

ManHunt

Defense 1

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Contents

1	Introduction	3
1.1	Introduction	3
1.2	Plan of the presentation	3
2	Map Design	4
2.1	Modeling on Blender and first conception	4
2.2	Realization on Unity3D	6
2.3	The difficulties encountered	7
3	Hunter And Players	8
3.1	Conception on Blender	8
3.2	Code	9
3.3	Difficulties encountered	9
4	Missions	11
4.1	A start	11
5	Multiplayer	12
5.1	Connection with the server	12
5.2	Once we are in a room	13
5.3	The difficulties encountered	13
6	Artificial Intelligence	14
6.1	What is it doing for now ?	14
6.2	What is it going to do?	14
6.3	Integration in ManHunt	14
6.4	Difficulties encountered	15
7	Website	16
7.1	Website Conception	16
7.2	Difficulties encountered	18
8	Conclusion	19
8.1	Multiplayer	19
8.2	Artificial Intelligence	19
8.3	Map Design	19
8.4	Players	19
8.5	Hunter	19
8.6	Website	19

1 Introduction

1.1 Introduction

For this first defense we are going to present you our progress on our "ManHunt". As a reminder, our game is a remake of "Friday the 13th" and it is a Prop Hunt. A Prop Hunt is a game in which the characters can transform themselves into elements of the scenery, it's a strategy they adopt to escape the hunter.

1.2 Plan of the presentation

We will start by presenting the design of the map by explaining the different platforms and applications we used to make it. Then we will talk about the realization and the design of the different characters, whether they are hunters or survivors. Then we will talk about a test mission we created, the design of the multiplayer mode and the artificial intelligence. Finally we will show you our progress on our website. While explaining our different methods of realization, we will talk at the same time about what could be a problem during this realization because we consider that it is also an important aspect in the conception of the game.

I. The Map

1. Origins of our choice
2. Conception on Blender and Unity3D

II. Hunter and Players

1. Conception on Blender
2. Code
3. Difficulties encountered

III. Test Mission

1. A Start

IV. Multiplayer

1. Connection with the server
2. Once we are in a room
3. Difficulties encountered

IV. Artificial Intelligence

1. Integration in ManHunt
2. What is it doing for now ?
3. What is it going to do ?

VI. Website

2 Map Design

2.1 Modeling on Blender and first conception

To begin the designing of the map, we had to handle modeling software such as Blender and Unity 3D. Thus, we had two ways to model our map: designing in low poly with a soft number of vertices and a low graphic design (Figure 1), or the High poly way: more realistic, but much longer to process (Figure 2). To choose how we would proceed, we trained ourselves on both way. Finally, the decision was clear : modelling a simple wall in High poly was clearly time-consuming while the low poly way was easy to handle, not that realistic but we could bring our own style on it.



Figure 1: Low poly character



Figure 2: High poly character

Concerning the design/theme of the map, we looked for something gloomy and worrying in reference to the theme of our game : a hunt game. Therefore, we visualised a map with specific colors : dark, without any extravagance. Several ideas came to our mind : a dark forest, an abandoned building, a whole ghost town...

Finally, we decided that a great way to set our Gameplay was a building, with many objects so that the players can easily change their appearance into them. To do so, we choose to model an "abandoned" supermarket, as we thought the idea original and fitting well with our game. To model it, we mostly used Blender. Starting from a simple cube, we managed to make the first rooms of our map (Figure 3). To follow a logical structure of a real market, we were inspired by a real supermarket plan, which is organized as the sketch below (Figure 4).

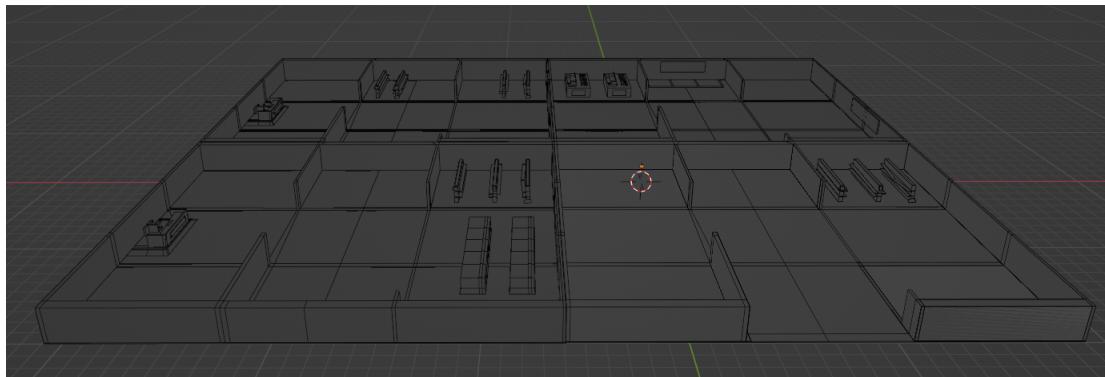


Figure 3: Blender supermarket modeling

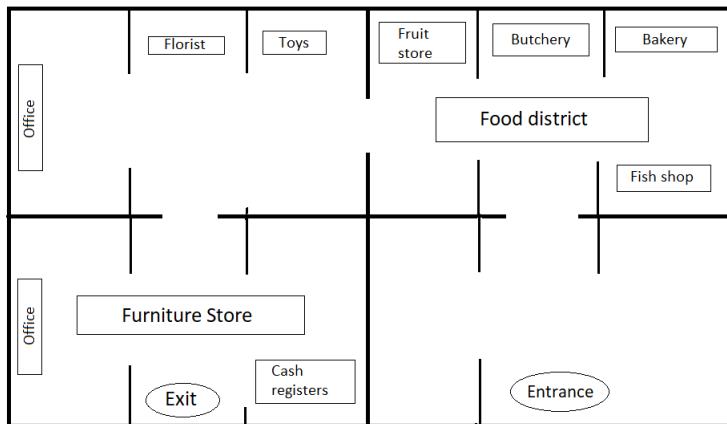


Figure 4: Supermarket's sketch

For instance, the texture are not added to our supermarket yet. However, we choose to make the furniture design already damaged, to give the impression the building is abandoned. To do so, we used some features in blender allowing us to move some vertices in a Random way. Moreover, some furniture are visually damaged (Figure 5), in order to create a sense of chaos.

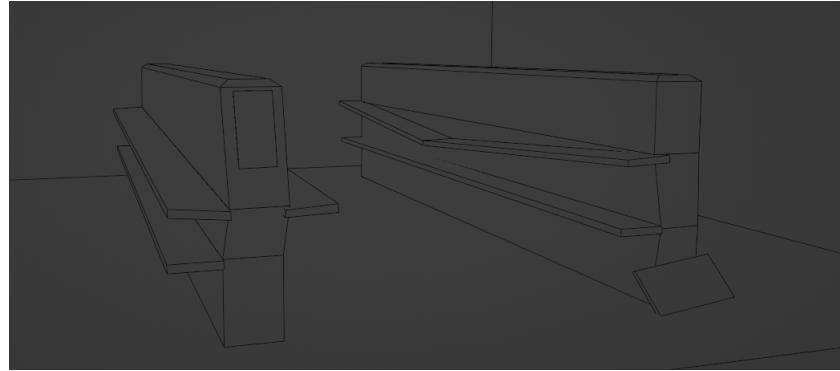


Figure 5: Damaged sales shelves

2.2 Realization on Unity3D

Coming back on Unity, we choose to place our supermarket in a whole city, where the players won't be able to play in. For the moment, the city is not finished, we designed some building to put on the environment (Figure 6). In addition, we chose to take some free prefabs on Unity assets store such as fruits, lamps, and furniture. These are the objects into which the players will be able to take the appearance (Figure 7). As the feature is not added on our players' code yet, we decided to not put all the prefabs in the map.

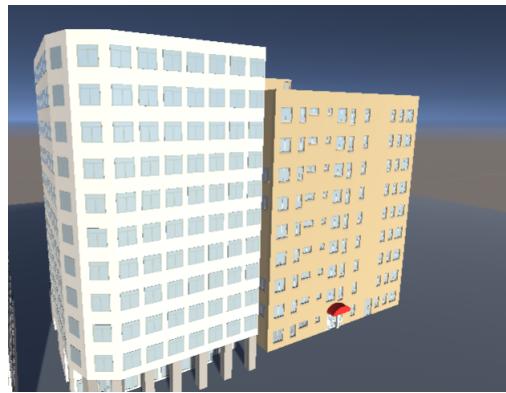


Figure 6: Unity buildings



Figure 7: Prefabs folder

2.3 The difficulties encountered

Obviously, during the conception of our map, we have been faced to many issues. The most challenging part was to begin the conception of the map on software we've never (or almost) used before. For instance, the time we spent to handle Blender and Unity3D was substantial. However, it was necessary as we can now easily do in couple minutes what we needed 1 hour to model before.

Moreover, we had an issue of proportion when we had to assembly the characters with the map: the map was too small and characters was too tall. To overcome this problem, We decided to add rooms to our supermarket, and then assigned a feature for each room (food district, furniture store ...). Our supermarket has not texture yet, as we though we had to do the texturing part after the modeling of the building. Also, the fact that we chose to model an abandoned building is quite challenging as everything can not be clean and straight. More than that, the texture we will choose have to be really relevant and clearly indicate to the players they are in a messed up supermarket.

3 Hunter And Players

3.1 Conception on Blender

To be able to design the Players and the Hunter we had to use "Blender". Blender is a free software for modeling, computer animation and 3D rendering. A tutorial on YouTube helped us make the Players in Low Poly :



Figure 8: Low Poly Character Tutorial

We had a lot of fun making the characters because it was our first time making them, discovering how to use Blender to eventually make the players and so on... That is why we tried to make a different set of people, we have boys and girls and our Hunter is a zombie !

The policeman as seen above is the base that inspired us to make our own 4 players as such :

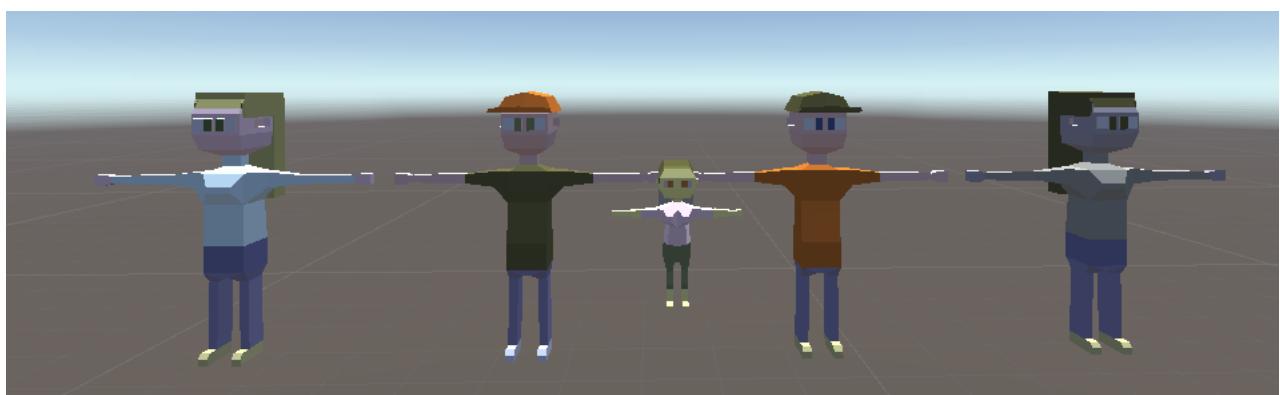


Figure 9: Our Players (made in Low Poly, not rigged)

Once the conception of the player was done, we had to rig our players. Rigging is basically

adding a skeleton to the player so that it moves around like us. For the rigging we used another tutorial and made sure that it moved like humans :

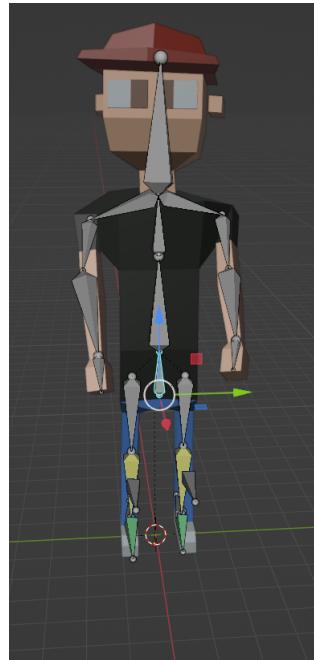


Figure 10: Rigged Player

3.2 Code

For the players and the hunter, we needed them to move. To do that, i coded on visual studio code in c sharp. At first, we search on internet some information on how to code a unity character. Thanks to a lot of website, we learn a lot of new things, new libraries and functions we could use for our code. To perform the movements, press :

- A or left arrow : to move left
- D or right arrow : to move right
- S or low arrow : to move forward, walk
- W or high arrow : to move backwards
- space bar : jump
- shift + S/W : to sprint, run

Also, the mouse allows the player to look around and change directions. We also did a code where the players and the hunter can't pass through walls or objects. To see if the movement was well coded, we had to test on unity, see if the player was not walking too slowly, was not jumping too high or he was not running too fast. For the moment, players and hunters are similar, they do the same movements, because we haven't made their weapons yet.

3.3 Difficulties encountered

Blender conception was quite difficult because we had never used this software before. The first time we opened it, there was just a cube lying on the screen and we had no idea what to

do with it. Eventually after digging a little bit and with a reference from a friend we found this YouTube page that helped us a lot in the making of our Players.

The most difficult part in the rigging of our players was ensuring that the characters would stick to the ground and not just hang in the air. Also, rigging the players' legs wasn't easy because we had to simulate human movements. Bending with the knees all that while the feet don't move and stick to the ground, making all the body parts move independently from each other and so on...

As for the code, it was pretty hard to do it. We had a lot of problems concerning the functions we had to use from the libraries. We didn't know which function we could use and which one would work on our class. The movement code took us a lot of time and research. Furthermore, when the code was finished and we needed to import it to unity to test it, a lot of error appeared. The code didn't match with unity and we put some time figuring out what was wrong (the errors were often some writing mistakes or mistakes about functions we used from libraries). I also did a code about the damage the player takes but some mistakes appeared when i tried to merge the code with unity. I could not find the mistakes in time so this code is going to be in the next defense.

4 Missions

4.1 A start

For the first defense, we needed to start thinking about the missions that would be the heart of our project. We needed a system to show the progression in the success of these missions, therefore we chose a progression bar.



Figure 11: Progression Bar

As players complete missions, this one will keep filling up.

5 Multiplayer

5.1 Connection with the server

For the multiplayer part, we decide to base it on the unity package named "Photon". Photon provides us free server for our project and is relatively simple to use. The callback principle of photon allows us to divide the multiplayer into 4 stages :

The first will be the connection to the master server : the player need to provide a nickname to log into it

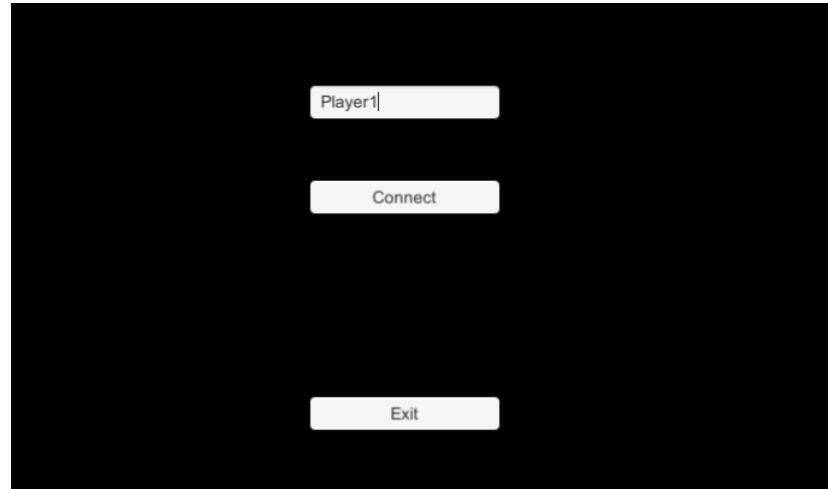


Figure 12: Connection Menu

When the local machine received the callback from photon, that can be described by "Hey you are connected", the Scene will switch on the one that we use to create/join room and wait for all the players :

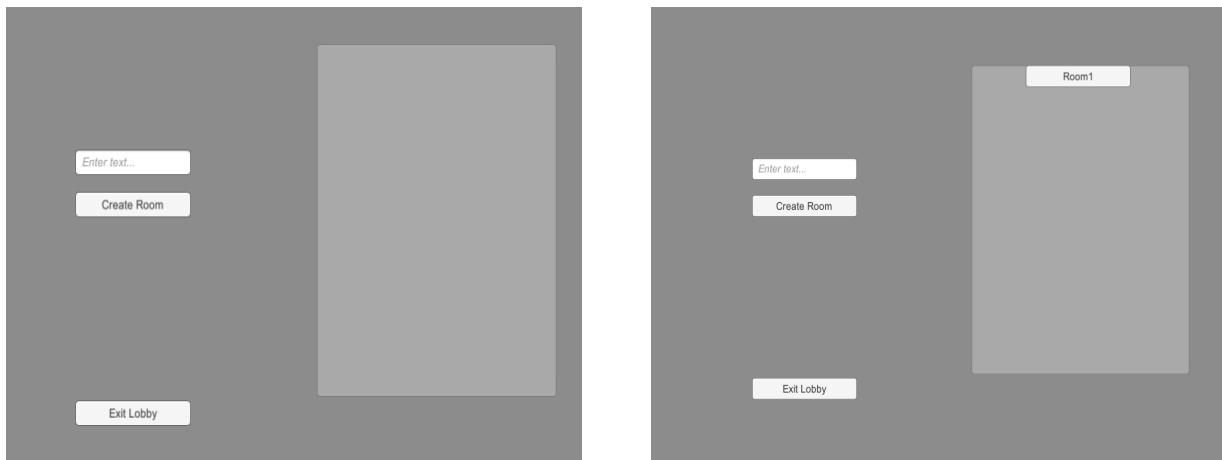


Figure 13: Lobby Menu

This menu is presented as follows, on the right, an area to see the rooms created and the possibility to join them and on the left a button to create a room or leave the server.

Once the player logged into a room, if he is the master of the room, the one who created it, and that there is enough player to start a game, a play button will appear. If he is not the master, the player just have to wait that the game start.

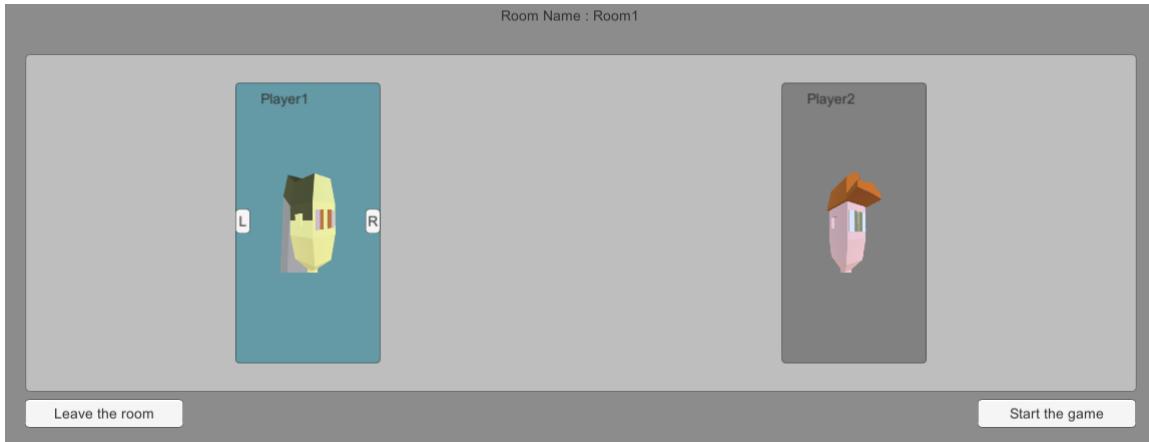


Figure 14: Room Menu

In this menu, we can see all the players that are connected. The player card of our player is the one in blue, the other players in grey. The player can also choose who he will incarnate, the hunter or one of the four player that we made.

5.2 Once we are in a room

Once the master have start the game, all players join the map and can see each other moving, jumping, running, thanks to the photon view and transform view component. The first one determine which GameObject instantiate on the map, the player owns and the second one permit to send data about the position, the scale and the rotation of the current GameObject.

5.3 The difficulties encountered

Photon can be quickly painful to use. For example, all the GameObject that we want to instantiate on the network need to be in a folder named "Resources", when you are not seeing that you put two "s" instead of one, you lose your mind quickly and stay two hours one this mistake.

Another problem was that all the GameObject that need to be updated on the network, need to have a photon view and transform view component. If it's something that can be updated by all the players, you need to switch from owner of the object. The documentation of Photon is pretty good, but do not explain stuff like that, the major part of our time was to try and hope it will work.

6 Artificial Intelligence

6.1 What is it doing for now ?

For now, our Artificial Intelligence is quite simple, its only purpose is to detect us in a defined radius, and to follow us as long as we are inside.

6.2 What is it going to do?

The future of our Artificial Intelligence is still uncertain. For the moment it is heading towards an AI helping us in a quest. Its goal will be quite simple, follow a predefined path to lead us to a key.

6.3 Integration in ManHunt

In Unity, AI for pathfinding and pathfollowing is a build-in component named NavMesh, so the integration in our game is quite easy. For now, the AI thinks like that :

- Spawn just after the players.
- Search for GameObject with the tag "Player"
- Wait for those GameObject to be in the detection zone

As explain earlier the AI while follow the GameObject detected until the GameObject is more inside this zone.

About the NavMesh component, the build-in tool of unity give us an easy way to :

- determine on which surface the AI Agent can walk, jump or not, here we can distinguish this surface in blue :

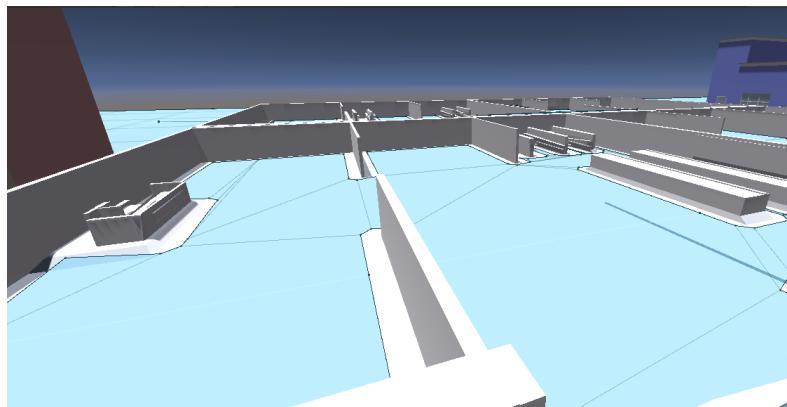


Figure 15: AI Walk Surface

- create different profile of agent with different features : the degree of the slopes on which the agent can move, his height, his radius, the size of the steps he can take.

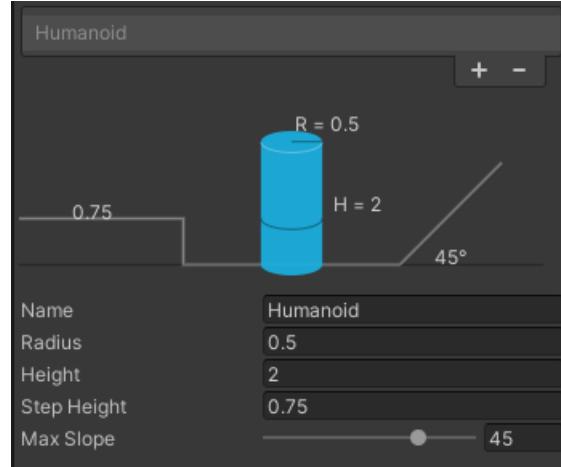


Figure 16: AI Agent profile

6.4 Difficulties encountered

For the moment, add the Artificial Intelligence to our game was simple since what we need is build-in Unity.

7 Website

7.1 Website Conception

For the Website we used HTML and CSS. These are two languages for website conception. The HTML file will let us write, put up photos, and basically let us create a structure for our website. Whereas the CSS file, is in charge of all the aesthetics of our web page. The first step to designing our web page, was making a logo. The logo was a sketch at first that we made on a sheet and eventually we virtualized it thanks to InkScape, a designing software on which we tried to make the logo again :



Figure 17: ManHunt Logo

Then we started imagining how we wanted our website to look like so we brainstormed for a while. We basically wanted something that matched the spirit of our game, something "horror-like". That is why we went with a "red and black" theme for the whole page.

On the Home page, for now, we have just added a footer with our pictures, our names, and silly quotes that correspond to us in a way or another. When the user clicks on our names next to our photos, for now it will get him to the second page : "Who are we ?"

Then for the second page, the "Who are we ?" page, we wanted to describe how we got the group together just like we did in our book of specifications. We also want to add our photos and descriptions of us, again, just like we did in the book of specifications.

Also, we designed the website in a way that when we click on "Home" or "Who are we ?" on the top right side of the website, it redirects us to the corresponding page.



Figure 18: Home page of the website

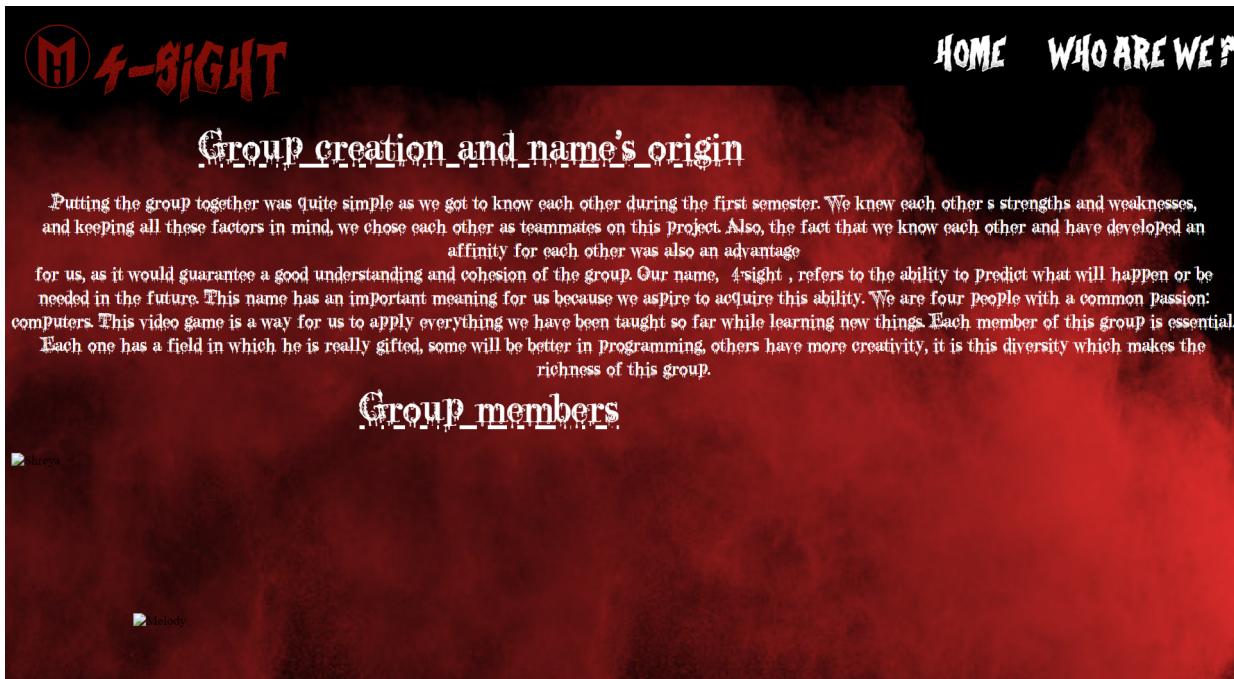


Figure 19: "Who are we ?" page

7.2 Difficulties encountered

The most difficult part here was teaching each other how to use HTML and CSS, because some of us knew how to use it while others didn't. But it also made us grow closer to each other, as in we understand better how each one of us works and how to explain them something. That is actually a pretty positive point that we developed.

Another very difficult thing to handle, mostly in CSS is how to position what we want to put on the page. We had a very hard time trying to position the photos on the footer of the page, and then how to position the quotes and the names next to each photos. As you are able to see on Figure 19, we still quite haven't figured that out yet. Some part of the quotes are still hiding under our pictures.

8 Conclusion

8.1 Multiplayer

To achieve the multiplayer, we plan to have the animation of the characters sync into the network and to fix the update problem of the list of rooms.

8.2 Artificial Intelligence

To reach the promise 70% AI done, we plan to have a 3D design for our IA (for now it's just a black capsule of unity). and to have determined more precisely what it will be used for.

8.3 Map Design

For the next defense, we have planned to reach the 70% of map designing. To do so, we expect to put texture on the first rooms of our map. Moreover, it will complete the environment outside the supermarket by adding buildings, road, traffic signs. Also, we are planning to add some prefabs to our market such as fruits, lights and furniture.

8.4 Players

For the next defense, we must be at 80% for the players. Concerning the players, we still need to create in blender a sort of weapon (maybe a wand) for each players. This object is part of the character. It allows him to change himself into objects. For the code, we need to add :

- the player who change himself into object
- the damage that the hunter do to the player
- create some vital points that allows the player to live
- to kill a player

8.5 Hunter

For the next defense, we must be at 80% for the hunter. We also need to create a weapon for the hunter that allows him hurt the players. This object is also part of the character. This weapon is going to made on blender. After the creation of the weapon, we are going to link the weapon to his code. The code allows the weapon to hurt players and to make players loose vital points.

8.6 Website

For the next defense, we planned to reach 70%. We first need to create another page for the website where visitors can download the game and defense reports (with the book of specifications). On each page, we would like to change the place of the logo. Instead of putting it next to the title, we would put it in the middle of the page, blending it with the red and black background. Furthermore, at the bottom of the website, we are going to add a footer where «Contact us » is going to be written with our contacts, that it to say our address mails and our instagram page we are going to create. On our home page, there is going to be a video to introduce our game and in the footer of this page, there is going to be our photos with our names and quotes. The quotes are going to be in bubbles to capture the attention of visitors. The page «who are we» is going to be a page where visitors could know more about us. There

is going to be some photos and text link to each photos. The names under the photos on the home page are going to be a link to the photos on the other page. We also going to explain our game and the rules of this game, but we don't know yet which page we are going to put this text. Finally, we are going to readjust our website so that it is compatible with all computers.