Supporting Information

Direct Printing of Stretchable Conductive Elastomers for Capacitive Pressure Sensors

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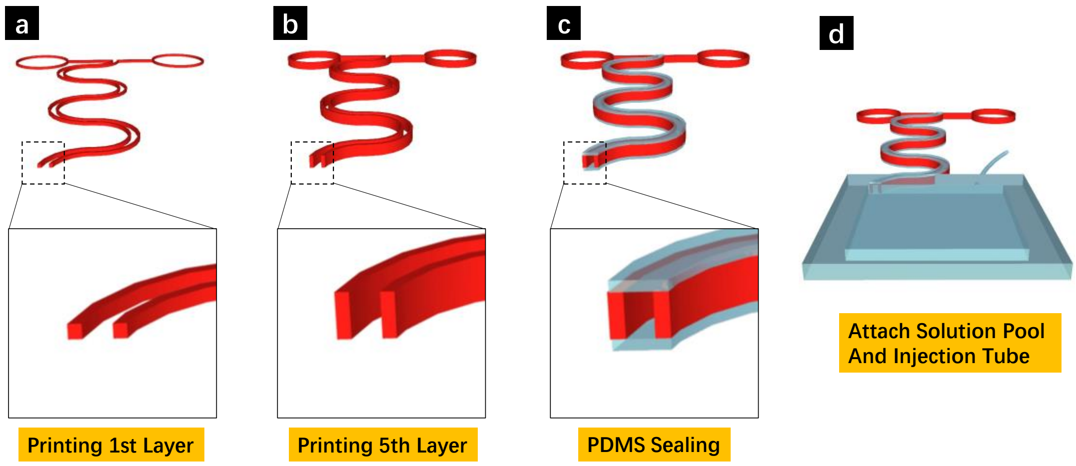

Figure S1. Schematic illustration of the manufacturing process of our capillary pressure sensor. (a) Printing 1st and (b) 5th layer directly on temper glass substrate; (c) Seal the top and bottom of the adjacent conductive electrodes to form the capillary conduction channel; (d) Attach solution pool and injection tube to complete the pressure sensor structure.

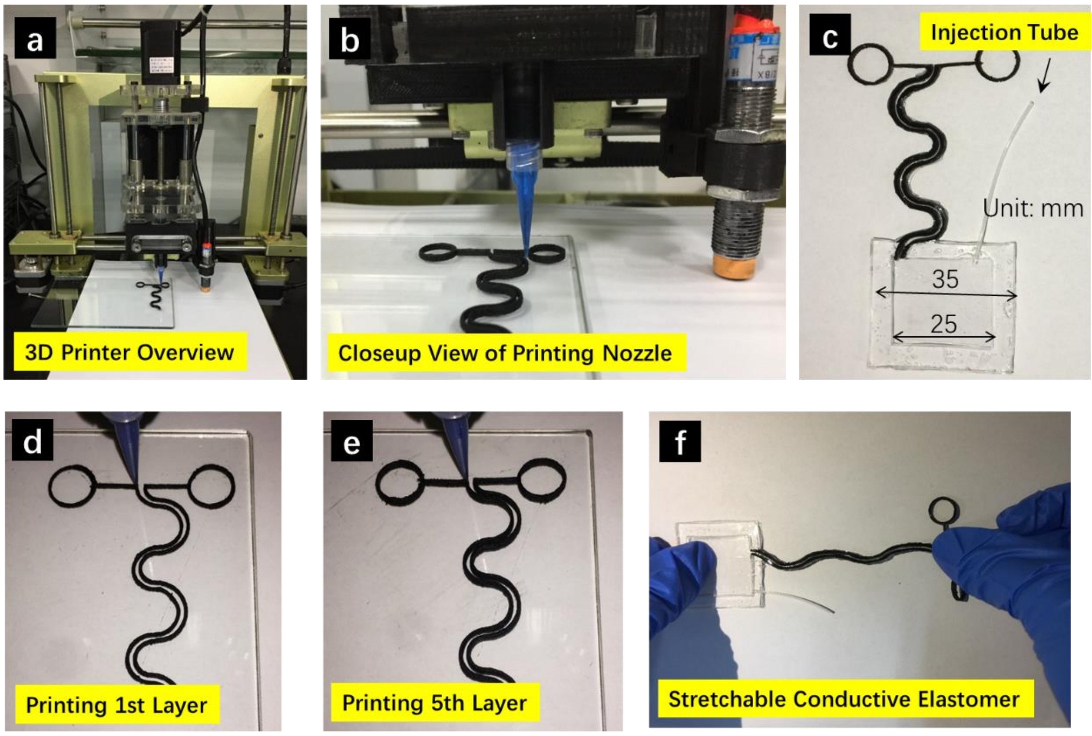

Figure S2. (a) Overview of the home-build 3D printer; (b) Close-up view of printing nozzle for extrusion of conductive CNT/PDMS ink; (c) Photograph of a complete pressure sensor with solution pool and injection tube; (d–e) Photographs of printing 1st layer and 5th layer of the elastomer electrode directly on temper glass substrate; (f) Photograph of the capillary electrodes made of conductive elastomer upon stretching.

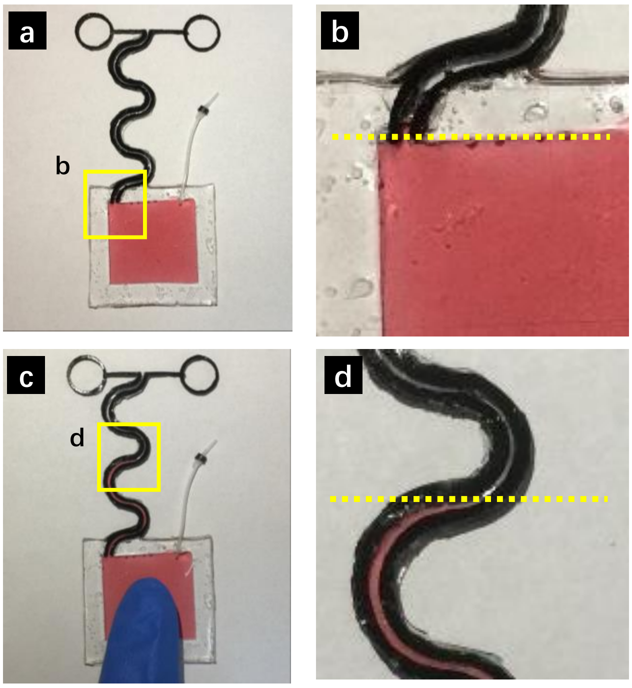

Figure S3. Photographs of the pressure sensor (a-b) without and (c-d) with external pressure. The liquid medium levels can be clearly viewed in the enlarged views.

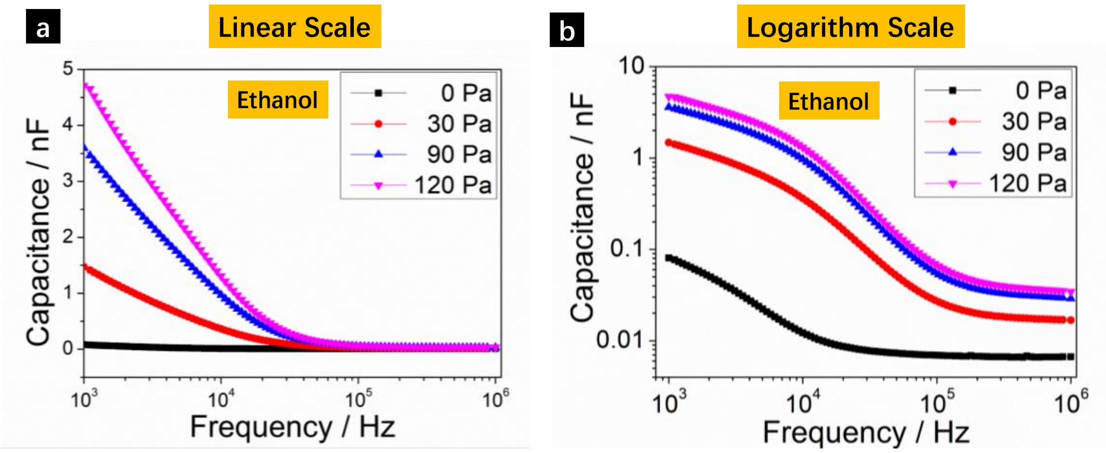

Figure S4. The relationship between capacitance and frequency at applied pressure of 0 Pa, 30 Pa, 90 Pa and 120 Pa within 1 KHz – 1 MHz frequency range: (a) linear scale and (b) logarithm scale plot.

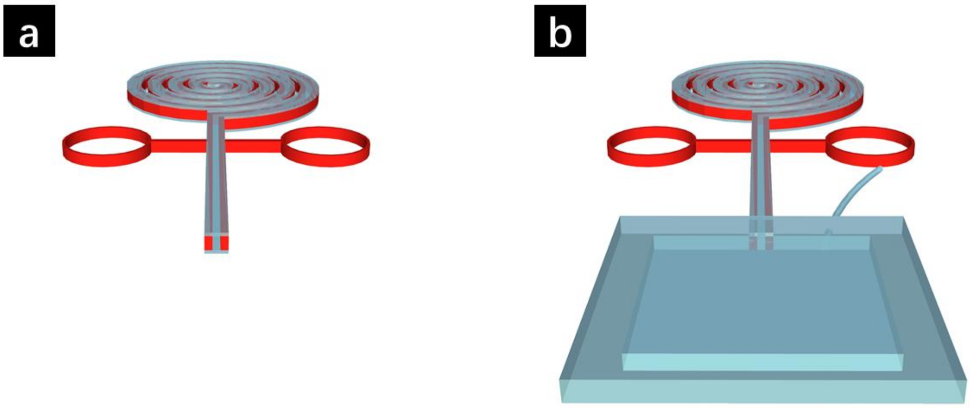

Figure S5. Bi-spiral capillary patterns as more compact designs than the serpentine capillary tubes. The overall length of the capillary tube can be extended within a limited space thus enable the detection over a larger pressure range.

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