

# The Desert

## Team 9 VR Project Documentation

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### 1. Introduction

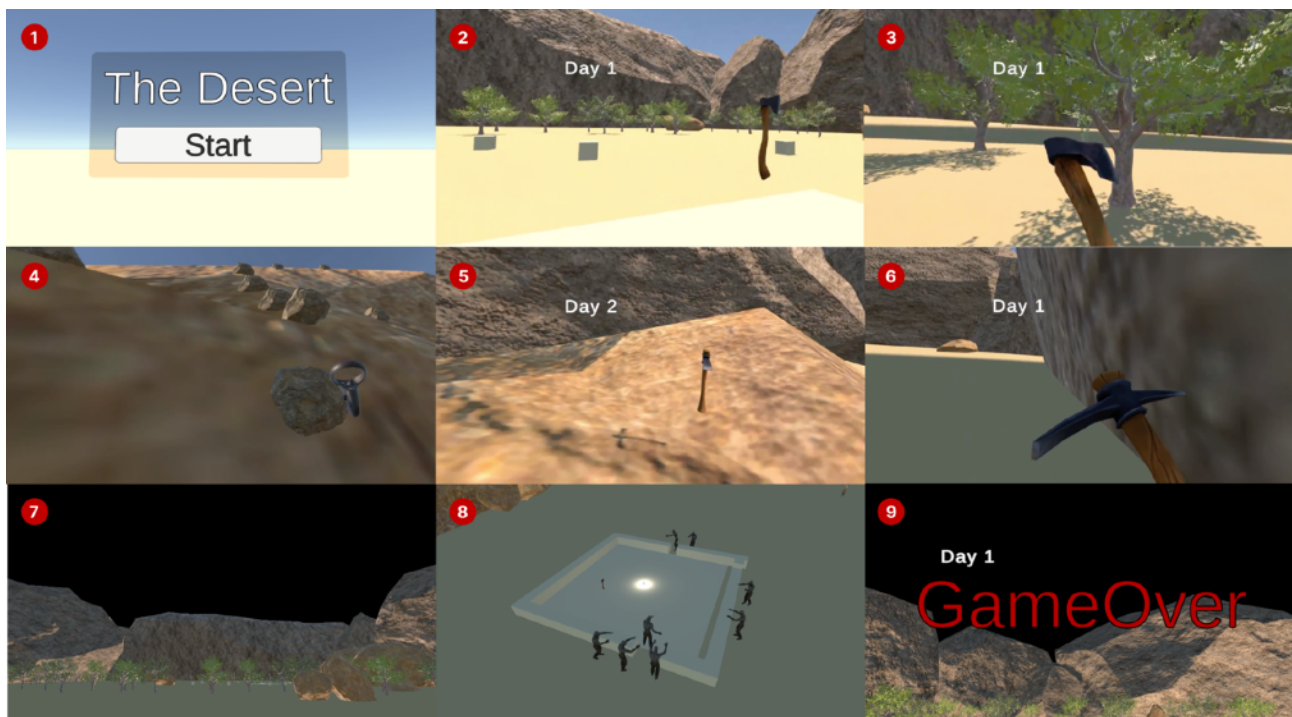
<The Desert> is a survival game where the player collects resources during the day to construct a shelter, and at night avoids attacks from zombies. The goal of the game is to survive for as long as possible in the desert, where day and night cycles repeat, by avoiding the zombies.

GitHub: <https://github.com/imp-team-9/the-desert>

### 2. Playing instructions

1. Players must gather surrounding resources and construct a shelter before nightfall. Shelters can be constructed by picking up blocks and attaching them to the sides of other blocks.
2. Zombies appear at night. Zombies attack the player and the shelter. If the player is attacked by a zombie, the game ends.
3. When the sun rises, the zombies disappear and one day passes. The goal of the game is to survive as long as possible.
4. The farther you go from the shelter, the more durable resources you can obtain. Additionally, by climbing rocky mountains, you can obtain special resources from the top.

### 3. Flowchart of the screens



- (1) Pocking the Start button on the first screen will start the game.
- (2, 3) The player can build shelters by collecting sand blocks from the surrounding area. Player can also pick up an axe and chop down trees to get wood blocks.
- (4, 5) The player can climb a rocky mountain to get a pickaxe.
- (6) The player can use the pickaxe to mine stone. Stones are harder than wood and can resist zombie attacks longer.
- (7) In time, the sun sets and night comes.
- (8) At night, zombies appear in the world. Zombies attack the player and shelter.
- (9) The game ends when the player is attacked by a zombie. The game over text appears, and then the game transitions to the first screen(1).

## 4. Architectures

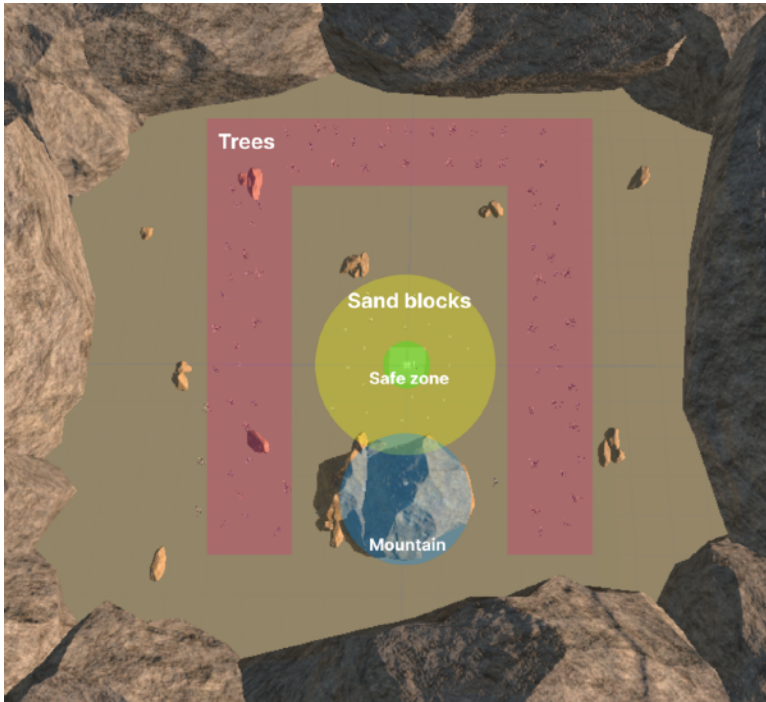


Figure 1

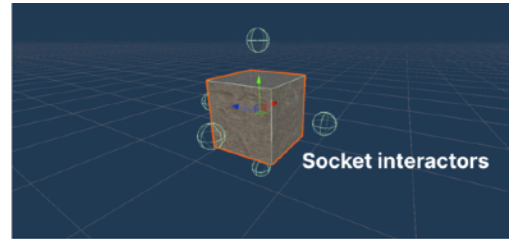
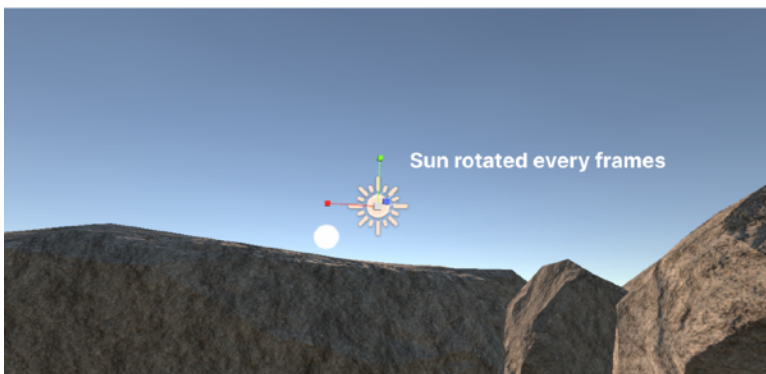


Figure 3

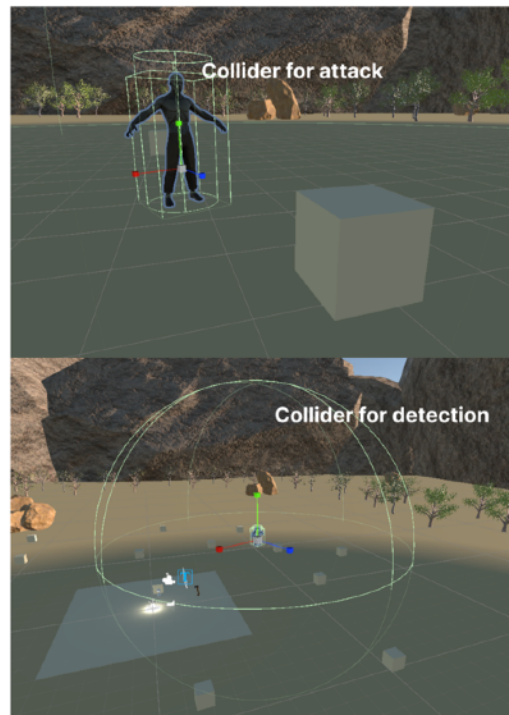


Figure 4

Figure 2

- The zombies do not spawn in the Safe Zone where the player initially spawned. The player must build a shelter in this area. Around the safe zone, there are sand blocks to support initial shelter construction. Further out, you can find trees, and by chopping them down with an axe, you can obtain wood blocks that have higher durability. Additionally, there is a pickaxe at the top of a mountain. If you climb the mountain to obtain the pickaxe, you can mine rocks and construct the most durable shelters.
- The sun moves 1.3 units during the day and 6 units at night for each frame. The 'SunController' for the sun exposes a public 'IsDay' function, allowing all objects to check whether it is currently day or night. It checks when a new day has begun at the point of sunrise.
- The blocks used for constructing shelters have a total of 6 socket interactors on all sides (Figure 3). By attaching other blocks to these sockets, shelters can be constructed.
- The zombies detect the shelter and player through colliders for detection (Figure 4). We implemented zombie pathfinding using the 'AI Navigation' package.

## 5. References

- Unity Documentation: User Manual, <https://docs.unity3d.com/Manual/index.html>.
- Sound effects: Pixabay, <https://pixabay.com/sound-effects/search/sfx/>.
- AI Navigation package: <https://docs.unity3d.com/Packages/com.unity.ai.navigation@2.0/manual/index.html>.