



(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0054060 A1**
Schena (43) **Pub. Date: May 9, 2002**

(54) **HAPTIC DEVICES USING ELECTROACTIVE POLYMERS**

Publication Classification

(51) **Int. Cl.⁷** **G09G 5/00**
(52) **U.S. Cl.** **345/701**

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(57) **ABSTRACT**

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Haptic feedback interface devices using electroactive polymer (EAP) actuators to provide haptic sensations and/or sensing capabilities. A haptic feedback interface device is in communication with a host computer and includes a sensor device that detects the manipulation of the interface device by the user and an electroactive polymer actuator responsive to input signals and operative to output a force to the user caused by motion of the actuator. The output force provides a haptic sensation to the user. Various embodiments of interface devices employing EAP actuators are described, including embodiments providing direct forces, inertial forces, and braking forces.

(21) **Appl. No.: 09/866,385**

(22) **Filed: May 24, 2001**

Related U.S. Application Data

(63) **Non-provisional of provisional application No. 60/206,929, filed on May 24, 2000.**

