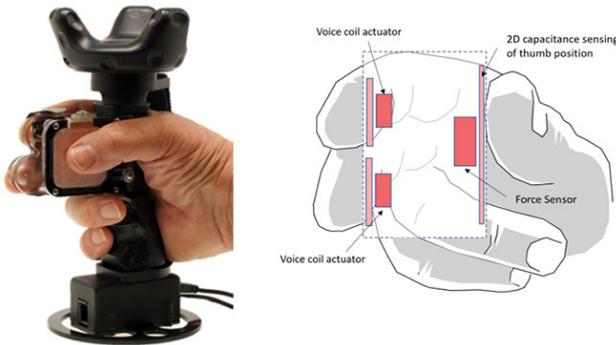


Microsoft Controls VR With TORC

Written by Alice Marshall
08 May 2019

Microsoft looks to further improve on the sensation of manipulating virtual objects in VR spaces through what it calls TORC (TOuch Rigid Controller), a compact haptic controller promising "high levels of dexterity and compliance perception."



The result of work at Microsoft Research Redmond, the TORC controller is a rigid shell with no visible moving parts. It is designed to simulate the sensation of holding an object using the thumb and two fingers, and allows users to freely move the thumb on the surface parallel to the plane of the two to rotate the virtual object. In addition, it vibrates to let the fingers feel the texture and "pseudo-compliance" of the object.

The company says TORC was created in order to convey the sensation of squeezing a silicon ball. As such, it will be able to allow the rendering of a virtual anti-stress ball, presumably to help one deal with virtual stress through the squeeze of the virtual fingers. The physical fingers of the user will not actually move, but a combination of headset visuals and the rendered haptic sensation should provide a "compelling experience."

Other applications of the TORC controller include the precise fingertip movement in virtual space. Microsoft gives the example of picking up a virtual key with TORC and examining it, before inserting it in a keyhole to unlock a door. One can also simply drop a virtual object by either lifting their thumb or using less force on the controller.

Finally, the technology is compact enough to allow integration in other devices, such as game controllers or styluses. In the words of the researchers, "our device will create equivalent wide-band Voice Coil Actuation (VCA). The real-time effect within virtual reality creates the necessary proprioceptive drifts that enable different compliances for virtual objects."

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The Microsoft team will show off TORC prototypes at the ACM CHI Conference on Human Factors in Computing Systems (CHI 2019) in Glasgow, Scotland.

Go [Introducing TORC](#)