



US 20230232720A1

(19) **United States**

(12) **Patent Application Publication**
KANG et al.

(10) **Pub. No.: US 2023/0232720 A1**

(43) **Pub. Date: Jul. 20, 2023**

(54) **HAPTIC ACTUATOR**

(52) **U.S. Cl.**

(71) Applicant: **Korea Electronics Technology
Institute, Seongnam-si (KR)**

CPC **H10N 30/2023** (2023.02); **G06F 3/016**
(2013.01)

(72) Inventors: **Hyung Won KANG, Seoul (KR);
Seung Ho HAN, Gwacheon-si (KR);
Intae SEO, Gwangju-si (KR)**

(57)

ABSTRACT

(73) Assignee: **Korea Electronics Technology
Institute, Seongnam-si (KR)**

A haptic actuator is disclosed. The haptic actuator includes a polygonal piezoelectric element configured to generate a displacement thereof while expanding and contracting in accordance with polarities of a voltage applied thereto, and a jig member coupled to the piezoelectric element at upper and lower sides of the piezoelectric element in a thickness direction of the piezoelectric element in a state of contacting only corners of the piezoelectric element and configured to amplify the displacement generated at the piezoelectric element, thereby vibrating. The jig member amplifies the displacement generated at the piezoelectric element and, as such, vibrates. Accordingly, it is possible to provide excellent haptic effects with high resolution to the user, using even a small voltage.

(21) Appl. No.: **18/098,177**

(22) Filed: **Jan. 18, 2023**

(30) **Foreign Application Priority Data**

Jan. 18, 2022 (KR) 10-2022-0007369

Publication Classification

(51) **Int. Cl.**

H10N 30/20 (2006.01)

G06F 3/01 (2006.01)

