

# Supplementary information

## 1. Figure

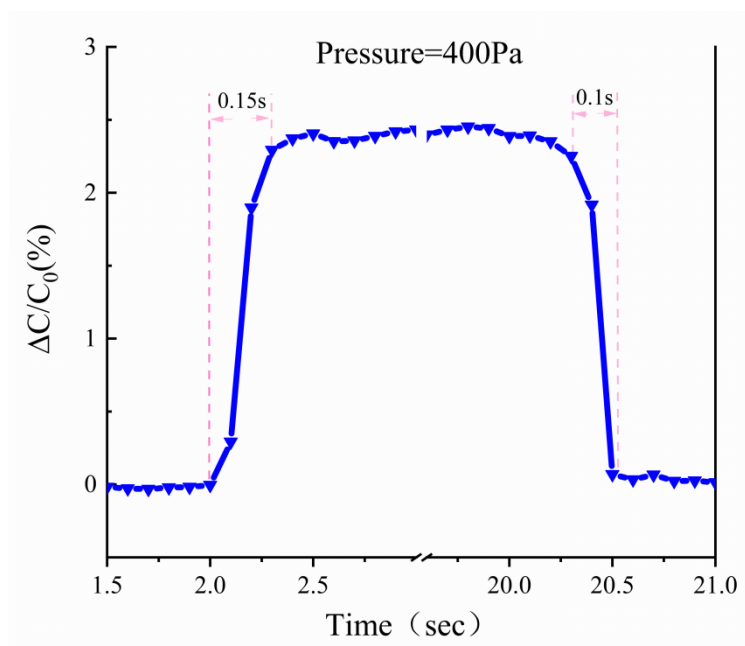


Figure S1. Response time of the sensor.

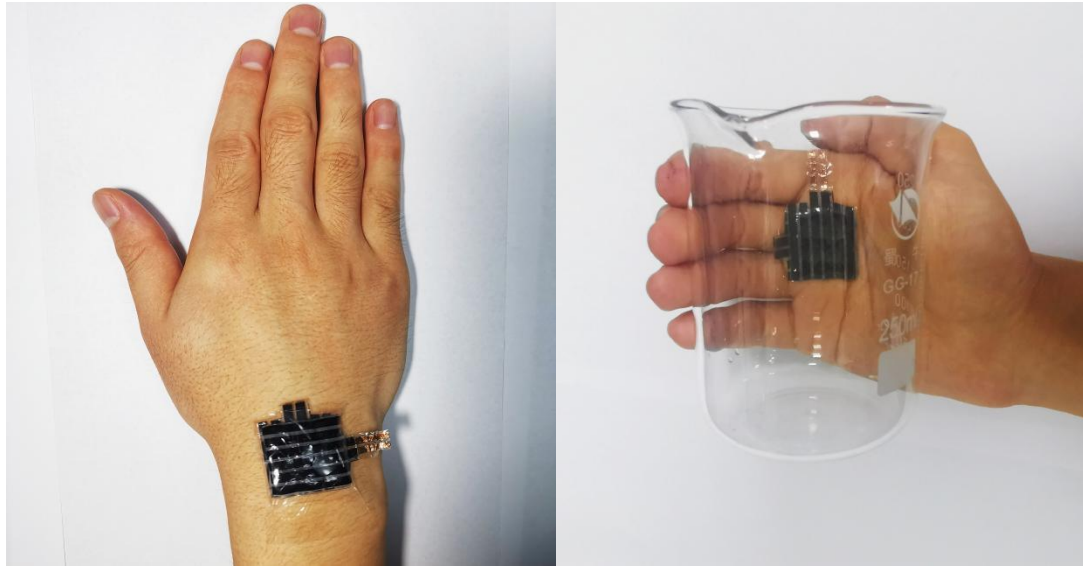


Figure S2. (a). Example of the positioning and fixation of the sensor (fix on wrist joint). (b) Positioning and fixation of the sensor during the breaker experiment.

## 2. Tables

Table S1. Material parameters of PDMS.

| Parameter    | Description                | Value   |
|--------------|----------------------------|---------|
| E            | Young's modulus            | 850 kPa |
| $\nu$        | Poisson's ratio            | 0.49    |
| $\epsilon_r$ | Relative permittivity      | 2.75    |
| t            | Thickness of the PDMS film | 2 mm    |

Table S2. Material parameters of Ecoflex.

| Parameter       | Description              | Value   |
|-----------------|--------------------------|---------|
| $E_1$           | Young's modulus          | 600 kPa |
| $\nu_1$         | Poisson's ratio          | 0.49    |
| $\epsilon_{r1}$ | Relative permittivity    | 2.3     |
| r               | Radium of the hemisphere | 3.5 mm  |

Table S3. Performance parameters of LCR tester.

| Parameter  | Description    |
|------------|----------------|
| Model      | TH2829C        |
| Range      | 0.1 fF~ 9.99 F |
| Frequency  | 20 Hz~ 1 MHz   |
| Data point | 20 per sec     |

**Table S4. Performance parameters of multi-meter.**

| Parameter  | Description          |
|------------|----------------------|
| Model      | DM3058E              |
| Range      | ~ 200 MΩ             |
| Frequency  | 20 Hz~ 1 MHz         |
| Resolution | 5 <sup>1/2</sup> bit |