Tech Design Document

Not for the Faint of Heart

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Project Overview

Game Concept

Not for The Faint of Heart is a horror game that can be abbreviated as “Nf tFoH”. The project is a 1st Person, Virtual Reality, Horror Game which puts you in the shoes of Joe where you are kidnapped and put on maze of unforgettable moments, fearful experience, and horrific stories after you have been put through the journey never to be forgotten.

Technical Goals

1st Priority

- Comfortable Controls based on Platform used
- Realistic Animations
- Suitable lighting
- Realistic Horror Themed Audio

2nd Priority

- Believable AI
- Good Cart path

3rd Priority

- UI
- Asset Collection

System requirements

Any of the following phones:

- Samsung Galaxy S7.

- Samsung Galaxy S7 Edge.
- Samsung Galaxy Note 5.
- Samsung Galaxy S6.
- Samsung Galaxy S6 Edge.
- Samsung Galaxy S6 Edge+

Gear VR
Bluetooth enabled controller

Technical Risks

1. Collaborators do not deliver the assets on time, in which case we will use online assets.
2. Loss of data on the github repository. If that happens we will revert to an older commit.
3. Teammate drops out of the group. Game will be scaled down to a doable project by one person.
4. Lack of hardware supplies/budget, compromise budget and get cheaper hardware that is still compatible with project.

Third Party Tools

Rain A.I.
Rain AI is an AI engine that is integrated in Unity which allows creators to create a tree behavior based AI using the plugin’s built in tree behavior editor. It’s powerful/modular enough to create many varieties of AI which can suite your needs.

Substance Designer
Substance Designer is a 3D material authoring tool which lets users create their custom material. In the team’s case, we believe creating a more detailed material will help the game achieve a more realistic feel.

Methodology

The team is going to follow the Scrum Agile Methodology for the development of this project. The team has provided the different trello links for the backlog and the various sprints:
Backlog: https://trello.com/b/ib8gspXX/production-backlog
Sprint 1: https://trello.com/b/W8qoWh9e/production-sprint-1
Sprint 2: https://trello.com/b/mTGgE1u6/production-sprint-2
Sprint 3: https://trello.com/b/KvGPcVSc/production-sprint-3
Sprint 4: https://trello.com/b/BaldUMDd/production-sprint-4
Sprint 5: https://trello.com/b/SyD3nKe8/production-sprint-5
Sprint 6: https://trello.com/b/hxr29hsS/production-sprint-6

Gameplay

The Player

The player's goal in the game is to escape the abandoned warehouse the Enemy AI has put him in. The user is to aim for completing the maze like map and escape without being killed by the 2 enemies patrolling the scene. The player will need to move around using the controller and look around the scene using the virtual reality headset. The player can also interact with objects and use the flashlight with the necessary controls in place.

With that, the beginning will show 2 rooms that will not be hindered by the enemy where the player can get familiar with the certain mechanics that he can do.

Game Structures

The following are planned structures that is going to be present in the game:

Cardboard Boxes, Chairs, Office Tables, Meeting Tables, small Lockers, and Shelves:

Items stated will be littered around the map which will obstruct both the AI and the players movements. This will also develop the theme that the game is going for.

Lamps, Ceiling Lights, and Exit Lights

These Lights stated are to give the player guidance when there is no light from outside. These lights can also indicate where the AI is going to or where the Player is suppose to go.

Light Switches

Light Switches are found at the start of every room. These switches control the lights on the specific room. At the start of the game all lights are open until the player enters the first room which then promptly closes all the lights on the scene. When lights of the specific room is lit by the player, the enemy gains increase ranged in their range of sight.

Cabinets and Lockers

Cabinets and lockers are littered around the map. They are interactable objects which the player can use. When interacted the players will hide inside these objects and cannot be seen by the enemy.

Doors

Doors are an entrance/exit to every room in the map. They are set open or closed at the start depending on the necessity. They can be interacted with by the player to switch their states. If a door is opened and an AI is near, they can hear the sound of the door making them go near the door if possible.

Camera

As stated earlier in the document, the game will be in Virtual Reality, thus making the camera be the user's eyes. The camera will have different effects layered onto it depending on the situation the user is in. When the player is in a very dark place the scene will turn into grayscale meaning the player will only see in a black and white format. If there is light or the player uses his flashlight, it will return to a normal colored sight.

Characters

The following are planned agents that can be seen in NF tfoH:

Joe(Protagonist)

The protagonist of the game which is controlled by the user. He can interact with multiple objects at the scene. He uses a flashlight to see the path in front of him.

John

John is a fast moving enemy which can run really fast. He chases the player immediately upon seeing you. John also sees better in the light and his visual range is almost doubled if there is enough light in the room. John also detects doors opening near him and will investigate further./*Have output to show that he reacts to sound(Perceive Danger) Also do this for AR*/ When John catches the player, he reveals and uses his hideous face to scare and eat the player.

AR

AR is a slow tall moving enemy that walks with a limp and a weapon at hand. AR walks a great distance on the map. AR is also sensitive to light and will investigate further if new light is activated like a flashlight being shined. When AR catches the player, he laughs maniacally and beats the player to death.

Collision and Colliders

The Map

The map will be designed using the theme and the blueprint in mind. The map will have walls which are quads/cubes which will have box collider each division. The floor will also be divided by materials and is made using flat cubes which has box colliders attached.

Protagonist

The protagonist, Joe, uses a capsule collider to detect collisions. The collider will be used to detect whether or not an enemy has attacked the player. Joe also has a rigidbody to simulate physics in the game.

Enemy AI

Like the player above, the enemies in the game uses a capsule collider to detect collision. They also use rigidbody to simulate physics and to be used on the AI system in place.

Clutter

Clutter in the scene, like boxes, chairs and tables, generally use box colliders and more complicated clutter will use convex based Mesh Collider.

Hiding Spots

Hiding Spots in the scenes will use Mesh Colliders so that when the player is entering there will be no problems with collision.
// Change the way the player moves to teleport inside the object rather than having an event like sequence

Doors

Doors use box colliders to use as collision detection. Doors can only be moved if the player interacts with it.

Project Scenes Details

Main Menu

The user can move around different scenes through the main menu:

- Play button - This will take the user to the level scene and will start the main game.
- Option button - This will take the user to a scene which can change different options for the game.
- Credit button - This will take the user to a scene where a list of people who contributed with the game.
- Quit Button - This will exit the application.

Also the main menu will have the title of the game and a background scene and background music that is matching with the theme.

Options Scene

The user can change different settings through this scene and there are many exposed variables that can be played around with:

- Master Volume - Edits the volume of all audio output by the game.
- Sound Effects Volume - Edits the volume of sound effects.
- Music Volume - Edits the volume of the music of the game.
- Brightness - Changes the brightness of the game.

The scene also has its specific background music and scene.
There is also a return button which will return the user back to the main menu scene.

Credit Scene

This scene contains a list of people who had helped to make the game. This scene will also include all the owners of used utilities that helped the game progress. With that, the scene will feature a return button to return you back to the main menu.
The scene also has its specific background music and scene.

Level Scene

The Level will contain many different objects:

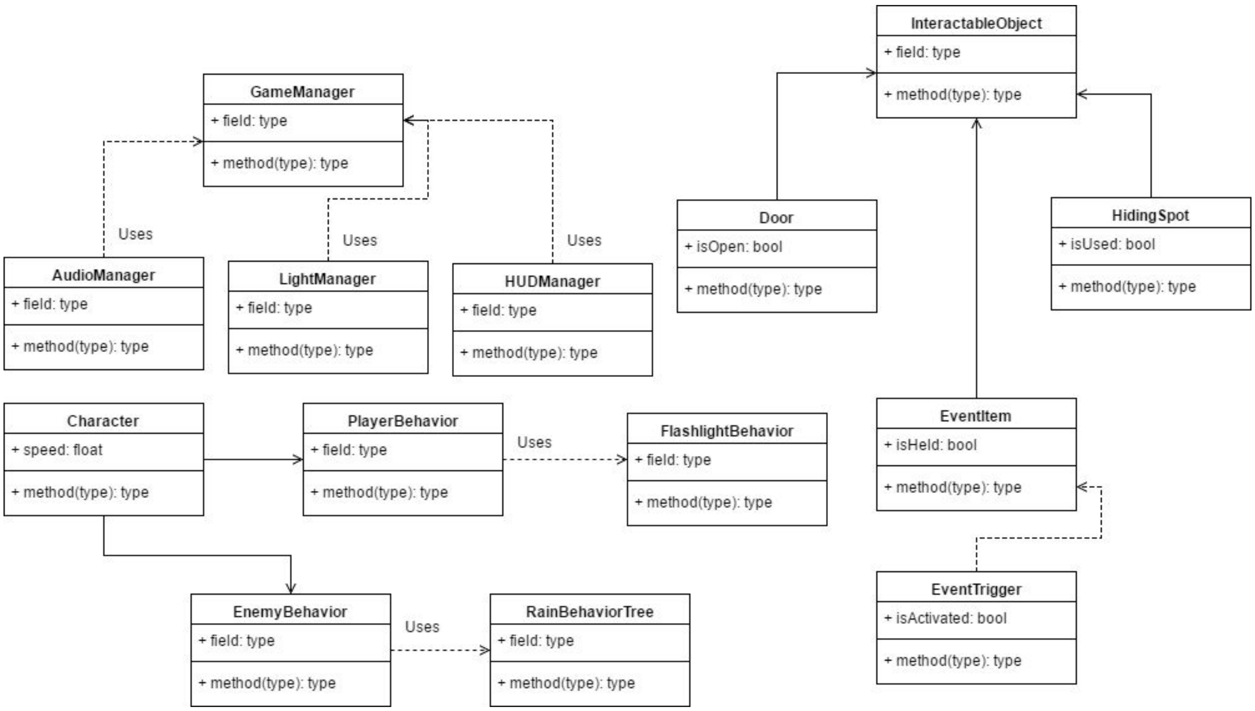
- 6 Hiding Spots
- 2 Enemy AI (John and AR)
- 5 Special Event Point
- 1 Exit Point - If the player reaches this point, the player wins.

Background music will also change based on the intensity of the game or where the player is.

There is also UI to be considered in game:
// Provide Subtitles

- Pause Button - which will pause/unpause the game. // Should just be a button on the controller
- Interact Button - Only Shows up when an interactable is in front. Lets the user use the object he is interacting with.

Class Diagram



Artificial Intelligence

Since the game will focus on lighting and audio the Artificial intelligence will be simple. Thus, as stated above there will only be 2 enemies in the map; John and AR which will move around and try to find the player. With that, to make their behavior, the Rain AI plugin will be used to create 2 different behaviors. There are many behaviours that the enemy can do which will be mentioned later.

Behaviors

Wandering

The wandering behavior is the behavior that lets both enemies patrol the map. AR would choose between random points on the map and travel to it. John will be travelling between different points of the map.

Investigating

This behavior is activated when an audio source like a door opening or a light source like flashlights opening near the enemy is detected. This then in turn make the enemy move near the detected spots.

Chasing

The chasing behavior is present on both enemies. This behavior lets the enemies chase the player in an increased speed and this will transition to attacking if the enemy is in range.

Attacking

The attacking behavior is also present in both enemies. This is used to subdue the player and both enemies will do different animations. When this behavior is running the screen and lights will jitter and the game will end.

Animations and Audio

John

The look of John will be a clown below the neck but is masked by a sack with holes for eyes and with a knitted straight line on the part where his mouth is supposed to be.

Animations :-

// Add investigating

Idle

John Looks around murmuring statements. This state if activated when he is not doing anything.

Investigate

John Investigates

Walking

The walking animations are used when John is traversing the level or moving towards the player.

Attacking

This animation is done when he reaches the player. He removes his mask and kills the player by biting his face.

AR

AR is a clown which holds balloons in his left hand and a baseball bat in his right hand. He always smiles and his eyes are always looking forward.

Animations:-

// Add investigating

Idle

AR stares at the wall. This state is done when AR is not doing anything.

Investigate

Walking

The walking animation is used when AR is traversing his path. AR walks like a bigfoot walking.

Attacking

AR uses his bat to bludgeon the player to death. This is done when AR reaches the player.