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(54) Title: BIOMIMETIC TACTILE SENSOR FOR CONTROL OF GRIP

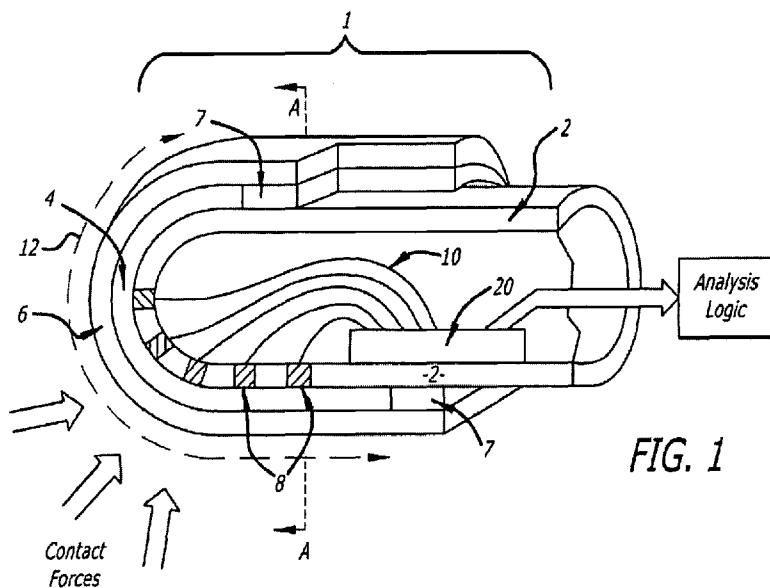


FIG. 1

(57) Abstract: Disclosed is a robust tactile sensor array that mimics the human fingertip and its touch receptors. The mechanical components are similar to a fingertip, with a rigid core surrounded by a weakly conductive fluid contained within an elastomeric skin. It uses the deformable properties of the finger pad as part of the transduction process. Multiple electrodes are mounted on the surface of the rigid core and connected to impedance measuring circuitry within the core. External forces deform the fluid path around the electrodes, resulting in a distributed pattern of impedance changes containing information about those forces and the objects that applied them. Strategies for extracting features related to the mechanical inputs and using this information for reflexive grip control.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,010,774 A (Kikuo et al.) 30 April 1991 (30.04.1991) entire document, particularly abstract, col 1, ln 14-20, col 1, ln 64 - col 2, ln 5, col 8, ln 63-66, col 9, ln 3 - col 10, ln 59, col 13, ln 3-10, col 14, ln 40, col 16, ln 23-26, col 19, ln 51 - col 20, ln 3, col 20, ln 16-18	1, 2, 8, 15-17 ----- 3-7, 9-14, 18-20
Y	US 6,898,299 B1 (Brooks) 24 May 2005 (24.05.2005) col 13, ln 55-col 14, ln 21	3, 4
Y	US 2004/0187071 A1 (Zhang et al.) 23 September 2004 (23.09.2004) para [0021], para [0045]	5, 6, 7
Y	US 2007/0060815 A1 (Martin et al.) 15 March 2007 (15.03.2007) para [0020]	9-14
Y	US 2006/0161225 A1 (Sormann et al.) 20 July 2006 (20.07.2006) para [0108], para [0135]	18-20
Y	US 6,584,217 B1 (Lawless et al.) 24 June 2003 (24.06.2003) Fig. 7A, col 5, ln 53-56, col 11, ln 3-5	6, 7
Y	US 4,817,440 A (Curtin) 04 April 1989 (04.04.1989) col 3, ln 64-65, col 4, ln 18-21	12, 13
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774