

Prometheus Unbound: Embodied Gaming in a VR Cave Environment

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This work is a case study in the design and development of the “Prometheus Project”, a game produced as part of a custom-made VR-CAVE system [1], that uses the body of the player as a controller. Prometheus Project, is a VR escape room, through which the cultural heritage of the Peloponnese prefecture is promoted. The player assumes the role of a scientist who is transported to the castle state of Ancient Methoni, at the beginning of the 19th century. The goal is to find a portal that will allow him to return to the present day before the time expires. During the adventure, the player collects elements, combines objects, and solves puzzles that will lead him to the portal. The design of the game was entirely based on the logic of well-known point & click games, according to which the player interacts with objects, but also taking into account that it should be played in a room-sized VR environment [1]. At the heart of this experience is the embodiment of the player within the game. The player can move around in a first person POV, and can grab objects by entirely using his body and without any wearables. The integration of the human body as the controller, turns every movement into a gesture that interacts with the virtual world. Whether it's reaching out to touch objects, gesturing to open inventory, or even simply moving through the space, every motion translates into a meaningful interaction within the game.

In the constantly developing landscape of gaming and art, the boundaries between VR and physical space are continually being pushed. Motion capture technology has significantly impacted the gaming and entertainment industry [2]. Tools that capture the movement of a player-user, can provide enhanced realism, creative freedom, streamlined production processes, imagination, precise data capture, and flawless integration with CGIs. By using the body as a controller, in “Prometheus Project”, the player is not merely interacting with the virtual environment cognitively but also embodying his presence within the game. This dual perspective challenges traditional views of the player experience, emphasizing the importance of both cognitive engagement with the game world and physical immersion in the actual space. One common perspective in video game research emphasizes the cognitive aspects of the player's experience, focusing on concepts such as immersion, spatial presence, and engagement. This viewpoint acknowledges the player's ability to operate within the game world as the primary point of reference, shaping their subjective experience of the game. However, an alternative viewpoint suggests that the player is not solely confined to the virtual realm but is also situated within the physical world. This perspective highlights the importance of physical preconditions, such as hardware for playing, in shaping the video game experience. In the context of the Prometheus Project, the integration of motion capture technology transforms the player's physical movements into meaningful interactions within the virtual environment, bridging the gap between the real and the virtual.

By exploring these dual perspectives, we aim to gain a deeper understanding of the complex interplay between cognition, embodiment, and technology in shaping the video game experience. The most profound aspect of the setup described in this work, is its ability to foster human connection. As participants move and interact within the virtual environment, they are

not just playing a game—they are engaging in a shared experience with those around them. Whether collaborating to solve puzzles or competing in virtual challenges, the VR cave becomes a space for social interaction and collective exploration.

REFERENCES

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