Smart Textiles for Human-machine Interface Fabricated *via* Facile on-site Vapor Phase Polymerization

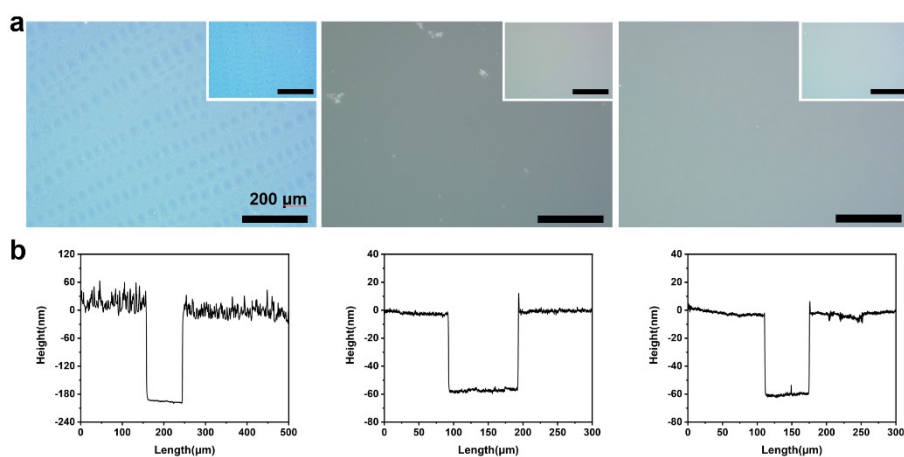Haoyu Wang,‡[a] Yi Xing,‡[a] Zuo Xiao,[b] Hengda Sun,[a] Gang Wang*[a] and Meifang Zhu[a]

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Contents

Fig. S1 (a) From left to right are the optical microscope and (b) Profilometer images of PEDOT thin films with 0, 3, and 6wt.% PEG additions, respectively. The inset is an image taken at 1000x magnification. It could be observed that the addition of PEG was beneficial to the formation of a smooth surface of the film.
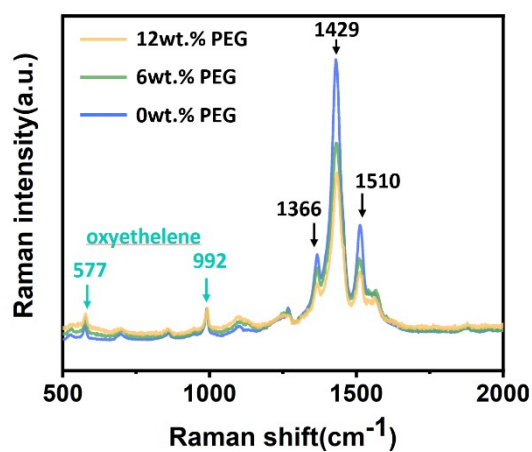

Fig. S2 Raman spectra of PEDOT:Tos film with 0, 6, 12wt.% PEG additions, where the data were normalized to the peak at 992 cm^{-1}.
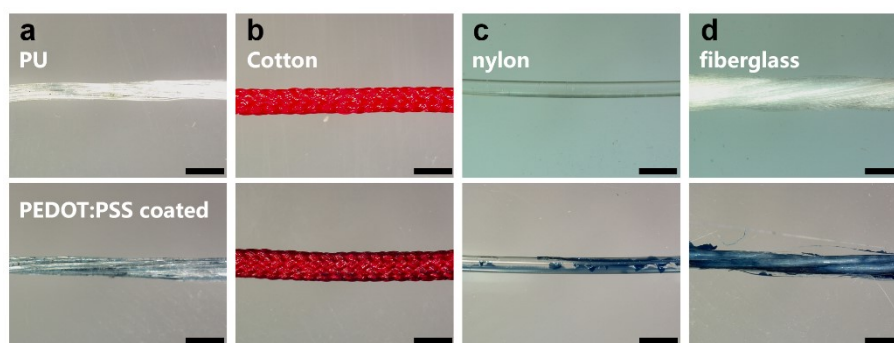
Fig. S3 Ultra-depth microscopy images of PEDOT:PSS coatings constructed on (a) PU, (b) cotton, (c) nylon, (d) fiberglass surfaces. Among them, from top to bottom are bare yarn, scale bar : 400 μm. All samples showed significant inhomogeneity.
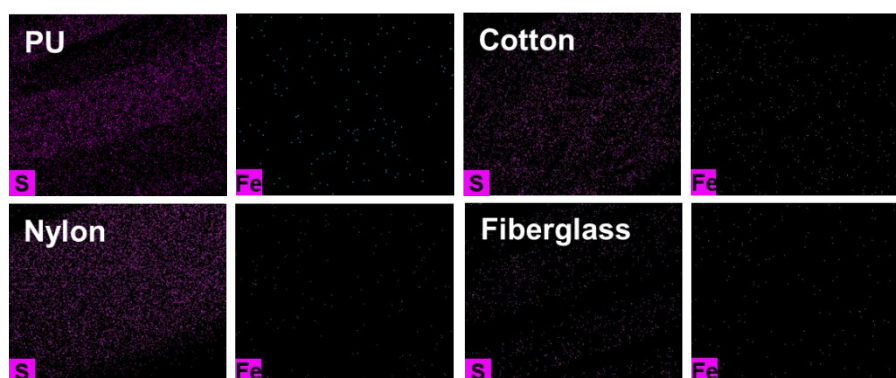
Fig. S4 EDS images of PEDOT:Tos coated on PU, cotton, nylon and fiberglass yarns.
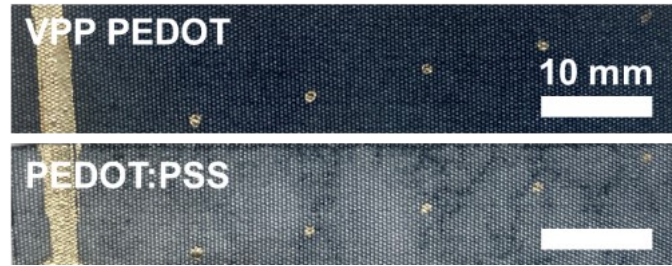
Fig. S5 Conduction uniformity test, used silver paste to define the origin at one end of the fabric, and then applied the silver paste to the positions 10, 20, 30, 40, 50 mm away from the origin. Ensured that the lines connecting these positions and the origin (parallel to the long side of the fabric) were parallel to each other but not in a straight line.
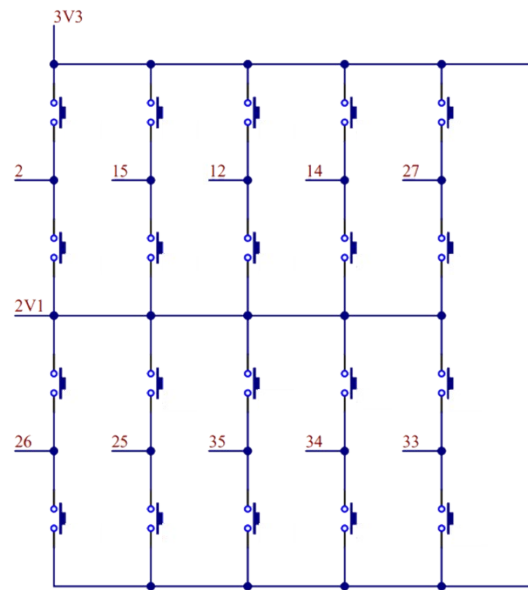
Fig. S6 Circuit diagram of spaced fabric key array, In the circuit, every two adjacent buttons shared an interface, and the 3.3V power supply was divided into 3.3V and 2.1V through a step-down chip (the model is marked in the experiment), and the two fabric switches were connected respectively. After pressing the fabric, according to the voltage value obtained by the data acquisition circuit board and the corresponding port, distinguished the position of the pressed fabric, and outputted the corresponding programming content.