

**Supporting Information**

**Flexible Humidity Sensor Based on Silk Fabric for Monitoring Human Respiration**

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## Results

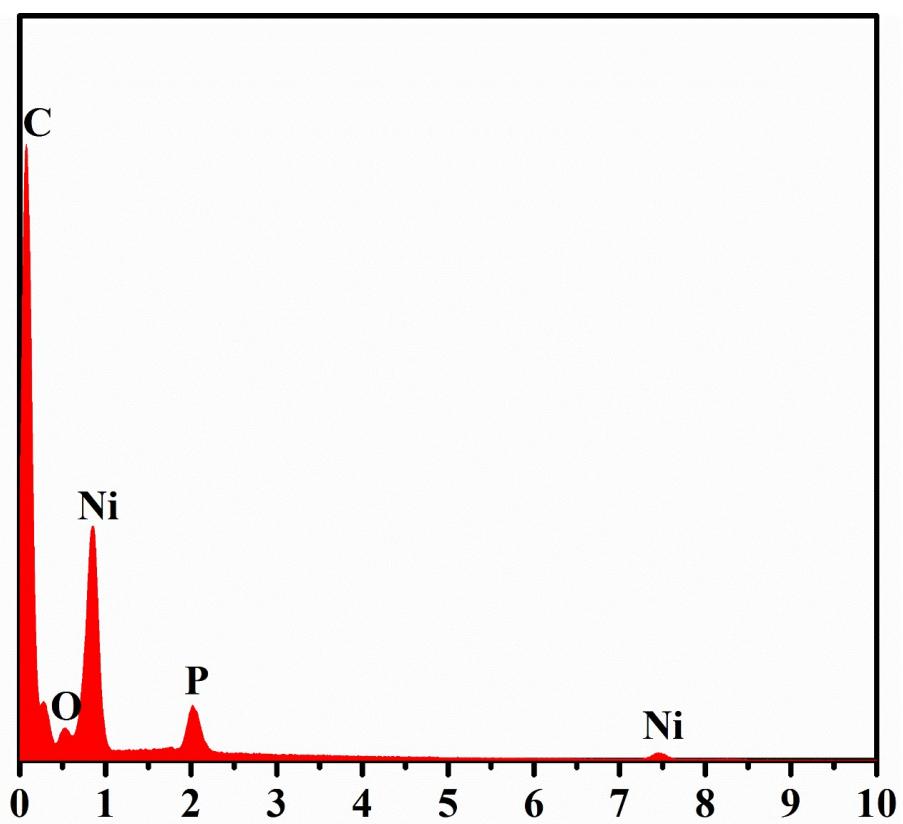


Figure S1. EDS spectrum of a GO-Ni-coated silk fabric.

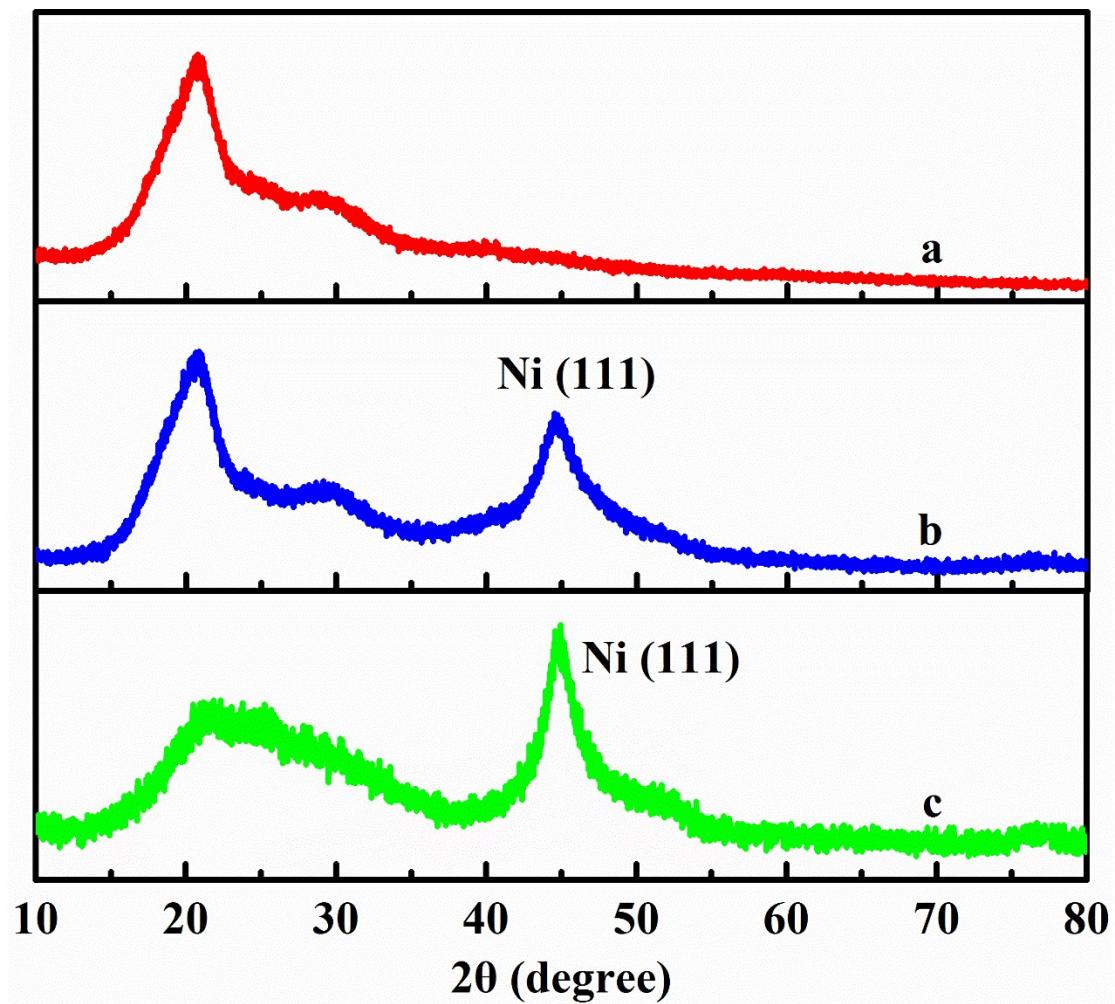


Figure S2. XRD patterns of pristine (a), Ni-deposited (b), GO-Ni-coated (c) silk fabrics, respectively.

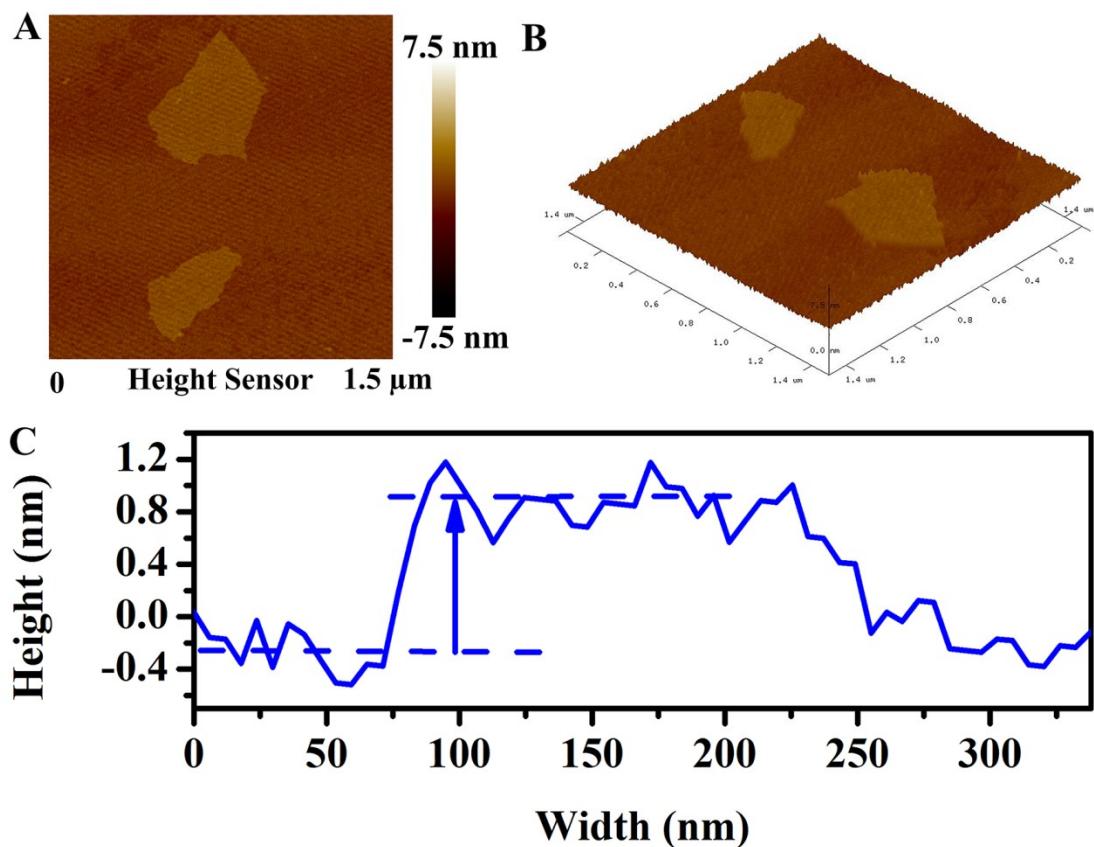


Figure S3. AFM image of GO with 2D (A) and 3D topography (B). The section curve (C) of a GO nanosheet on a mica substrate.

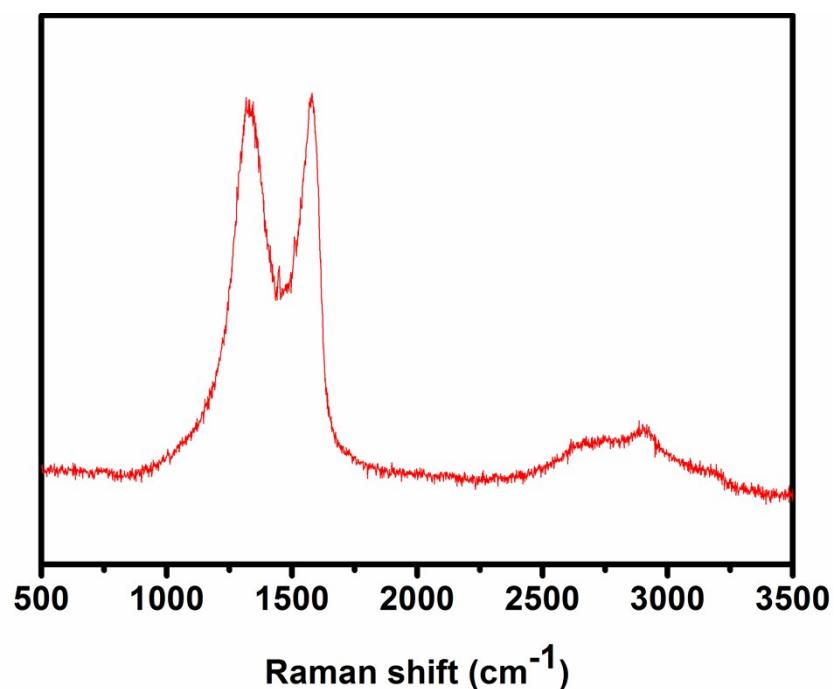


Figure S4. Raman spectrum of the silk fabric-attached GO

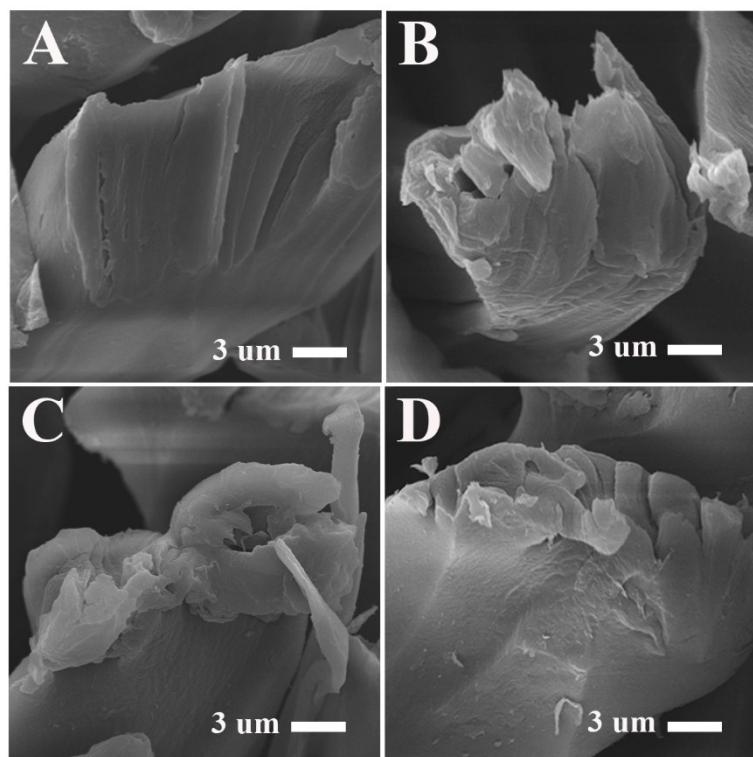


Figure S5. Cross-sections of the GO-immobilized silk fabrics. (A)-(D) correspond to 0.07, 0.14, 0.21 and 0.28 mg/cm<sup>2</sup>, respectively.

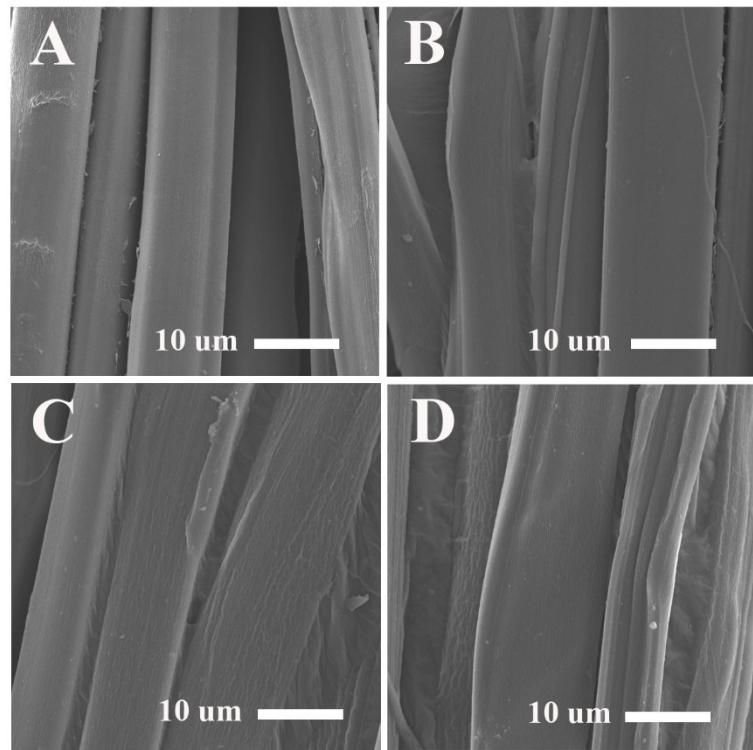


Figure S6. Surface morphologies of the GO-immobilized silk fabrics. (A)-(D) correspond to 0.07, 0.14, 0.21 and 0.28 mg/cm<sup>2</sup>, respectively.

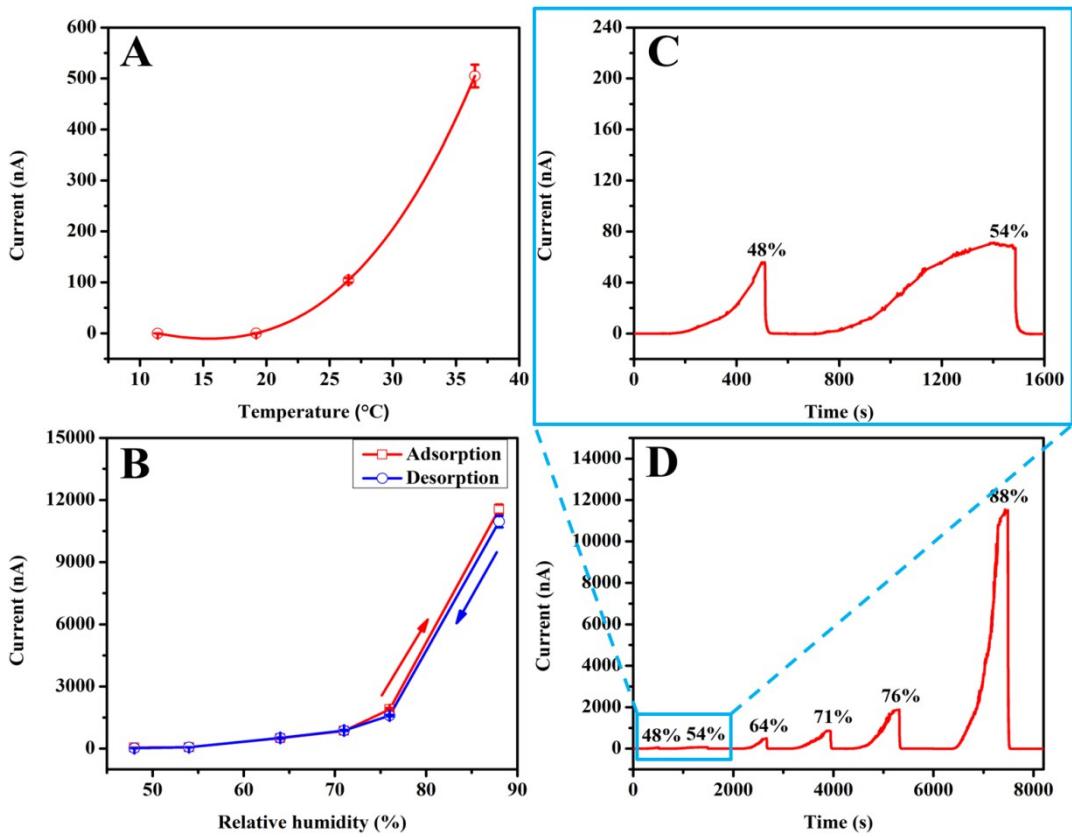


Figure S7. (A) Current response of the respiration sensor under different environment temperature (RH 64%); (B) The adsorption and desorption curves of the sensor; (C) Response of the sensor to the relative humidity of 48% and 54% with a larger magnification; (D) Response of the sensor to the relative humidity of 48%, 54%, 64%, 71%, 76% and 88% at 36.5 ° C.

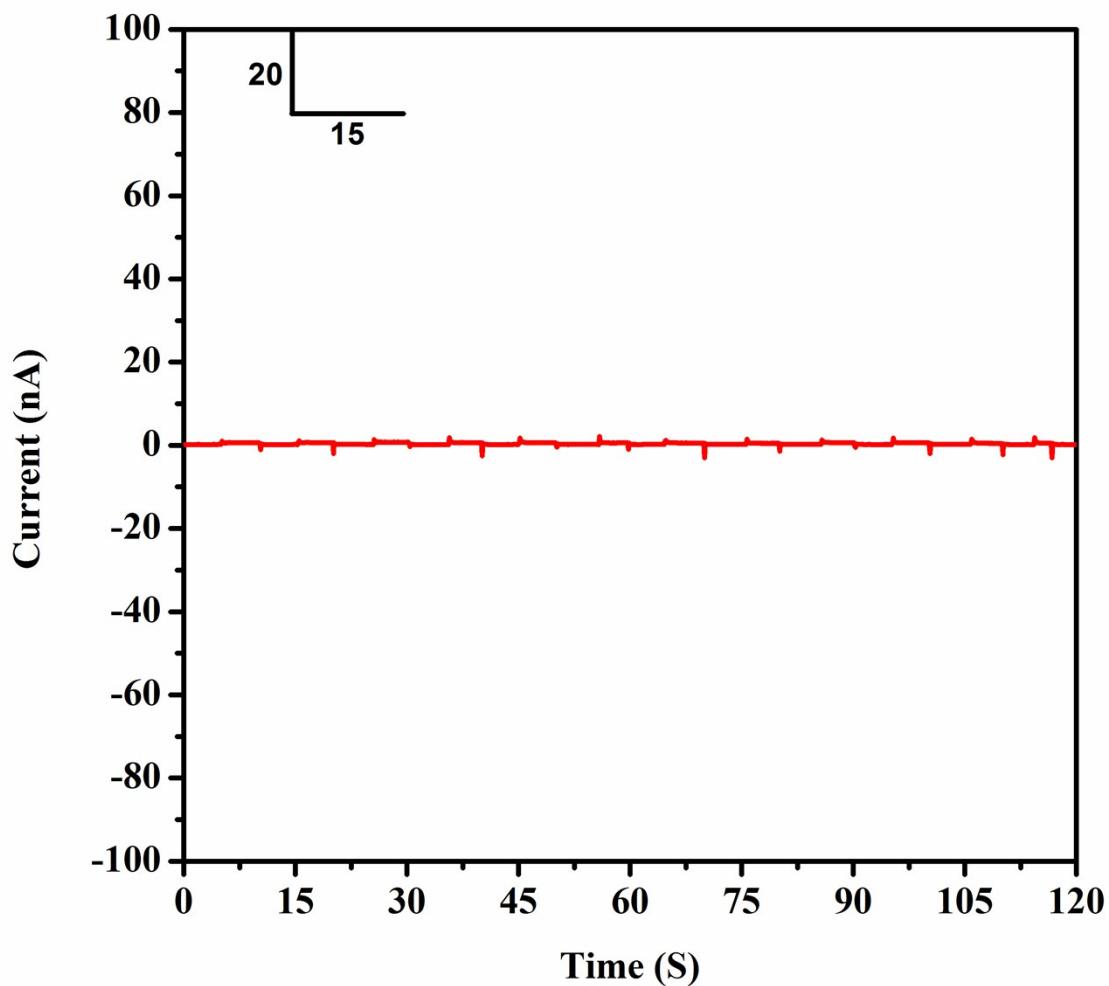


Figure S8. Current response of the as-prepared respiration sensor to finger tapping.

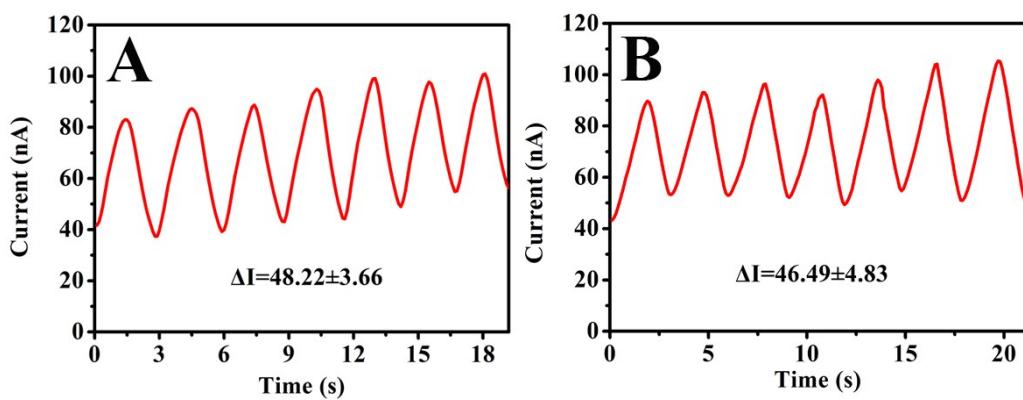


Figure S9. Sensing performance before and after being stored under ambient conditions for one month.