

# Report-P1

## I. Detail of Team Members

NAME	STU.ID	WORK AS
PENG, Hao	24064144g	Team leader
AO Jingcheng	24082643g	Member
Xiao jiankun	24055333g	Member

## II. Detail of game design:

### 1. Game type

First-person VR Tower defense game

### 2.Objective of The Game:

Introduction:

Using strategic design of player's defendant buildings and fundamental units to construct their defense line. Also they can get refund from enemies with special highlight(Totally they can cause more damage on your defense line) in limited time to gain powerful weapons or ability.

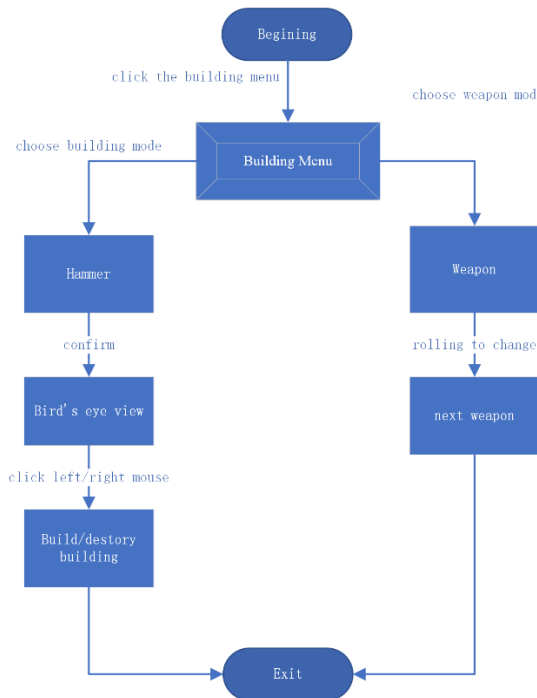
Goals:

We want them to feel challenged intellectually using limited game resource to build their fortification. Using colorful building and enemies in a cozy environment to provide visual stimulation. However, is will be little boring for players who enjoy the engagement and we design to using weapon system for character controller so that they can move around and take over the fort or other defense buildings to defeat the enemies themselves.

UI design:

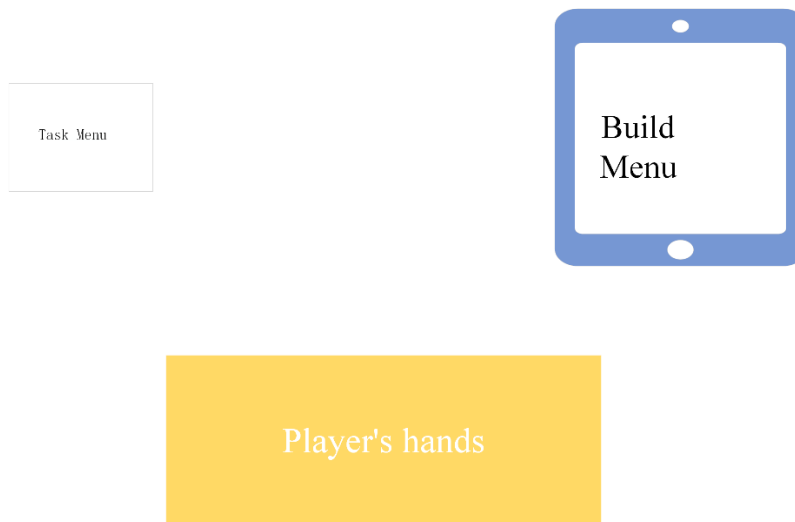
To manage the visual stimulation, we will have two main UI interaction panel (Task menu and Build menu) and 1 to 2 hands of player's character in the bottom of the streen. Players should use them to make operation during the gameplay.

In build menu player can change their weapon or use hammer to build or reconstruct, showed in Picture 1 below.



Picture 1 Choosing action using building menu

The task panel shows the instructions about the gameplay and will give notification about the enemies. Both panel will shows like Picture 2 in game .



Picture 2 The main panels in games

### 3.Interaction techniques

Basic VR development packages: Unity 3D, **XR Interaction Toolkit**, **VR packages**; **steamVR package** etc.

Enemies moving: **NavMesh**

### 4.The immersive scene(s)

- ①Beginning land: Building for the Maps menu and items collection wall.
- ② Multiple levels : Designed for simple player or even multiplayer which can work together

## 5.How to make game fun

- Creative
- We provide different weapons, the players should according to the current situation to choose the suitable weapons to get the win.
- As the VR game, we will add some interaction to increase the immersion, such as we can set some special point to provide new weapons, and players should reach this specific location to get them.
- We will design the player upgrade system, and this system can grant the different abilities with the players' level up.
- Add some random events to increase the unpredictability of the game.
- Offer players different careers at the start of the game to give them more options.
- The game's graphics and sound effects are carefully designed to provide players with a more realistic and exciting gaming experience.
- Develop an appealing worldview that gives the player a clear motivation.
- Setting up a reward achievement system.
- Balance the game's difficulty curve without demotivating the player at the start.

## III. Project development design

Due to our previous lack of experience, we need to familiarize ourselves with VR equipment and its interaction with human senses as much as possible. Based on the premise of using minimal resources and avoiding redundant costs, we will study how to provide the best experience for players. The questions to consider include: In this tower defense game project, what advantages of VR equipment compared to traditional devices can or must be amplified? Which parts of the experience or level of detail, due to being inferior to traditional devices, need to be deprioritized?

After critical thinking, we can theoretically combine the desired player experience with the advantages of the equipment to derive a solution that, while not perfect, meets the current development needs. From this, we can determine what kind of tower defense facilities or props and corresponding countermeasures against enemies or monsters are needed in this project. (Of course, this process can also be reversed.) Similarly, there are different scene elements. Currently, we plan to design around two maps within a limited time, providing different corridor designs and interference elements on these maps to ensure that each prop or facility has its use. Naturally, we may need to refer to and learn from the design of some excellent previous games. Afterward, we can start the development at the code level.

Given our limited team size and resource allocation, the project team may not be able to incorporate multiplayer elements. However, the source code should be written in a way that corresponds to and compromises with the specific requirements previously proposed. Potential issues include but are not limited to: unfamiliarity with the contents and usage of SDKs like Steam VR SDK, lack of uniform or industrialized design patterns, and excessive hardware resource usage. The project team will coordinate and allocate different levels of solutions to these issues as much as possible according to the actual situation

### 1.Milestone:

Week 4 (22 Sep to 28 Sep) Units and enemies design phase

Week 5 (29 Sep to 5 Oct) Material and model test & Moving and shooting test  
 Week6-7 (6 Oct to 19 Oct) Map building and Enemies development, Detail development  
 Week8 (20 Oct to 26 Oct) Final testing of Phase 2 application

## IV. Meeting minutes

Date: September 20, 2024
Time: 8: 00 PM - 9: 30 PM
Location: Zoom
Attendees:
XIAO Jiankun, PENG Hao, AO Jingcheng
Absentees:
None
Agenda:
1. Welcome and Introductions
2. Concept Design Update
3. Milestone Planning
4. Any Other Business (AOB)
5. Next Meeting Schedule
1. Welcome and Introductions
PENG opened the meeting at 8:00 PM and welcomed all attendees.
2. Concept Design Update
Xiao begins with game's concept design, mentioned time management and we agree that swift development plan of tower defense game.
PENG talking about enemies and map design.
AO mentioned that we can expand the area of FPS element added to improve the participation.
3. Milestone Planning
We totally talk about time schedule and milestone with agreement.
4. Any Other Business (AOB)
No additional items were raised.
5. Next Meeting Schedule
AO adjourned the meeting at 8:00 PM next Wednesday.
Minutes Prepared By: PENG, Hao
Team Leader: _____PENG, Hao_____
Team Member: _____AO, Jingcheng_____
_____Xiao, jiankun_____

## V. Work Distribution Report

	Phase1			
Member	PENG, Hao	AO, Jingcheng	Xiao, jiankun	
<u>PENG, Hao</u>	33	33	33	
AO, Jingcheng	33	33	33	
Xiao, jiankun	33	33	33	