
The partnership with Faculdade das Belas Artes allowed us to count with an artist on our team. Having someone more experienced in the visual and artistic component was a good contribute for our game, allowing us to improve the overall look of our game.

MOJO affluence
Being able to showcase our game at an event like MOJO was really helpful for us to easily test the game with several potential players. While our expectations for the event were good, we didn't expect that it would have so many attendees. This way, we ended up being able to collect a lot of useful feedback regarding our game prototype as well as to verify Winged had an overall great reception by the players, actually collecting some requests to launch the game into the market.

What went wrong

Unreal Engine learning

Using Unreal Engine's blueprint system allowed us to develop the prototype very quickly. However, some of our developers had trouble getting familiarized with the engine and felt like it has a longer learning curve than other options. Also, the engine is not as optimized for MacOS as for Windows, which also raised some trouble for Rafael.

Unfinished content: Fairy Items and Game dialogues

We designed fairy items as our main direct multiplayer interaction. Unfortunately, José couldn't finish implementing them in time for MOJO. They would have worked similarly to mario kart's items and hopefully the players would make use of them to screw their opponent. This way we also couldn't test this important interaction.

The storyline played an important part on our game design decisions for Winged. In fact, making sure that the game mechanics were consistent with the storyline was always a concern we had in mind. The challenge was on how to transmit all the lore to the players. We decided that the best way to do it, would be to incorporate it in dialogues along the gameplay. Unfortunately, while Rafael created lines to give our game characters, due to time constraints and difficulties in implementing it, the prototype showcased at MOJO didn't include them. Adding the lines along with audio recordings would improve our game even further, and therefore would be one of the crucial points to tackle next if we continued developing the game for a market release.

2nd level performance and lighting

Our final prototype includes two different levels. Having two different examples allowed us to showcase different mechanics, different levels of difficulty and different level design. While we are quite proud of our work regarding the level design, also thanks to the help of our artist, the second level ended up staying with two main issues that would have to be tackled if more time was provided. The first one was regarding the game performance, as the second level was considerably computationally heavier than the first and therefore the game was running with low fps (frames per second) in our testing laptop. In further development, this level performance would therefore have to be optimized. The second issue was regarding the level's lighting. As its design was done closer to MOJO, there wasn't enough time to optimize the lighting as we wished across the whole level, which lead to a small part of the level ending up being too dark and difficulting the players' actions. We also should have placed an additional respawn location near the end of the level as it proved near impossible to get through.

Flying mechanics

While the flying mechanics was always destined to play an important role in our game, considering our game characters had wings, it took quite a few iterations, and would still take more. A first more limited version was improved after receiving users feedback, and we modified this ability from simply raising the character in the air to being able to fly it in any 3D direction accordingly to the movement of the mouse or joystick. While this option gave a lot more control and freedom to the players, the gameplay tests showed us that this mechanic was often found more difficult to dominate than we intended. This way, a third redesign phase should still be carried out to perfect our characters' flying abilities.