Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Textile-based electrophoretic electronic paper displays with machine-washable, tailorable and thermostatic functions for truly wearable display

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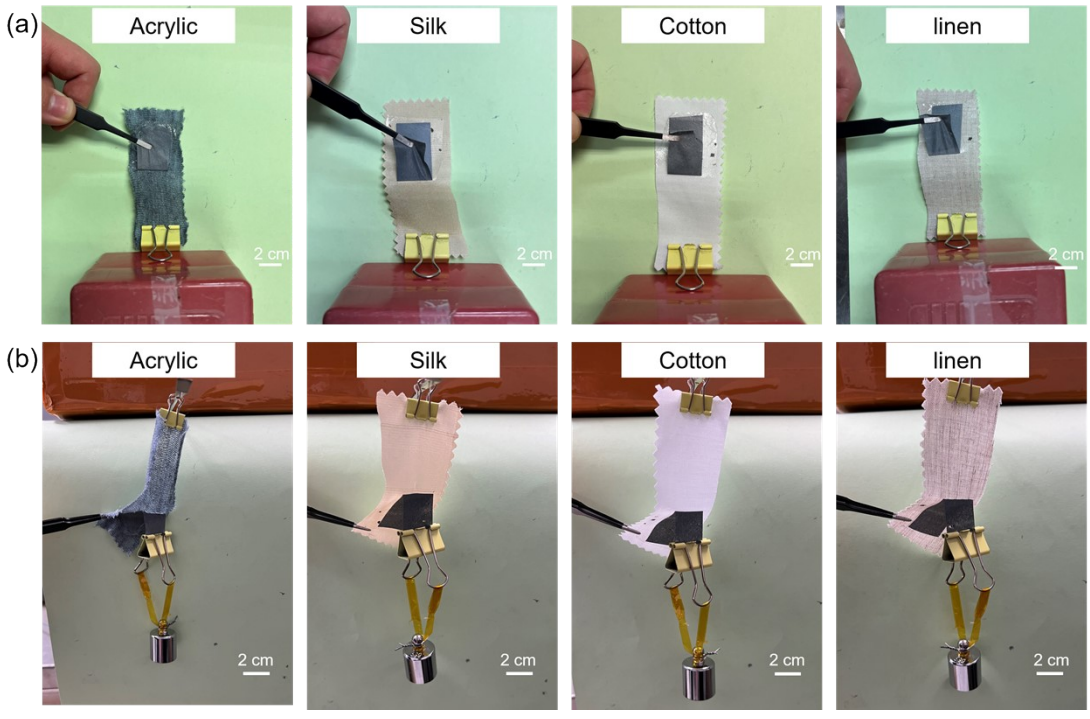

Fig. S1. (a) Interface illustration, exhibiting the universality by hot pressing the stretchable EPDs on four commercial textiles. (b) Photographs of the peeling strength of the textile-based EPDs can lift 50 g weight, scale bar is 2 cm.

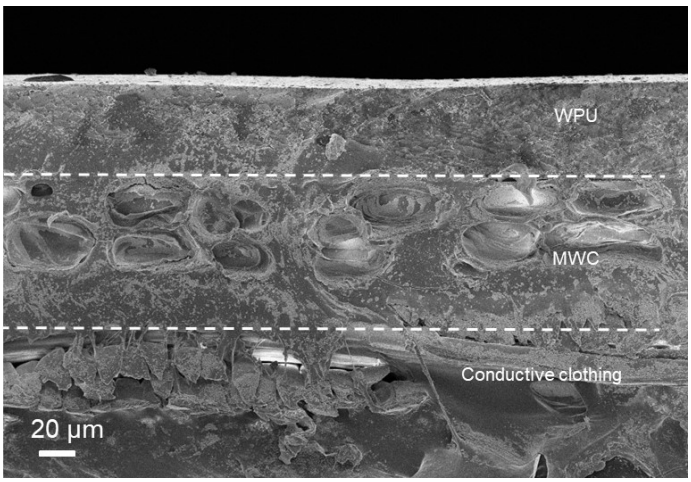

Fig. S2. The high magnification SEM image of the conductive clothing textile-based EPDs.

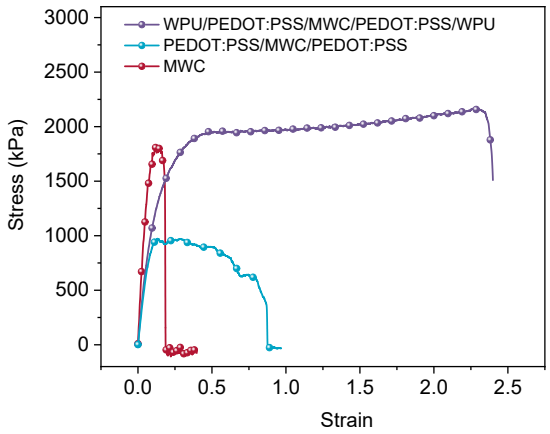

Fig. S3. Stress-strain curves of three samples, i.e., MWC (with a 1:2 weight ratio of WPU to microcapsules), PEDOT:PSS/MWC/PEDOT:PSS and WPU/PEDOT:PSS/MWC/PEDOT:PSS/WPU, respectively.

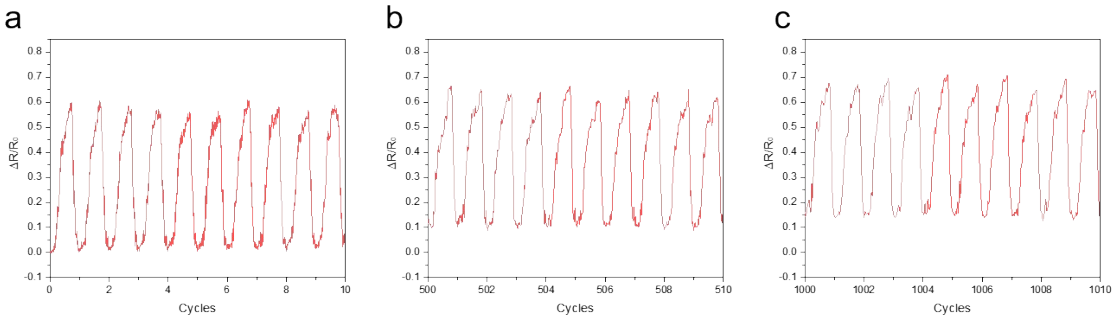

Fig. S4. Enlarged graphs depicting the electrode layer with WPU encapsulation enduring the early, middle, and latter five of the 1200 release–stretch cycles at 10% strain.

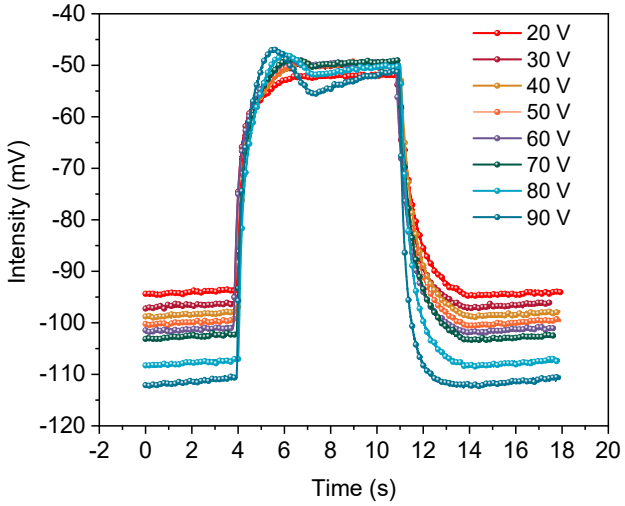

Fig. S5. The plots of the insensitivity verse time performed the self-extinction effect of the stretchable EPDs under the internal voltage from 20 V to 90 V.

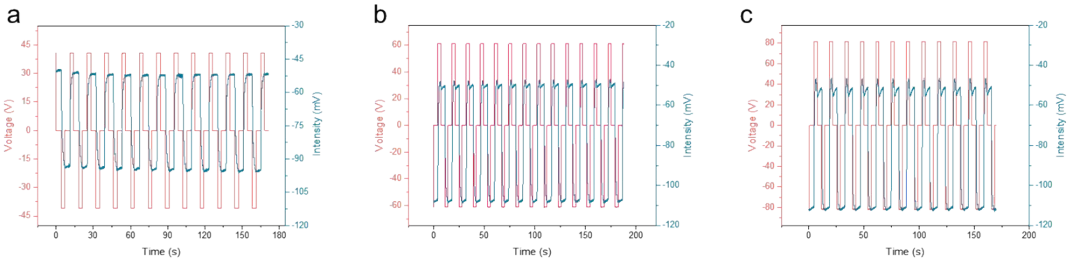

Fig. S6. Electro-optical response of the EPDs under more than 12 cycles of +40 V/-40V, +60 V/ -60 V and +80V-80 V three driving voltage pulses.

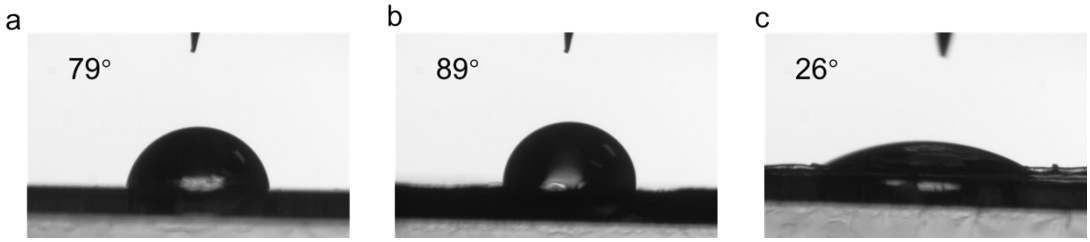

Fig. S7. Contact angle measurements of three samples, i.e., WPU (a), MWC (b), PEDOT:PSS, respectively (c).

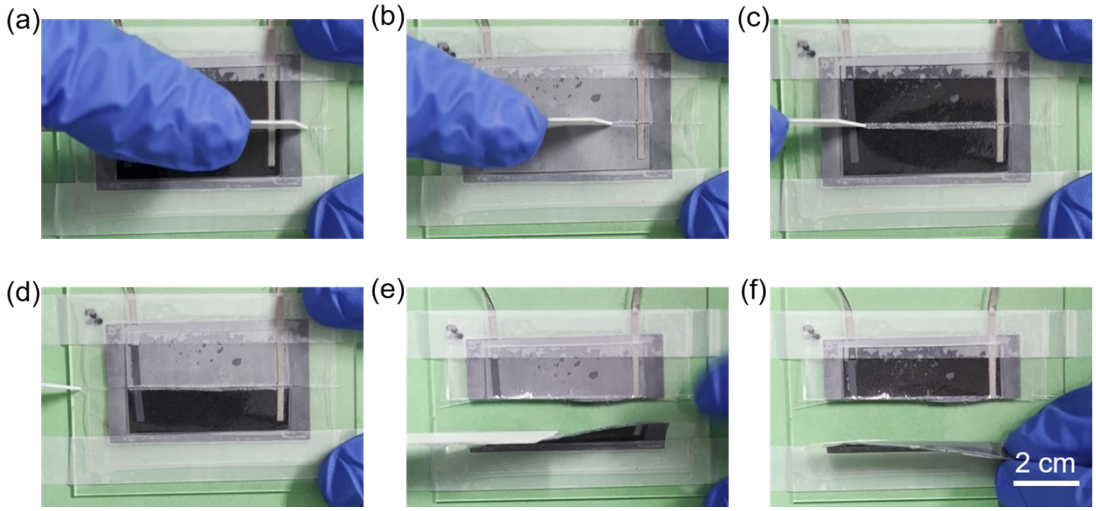

Fig. S8. The blade-cutting experiments of the textile-based EPDs.

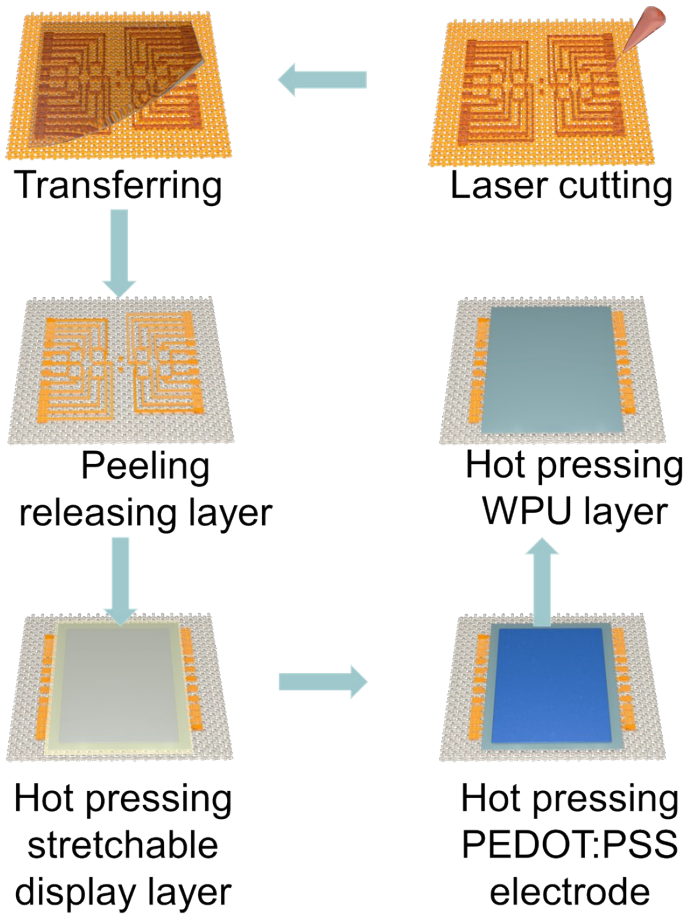

Fig. S9. Schematic diagram of the programmable wearable EPD wristband watch with laser engraving and hot pressing.

Fig. S10. The long-time bistability of the textile-based EPD clothing.

Fig. S11. Photographs of screen plate (a) and amplifying screen-printing patterns (b) mesh, (c) UV gel with 50% mesh on the interface and (d) UV gel on the whole mesh.

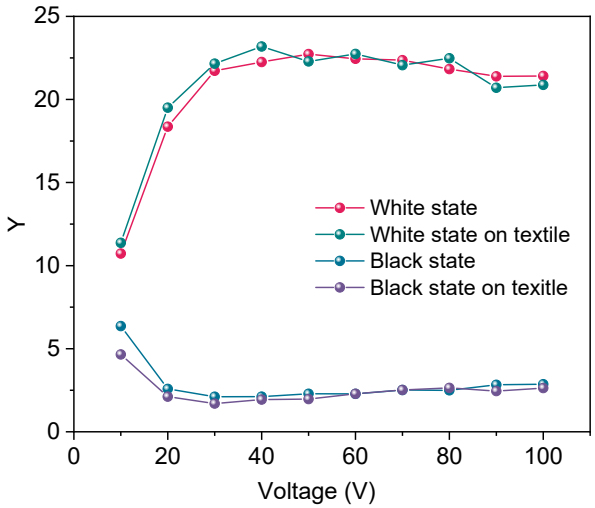

Fig. S12. The white and black state values before and after hot pressing of stretchable EPD onto textile materials.