Background
While virtual reality (VR) head mounted displays (HMD) are evolving in display quality and tracking performance, the interaction with virtual content is still far from being realistic. Most HMDs offer only vibro-tactile feedback via controllers and fail to simulate the properties of virtual objects like their shape or density.

Scope of the Thesis
Interacting with the virtual world is a key factor for an immersive VR experience. The more realistic this interaction feels, the more engaged and absorbed the user can become. The goal of this thesis is to design, implement, and evaluate a concept for a deformable haptic input and output device that provides haptic feedback for a virtual that is being touched by the user’s hand. While there are existing large-scale tangible interfaces for the table-top, the challenge for this thesis is to design a mobile version that can serve as an output and input device in an ergonomic, hand-held form factor.

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