

## Assignment 4 - Guidelines for Designing for a Gameplay Style

Author	E-mail
Alexandre Monteiro	<a href="mailto:gusmonalb@student.gu.se">gusmonalb@student.gu.se</a>



# 1 Introduction

In this paper I will define a gameplay style "[...] something that affects gameplay in some way and gives the game a distinguishable style of playing or play experience" [1], as well as provide examples of games that use it and also, I will create guidelines for game designers who are intending on using the style. During the paper I'll use the MDA model (this will be used as superscript) [2], Sicart mechanics (this mechanics will be underlined) [3], gameplay patterns (this patterns will be in all caps) [4] and machinations [5] to support my arguments.

## 2 The gameplay style

### 2.1 Defining the gameplay style

My gameplay style of choice is "Using gyro controls to impact a **PLAYER CHARACTER's** [6] actions".

### 2.2 Explaining the concepts in the gameplay style

To understand my gameplay style definition, it's important to know that a gyroscope in the context of games, to put it simply, is a "small device that determines the direction in which an object is rotated." [7]. So, gyro controls are a form of motion controls, where the player moves their controller around in 3D space, and that movement is translated in real time to the game. These controls are then used to impact, in some way, the actions of **PLAYER CHARACTERS** [6] in-game.

Gyro controls are often functionally identical but presented differently, there are two main ways in which gyro controls are used in games: to simulate gravity or to do **PLAYER CHARACTER** [6] inputs, simulating gravity can also be used to do **PLAYABLE CHARACTERS**[6] inputs but I'll go over each of this methods. Firstly I'll talk about gravity simulation using the gyro controls, games that use this often have the player tilt their controller in some way, which then is translated into the game as tilting some ground plane or some surface in which the **PLAYER CHARACTER** [6] is on top of (I'll go into this further in the examples section but for example, a game where a player must tilt the floor to guide a marble ball to the goal), in

this games, the player never actually uses gyro controls to give inputs to the PLAYER CHARACTER [6] itself, but rather it utilizes gyro controls to manipulate the scene around the PLAYER CHARACTER [6] in order for it to perform actions (like MOVING [8]). The other method is to use gyro controls to directly give input to the PLAYER CHARACTER [6], so moving the controller around will represent, in-game, something like aiming or MOVING [8].

The word "impact" in my definition is precisely used as a replacement for controlling as it's not always a direct control over the PLAYER CHARACTER [6] (PLAYER CHARACTER [6] also being the term used as it's not necessarily always under the players direct control but sometimes it can just be the representation of the player in the gameplay, like in the marble example given previously, where the marble represents the player, but it doesn't receive direct input from them).

## 2.3 Games that employ the gameplay style

Now that my game style definition has been defined and explained, it's time to provide examples of games that use it, both games that use as gravity simulation or for PLAYABLE CHARACTER[6] inputs.

### 2.3.1 The Legend of Zelda: Breath of the Wild [9] / Tears of the Kingdom [10]

The Legend of Zelda: Breath of the Wild (or BOTW for short) and Tears of the Kingdom (or TOTK for short) are two massive PVE [11] action-adventure/ puzzle video games that released on the Nintendo WiiU/Switch. This games are set in a post-calamity<sup>A</sup> environment that has a massive open world covered in FOG OF WAR<sup>A</sup> [12] that incentivizes GAME WORLD EXPLORATION<sup>DA</sup> [13] as players have pure FREEDOM OF CHOICE <sup>A</sup>[14] in their actions: they can fight<sup>M</sup> ENEMIES [15], build<sup>M</sup> structures and various types of EQUIPMENT<sup>M</sup> [16], collect<sup>M</sup> materials, meet locals, cook<sup>M</sup> meals and potions and pretty much have freedom of MOVEMENT<sup>M</sup> [8] to run<sup>M</sup>, climb<sup>M</sup>, jump<sup>M</sup> or glide<sup>M</sup> anywhere on the map.

In these games, gyro controls were used in two ways: to move objects that Link (the PLAYER CHARACTER's [6]) was controlling<sup>M</sup> using a special ability<sup>M</sup>, like controlling<sup>M</sup> a giant ball (within a defined ZONE OF CONTROL [17]), but gyro controls were also used for aiming<sup>M</sup> when Link tried

shooting<sup>M</sup> arrows. Specifically for the aim<sup>M</sup>, I created this graph in machinations to illustrate how it works with gyro controls.

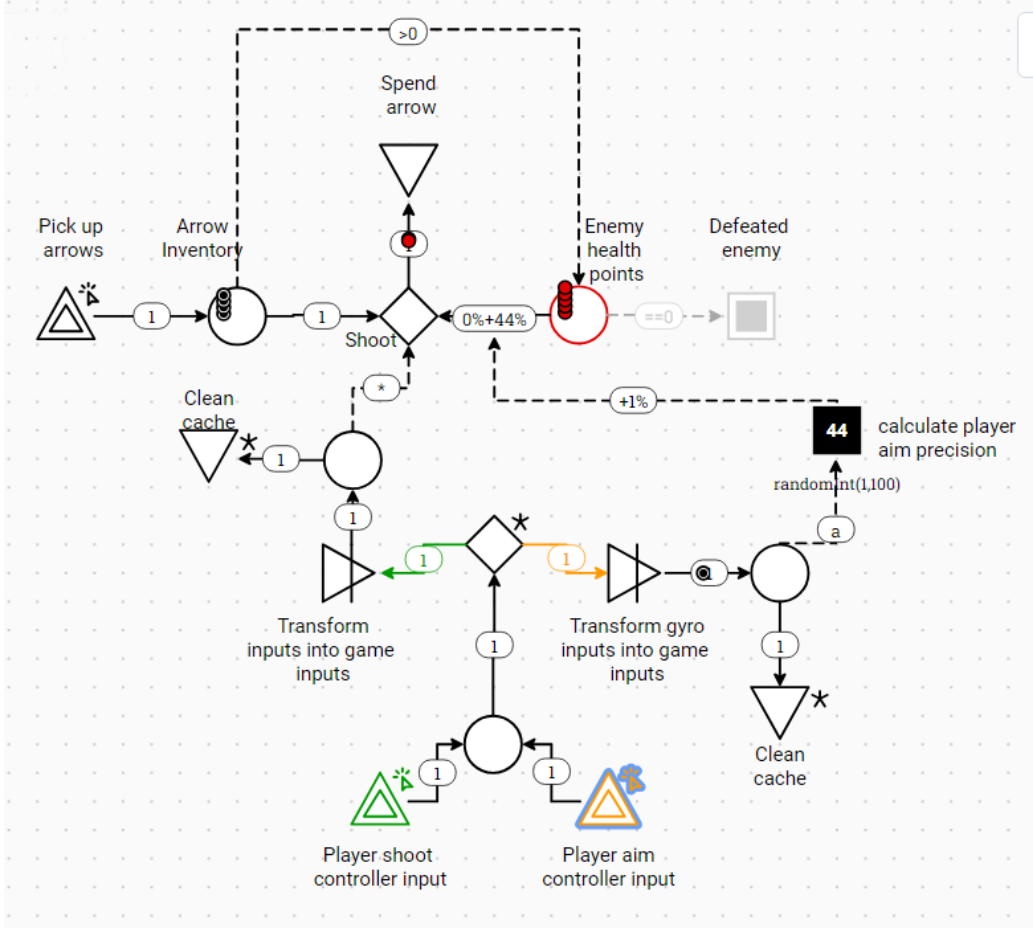


Figure 1: BOTW/TOTK Machinations Graph for aiming with Gyro

For the graph, I tried simplifying the mechanic shown but I kept the essential components to understand how it works. So a player can pick up<sup>M</sup> arrows (this could also be connected to the player inputs part I'll talk about next but because it doesn't involve gyro controls I decided to make it a simple interactable to keep it concise), and once they have arrows in the INVENTORY [18], they can enter "aim mode" where they prepare the shot with their bow, and while they're doing this they can control<sup>M</sup> where to shoot<sup>M</sup> by moving either the whole switch or the controller, hence I have a section on

the graph that shows the player giving said input, which then gets converted into a game input that results in the action of AIMING AND SHOOTING<sup>M</sup> [19] an arrow at an ENEMY [15].

Finally it's important to note that the Legend of Zelda franchise is no stranger to gyro controls, Twilight Princess [20] and Skyward Sword [21] are two honorable mentions that also use gyro controls to aim<sup>M</sup> but also to fight<sup>M</sup> ENEMIES [15]. This games were released on the Nintendo Wii and swinging the Wii controller translated to swinging Link's sword in-game.

### 2.3.2 Arms [22]

Arms is a PVE [11] and PVP [23] fighting game that released on the Nintendo Switch. In this game, players fight<sup>M</sup> either other players or NON-PLAYABLE CHARACTERS [24] in a ring, the fight itself is akin to boxing but utilizes special CHARACTERISTICS [25] unique to each PLAYER CHARACTER [6] to distinguish itself from other fighting games. Another of it's main features is that in Arms, all MOVEMENT<sup>M</sup> and COMBAT<sup>M</sup> [26] are handled by gyro controls, this means that players must MOVE<sup>M</sup> the controllers around (each one representing an arm of the PLAYER CHARACTER [6]) in order to engage in the fight<sup>M</sup> with the opponent. Due to it's nature of being a fighting game, being able to properly use the gyro controls (so doing the precise, correct movements with the controller) means that players can trigger COMBOS<sup>MD</sup> [27], hence this game actually utilizes the gyro controls as a mean to provide a POSITIVE FEEDBACK LOOP<sup>D</sup> [28] to the player, as the better they move, the longer the COMBOS<sup>MD</sup> [27] will be and the more DAMAGE<sup>M</sup> [29] it'll be inflicted unto the opponent.

### 2.3.3 Mario Party [30]

Mario Party is a franchise of TURN-BASED [31] PVP [23] or PVE [11] party games release on multiple Nintendo consoles. Mario party games function similarly to most board games, where the game itself is in a board, and players must advance tiles in order to obtain GOAL ACHIEVEMENTS<sup>M</sup> [32] (usually stars) that can or can't move tiles once picked up<sup>M</sup> (being signaled with GOAL INDICATORS [33] so players know where to head next), at the end of the game the player with the most stars wins<sup>M</sup>. To buy<sup>M</sup> a star players must engage in MINI GAMES<sup>MD</sup> [34] where they earn<sup>M</sup> the required coins to either buy<sup>M</sup> the stars or PURCHASABLE GAME ADVANTAGES<sup>MD</sup> [35]

(like items that make the PLAYER CHARACTER [6] move more tiles per turn than usual), these MINI GAMES<sup>MD</sup> [34] usually have participants go against each other to partake in a RESOURCE COMPETITION<sup>D</sup> [36] (in this case coins), some of the MINI GAMES<sup>MD</sup> [34] use gyro controls, the way they use them is varied but it's in usually fast-paced scenarios<sup>DA</sup>, the mechanics involved are predominately wiggling<sup>M</sup> the controller really fast to SPEED [37] up<sup>M</sup> the PLAYER CHARACTER [6] in some way (maybe it's a race, or maybe it's about chopping<sup>M</sup> onions really fast), use the controller to aim<sup>M</sup> or use the controller to MOVE<sup>M</sup> [8] a platform around. So, in terms of exploring the potential of gyro controls, Mario Party is a franchise that over the years has been in the forefront of it.

I want to give an honorable mention to another franchise, WarioWare [38], a somewhat similar party game where players have multiple MINI GAMES<sup>MD</sup> [34] that take advantage of gyro controls to provide fun<sup>A</sup> mechanics.

#### 2.3.4 Wii Sports [39]

Wii sports is a PVE [11] or PVP [23] sports game that released on the Nintendo Wii. Wii Sports consisted of 5 main MINI GAMES<sup>MD</sup> [34]: tennis, golf, boxing, bowling and baseball. All 5 of this MINI GAMES<sup>MD</sup> [34] emulated their respective sport and behaved differently but had one thing in common: they all used gyro controls, in tennis the Wii controller represented the racket, in bowling it represented the PLAYER CHARACTER [6] hand, in boxing players had to use the extra Wii controller (the Nunchuck) to represent each of the boxers hands, in baseball the controller represented the bat and in golf it represented the club(s), this all gave a seemingless sensation of actually utilizing the TOOLS [40] in-game as if they were being used in real life. This game is, perhaps, the most important game related with gyro controls, it was the game that revolutionized how gyro controls were seen and used, not only this but it was the catalyst that massively popularized the gyro controls in the game industry and as a tool for game design.

It is paramount to mention the role of the Wii as the main tool of the renaissance of gyro controls, all the games in it used some sort of it, and due to it's incredible motion capture on the controllers, the gyro controls felt smooth and natural to use.

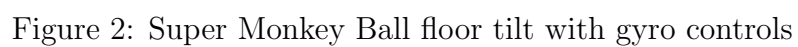
### 2.3.5 Splatoon [41]

Splatoon is a PVE [11] or PVP [23] third-person shooter that released for the Nintendo WiiU and Switch. In this games players aim<sup>M</sup> with gyro controls to shoot<sup>M</sup> paint to cover<sup>M</sup> the map, players can also shoot<sup>M</sup> paint at ENEMIES [15] to temporarily ELIMINATE<sup>M</sup> [42] them (that will SPAWN<sup>M</sup> [43] back into the game after a certain period of time) and they can dive<sup>M</sup> into their own colored paint to transverse the terrain, the winner of a match is the one with the most area covered<sup>M</sup> of the map in their paint's color by the end of a TIME LIMIT [44].

As mentioned gyro controls in Splatoon are used to aim<sup>M</sup> the various WEAPONS [45] used in-game, another famous shooter that works similarly (albeit it's a first person shooter/ platformer) is Metroid Prime [46], where players can also use gyro controls to aim<sup>M</sup> their gun.

### 2.3.6 Super Monkey Ball [47]

Super Money ball is a platformer franchise of games that released on multiple consoles (Nintendo, Xbox and Playstation) and Pc. In this games players have a PLAYER CHARACTER [6] that they don't directly give input to but instead they use gyro controls to tilt<sup>M</sup> the ground from each level and because the PLAYER CHARACTER [6] is a sphere, it's movement corresponds to the tilting<sup>M</sup> of the floor. In every level there's a goal and players must reach it before TIME LIMIT [44], this designed TIME PRESSURE<sup>DA</sup> [48] adds to the chaotic fun<sup>A</sup> and MOVEMENT<sup>M</sup> [8] that the game provides, players can also get a higher score per level (this gets saved in a HIGH SCORE LIST [49] to incentives players to beat old times) depending on how many PICK-UPS [50] they obtain before reaching the goal. To explain how the gyro controls influence the gameplay, I made this graph in machinations.





So, the player will tilt their controller to the right/left a certain amount of degrees, which then gets transformed into game inputs to the ground, in the graph I calculate the tilt direction with the formula  $b$  (representing the right) -  $a$  (representing the left), if it's positive then the ground will tilt<sup>M</sup> to the right and vice versa, and again because the PLAYER CHARACTER is a sphere, the same amount of side force will be applied to it.

A honorable mention of a game that works similarly, except it doesn't use gyro controls and it's not a video game, is the real life marble labyrinth game [51], where players manually tilt<sup>M</sup> a wooden/cardboard box with a marble in it, they must tilt<sup>M</sup> in specific ways to guide<sup>M</sup> the ball through the labyrinth until it reaches the goal. One could argue that the "gyro control" aspect of it it's the actual hands and wrists of the player.



Figure 3: Real life labyrinth-marble game

### 2.3.7 Star Fox Zero [52]

Star fox Zero is a PVE [11] vehicle simulation game that released on the Nintendo WiiU. In this game players control<sup>M</sup> a spaceship that flies<sup>M</sup> around levels shooting<sup>M</sup> ENEMIES [15] and BOSSES [53] to earn<sup>M</sup> points that go into a SCORE LIST [49], the earning<sup>M</sup> of this points not only depends on the

amount of defeated ENEMIES [15] but also the accuracy of each shot and the time it took to complete a level. What makes this game interesting is that the spaceship is controlled<sup>M</sup> with gyro controls, so the flying<sup>M</sup> simulation aspect of it is directly related to the gyro movements, players have freedom of movement and they can fly<sup>M</sup> in any direction, which makes gyro controls an optimal form of doing that gameplay, as players also have the same freedom of movement with their controllers.

### 2.3.8 Doodle Jump [54]

Doodle Jump is a platformer that released on Android and iOS. In this game players tilt<sup>M</sup> their phone to the left or right (The gyro controls in this game are contained in the phone itself), and this movement is directly translated to the PLAYER CHARACTER [6] in-game, the character is constantly jumping<sup>M</sup> and must land on platforms in order to go up, the game is SCORE LIST [49] based and so there's no real end to it.

### 2.3.9 Just Dance [55]

Just Dance is a rhythm dance game that released on multiple platforms. In this game players must mimic<sup>M</sup> the dance moves seen on screen in order to increase their HIGH SCORES [49] in each song. Just Dance takes advantage of the gyro controls in the controllers to perform the motion capture needed on the player, which then is compared to the dance moves shown on screen.

A honorable mention here is Ring Fit Adventure [56], a fitness game that released on the Nintendo Switch that uses the same sort of motion tracking with the gyro controls, but instead of dance moves the players are supposed to perform<sup>M</sup> various types of physical exercises.

### 2.3.10 Fortnite [57]

Fortnite is a third-person shooter battle royale that released on multiple platforms. In this PLAYER ELIMINATION [58] game players can gather<sup>M</sup> RESOURCES [59] to build<sup>M</sup> structures to stop ENEMIES [15] or help them get an advantage in certain situations. The interesting thing about Fortnite is that it uses gyro controls as a means of accessibility for players, by default SHOOTING AND AIMING [19] are handled by the controllers buttons/joysticks, however if players have a hard time with that they can turn

on an accessibility mode that changes the SHOOTING AND AIMING<sup>M</sup> [19] to use gyro controls.

#### 2.3.11 Mario Kart [60]

Mario Kart is a franchise of PVE [11] or PVP [23] racing games that released on multiple Nintendo platforms. In this games the player control<sup>M</sup> a kart/bike and must race<sup>M</sup> each other to be the one to get the finish line first, players can also pick up<sup>M</sup> items that give them an advantage in the race leading to RESOURCE COMPETITION [36]. In Mario Kart the driving of the vehicle can be controlled<sup>M</sup> entirely by gyro controls if the player so chooses that option.

Burnout Paradise [61] is another racing game, that released on multiple platforms and can also be played with gyro controls.

#### 2.3.12 Heavy Rain [62]

Heavy Rain is an interactive film game that released on multiple platforms. In this game players partake in the role of a PLAYER CHARACTER [6] that goes through an intense narrative-driven story, one of the mechanics of this game are the QUICK TIME EVENTS<sup>M</sup> [63], where players must react fast and give a certain input to get past it, some of the events in the game use gyro controls as it requires the player to wiggle the controller in order to surpass the situation.

#### 2.3.13 Wii Music [64]

Wii Music was a rhythm game that released on the Nintendo Wii. In this game players had to use gyro controls to play<sup>M</sup> a variety of instruments, however due to the complexity and precision needed to play<sup>M</sup>, for example, the piano, the game's use of gyro controls wasn't optimal as it didn't allow for those delicate needed movements.

#### 2.3.14 No More Heroes [65]

No More Heroes is a hack and slash franchise that released on multiple consoles. In this game the players controls a PLAYER CHARACTER [6] that must fight<sup>M</sup> their way through ENEMIES [15]. What makes this game unique in terms of gyro controls has to do with the way the COMBAT<sup>M</sup> [26] works,

all normal attacks<sup>M</sup> the PLAYER CHARACTER [6] can perform are mapped to the controller's buttons, however for special attacks<sup>M</sup> or COMBO<sup>MD</sup> [27] finishers the player would have to perform certain movements with their controller to do them (using it's gyro controls), this added to the immersion of COMBAT<sup>M</sup> [26].

### 3 Guidelines for game designers that intend to use the gameplay style

In this section, I'll create some guidelines for game designers who are interested in incorporating gyro control into their games.

1. When creating the mechanics that will use gyro controls, consider what kind of controller the player will be using, for example, if a player is utilizing a PS4 controller they'll get a much different feel than if they're using Joycons, as with Joycons they get individual control over each hand than with a more compact controller like the PS4 one where the gyro inputs are coming from a single source, therefore the mechanic should take this into account, perhaps something like tilting a platform is good for a PS4 controller (as it's one conjoined unit, also for this example, make sure that the controller is directly representing the object you're moving, so it's movements directly translate to the object's movements) or maybe something like fishing or driving is best for Joycons as it is tasks that emulate using both hands.
2. Always incorporate options regarding the gyro controls, not everyone will adapt to them at the same speed or the same way, so things like being able to toggle them on and off, or even being able to manually calibrate (some players will want higher precision, and so having an automatic setting for the gyro controls is not the best choice as different players achieve better precision while using the gyro with different calibrations) them are good options to have in the game.
3. Try to treat the gyro controls as a mouse (this is obviously situational but works really well for shooters/games where you need to aim), this gives makes the player feel as if they are moving the camera or the pointer themselves and thus it feels more natural to use.

4. Create a default scale for the gyro controls of 1 to 1, for a player, being able to make a move with the controller and seeing the exact same movement happen on-screen is much more intuitive and let's them learn it faster (opposed to more getting a more floaty or delayed feel when using the gyro controls), also most games that use gyro controls already have this scale so the transition in using the gyro controls from other games to yours is seamless.
5. If you want to design a mechanic around gyro controls, make sure you try to emulate movements or actions in-game representative of the arm/limb movements in real life as it feels more natural to control for the player (if the actions performed in-game are supposed to emulate limbs).
6. If you're using gyro controls for aiming in a game where aiming needs to be very accurate, it's recommend adding of aim correction or aim assist as not everyone gets used to the gyro controls.
7. Always consider what mechanics should be used with gyro controls and what mechanics should use the classic buttons on the controller, some controls are better for some situations than others, for example a mechanic where the player must rapidly do something might be better with buttons as there's usually less input delay. Also gyro controls can be used to create more impact in actions when used alongside buttons, a good example of this is how No More Heroes does it (as I explained in the previous section).
8. Gradually introduce the gyro controls, start by making players perform simple actions with them, get accustomed to using them, and add complexity gradually over time.
9. Avoid using gyro controls for mechanics that require very precise movements or that require players to touch things that are very close to each-other, a very good example of this was Wii Music (for the reasons I explained in the examples section above.) There are exceptions of course, in Lethal Company, an horror game, the player can pick up<sup>M</sup> certain fragile objects with gyro controls, which is made purposely to make the task harder but also more fun as it adds an element of unpredictability.

10. When you're planning to create a game around gyro controls, consider the genre of game you want to make, not all genres work equally well with gyro, but some truly shine when incorporated with these types of controls, like a first person shooter (you get the accuracy of a mouse combined with the ergonomics of a controller), racing games (being able to steer the wheel using the controls adds to the immersion and atmosphere of the game) or dancing games (being able to perform the dance moves in real life and having the gyro controls track them and translate them to the game makes the experience much more engaging).
11. When planning to create a game around gyro controls, consider the platform in which you'll release it on, some platforms have more or less limitations on gyro than others, for example the Nintendo Switch has two Joycons with gyro in them, meaning they're great to use when doing mechanics where both hands are needed for specific tasks, on the other side the PS4 has a single controller so the inputs all come from that, which can be a bit limiting. Finally for VR it works great as VR games usually try to emulate the physics and anatomy of real life, so having gyro controls provides really good hand tracking.
12. Mini games are a great way to incorporate gyro controls, not only are they compact experiences that often don't impact the overall mechanics of the game so you're free to explore all sorts of mechanics and motions, but there's a big catalog of gyro controls being used in mini games, which helps to get a reference on how to do them properly.

### **3.1 Changes to the design process in the Game Design Workshop**

The design workshop has a 7 process approach to designing a game, I'll briefly go over the most relevant and explain how they could be changed to fit my style. Starting with brainstorming, designers need to think how to create mechanics and level design that fits gyro controls, as mention above in the guidelines there's certain genres and types of going about design that fit better/worse when paired with gyro controls. A physical prototype would work really well for both aiming and simulating gravity with gyro controls, as both try to replicate the real life feeling, so for example putting a marble in a cardboard plane and tilting the plane around could make designers un-

derstand how to implement it in-game. When doing the software prototype, designers should put the focus in the gyro controls, and the game mechanics around it, as that is part of the core gameplay of the game and how it behaves. Finally, in terms of production, the development team should work closely together and perform multiple tests on the gyro control mechanics to ensure it feels natural to control and use.

## 4 Conclusion

To conclude, gyro controls can be a great avenue to explore and use when developing games and mechanics, in some situations it can add immersion, in others stress, or it can just be a great way to move/control something in-game. However it's always important to properly think about when to use and when not to use it, as it's only always the best choice for every situation. Having that said I hope that the examples and guidelines given can help others in the development or design of mechanics/games around gyro controls.

## 5 Process description

I chose my gameplay style because it's a style that I'm used to seeing in games that I like, essentially I wanted a style that I enjoyed and had experienced many times before, after picking it I discussed with a teacher to make sure it was appropriate for the assignment.

I based the structure around what the assignment wanted us to achieve, so each section is a major key point in the assignment. In terms of using and identifying Sicart mechanics, MDA and gameplay style patterns I mostly went through the worked examples we had presented to us in class, the lecture slides and the gameplay style wiki, I also relied a bit on assignment 2 in terms of being able to detect a style and be able to properly reference it. For the machinations graphs, I specifically choose two games that represent the two main ways in which I said the gameplay style is used for, so the Zelda one was to represent aiming and the Super Monkey Ball one was to represent gravity simulation.

For both the examples and the guidelines provided I did some search online but I most relied on my knowledge and my friends knowledge, I have

some friends who are also into gyro controls so I prepared some questions for them which then were converted, alongside my own knowledge and opinions, into guidelines/examples (an example of one of this questions is "in what games did you like the gyro controls implementation and why do you think it worked well there?"). Some of the results I got from this questions were conflicting so ultimately I would use my take on the topic to decide what to write and what to leave out. Also for the examples, I tried to pick examples from different genres, to have a good pool of games that have different genres but still use the gyro controls for something. I tried doing the same for consoles, but it ended up being Nintendo heavy, there are various examples of games that use gyro controls from other consoles (and I named a few in the paper) but ultimately the most innovation came from Nintendo IPs hence it being the majority of the examples.

I created this paper using the IEEE template in Overleaf and did not use ChatGPT for the assignment or other AI tools.



## References

- [1] S. Björk, 2023. [Online]. Available: <https://chalmers.instructure.com/courses/26256/assignments/74661>
- [2] R. Hunicke, M. LeBlanc, and R. Zubek, “Mda: A formal approach to game design and game research,” 2004. [Online]. Available: <http://www.cs.northwestern.edu/~hunicke/pubs/MDA.pdf>
- [3] M. Sicart, “Defining game mechanics,” *Game Studies*, 2008.
- [4] S. Björk, “Game patterns wiki,” 2023. [Online]. Available: <http://gameplaydesignpatterns.org/>
- [5] Machinations, 2023. [Online]. Available: <https://machinations.io/>
- [6] S. Björk, “Player characters,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Player\\_Characters](http://virt10.itu.chalmers.se/index.php/Player_Characters)
- [7] G. Accesory, “What are gyro controls?” 2021. [Online]. Available: <https://www.gameaccesory.com/post/what-are-gyro-controls>
- [8] S. Björk, “Movement,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Movement>
- [9] Wikipedia, “The legend of zelda: Breath of the wild,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/The\\_Legend\\_of\\_Zelda:\\_Breath\\_of\\_the\\_Wild](https://en.wikipedia.org/wiki/The_Legend_of_Zelda:_Breath_of_the_Wild)
- [10] —, “The legend of zelda: Tears of the kingdom,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/The\\_Legend\\_of\\_Zelda:\\_Tears\\_of\\_the\\_Kingdom](https://en.wikipedia.org/wiki/The_Legend_of_Zelda:_Tears_of_the_Kingdom)
- [11] S. Björk, “Pve,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/PvE>
- [12] —, “Fog of war,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Fog\\_of\\_War](http://virt10.itu.chalmers.se/index.php/Fog_of_War)
- [13] —, “Game world exploration,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Game\\_World\\_Exploration](http://virt10.itu.chalmers.se/index.php/Game_World_Exploration)

- [14] —, “Freedom of choice,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Freedom\\_of\\_Choice](http://virt10.itu.chalmers.se/index.php/Freedom_of_Choice)
- [15] —, “Enemies,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Enemies>
- [16] —, “Equipment,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Equipment>
- [17] —, “Zone of control,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Zone\\_of\\_Control](http://virt10.itu.chalmers.se/index.php/Zone_of_Control)
- [18] —, “Inventories,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Inventories>
- [19] —, “Aim shoot,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Aim\\_%26\\_Shoot](http://virt10.itu.chalmers.se/index.php/Aim_%26_Shoot)
- [20] Wikipedia, “The legend of zelda: Twilight princess,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/The\\_Legend\\_of\\_Zelda:\\_Twilight\\_Princess](https://en.wikipedia.org/wiki/The_Legend_of_Zelda:_Twilight_Princess)
- [21] —, “The legend of zelda: Skyward sword,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/The\\_Legend\\_of\\_Zelda:\\_Skyward\\_Sword](https://en.wikipedia.org/wiki/The_Legend_of_Zelda:_Skyward_Sword)
- [22] —, “Arms (video game),” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Arms\\_\(video\\_game\)](https://en.wikipedia.org/wiki/Arms_(video_game))
- [23] S. Björk, “Pvp,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/PvP>
- [24] —, “Non-player characters,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Non-Player\\_Characters](http://virt10.itu.chalmers.se/index.php/Non-Player_Characters)
- [25] —, “Characteristics,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Characteristics>
- [26] —, “Combat,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Combat>
- [27] —, “Combos,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Combos>

- [28] —, “Positive feedback loops,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Positive\\_Feedback\\_Loops](http://virt10.itu.chalmers.se/index.php/Positive_Feedback_Loops)
- [29] —, “Damage,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Damage>
- [30] Wikipedia, “Mario party,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Mario\\_Party](https://en.wikipedia.org/wiki/Mario_Party)
- [31] S. Björk, “Turn-based games,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Turn-Based\\_Games](http://virt10.itu.chalmers.se/index.php/Turn-Based_Games)
- [32] —, “Goal achievements,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Goal\\_Achievements](http://virt10.itu.chalmers.se/index.php/Goal_Achievements)
- [33] —, “Goal indicators,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Goal\\_Indicators](http://virt10.itu.chalmers.se/index.php/Goal_Indicators)
- [34] —, “Minigames,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Minigames>
- [35] —, “Purchasable game advantages,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Purchasable\\_Game\\_Advantages](http://virt10.itu.chalmers.se/index.php/Purchasable_Game_Advantages)
- [36] —, “Resource competition,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Resource\\_Competition](http://virt10.itu.chalmers.se/index.php/Resource_Competition)
- [37] —, “Speed,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Speed>
- [38] S. M. Wiki, “Warioware (series),” 2023. [Online]. Available: [https://www.mariowiki.com/WarioWare\\_\(series\)](https://www.mariowiki.com/WarioWare_(series))
- [39] Wikipedia, “Wii sports,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Wii\\_Sports](https://en.wikipedia.org/wiki/Wii_Sports)
- [40] S. Björk, “Tools,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Tools>
- [41] Wikipedia, “Splatoon,” 2023. [Online]. Available: <https://en.wikipedia.org/wiki/Splatoon>

- [42] S. Björk, “Eliminate,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Eliminate>
- [43] —, “Spawning,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Spawning>
- [44] —, “Time limits,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Time\\_Limits](http://virt10.itu.chalmers.se/index.php/Time_Limits)
- [45] —, “Weapons,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Weapons>
- [46] Wikipedia, “Metroid prime,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Metroid\\_Prime](https://en.wikipedia.org/wiki/Metroid_Prime)
- [47] —, “Super monkey ball,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Super\\_Monkey\\_Ball](https://en.wikipedia.org/wiki/Super_Monkey_Ball)
- [48] S. Björk, “Time pressure,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Time\\_Pressure](http://virt10.itu.chalmers.se/index.php/Time_Pressure)
- [49] —, “High score lists,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/High\\_Score\\_Lists](http://virt10.itu.chalmers.se/index.php/High_Score_Lists)
- [50] —, “Pick-ups,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Pick-Ups>
- [51] Wikipedia, “Labyrinth (marble game),” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Labyrinth\\_\(marble\\_game\)](https://en.wikipedia.org/wiki/Labyrinth_(marble_game))
- [52] —, “Star fox zero,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Star\\_Fox\\_Zero](https://en.wikipedia.org/wiki/Star_Fox_Zero)
- [53] S. Björk, “Boss monsters,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Boss\\_Monsters](http://virt10.itu.chalmers.se/index.php/Boss_Monsters)
- [54] Wikipedia, “Doodle jump,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Doodle\\_Jump](https://en.wikipedia.org/wiki/Doodle_Jump)
- [55] —, “Just dance (video game series),” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Just\\_Dance\\_\(video\\_game\\_series\)](https://en.wikipedia.org/wiki/Just_Dance_(video_game_series))

- [56] —, “Ring fit adventure,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Ring\\_Fit\\_Adventure](https://en.wikipedia.org/wiki/Ring_Fit_Adventure)
- [57] —, “Fortnite,” 2023. [Online]. Available: <https://en.wikipedia.org/wiki/Fortnite>
- [58] S. Björk, “Player elimination,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Player\\_Elimination](http://virt10.itu.chalmers.se/index.php/Player_Elimination)
- [59] —, “Resources,” 2023. [Online]. Available: <http://virt10.itu.chalmers.se/index.php/Resources>
- [60] Wikipedia, “Mario kart,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Mario\\_Kart](https://en.wikipedia.org/wiki/Mario_Kart)
- [61] —, “Burnout paradise,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Burnout\\_Paradise](https://en.wikipedia.org/wiki/Burnout_Paradise)
- [62] —, “Heavy rain,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Heavy\\_Rain](https://en.wikipedia.org/wiki/Heavy_Rain)
- [63] S. Björk, “Quick time events,” 2023. [Online]. Available: [http://virt10.itu.chalmers.se/index.php/Quick\\_Time\\_Events](http://virt10.itu.chalmers.se/index.php/Quick_Time_Events)
- [64] Wikipedia, “Wii music,” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/Wii\\_Music](https://en.wikipedia.org/wiki/Wii_Music)
- [65] —, “No more heroes (video game),” 2023. [Online]. Available: [https://en.wikipedia.org/wiki/No\\_More\\_Heroes\\_\(video\\_game\)](https://en.wikipedia.org/wiki/No_More_Heroes_(video_game))