Project Title: Haptic Interface for Vehicular Touch Screens

Principal Investigators:

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The principal investigators have developed a novel haptic technology – the Active TPaD – that lets a user feel and interact with controls on a touch screen, even in the absence of vision or audition. This technology could lead to in-vehicle touch screens that are more natural to use and that require fewer glances away from the road (or rail) ahead. They will work with Ford Motor Company to prototype two vehicular interaction scenarios, test usability, and assess the overall suitability of the Active TPaD for the vehicular environment. Their specific aims are:

- Develop algorithms for two common interactions scenarios: adjusting a slider, and locating a button by touch alone.
- Design an experiment to measure a human subject's ability to complete tasks involving sliders and buttons while driving. They will work closely with colleagues at Ford, and design the task to be performed using Ford's VIRTTEX driving simulator.
- Perform experiments in the VIRTTEX simulator while controlling the amount of vibration (i.e., road conditions). This will test not only the utility of the Active TPaD as a user interface, but the robustness of it in the face of realistic driving conditions.