

# **Poisonous Report**

A Game Development Project

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# Introduction

The project has been created for learning-purpose for the Game development course. Every aspect seen in Game development classes must be in some way implemented in the project.

The final goal was to create a videogame concerning the topic of transmission.

This project in-fact helps us to apply the theoretical lesson and by practicing them we learnt how to make an efficient and consistent work by teaming and organizing the code structure in an Unity project.

# Requirements

The requirements for the videogame are:

- 3D Videogame
- Switch first/third person
- Scene graph transformations
- Static and dynamic objects, interactions among objects
- Material, textures
- Audio effects, sounds
- AI (NPC, enemies)
- Tutorial
- Complete game:
  1. Initial menu screen
  2. Number of levels
  3. Game over / victory screen

# Idea/How to play

The idea at the base of our game is to create a survivor game, where the player can interact with ambiental objects, can take items, ammo to protect himself from zombie enemies.

The game starts from an island surrounded by the sea, the player has nothing.

During the game, the player has to visit the island to find and get food, and bullets that spawn randomly in the world.

The world is covered with zombies who are ready to attack when they see you.

The zombies are of 2 types:

- Normal, normal zombies who only attack with their arms and punches.
- Fire zombies, like the previous ones, but they can randomly throw fire that will damage the player, and structures.

When a player is hit he loses life for a few seconds.

The player can defend himself with weapons or by placing structures to block enemies.

When the player has a full inventory, he can fight the final boss which will allow him to win. If the player dies during the game he loses.

The game allows player to set the difficulty in 2 levels:

- Easy, there are a lot of items around the world, the player makes more damage to zombies and less to structures, the enemy makes less damage to player and structures.
- Hard, the number of items is reduced, the player makes less damage to zombies and more to structures, the enemy makes more damage to player and structures.

## **Transmission theme**

Our game is connected to the transmission theme because the plane crashed due to an antenna fault, and that interrupted the corrected transmission.

The parts of the antenna were lost around the island.

We need to find both transmitters around the island, when we get both we can get the last one beating the boss.

If the player wins then will take the last piece and then he can go home..

## **Architecture**

The game structure is made by the world, the logic behind that and the dynamic players in the game.

The world:

The main menu makes us choose: help, exit, settings for the difficulty and to play the game.

Is made by 3 big chunks, the first one is full of grass and trees, with an npc and animation linked to him, it has a dialogue system, so we can talk to him and get some informations like the main commands so we can move around the switch from first to third person, shoot enemies, build structures like planes, walls and stairs, and switch gun, the first one shoot slowly, the second is more fast.

Enemies spawn around the player with different damages, the loot spawns when the world is generated.

We can find as loot bananas, hamburgers and ammos, but ammos can be found even when we kill enemies.

When we talk to the second stranger, enemies become stronger and they shoot with fireballs.

Finally we find the boss room where we can get in and fight with the boss, which has some zombies that defend him and fire columns that do damage.

Going deeper, the player has animations for the jump, walk, run, shoot and even side walk, back walk, when we shoot we raycast enemies and make an effect of hit.

Enemies use ai to follow us and hit, they hit us and structures that after some damage get brake.

They despawn after some distance so we can save memory, and don't fill the world with zombies.

They have animations to walk and to shoot fireballs.

After we talk to the first stranger the enemies through random raycast spawns nearly to the player.

The building system will be treated deeper in implementation details.

The dialogue system is made by raycast and if we speak to a player near to him the dialogue starts.

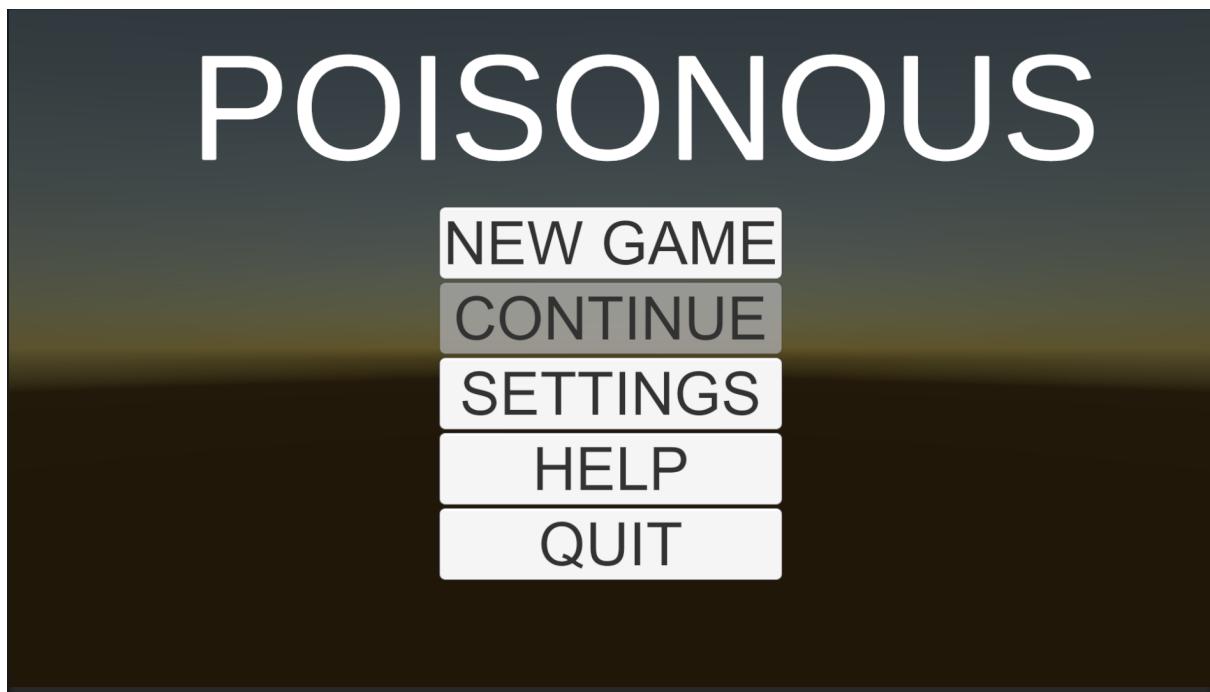
Objects are catched by raycast and added to inventory and seen by gui, the food will fill the red bar and ammos in the blue bar.

The ammos needs to be recharged every time we finish the rifle magazine.

We have a day/night cycle, so when the sun makes a half rotation, we get the night after another half we'll get the day.

## Game screenshot

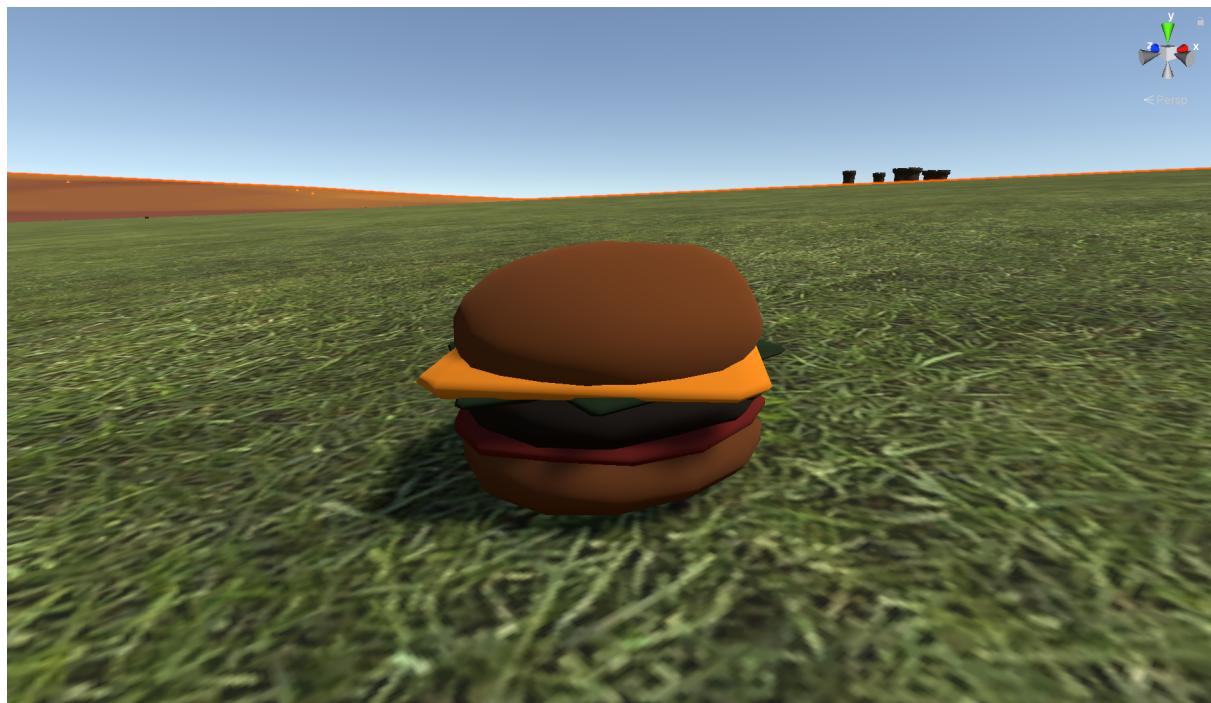
Menu



World

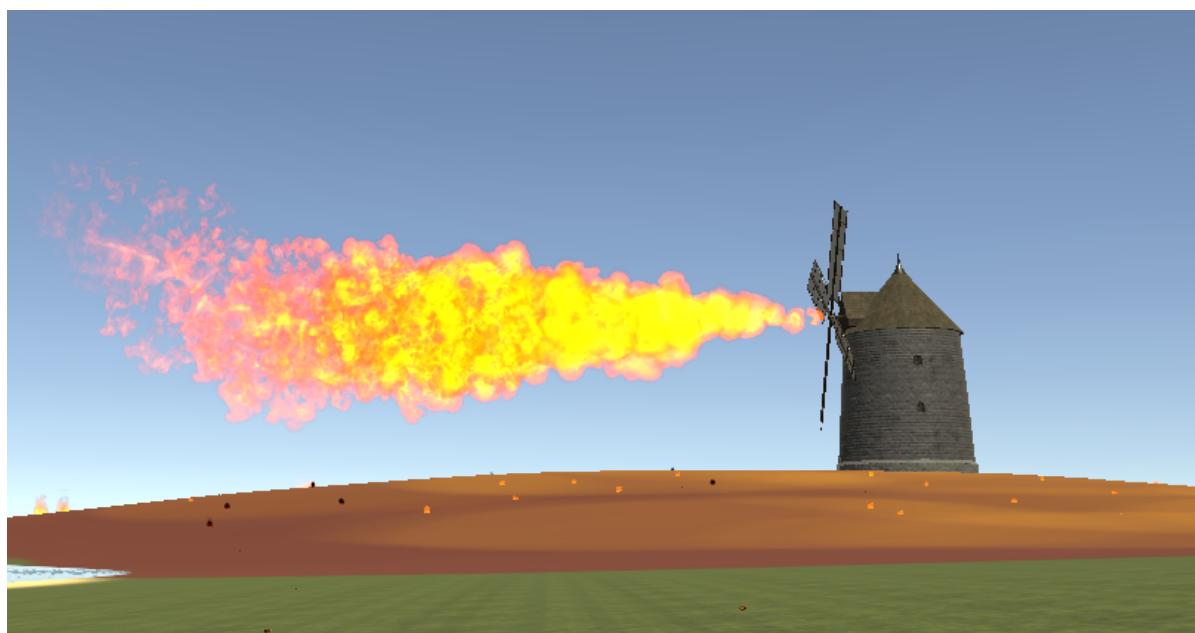


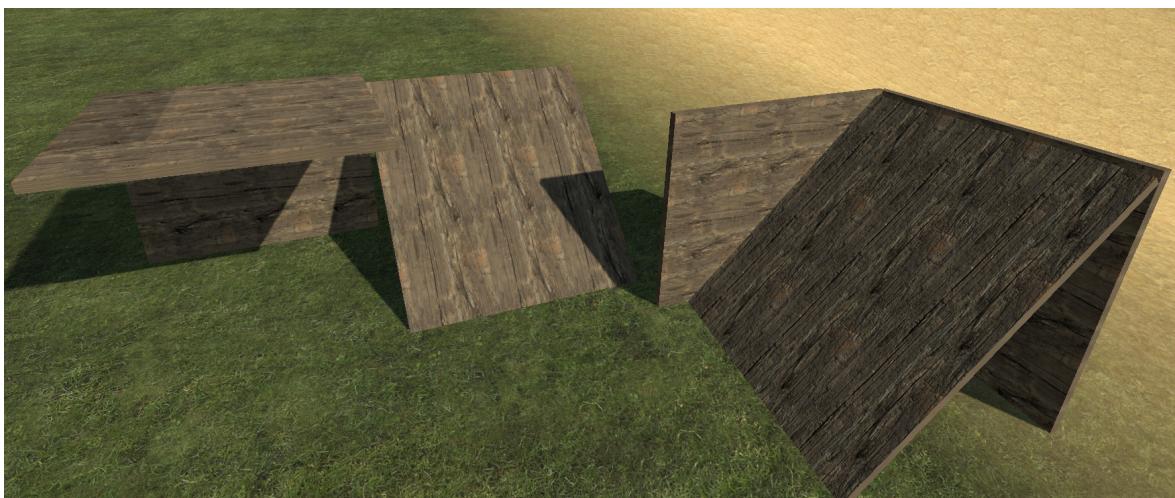
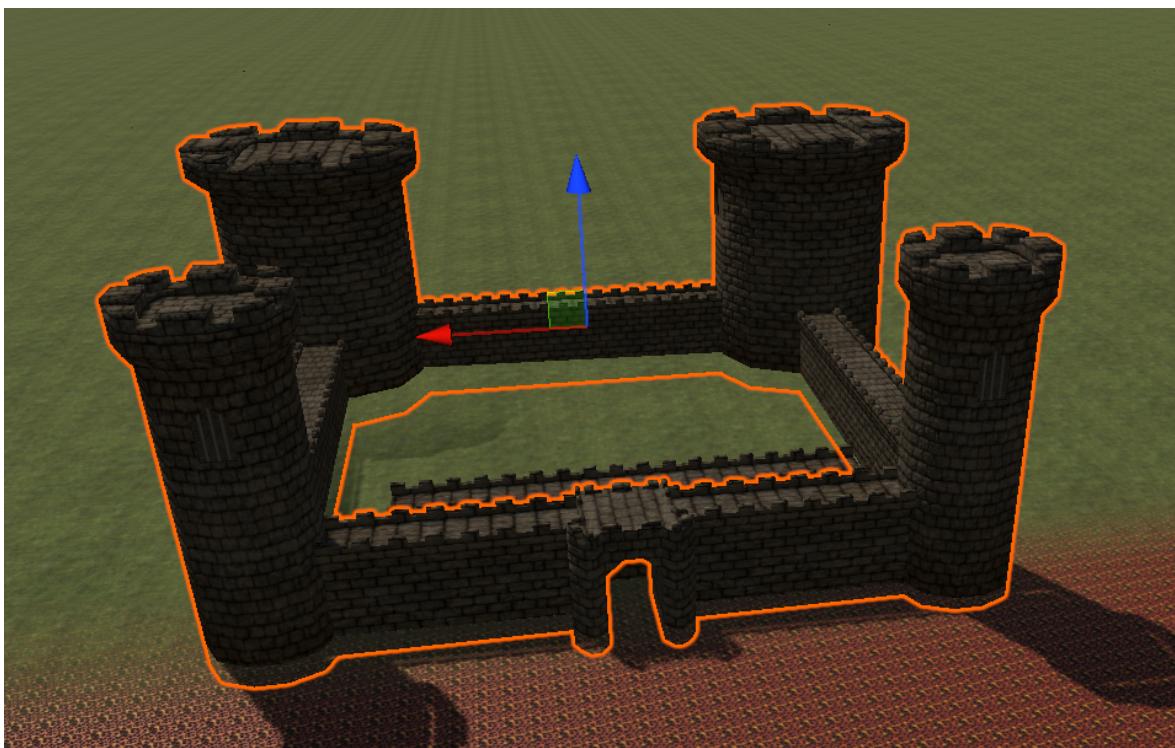
Item



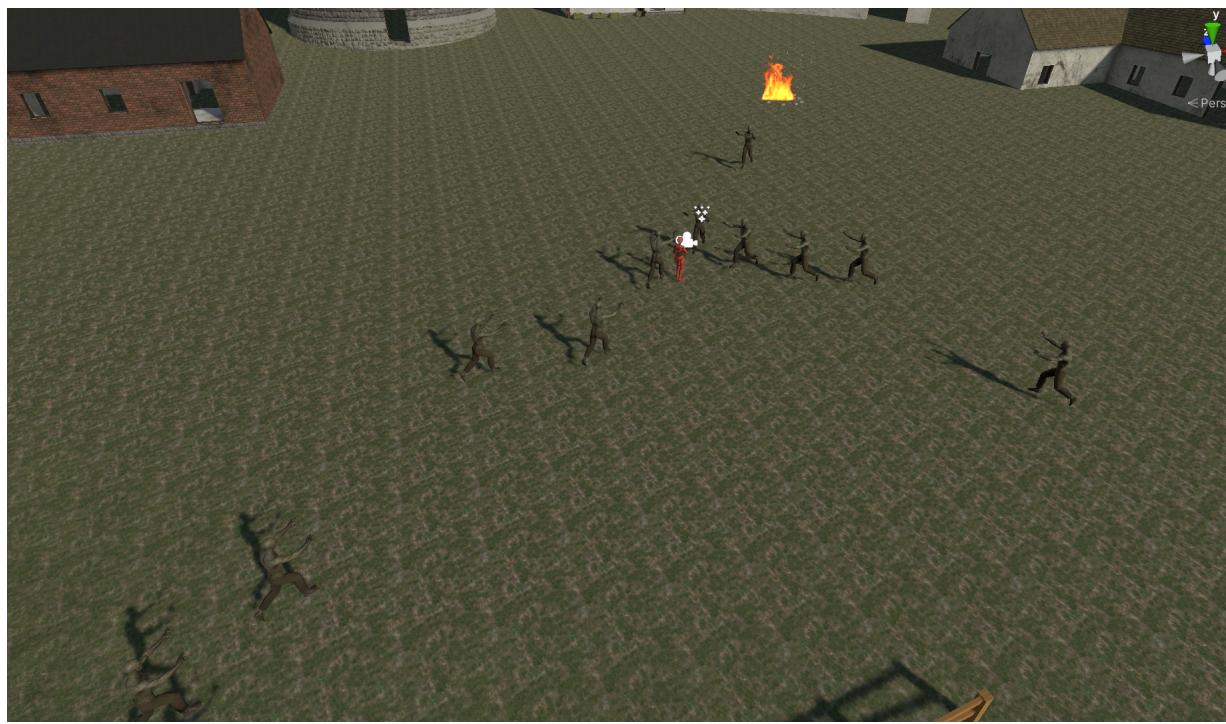


Structures





Enemies



Boss



## **Implementation details**

The building system is made by a grid that makes us know which zone the player clicks, in fact when he clicks he chooses the zone with an invisible object, and after that when he clicks the left click he sets the object on the designated zone.

The enemy spawner is made random raycasts that checks if the distance by the player is under a certain range and if that happens they spawn, but could even happen that they spawn too high because of trees, so after the spawn they check if the distance between them is under a certain range.

The dialogue system is made by a simple Canvas with a textbox that we fill through his script.

The script reads line by line from a file and then creates a sort of wheel to repeat the same dialog with the same npc.

The player interacts with the dialog system through npc by talking with them using the p key.

The item spawner when the code starts creates a prefixed number of items and puts them around the island.

If an item spawns out of map, he despawns automatically.

## **Link code**

Link repo: <https://github.com/denisbegiraj/Poisonous>