

Mechanics Design Document

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Objectives:

The main objective of the game is to defend your safety objective, such as food, clothes storage, and family members, from the rat infestation that is currently plaguing the township that your family resides in.

Challenges:

The player will face off against waves of enemy rats that will need to be dispatched by use of a mouse/rat trap; the traps will spawn in up to 4 different positions on the map allowing players to strategically move around the map and place traps. Players will need to not only trap the rats but out manoeuvre them and survive while actively trying to protect their defensive target.

And the player must be careful, as Rat Traps will not only damage rats, but hurt the player themselves. This will not defeat the player, but the trap will cause the player to be slowed down for a few seconds, leaving them vulnerable.

This gives the game a strong element of risk and reward. It is noted by Masahiro Sakurai that to take risks to get a reward is the core aspect of the essence of a game (2022). The player gets a reward from placing down many rat traps, increasing their defences against the oncoming rats. But the risk is that the room will become very cluttered, and their ability to move safely and freely will be restricted. We believe this achieves a great aspect of risk and reward within the gameplay loop, as the game becomes more frantic and fast-paced.

However, this also needs to feel fair toward the player, so the player will have the ability to perform a dash on a cooldown. And dashing will allow them to pass over the rat traps they have deployed without triggering them.

Game progression:

As the game progresses the player will be exposed to new opportunities and abilities to exterminate the rats and ultimately protect their family and town from the infestation. Levels will be displayed in stages with each level opening up to a new maze or arena that the player must defend in.

Gameplay Loop:

Navigate through the level and exterminate enemy rats while defending your target. Once the main objective (Killing enemy rats) has been completed players will progress to the next level and restart the loop.

Game Elements:

Player:

The Player will control the RATT-bot in the battle against the rats with its main objective of killing the rats and defending its defensive target.

Rats:

A colony of rats that wish to do nothing but thrive and survive at the expense of the people within the township. Their main objective is to attack the player and their defensive target, dealing as much damage as possible before the colony's population ceases to exist. The rats will roam for a random amount of time before heading for their target, switching to attack the player if they get too close.

Rat Traps:

Can be picked up and placed by the player, however only one can be held by the player at any given time within the game, once the trap has been placed it will be armed for when a rat steps on it exterminating them. There are 4 spawn positions where the traps will spawn.

Maze:

It is the field in which the player and rats play, allowing different pathways and obstacles for the player and rats within the field to pathfind around and allow for more dynamic play.

Objective:

The Objective is a static object within the field that the rats are attracted to, when the rats have done enough damage to the target so that its health has reached zero the player will have lost the round.

Game Mechanics:

The mechanics surrounding the player include player movement, damage, and placement of traps. Player movement will be controlled using the arrow keys on PC and via an on-screen joystick on mobile devices, enabling seamless movement throughout the level. Players can take damage from rats that will chase them or if they stand in the path of the rats, which will knock them back and inflict damage. Players will be able to recover health by picking up health pickups scattered around the map. Players will be able to also dodge/ dash allowing them to get over traps which can be triggered by the player as well, severely slowing them down for 2 seconds decreasing their ability to protect their target.

Players will also have the ability to pick up traps that spawn throughout the map and place them on the ground in anticipation of rats stepping on them, killing them. This allows players to fight back and defend their target from the rats, while also educating them on how to remove rats from their environment. Once a trap is picked up, players will be unable to pick up another trap until it is placed, however new traps will spawn. This prevents players from hoarding traps and scattering them all over the map to kill all the rats at once but does allow for optimal movement to strategically place and grab traps.

Rats will be the main enemies within the game, capable of moving and inflicting damage on both the player and the defensive target. After a random amount of time rats will direct their attention to the defensive target. If players enter their line of sight the rats will divert their attention to the player where they will either be led into a trap or after 2 seconds with their sight broken from the player they will move back to their target. Rats carry many diseases that can be spread by consuming contaminated food (Rentokill, 2024), as such, damage dealt to the objective is irreversible and can render the objective destroyed in certain scenarios.

Reference List:

Rentokill. 2024. Signs of a rat infestation. [Online]. Available at: [Signs of a Rat Infestation | Rentokil Pest Control](#). [Accessed 18 June 2024].

Risk and Reward [Game Essence]. 2022. YouTube video, added by Masahiro Sakurai on Creating Games. [Online]. Available at: [Risk and Reward \[Game Essence\] - YouTube](#). [Accessed 18 June 2024].