

Supplementary Information

Photo-Induced Fabrication of Ag Nanowire Circuitry for Invisible, Ultrathin, Conformable Pressure Sensors

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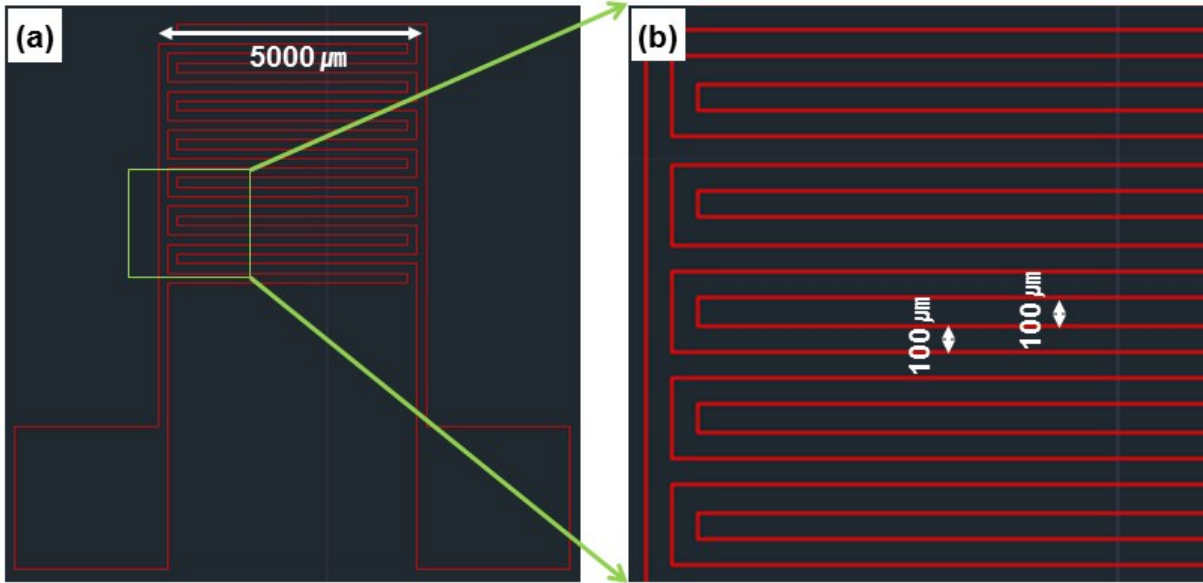


Figure S1. (a) Capacitor design for the pressure sensor and (b) enlarged view of the squared region in (a).

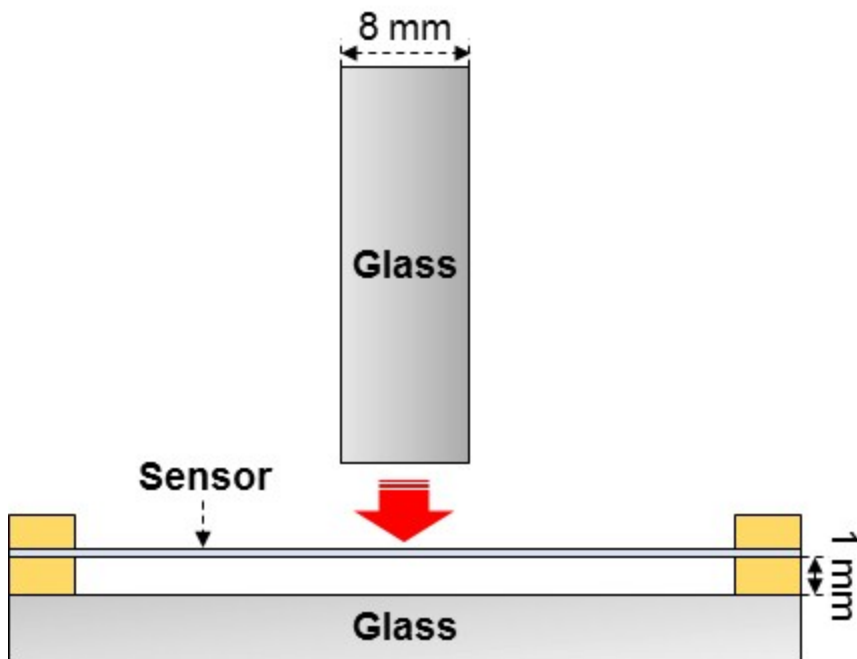


Figure S2. Schematic showing the setup for the pressure tests.

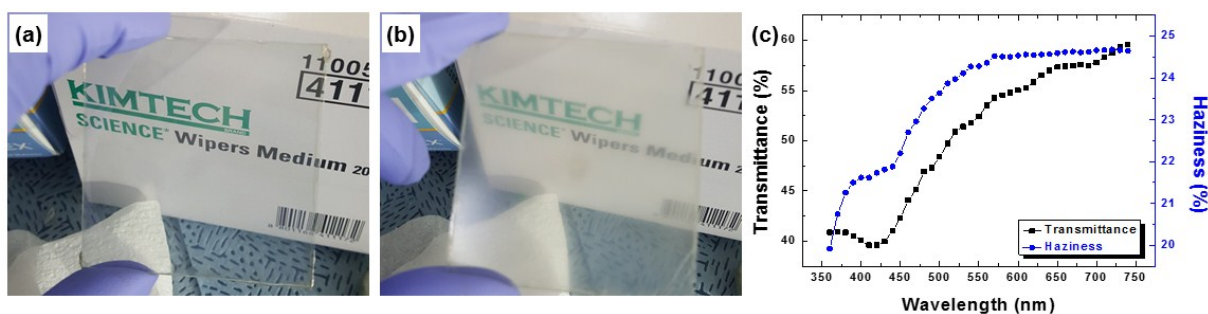


Figure S3. AgNWs/1.4 μm thick PET sheet (a) before and (b) after laser irradiation. (c) shows the transmittance and haziness of the sheet after laser irradiation. A 1064 nm pulse ytterbium fiber laser was used to irradiate.

The optically clear AgNWs/1.4 μm thick PET sheet became hazy after laser irradiation as shown in Figure S3.

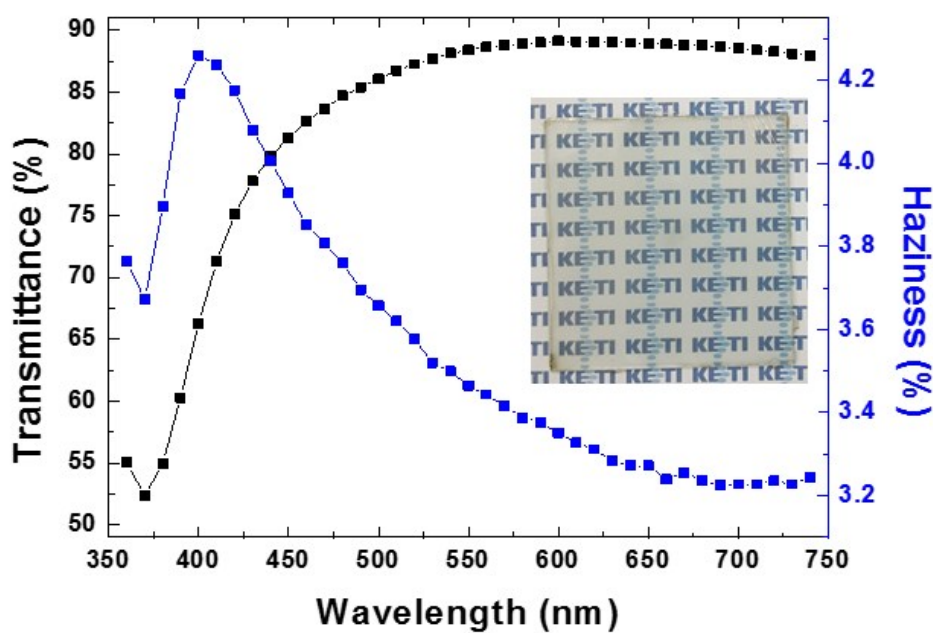


Figure S4. Transmittance and haziness of the IPL irradiated electrode (AgNWs/1.4 μm -thick PET sheet).

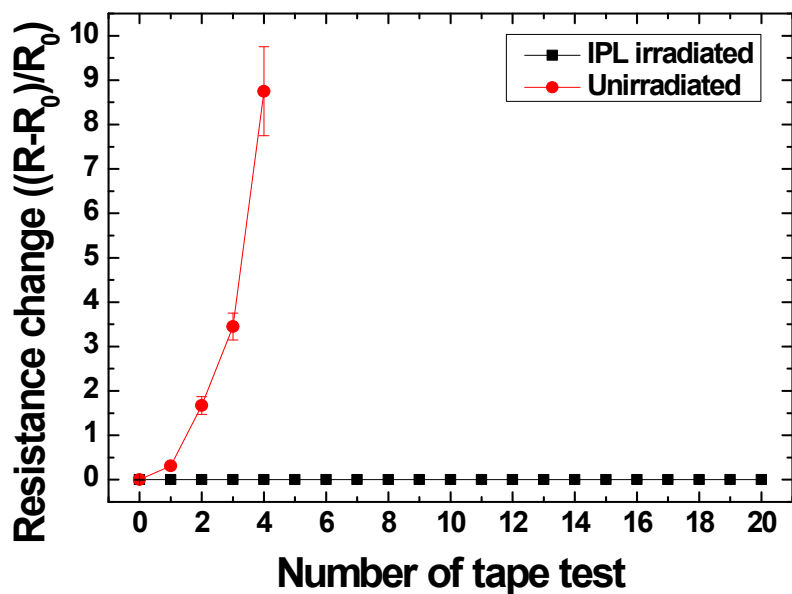


Figure S5. Resistance change of the IPL irradiated (patterned) and unirradiated (removable by washing) AgNWs on a PET sheet as a function of number of tape test using a Scotch tape.

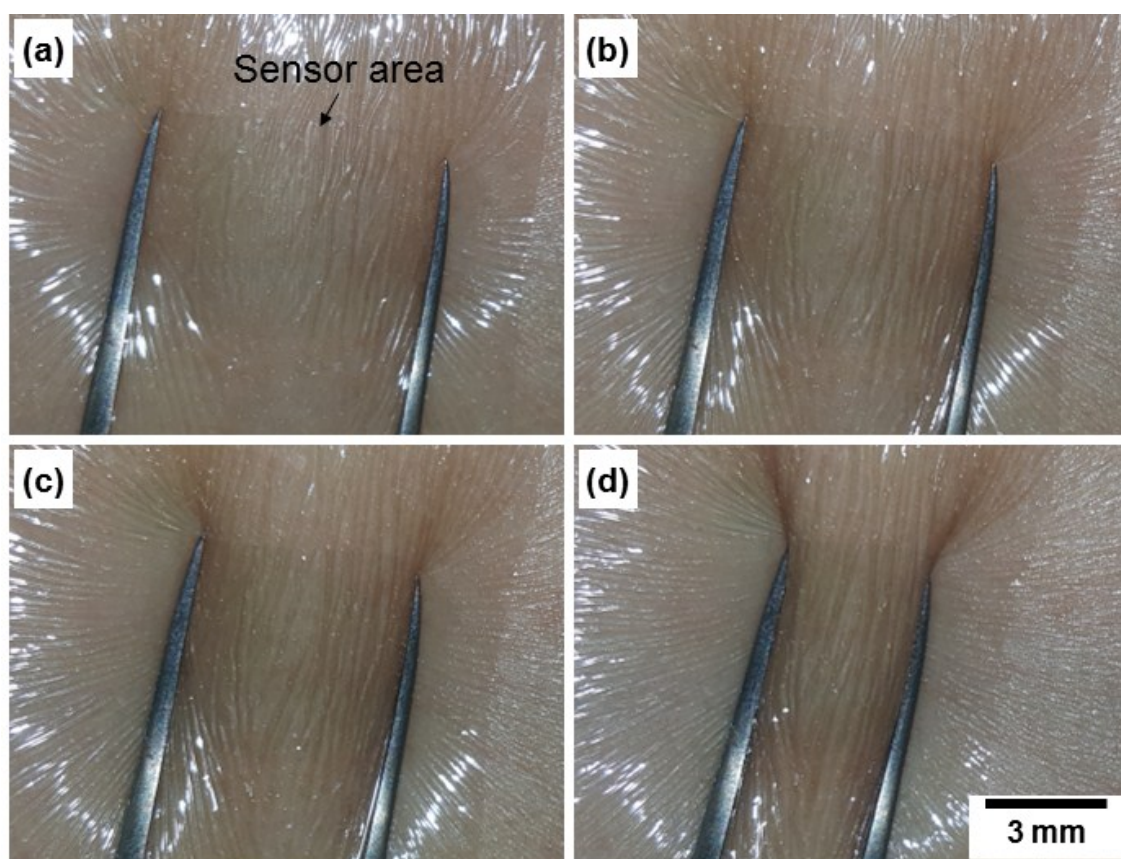


Figure S6. Sensor sheet conformably adhered to human skin. (a)–(d) show that compressive stress applied using tweezers induced a wrinkled structure of the sensor sheet.

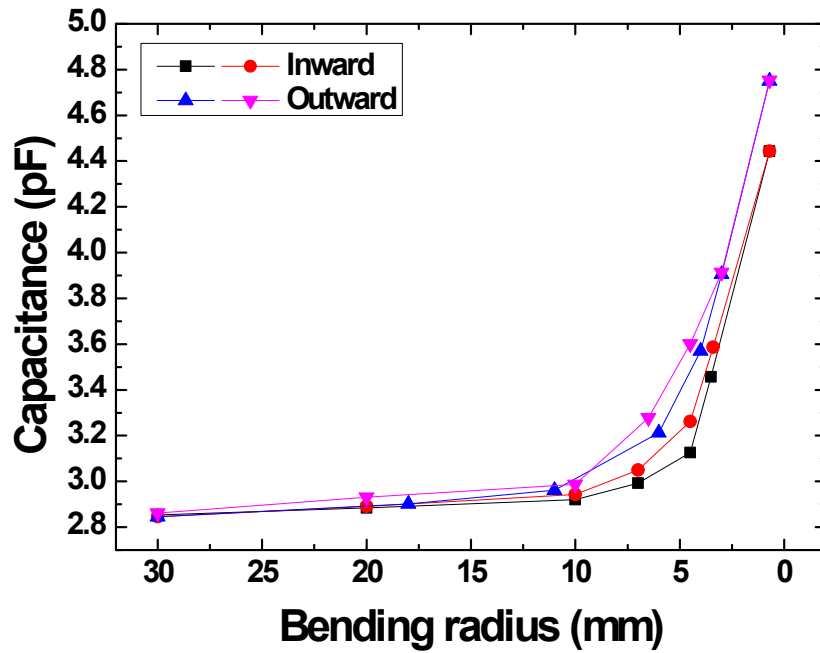


Figure S7. Changes in the capacitance of the fabricated sensor as a function of applied bending radius. The cases for the inward and outward bending were compared.

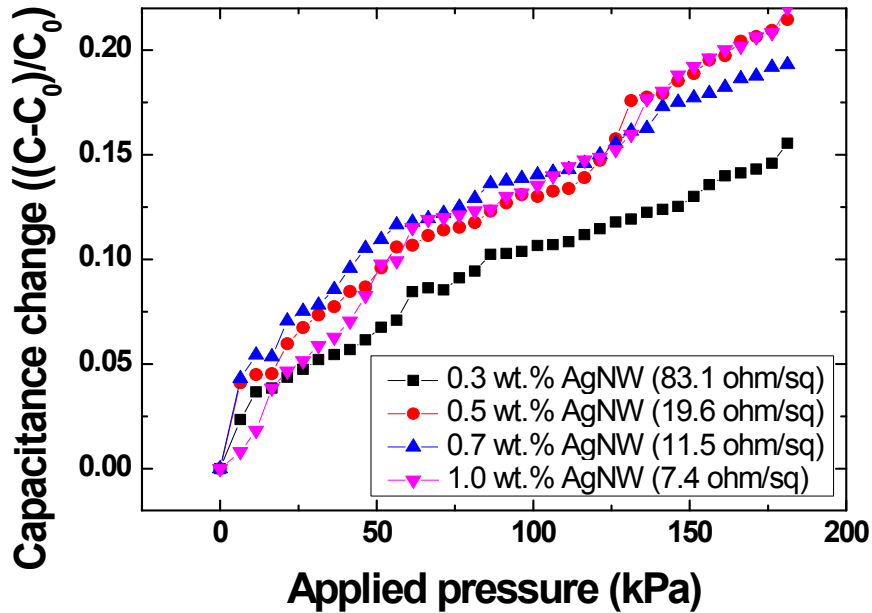


Figure S8. Changes in the capacitance of the fabricated sensors (with various nanowire concentration and R_s) as a function of applied pressure.

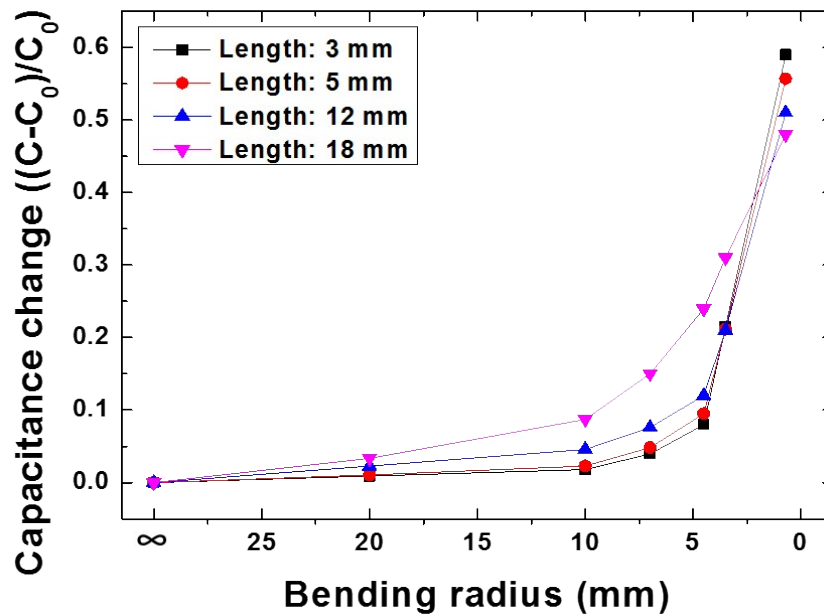


Figure S9. Changes in the capacitance of the fabricated sensors (with various sensor sizes) as a function of bending radius.

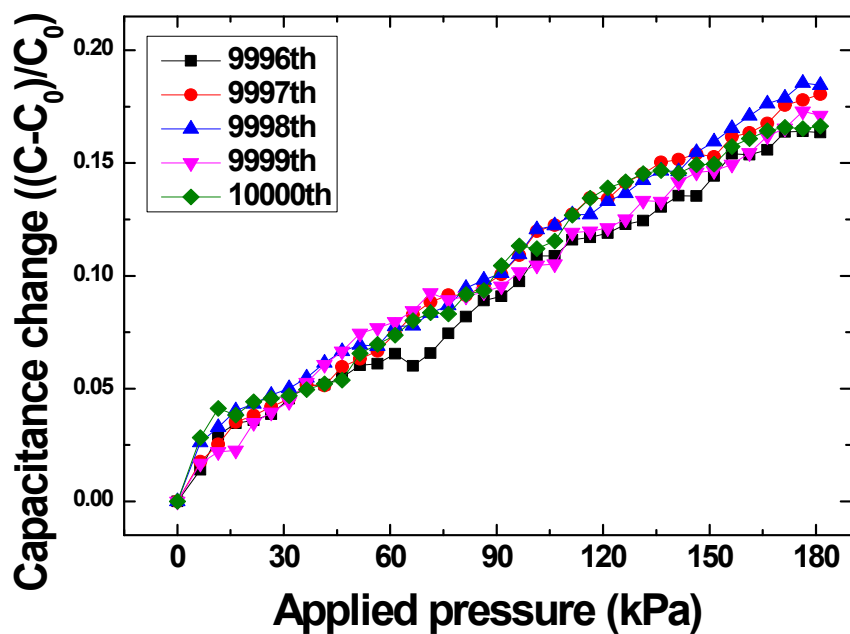


Figure S10. Changes in the capacitance of the fabricated sensor as a function of multiple pressing cycle from 9996th to 10000th pressure.

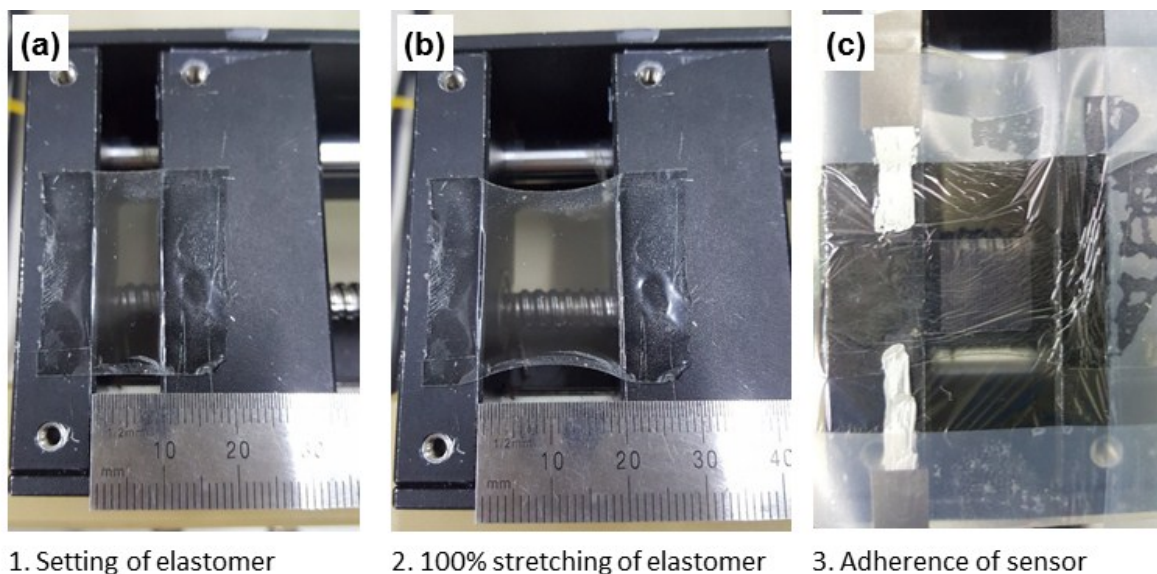


Figure S11. Procedure for testing stretch-compatibility of the sensor sheet. (a) Setting of an elastomeric adhesive to a stretch tester, (b) 100% prestretching of the elastomer, and (c) adherence of the sensor sheet to the surface of the elastomer.

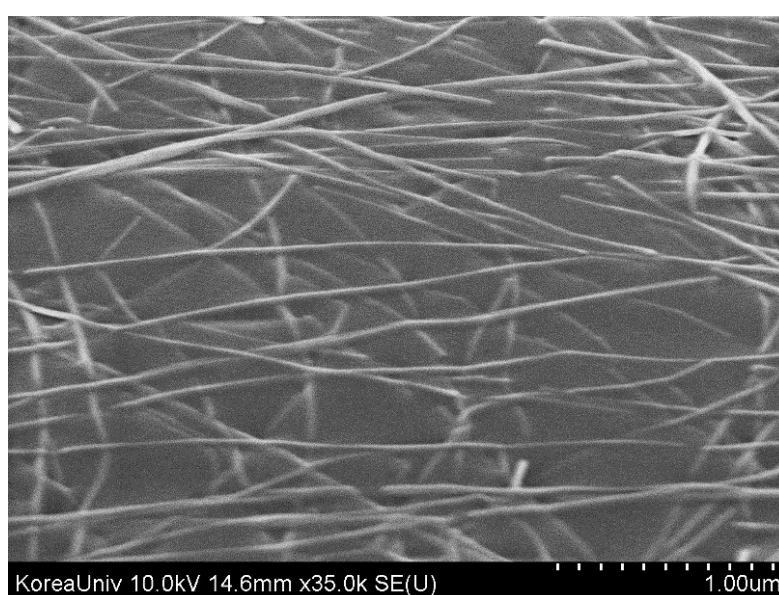


Figure S12. SEM micrograph of the AgNWs on a PET sheet after 10000 cycles of stretching test.

Movie S1. Video demonstrating functionality of the fabricated acupressure sensor adhered to a gloved fingertip.



In Movie S1, the capacitance (red numbers in lower left side) was coincidentally varied with the measured force (blue numbers in the center of the frame) applied to the sensor.