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Sense Simulation in Virtual Reality to Increase: Immersion, Presence, and Interactions

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## **Abstract**

With the advancement in the field of Virtual Reality, the companies are focusing on increasing the level of immersion, presence, and interaction to make the user experience more realistic. This paper aims to investigate how the human senses can be simulated in Virtual Reality to have a realistic experience and how the human senses increase the level of immersion, presence, and interaction. It will describe every human sense which makes us feel present and immersed in the real-world and the new VR technologies that are simulating the human senses in VR. There are only two human senses that are fully simulated in VR that is sight and hearing other senses are not simulated in VR which makes it less immersive and realistic.

The paper starts with the introduction of Virtual Reality and explains its emergence, the role of immersion, presence, and interaction in VR. It then explains the five human senses that are sight, hearing, touch, smell, and taste. This paper also explains the technologies and the devices which are being developed to simulate the senses in VR. Moreover, giving a brief analysis of how these technologies are contributing to increasing the level of immersion, presence, and interactions. The simulation of senses in VR can open new possibilities for game developers and media developers to find new ways of interactions in VR, for example, with the simulation of senses, game mechanics can be increased.