GAME DESIGN DOCUMENT

READY, SET, ROLL!

By Florent Bleser

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Game Analysis

Ready, Set, Roll! is a physics-based obstacle course racing game. It can be played through local split-screen multiplayer or alone against the AI. In it, the player has to avoid a number of different obstacles or even use them to their advantage to finish any given level as fast as possible. As they complete more levels, the difficulty of the challenges will increase, and new obstacle behaviours will appear.
The player character is a simple ball that can be controlled by changing its rotation in 360 degrees. The ball keeps any momentum applied to it and only loses it through friction or a counteracting force.

Genre

Racing, physics-based, single-player, local-multiplayer

Platforms

PC (Windows)

Target Audience

The targeted audience for this game is the casual player. I define this roughly as someone who, on average, plays two to five hours of video games per week. This can be on any platform, including PC, consoles, and mobile.

I chose this target audience for two primary reasons. One to challenge myself to try to design a game that can be easily understood and enjoyed by pretty much anyone. And secondly, to make sure that I make every design decision in the process of creating this game a conscious one.

This is because people familiar with games already know how a controller works; they understand how the biggest genres of games work and what they have to do. I wanted to be able to tailor an experience where I could reach someone completely foreign to our usual habits without alienating them.

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Gameplay

Overview of Gameplay

Industry Position

Since the game is released on itch.io, the quality of the game must reflect this to not negatively stand out on the website. To reach this level of quality, the game shouldn't have any game-breaking bugs or bugs that heavily disrupt the flow of gameplay. However, small bugs can be forgiven, and the expectations on visuals, audio, and gameplay are low enough for a free student project.

References

Super Monkey Ball

In the Monkey Ball games, the player controls a monkey trapped inside a gacha ball with the goal of clearing the level before the timer runs out. What differentiates the Monkey Ball games from other games is that instead of directly moving the main character, players tilt the entire level to reach the goal. The game incentivises clearing the level as fast as possible and collecting bananas that are sprawling the map for extra points.

Super Monkey Ball gameplay

The shape of the levels, obstacles, and hazards makes for an entertaining experience and is a reference for the project's level design. Even though the player controls the level and not the player in the Monkey Ball series, the base idea is the same. A ball needs to be led through a track. Since the Monkey Ball games have existed for so long, modern installments make for a good reference on what tracks make for a good level, as the designers had a wealth of past experiences to see what works well.

Fall Guys: Ultimate Knockout

Fall Guys is a 3D platformer battle royale in which 60 players compete for the crown in a TV show that might remind some of *Takeshi's Castle* or *Wipeout*. Players struggle against each other in shows consisting of 3 to 8 rounds. Each round has a different game chosen from a large pool of games. Players compete in each round and are either eliminated or proceed to the next round. This goes on until the final round, where only one *Bean* is crowned the winner.

Fall Guys presents a great reference for creatively using existing features and mechanics in a diverse manner. If we look at the *race* type, rounds use rather simple mechanics. Players can run, jump/leap, and hold onto things. But by smartly designing fun courses based on those mechanics, we get memorable levels.

Door Dash mini game screenshot

The round "Door Dash", for example, is deceivingly simple. Players need to run through rows of doors. But some doors will break apart, whereas others will stay firmly shut. Here the main mechanic used is just simulating physics. Since this is usually almost entirely handled by the engine, making a level like this just comes down to having a good idea, as there is not much additional programming required, if any.

The game provides a dozen of these levels that can be analysed for what makes them unique. Once the base idea for a level is synthesised, it can be decided if the same idea could work for *Ready, Set, Roll!* or not.

Game Modes

The game contains 2 game modes. *Levels*, which is simply a progression through 5 levels, and *Multiplayer*, in which up to four players can race against each other in local split-screen. This design document focuses mostly on the *Levels* mode, as it is the result of my bachelor's project.

Key Selling Point

Physics-Based Racing Game With Simple Controls
Ready, Set, Roll! promises light-hearted fun with its physics-based movement and accessible but engaging level design. The whole idea at the origin of this game is **fun through simplicity, not despite it**. Therefore, its key selling point is that it can be played by pretty much anyone, requiring a very low barrier to entry while staying engaging for more experienced players, who can make use of the game's physics-based movement to achieve better and better finishing times or even find shortcuts that novice gamers wouldn't think of.

Development Guidelines

Accessibility

The game must be enjoyable by its target audience of casual gamers from the get-go. We don't want to lose much time explaining the controls or the goal. Preferably, someone walking by a booth can see the game, pick up the controller, and immediately start playing. It is vital to keep complexity to a minimum. Add as few controls as possible and give relevant information only through the UI.

Small Development Time

Given the small development time, the game needs to achieve maximum effect while keeping the actual workload to a minimum. This can be reached through good planning, a structured design process, and reusing assets and mechanics creatively. Nothing should be used only once but also should be used identically as little as possible.

Physics-Based Movement

The obstacles and tracks need to be adapted to the physics-based movement and possible cheesing players might get up to. The general rule, especially in later levels, is to leave some wiggle room to let adept players skip parts of the track but never so much that big sections of the levels can be skipped.

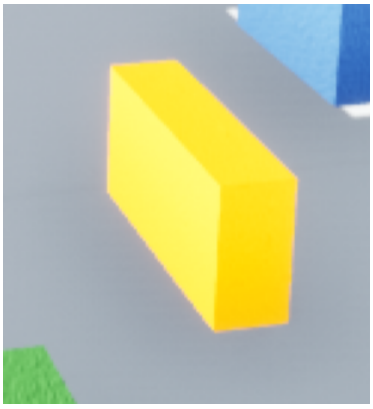
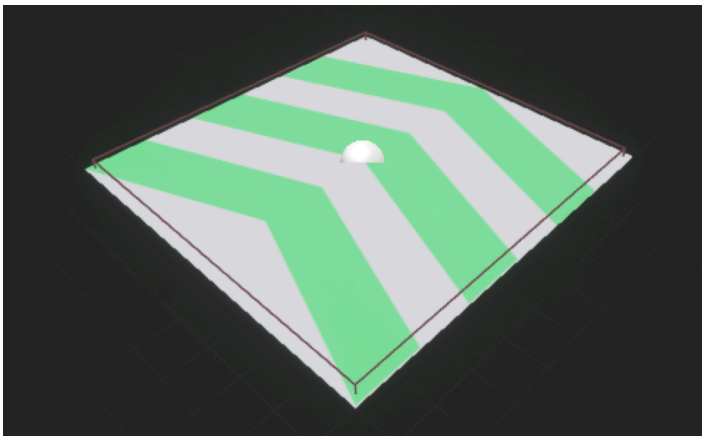
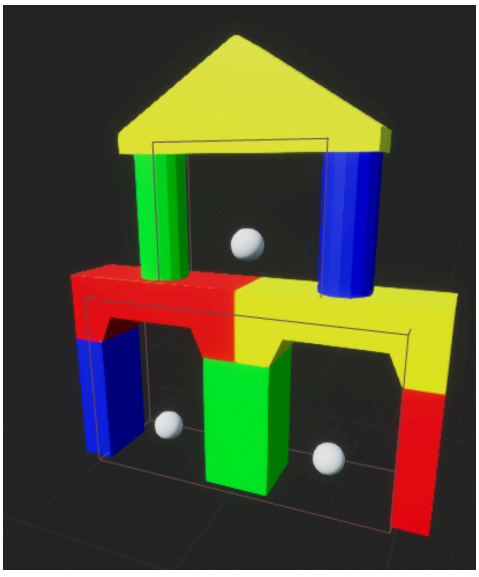
The second important point is to let the engine do all the heavy lifting. It is crucial to think of fun ways how, by applying force to the player character in any direction in 360 degrees, we can create new engaging ways of play.

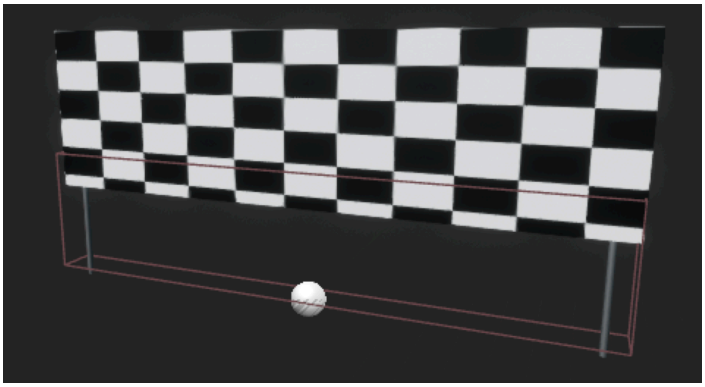
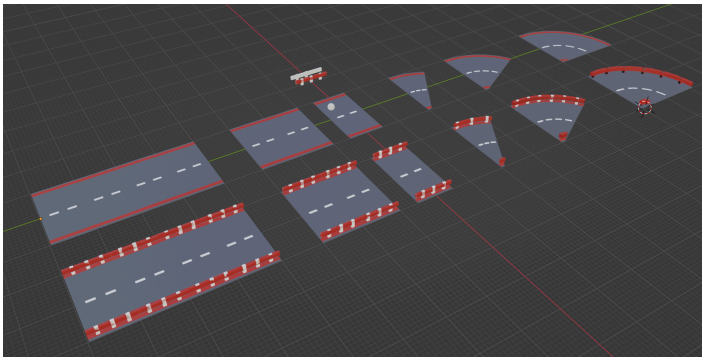
Gameplay Mechanics

There is a single character type. Since we want to keep the controls simple, more advanced mechanics reveal themselves through interacting with some of the entities in the game.

Character Attributes	
Character	**Movement Abilities / Actions Available**
Ball	**Apply roll**. A rolling force is applied to the character in the direction of the thumbstick/key combination.
Game Modes	
Levels	A single-player experience where the player needs to reach the end of the level. There is no minimum finishing time or leaderboard position requirement. Finishing one level unlocks access to the next one.
Multiplayer	Players compete to finish a series of levels in local split-screen.
Scoring System	
Points/Coins/Stars/Grades/Etc.	**How it's Awarded & Benefits**
Finishing Time	Completing a level will display how long it took the player to reach the finishing line since the race started. There are no additional incentives to get a better finishing time than what players challenge themselves to.

Entities	
Name	**Behaviour**
Moving Object	Can translate, rotate, and scale between a series of points. (Can be 2 or more) Can have any shape and size depending on what is needed.

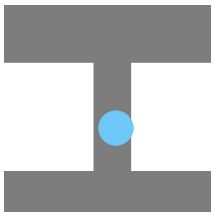
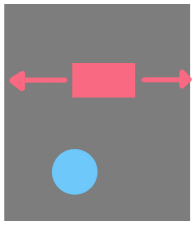
	
Speed Boost 	Applies a big rotational force in a specific direction for a specific period.
Checkpoint 	Once a ball passes through it, their respawn will be set to one of the spawning positions on the checkpoint.

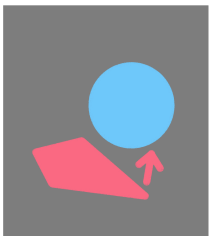
Finishing Line 	Records the player's finishing time and initialises the end of the level.
Kill Zone	When a ball overlaps with a kill zone, they respawn.
Modular Track 	A modular racetrack inspired by racing sets

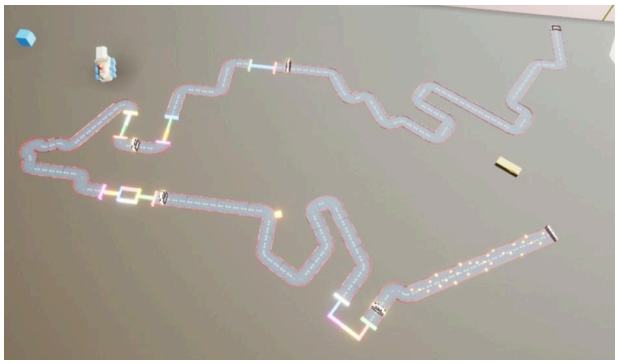
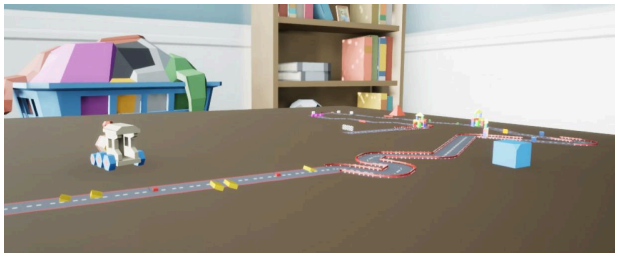
Level Design

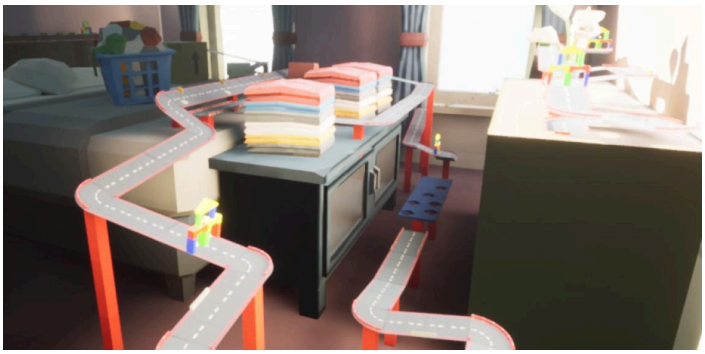
Challenges

Challenges are parts of the level that represent a challenge or obstacle that the player needs to overcome or pass to progress. These can vary in difficulty and can also be there simply as a gimmick or to add flavour to a level.

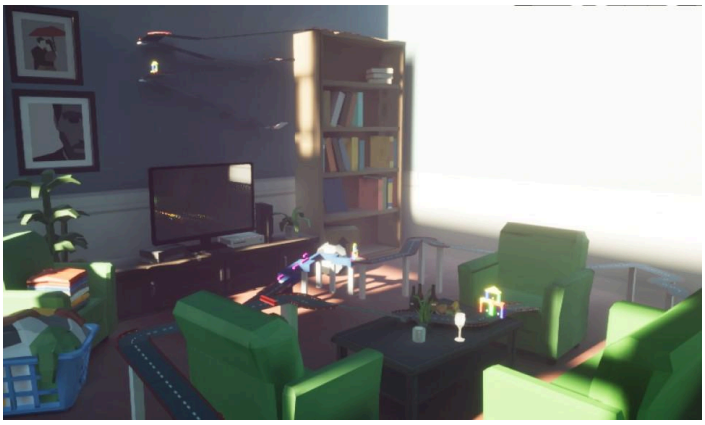
Challenges		
Name	Description	Image
Balancing Act	“Beam” only slightly bigger than the player that must be traversed. The challenge here is to not fall off by either losing control or being pushed off.	
Moving Wall	Simple floating element that moves back and forth between two points, blocking the path at certain intervals.	
Revolving Doors	A set of elongated squares on round platforms rotating in place. The player must time their progress to not be pushed off.	
Wall Roller	An angled wall that the player needs to maintain a certain speed on to not fall off.	

Pinball	A fast-moving/rotating object that propels the player.	

Levels	
Level 1 - Tutorial Set entirely on a table. Made to look like a modular toy racetrack. 	**GOALS** **Let player familiarise themselves with control scheme** ● Obstacles to circumvent ● Turns that force player to angle their camera ● Balancing section requiring dexterity ● Long track that let's player build up speed **Teach player the general mechanics of the game** ● Falling out of bounds respawns character ● Respawns happen on checkpoints ● Level is completed when the player crosses the finish line **KEY ELEMENTS** ● Still obstacles ● Sharp curves ● Balancing Act Challenge
Level 2 - On The Move Same visual design as level 1 	**GOALS** ● Introduce moving obstacles **KEY ELEMENTS** ● Moving Obstacles ● More Opportunities for the player to be thrown out of bounds

Level 3 - Scenic Route One long racetrack going through an entire bedroom. Start getting more creative with track placement. 	**GOALS** • Add Verticality • Add a side path • Introduce boosters • Through object placement only show that players can roll on steep tracks with enough speed **KEY ELEMENTS** • Boosters with a long straight track at the start of the track • Booster / wall roller combination • Offer a side path that the player can explore that rejoins with the main track as an alternative to wall rolling
Level 4 - Wall Roller Second bedroom level with more extensive usage of the available space. Tracks now get lower and gain more altitude again towards the end. 	**GOALS** Introduce angled tracks and ramps to gain some airtime to get players used to how their character behaves when flying, and more importantly, landing while maintaining control **KEY ELEMENTS** • Angled tracks • Ramp with boosters

Level 5 - YEET
Living room filled with wall-mounted tracks that lead to a catapult launching the player across the room and a balancing act challenge with moving walls and revolving doors.



GOALS

Challenge all skills the player should have learnt up to this point.

- Agility
- Timing
- Speed control

KEY ELEMENTS

- Pinball entity that launches player across the room
- Agility parkour

Control Scheme

Game Aesthetics & User Interface

The game has a minimalistic UI inspired by a 70s aesthetic and colour scheme for the UI and font.

All menus should have relevant controls displayed to facilitate navigation.

Testing

To accomplish this project's goals, the testing process is instrumental and requires the players to have a natural experience. Therefore, players are given no directions beyond letting them know what level they are testing.

Testing Format

Playtest #1 - Tester #1

Level 1

Player Profile:
Never plays games
Struggles to use WASD + Mouse

Controls Used: Keyboard and mouse

Completion Time: 6:48

Player Behaviour:

In the beginning, they ran a lot into walls before learning how to control the character.
They felt pressure from the AI characters.
Midway through the level; they could reliably balance the character.

Player Statement:

They didn't know which was their character when there were multiple on the screen.
Had fun moments when kicked off the balancing bar by an AI.
They liked the ambient decoration.
The difficulty didn't feel too steep.

Playtest #2 - Tester #2

Level 1

Player Profile:

Regularly plays games
Has a lot of experience gaming
Comfortable using the controller

Completion Time: 4:58

Player Behaviour:

Tried to be very fast.
Had more trouble with the balancing because of the speed.
Saw the ramp but preferred not to risk it in case it was a trap.

Player Statement:

Challenged themselves to get a good finishing time.

Player Movement Testing Takeaways

Fun	Boring	Takeaway
Winding tracks that must be skilfully traversed	Big/long tracks without any change in direction or altitude	Don't leave big blank spaces on the race track that serve no real purpose except for making the track look bigger
Dynamic obstacles that keep players alert	The same rigid obstacles over and over that the player has to lazily	Keep it fresh. Don't litter the track with obstacles just for the sake of

	roll around	it. Make sure that obstacles serve a purpose.
Neck-and-neck race against the AI where losing is a real possibility	AI that gets stuck at the beginning of the level	Spawn in AI at certain checkpoints to keep the player on their toes. Moving the existing AI forward instead of creating new AI makes this a lot easier.
Small obstacles whooshing by the player give an impression of speed	Big obstacles make the player feel small and slow	Make sure to scale obstacles depending on how you want the player to feel. If you want something large the player should circumvent, consider using many smaller obstacles so the player still *feels* fast.