CHAPTER 5

TESTING AND IMPLEMENTATION

5.1 Testing

The testing of the game is conducted to see is the game of Fortina Garde is interesting and unique. If the 50% percent of the testers said the game is interesting and unique, the researcher conclude that the game is appealing to people.

5.1.1 Alpha Test

Alpha test was conducted when network is working. The reason is that there are many systems in the game that relies on the network. It is essential to make sure the network is working to makes sure the game is playable. Some feature such as the power up is yet to be implemented. The graphical user interface (GUI) and the models are also not yet final.

The test is conducted by the researcher himself. The purpose of the test is that the network and all systems that are related to the network are working. To test the connection, there are several phases:

1. Test the client server connection
2. Instantiate objects for player upon joining the game
3. Test function that relies on the network

5.1.2 Beta Test

The beta test was conducted when the gameplay is visible and the 3d models are final. There are still some features that are yet to be implemented.

The participants of this test are selected video game enthusiasts and capable to analyze the gameplay even though the game is not yet final.

The method of the test is that after the player test the game, he/she will fill in form on what they think about the game. There are several questions in the form. Based on those questions, the researcher will determine if the game is interesting and unique or not. The question is listed below on the table

Table 51 Question list

Question	Question Type	Purpose
Age	text	To see the demographic of the player
Gender	Male/female	To see the demographic of the player
Time spent a week for video games	Choose from list	To determine their gaming experience
Is the game interesting	Scale 1-5	To see if the game is interesting, 5 is the highest
Having difficulties with the game	Multiple choice	Is the game difficult to play or not, yes/no question
What are the difficulties	Checkboxes	Pinpoint the difficulties
Graphic rating	Scale 1-5	Is the graphic good enough, 5 is the highest
Is the game unique	Multiple choice	To see if the game is

		unique, yes/no question
What makes the game unique	Checkboxes	Pinpoint on what makes the game unique
Suggestions for the game	Checkboxes	Suggestion to improve the game
Would the player play the game again	Multiple choice	To see the replayability

5.2 Testing Result

5.2.1 Result of Alpha Test

In the alpha test, the researcher tried the connection between client server and also the features that related to the network. As stated above, the test is divided into several phases.

In testing the connection between the server and the client, the researcher used localhost as the IP of the server. There are no major problem with the connection between the client and the server. The game was tested until the number of connections until 8 connections (the maximum number of player). The only problem that arises was random connection lag between the client and the server.

The second phase is to test the instantiate object for the player upon joining the game. There are no problem with instantiate new object and assign player to it. And the last phase is to test the function that relies on the network. Some functions rely on the network such as capture function or spawn function. Trouble would occur if those functions are working properly. If the client spawns into game but he/she didn't

broadcast the function to the others, the other player won't be receiving the information about the event. Because of that, other player didn't receive the update and won't get that player on their game.

There are some problem arises in the early development, but after some fixes, most function are working normally as it should.

5.2.2 Result of Beta Test

In the beta test, 8 participants tested the game. The participants are selected by the researcher . All participants tried the features of beta version such as the network of the game and the capture system. The result of the test is as follow.

Age

23 21 23 21 22 20 21 24

Gender

Male [8] — (pie chart, all blue) — Female [0]

how many hours a week you spend to play video games?

1-5 hours a week — (0)
6-10 hours a week — (2)
11-15 hours a week — (2)
16-20 hours a week — (2)
more than 20 hour... — (2)

(x-axis: 0, 1, 2)

Figure 5.1 demographic

This is the demography of the user. The participants were men in their twenties. And from the graph of the time spend on video games, the researcher conclude that all participants were video game enthusiast.

do you think the game is interesting?

Figure 5.2 interest on the game

From the graph above, 63% of the participants rate the game with the scale of 3. This means that the participants saw the game as mediocre.
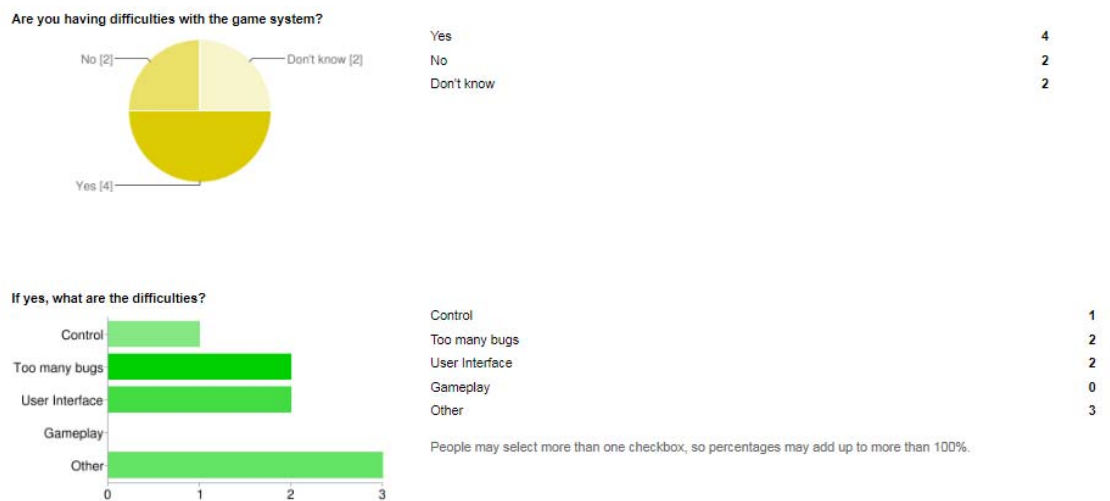

Figure 5.3 difficulties with the game

50% of the participants are having difficulties with the game. When the researcher explored more about what are the difficulties they are having, they are having

difficulties with the user interface and bugs. One of them also said the lacks of user

manual or tutorial. All of these are expected.

What do you think of the graphic?

1 -	Very Bad
2	
3	
4	
5 -	Very Good

Figure 5.4 graphic rating

More than 50% of the participants are contented with the graphics of the game.

Do you think the game is unique?

Yes	4
No	3
Don't Know	1

if yes, what makes the game unique

gameplay	3
user interface	0
control	0
Other	1

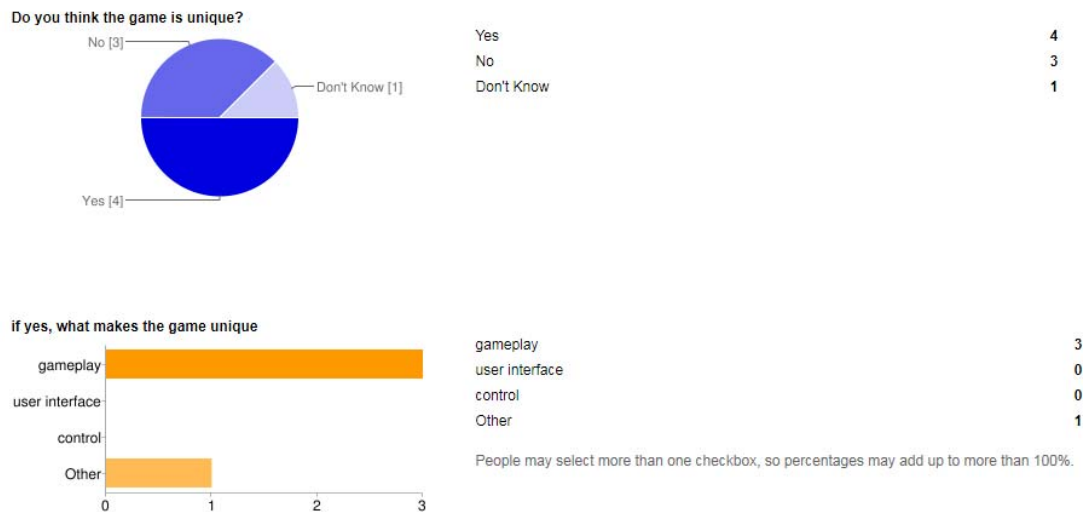People may select more than one checkbox, so percentages may add up to more than 100%.

Figure 5.5 unique poll

50% of the participant said the game is unique. When the researcher explored on what makes the game is unique, all of them said that the gameplay is unique. One person who chose other explains that it's because the game is based on Indonesian customs.
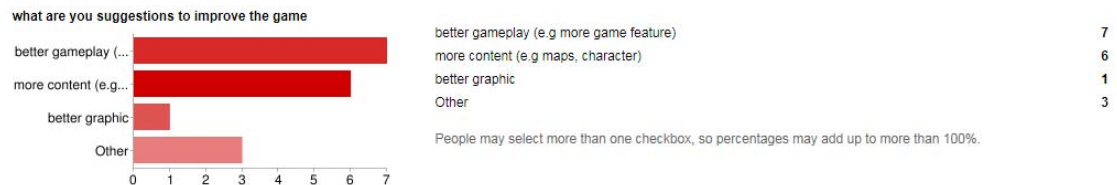

Figure 5.6 suggestion for the game

The researcher needs to know what are the participants want to make the game more interesting and fun. Based on the test, the highest poll is better gameplay. This is because that the game is still work in progress.
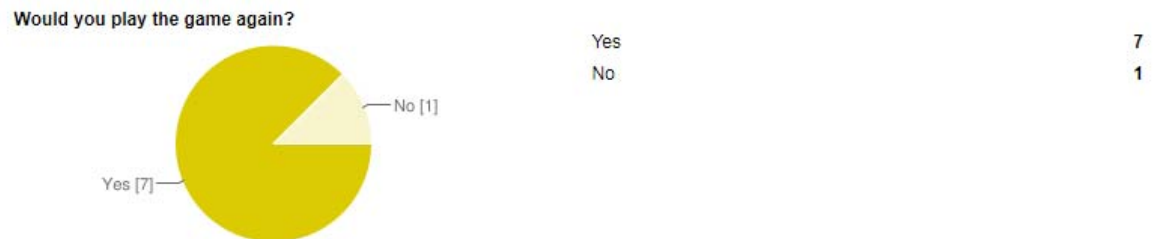

Figure 5.7 replayability

There's only one person who didn't want to play the game again. The researcher assume that he didn't want to play again is because he was having difficulty with the game and the gameplay is not yet fully working.

5.3 Implementation

Before the implementation of the game, the game is tested on several computers to see if the game can run on various computers.

5.3.1 Environment Testing

Environment testing is conducted to see how the game performed on various computers. The researcher tested the game on 4 computers. The detail of each computer are listed below

Table 5.2 test unit

	Computer 1	Computer 2	Laptop 1	Laptop 2
Processor	Intel i5 @3.33GHz	AMD Athlon 64 3000+ 2Ghz	Intel Centrino Duo @ 1.8GHz	Intel Core 2 Duo T5200 @1.6GHz
VGA Card	Radeon HD5770 1GB	Radeon X1300 256MB	Mobility Radeon HD2400 128MB	Mobile Intel(R) 945 Express Chipset
RAM	4GB	512MB	3GB	512MB
OS	Windows 7 SP1 64 bit	Windows XP SP3	Windows 7 SP1	Windows XP SP2

5.3.1.1 Result of Environment Testing

The test result on each computer is not 100% accurate because the code is not yet optimized. The researcher also didn't record the performance of the game because on each run the performance of the game varies.

- Perfomance on Computer 1

  There are no problems running the game on computer 1. The only problem that arises is because the network code is not yet optimized. The movements of the other player are choppy even though the latency is very low. But this problem occurs randomly

- Perfomance on Computer 2

  Even though the game can run normally, sometimes the movement of the character is skipping.

- Performance on Laptop 1

  The game can run normally just like on computer 1. The problem that arises also similar to computer 1, random choppy movement.

- Perfomance on Laptop 2

  This is the lowest specification test unit because the VGA card is using VGA onboard. This means that the performance of the laptop is very limited. Despite the specification, the game can run normally. But there are same problem as the problem that happened on all computer, the random choppy movement.

5.3.2 System Specification

The minimum system requirement for unity based game engine isn't very clear. The minimum system requirement that is taken from the website [18] is as follow:

System Requirements for Unity-Authored Content

- Windows 2000 or later; Mac OS X 10.4 or later.

- Pretty much any 3D graphics card, depending on complexity.

- Online games run on all browsers, including IE, Firefox, Safari, and Chrome, among others.

- Android authored content requires devices equipped with:

  - Android OS 2.0 or later

  - Device powered by an ARMv7 (Cortex family) CPU

  - GPU support for OpenGLES 2.0 is recommended

Based on the environment testing and the system requirement that is stated on the website. The researcher assumed that the minimum requirement of the game is combining each part of the tested unit and using the lowest specification:

Table 5.3 minimum requirement

category	item
Processor	AMD Athlon 64 3000+ 2GHz or equivalent
VGA card	Mobile Intel(R) 945 Express Chipset
RAM	512MB
OS	Windows XP