Ideation Process

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| Interview | Digging Deeper |
| Q: | Q: |
| In general, the group is more experienced around Nintendo products. They also have varying levels of experience with VR and/or motion controls.  The higher end price range experiences are much rarer within the participants. The most common interacting method with motion controls were with cheaper Nintendo products, whether it be the 3DS, Wii, Wii U, and Nintendo Switch.  To a smaller degree, there are some who have experienced motion control / Haptic feedback on things like the PS4 / PS5 and Xbox One (and its later iterations). | A common theme is slight wrist discomfort when using gyro controls on Nintendo Switch pro controllers, ex for games like Splatoon and Overwatch.  Physical discomfort can more often be attributed to physically demanding moves with controllers that are not similar in physical attributes as to the object they are emulating in game. For example, the Wii sports baseball game may strain arms when doing full swinging motions with the Wii remote for prolonged time periods.  Less wide motion activities, were less discomforting, ex. Mario Kart Wii steering wheel controls. |

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| Capture Findings | Take A Stand with a POV |
| We feel that physical pain can be attributed to the type of motion the player is enacting, the weight of the controller and physical health of the player. Certain actions are more detrimental to player health than others.  The steering wheel barely bothers players at all, it’s a relatively light controller and the movements the player does are stationary arm turns, with slight wrist movements.  On the other hand, games that encourage rapid movement in ligaments and muscles are more demanding. For example, in Wii Sports Baseball, when pitching the ball, the optimal throw strategy is not a realistic throwing motion, but a fast wrist and hand flick. This can quickly strain players as it’s the most viable method we found to reach 93 mph fast balls. Proper throwing techniques net around 68-76 mph. The higher end ranges tiring out people’s arms | The players need a game in which they protect the player form self-damaging physical activities. This means the game should not incentivize any form of rapid, twitchy and/or repeating movements.  Controllers should be designed in a manner that it doesn’t cause hand pain from prolonged use (should be ergonomic)  Players are competitive in nature, so they NEED a way to interact in these games that doesn’t harm their wellbeing. It starts with the Hardware, but it ends with the software. The Wii remote is a great design but games like Baseball, and 100-meter dash can be uncomfortable to play at a competitive level. |
| Games that require fast, rapid, and repeated movements like Mario and Sonic games, also strain the arms. For example, the 100- and 400-meter run events required you to make a hand motion where you rapidly shaking your hand up and down.  These can tire out players and make them feel pain in their wrists.  In addition, long continued usage of gyro controllers may feel tiring on your arms, requiring you to rest. This is found in heavier controllers that you hold a little bit above lap level. Nintendo Switch joy cons don’t have this issue since most games are designed to give players frequent resting periods, and they are light in weight. | Movements are healthier when players move with their body in its entirety. Putting your body into a golf swing is less strenuous on wrist and forearm muscles than sitting down while doing it.  Players are more likely to engage in realistic movements the more immersive the experience, a player immersed in Wii golf or bowling enacts the real-life movement of those swings, instead of sitting down and swinging their arms. |

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| Sketch 5 radical ways to meet user’s needs |
| Create a more immersive and comfortable experience playing motion-controlled sword combat games |

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| Share selection and feedback |
| Issues with certain motions were more reliant on the type of game people were playing, which couldn’t be accounted for through the hardware, hence, 2 ways to meet user need was to restrict those actions on the software side. The first is the basic design of the sword hilt, the second and third were designs to alleviate issues on the Wii Steering wheel and pro controller. Both by providing support to the controllers so the arms and hands don’t have to work against gravity for prolonged periods of time. |

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| Iterate based on feedback |
| Generate a new solution |
| Design an Immersive Sword hilt to encourage more player movement. |

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| Build the solution | What worked? | What can be improved? | Questions? | Ideas… |
|  | Design looks better now.  If it includes fabric or the controller or a material that is comfortable to hold on to, it would be more immersive | Ergonomic design and features.  The design is purely based on the sword gameplay, menus and button uses would have to be gestured controlled, interacted via keyboard or buttons may be added to the hilt | Battery life..?  Weight?  Size?  Cost?  Where is the blade...? (Not included for practical reasons, such as weight, and safety) | A button can be added for the thumb and 4 where the 4 other finger tips wrap around, for other button inputs.  Hilt pattern can be made in a way like a sleeve so its easier to customize |
| Extension-able battery pack on the hip, connected via wire may be required based off available equipment later down development. |  |  |  |  |

**Profiles (8 participants Total):**

**NOTE:** Since the interviews were conducted via discord, information such as real names, genders and other personal data aren’t shared to protect privacy of the users. They will be referred to by their discord usernames, but we decided against including their tags to ensure their own privacy. Some users were happy to be interviewed but did not wish for their personal information to be shared in documents such as these.

How did we interview the participants?

We first asked about their experiences with VR and gaming in general. What they were excited about, what they wanted to see in the future and what criticisms they had with current technology and games. Based on these we would iterate on our design, thinking about how we can improve our design. However, while doing this, we had to keep in mind of our project scope and abilities. With the resources, experience, and knowledge we have accumulated, it is simply not within our ability to recreate something as complex and functional as a Wii remote, or joy cons for example. We instead, focused our scope to the primary focus of applying our design to a select genre of game and usage, in this case, sword combat in games.

**Participant 1:**

* Name: Kyubey

**Participant 2:**

* Name: Elu

**Participant 3:**

* Name: ImThatGuy

**Participant 4:**

* Name: RedCake

**Participant 5:**

* Name: Kurumi

**Participant 6:**

* Name: Russel

**Participant 7:**

* Name: Niyah

**Participant 8:**

* Name: Todd