

ations, permutations and equivalents thereof will become apparent to those skilled in the art upon a reading of the specification and study of the drawings. For example, many different types of haptic sensations can be provided with the actuators of the present invention. Furthermore, certain terminology has been used for the purposes of descriptive clarity, and not to limit the present invention.

1. A manipulandum device adapted to allow interaction between a user and a computer, the device, comprising:

a housing;

a sensor configured to detect a movement of at least a portion of the housing, the sensor configured to output sensor signals associated with the movement; and

an electroactive polymer actuator coupled to the housing and configured to output a haptic-feedback force associated with the output sensor signals.

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