Docket #: S20-518

Hyper-Localized Haptic Feedback

A researcher at Stanford has developed a system for providing location-specific haptic feedback to users in a manner that greatly reduces the number of haptic drivers or motors required. The design features resonators (discrete or distributed) with unique, high-Q resonances deployed to provide haptic feedback. A small number of drivers and/or haptic motors capable of specific frequency output are used to input a signal to the system of resonators, which resonate proportionately to the amplitude of its resonant frequency in the signal. This allows for haptic feedback that is localized in space while greatly reducing the number of drivers required. These resonators can be discrete, such as a series of mass-spring connected to a common base, or distributed, such as a material with space-varying physical properties that create resonant hot-spots. The drivers may be traditional haptic motors (ERM, LRA, piezo) or a voice-coil transducer.

Stage of Development
Prototype. Research and optimization efforts are ongoing.

Applications

- **Gaming**: VR and video game controller haptics
- **Accessibility**: tactile sound and visual displays
- **Medical**: therapy and rehabilitation

Advantages

- Provides fine localization of haptic feedback with a limited number of haptic-drivers

Innovators

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