Porous and Air Gap Elastomeric Dielectric Layer for Wearable Capacitive Pressure Sensor with High Sensitivity and Wide Detection Range

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Figure S1. Preparation of the agp-PDMS.
Figure S2. Histogram of the diameters of the PPy particles deposited on filter paper by vapor polymerization.

Figure S3. FT-IR spectra of the filter paper and the PPy/filter paper.
Figure S4. Pore size distribution of PDMS-h.

Figure S5. (a) Schematic of the capacitive sensor testing setup. (b) Comparison of the sensors based on PDMS-h-A66 under small pressure using PPy filter paper or copper tape as electrode contacts. (c) The relative capacitance change $\Delta C/C_0$ as a function of applied pressure for devices based on solid PDMS, PDMS-l (30.4% porosity), PDMS-l-A22 (array of $2 \times 2$ holes), PDMS-l-A44 (array of $4 \times 4$ holes), PDMS-l-A66 (array of $6 \times 6$ holes), and PDMS-h (61.2% porosity).

Figure S6. The curve of stress-compressive strain of applied pressure at small (5~1 kPa), intermediate (1~400 kPa), and large pressure ranges (400~1000 kPa), respectively.