**Mechanical Design Project: Reflection**

**The Mechanic of Time**

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**What Was My Goal?**

The goal of this project was to essentially develop a working prototype of a game, but the core design should revolve around a specific mechanic. That being said, for the past two years as a designer, I wanted to develop a game that uses time as mechanic to solve puzzles through out its world. Therefore, I chose to attempt this in personal gaol in this project. The inspiration for the mechanic came from Dishonored 2 (Bethesda, 2022). The game makes use of this time mechanic in a similar way that I wish to build this prototype. In this prototype, I wanted to create a similar but less complicate system, showcasing the time jumping ability, as the main ability among others. The prototype was also designed to use the mechanic alongside the stealth element which is created through the various abilities and other elements implemented throughout this prototype. For the purposes of this project, I designed the programmes behind everything, designed the concept of the game, and assisted in the level design which was done as a group (Just to be clear, I am not referring to the environmental design and assets used).

**Process and Development**

**Primary Mechanic**

The main focus of the project is the time jumping (traveling) mechanic. Using Dishonored 2 as a foundation of the development of this mechanic, I wanted to develop a element that would restrict the players use of this mechanic. These elements included enemies that would hunt you down when time travelling, a time limit on how long you could stay in the past/ time limit before you can time travel again.   
With these limitations in place, I had wanted to develop puzzles that uses this time mechanic. To help with this I looked at a specific puzzle from Dishonored 2:

“The player enters a room infested by a insect enemy. This enemy has a nest which the player can destroy to stop them from being spawn. But upon further inspection of the room, the nest seems to have spawn from the corpse of a dead dog and is now grown over a safe which cannot be accessed.

When traveling back in time, the player (in the same room) finds the dead dog’s body, a note and no nest next to a locked safe. The note hints that the dog’s body should be burned. When the player does just that while being in the past, they ultimately change the present, resulting in the insect nest non-existent. Allowing the player now to access to the safe.”

With this I developed a basic puzzle of removing a dragon egg from the past with the dragon’s fate ultimately ending in the same result of the insect nest. However, I found developing this concept further difficult and hence received help from my group.

**Secondary Abilities Development**

Dishonored is heavily associated with stealth even though it is optional. I wanted to create this sense of stealth agency in my prototype as well. To do this, I wanted to create secondary mechanics alongside the time-jump. My original abilities consisted of two mechanics:

1. Shadow Walking: I wanted the player to use this to evade enemies and ultimately move pass them undetected.
2. Wind-Riding: More of a shapeshifting mechanic that allowed the player to fly-glide. This was meant to be used to evade enemies as well as navigate the environment.

**Development Experience**

During the development of this prototype, I found myself encountering development challenges I never encountered before. This main revolved around the implementation of the time-jump mechanic as well as the entire enemy AI.

With the time-jump mechanic, I had the idea of creating two identical areas and teleporting the players transform between these two areas. Teleportation is something I was very fond of using in my past prototype developments. However, the new version of unity as well as its character controller proved my experience to be obsolete. I had to go all the way back and figure out why my scripts were not working. This ultimately resulting in me changing scripts and design methods I have been using for most games.

Regarding the enemy AI. I have never done enemy AI with the idea of stealth before this. While I was able to develop a basic AI, the system still has many flaws ranging from detections to patrolling. In order to create this basic AI, every function created in my programmes makes use of Unity’s ray cast. The ray cast system is also something I found myself avoiding in my prototypes, but ultimately it proved to be easy to use and actually more efficient than methods I used in the past.

The puzzle system, I used to help implement the various time puzzles also proved challenging. I found myself siting mostly with this section of the development, the reason for this was that I wanted to create a script that was completely generic. I intended for the scripts to be used across all the puzzles we had planned for the prototype. After many iterations I believe I finally pulled it off. While the presented prototype only showcases one puzzle, implement a second or third puzzle should not require to much time.

This project is proof that my ability as a designer is developing, which is something I am proud of. While this is also only the first step, into achieving a game that uses this main mechanic, I believe this step to be valuable and shows promise.

**Improvements**

My main concerns for the current state of the project in terms of my section is the enemy AI. While the enemy does detect the player and also patrols and searches, this is the only states within their system. Some improvement that could be made are:

1. Enemy Focus AI: When the player is detected currently the enemy stops all movement, regardless of whether it is directly facing the player. Implement a focus feature in which the enemy rotates their full gaze onto the player would greatly improve its communication.
2. Enemy Suspicion AI: Right now, when players a re detected but either move out of the enemies’ range, or behind an obstacle the enemy continues to go unbothered. Implementing a function where the enemy go to the last known location of the player, would create a great challenge and also improve the element of stealth in the game. This would also prompt players to make more use of both the time-jump as well as the shadow waling mechanics.

# References

Bethesda. (2022). *Dishonored*. Retrieved from Dishonored: https://bethesda.net/en/game/dishonored

[Dishonored 2 Webiste](https://bethesda.net/en/game/dishonored)