



(51) International Patent Classification:

D04B 1/12 (2006.01) *A41D 1/00* (2018.01)
D04B 1/18 (2006.01) *A41D 13/12* (2006.01)
D04B 1/16 (2006.01)

(21) International Application Number:

PCT/SG2022/050092

(22) International Filing Date:

25 February 2022 (25.02.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202101960Y 25 February 2021 (25.02.2021) SG
10202111004S 01 October 2021 (01.10.2021) SG

(71) Applicant: **SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN** [SG/SG]; 8 Somapah Road, Singapore 487372 (SG).

(72) Inventors: **LOW, Hong Yee**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG). **GUPTA, Ujjaval**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG). **LAU, Jun Liang**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG).

versity of Technology and Design, 8 Somapah Road, Singapore 487372 (SG). **SOH, Gim Song**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG). **CHIA, Pei Zhi**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG). **AHMED, Alvee**; c/o Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372 (SG).

(74) Agent: **VIERING, JENTSCHURA & PARTNER LLP**; P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: TEXTILE CONFIGURED FOR STRAIN SENSING, METHOD OF MANUFACTURING A TEXTILE FOR STRAIN SENSING AND A KNITTING APPRATUS THEREOF

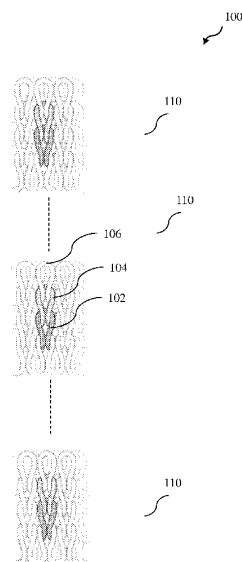


FIG. 1

(57) Abstract: There is provided a textile configured for strain sensing. The textile includes a strain sensing portion integrally knitted in the textile. The strain sensing portion comprises a plurality of first groups of courses of yarn, each first group of courses of yarn including a first course of conductive yarn including a plurality of knitted loops, a second course of dielectric yarn including a plurality of knitted loops, and a third course of conductive yarn including a plurality of knitted loops. The second course is arranged in between the first and third courses and configured to have a higher elasticity than the first and third courses such that when the strain sensing portion is at a relaxed state, a knitted loop of the plurality of knitted loops of the first course and a corresponding knitted loop of the plurality of knitted loops of the third course are caused by a corresponding knitted loop of the plurality of knitted loops of the second course to be in contact with each other, and when the strain sensing portion is at a stretched state, a knitted loop of the plurality of knitted loops of the first course and a corresponding knitted loop of the plurality of knitted loops of the third course are caused by a corresponding knitted loop of the plurality of knitted loops of the second course to be not in contact with each other.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*