

Potion Game Demonstration: A Highly Customizable VR Application for Testing Interaction Modalities and Visual Rendering Style in Olfactory Tasks

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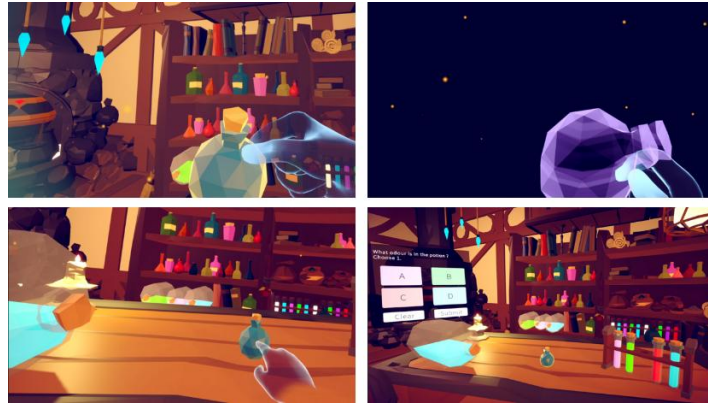


Figure 1: Screenshots of the experimental virtual environment showing different interaction and visual settings

Scent plays a vital role in daily life. Previous work has incorporated olfaction into Virtual Reality (VR) environments, demonstrating that olfactory stimuli increases the sense of presence and improved cognitive abilities [1]. Scent emission in these studies typically follows either an active or passive configuration. In an active reception setting, odor is released when a continuous action is performed, such as grabbing an object and bringing it close to the nose [2]. Conversely, in a passive reception configuration, the olfactory stimuli are triggered by a discrete player action, such as touching a designated object, and sustained without further player involvement [1]. Furthermore, prior research indicates that cognitive overload is a significant risk to when designing multi-modal VR applications with scent integration [3], though this can be mitigated by limiting the available visual information. To address these design challenges, we developed a highly customizable VR environment, where different styles of interaction modalities and visual rendering styles can be dynamically swapped to test performances during an olfactory task (Figure 1). Specifically, the system tracks the success rates in a scent-recognition game, task completion times, and various subjective experience metrics. This application was deployed in a user study (N=22) to establish concrete design guidelines for olfactory VR applications.

Acknowledgments

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References

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