Using Body Storming to Plan Mechanics for a Virtual Reality Horror Game

Process of body storming a virtual reality game

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***Abstract*—This article focuses on utilizing bodystorming, which is a form of brainstorming in which one uses their body and acts out a particular circumstance or idea to get a better feel for how an idea will work. In this case, the idea that was being acted out by and displayed to the development team and participants was the idea for an interactive horror game. This game will be played in virtual reality and will utilize biometrics in the form of a heart rate monitor. This article will go more in depth into how to perform bodystorming in an effective way when planning an immersive VR experience.**

***Index Terms*—Body Storming, Virtual Reality, Biometrics, Game Design, Heart Rate, Horror Game**

I. Introduction

For this project to come to life, there was a lot of planning and testing involved so that a more clear understanding of mechanics and roadblocks would be displayed. To do this, multiple tasks needed to be completed. For example, a 3D persona, a use case, and an actual body storming session to gather user information such as that of a regular playtest session [1]. By making use of a 3D persona template, the game idea was fleshed out. See Appendix A. The team was able to focus on specific goals such as what emotions are being conveyed to the audience and what the gameplay goals were. After this, it was easier to plan the layout of the main gameplay scene. This report will cover all aspects of the body storming session and the tools utilized for it to work effectively.

II. Methods

By creating simple drawings, they could be placed into a FrameVR environment for easy iteration and planning so that classmates and other bodystorming participants could get an idea of what gameplay would look like. See Appendix B. The next step was to create a use case using StarUML to organize how everything will connect within the game. By utilizing the XR package, Hyperate API, and Unity's Navigation Mesh System, It was easy to connect the components to the gameplay. These are the foundations that make up each scene of the game including a main menu, the main gameplay scene, and the win/lose screens. See Appendix C. Now it was time to move on to the body storming session. During this session, participants were first shown the FrameVR game layout to get an idea of what the game would look like. After this, participants were to put on the headset and step outside of the game's bounds so that the cameras activates and the room turns gray. At this point they were told to navigate through the room while one of the team members, Ethan, Walked behind the participant acting as an enemy while another team member, Andrew, kept track of the participants heart rate and would tell Ethan to move faster if the heart rate increased and vice versa. This "Wizard of Oz" approach worked very well in this case. See Appendix D.

III. Results

At this point in the bodystorming session, Daye was taking notes based on what went well and what was not working. It was determined that both participants had a higher heart rate during the first attempt but it did not have the same effect the second time around. This is believed to be due to the "fear of the unknown". After participants have experienced this, it did not have the same effect on the participant and the heart rate did not raise as much as the first time. See Appendix E and F. These results conclude that there is a correlation between number of times played and the players fear or arousal level. In the first attempt, both participants had a relatively large increase in BPM while during the second attempt when they knew what to expect, their heart rate increased a little and then went back to around their resting heart rate. One solution for this is to add a random element to keep players on edge and keep the fear of the unknown [2]. The idea is to add the effect of the player's lantern turning off randomly during play so that their vision is impacted. This will keep players guessing and will constantly instill the fear of the unknown since the light could go out at any point. In conclusion, this body storming session was very successful and important when moving forward with this project. Gameplay flaws were pointed out without needing to develop a game and make changes after. This was a huge time saver and brought up new ideas to add to the project to make the impact greater.

APPENDIX A
PERSONA

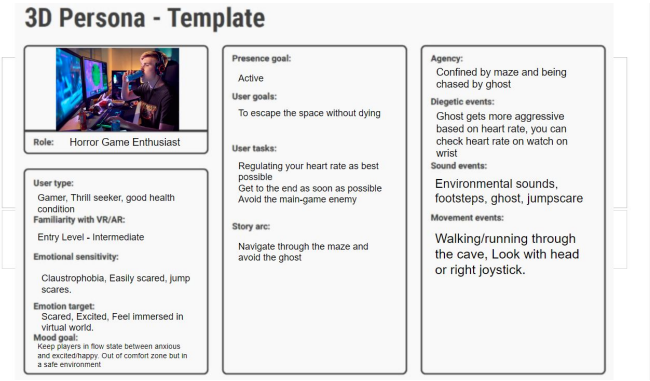

Fig. 1. Outlining Project Idea

APPENDIX B
FRAMEVR SCENE PROTOTYPE

Fig. 2. Virtual Prototype of Level Layout

APPENDIX C
USE CASE

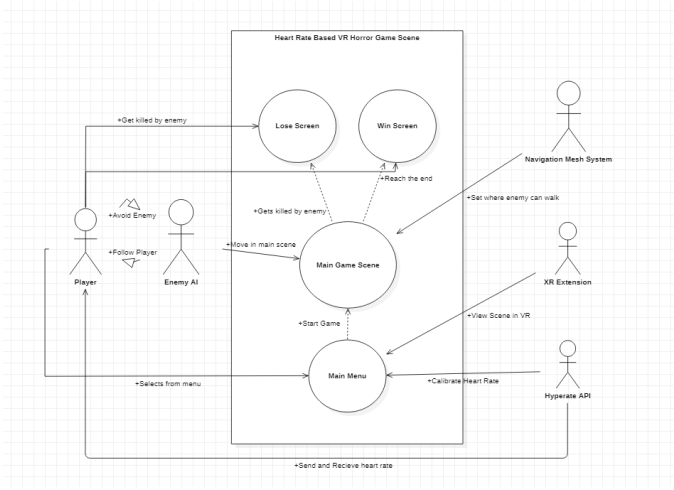

Fig. 3. Integration Plan and Functionality

APPENDIX D
BODY STORMING SESSION

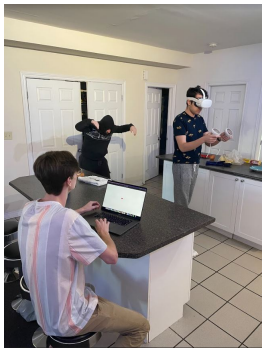

Fig. 4. Running the Body Storm Session

APPENDIX E
PARTICIPANT'S HEART RATES SESSION 1

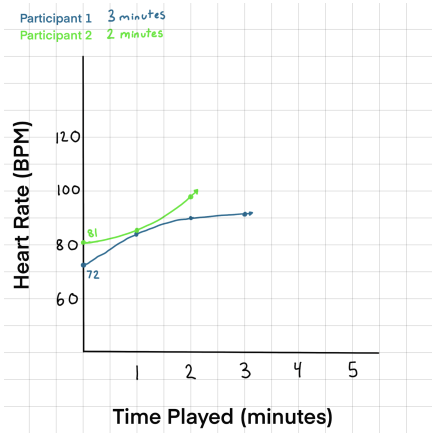

Fig. 5. Results From First Attempt

APPENDIX F
PARTICIPANT'S HEART RATES SESSION 2

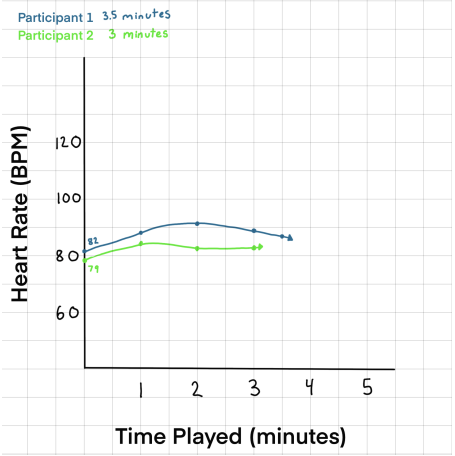

Fig. 6. Results From Second Attempt

REFERENCES

[1] N.A, "Body storming in User Research.", Think Design, January 2020.

[2] N. Furr, H. Furr, "How to overcome your fear of the unknown.", Harvard Business Review, 2022.