Supporting Information

Sensitive, Stretchable, and Sustainable Conductive Cellulose Nanocrystal Composite for Human Motion Detection

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Number of pages: 6

Number of Figures: 10

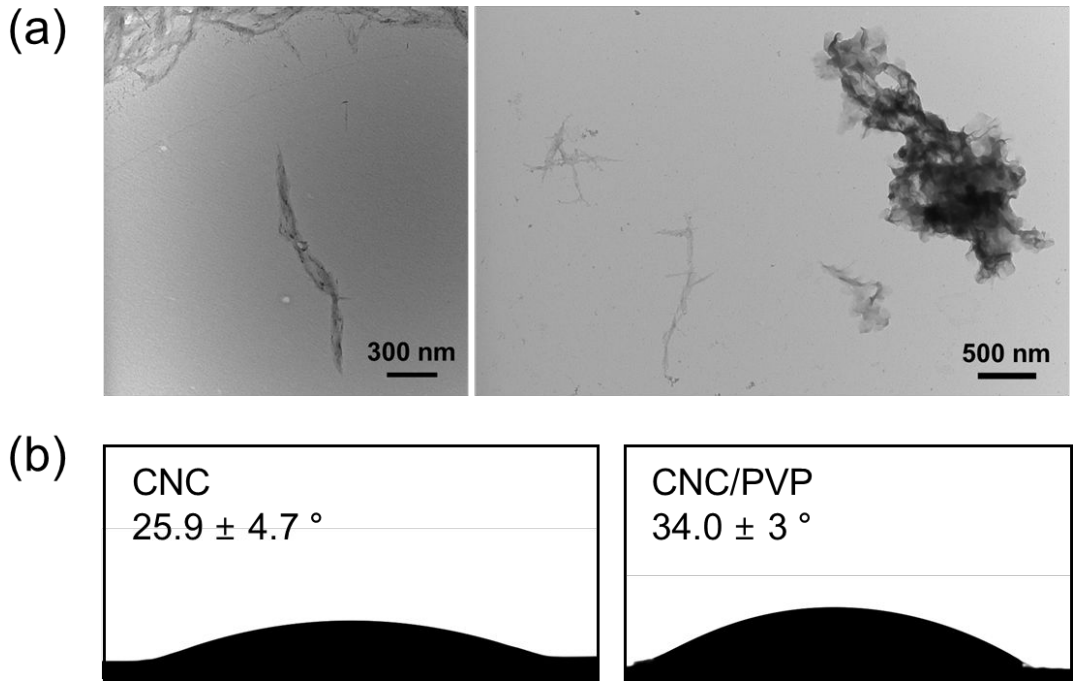

Figure S1. (a) TEM image of CNC/PEDOT without PVP layer, (b) water contact angles of CNC and CNC/PVP.

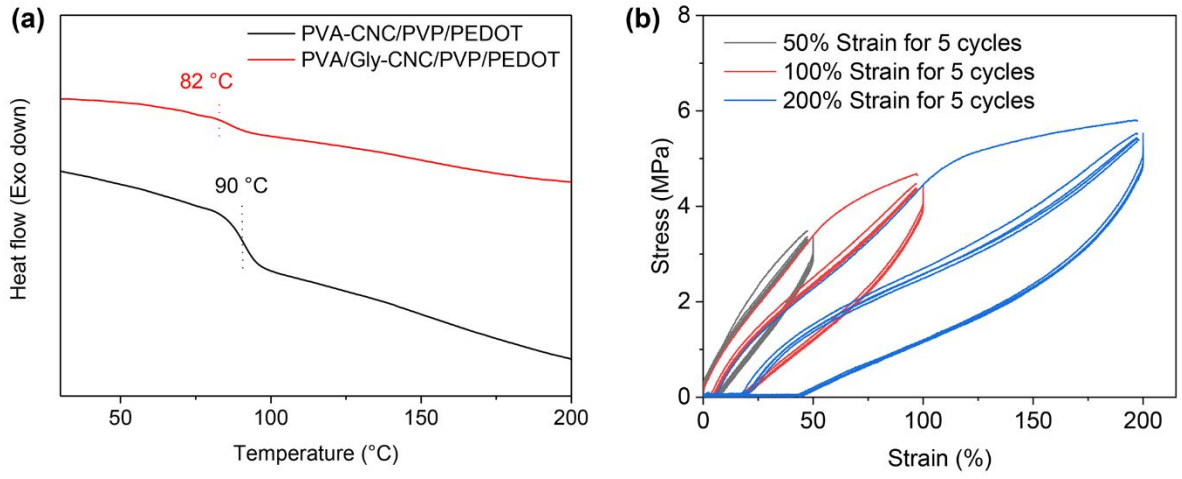

Figure S2. (a) DSC curves of PVA-CNC/PVP/PEDOT and PVA/Gly-CNC/PVP/PEDOT. (b) Stress-strain curves of PVA/Gly-CNC/PVP/PEDOT sensor during loading and unloading cycles (50 %, 100 %, and 200 % consecutively) with 2 mm sec^{-1} rate.

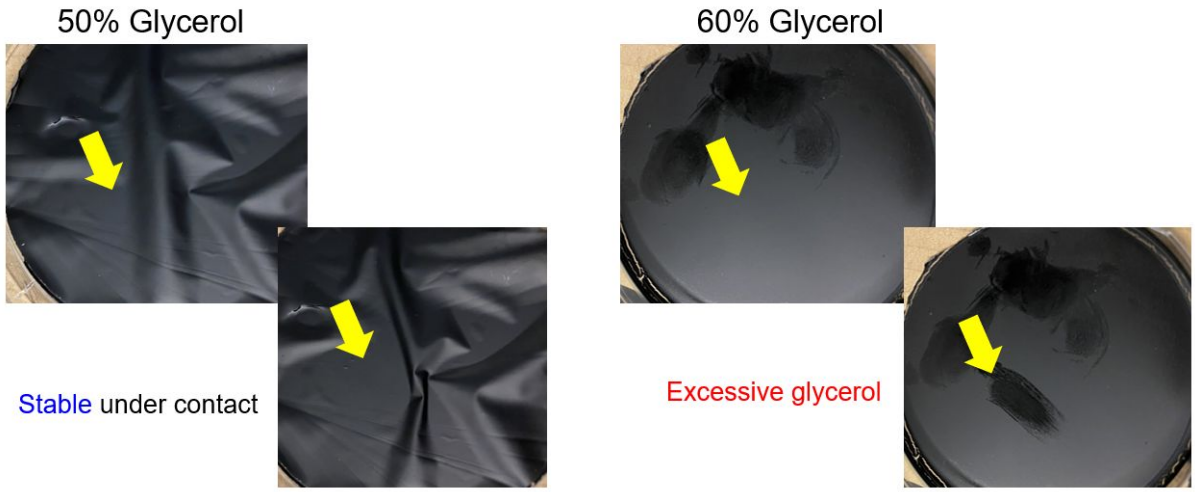

Figure S3. The photographs of PVA/Gly-CNC/PVP/PEDOT films after drying.

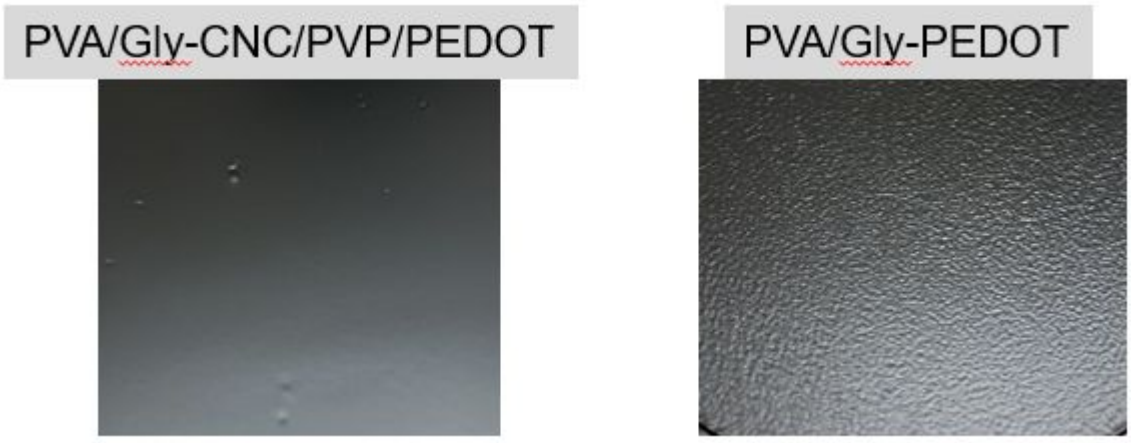

Figure S4. The photographs of PVA/Gly-CNC/PVP/PEDOT film (left) and PVA/Gly-PEDOT film (right).

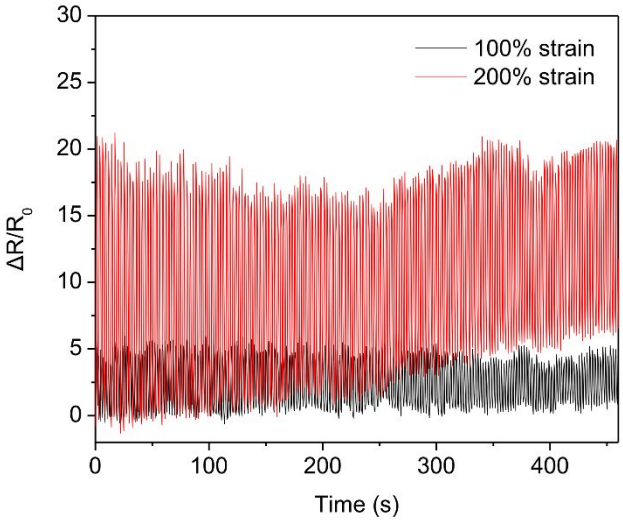

Figure S5. The relative resistance changes of PVA/Gly-CNC/PVPV/PEDOT sensor during 200 cycles of 100% and 200% strain.

Figure S6. The patterned PVA/Gly-CNC/PVPV/PEDOT through a fountain pen.

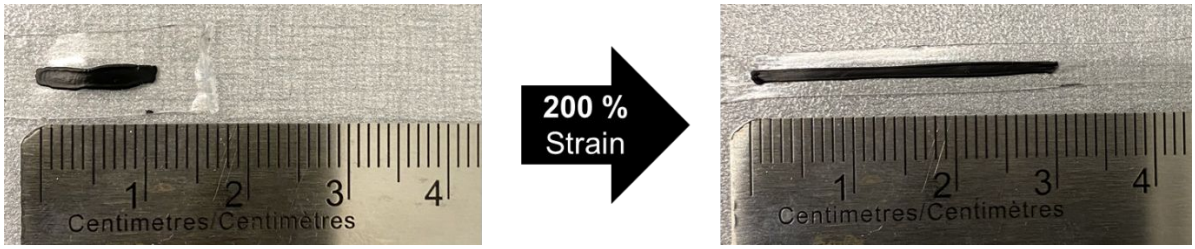

Figure S7. The picture of 3m VHB 4905 double side tape after removing protection film before/after 200 % strain with PVA/Gly-CNC/PVPV/PEDOT hand-written pattern.

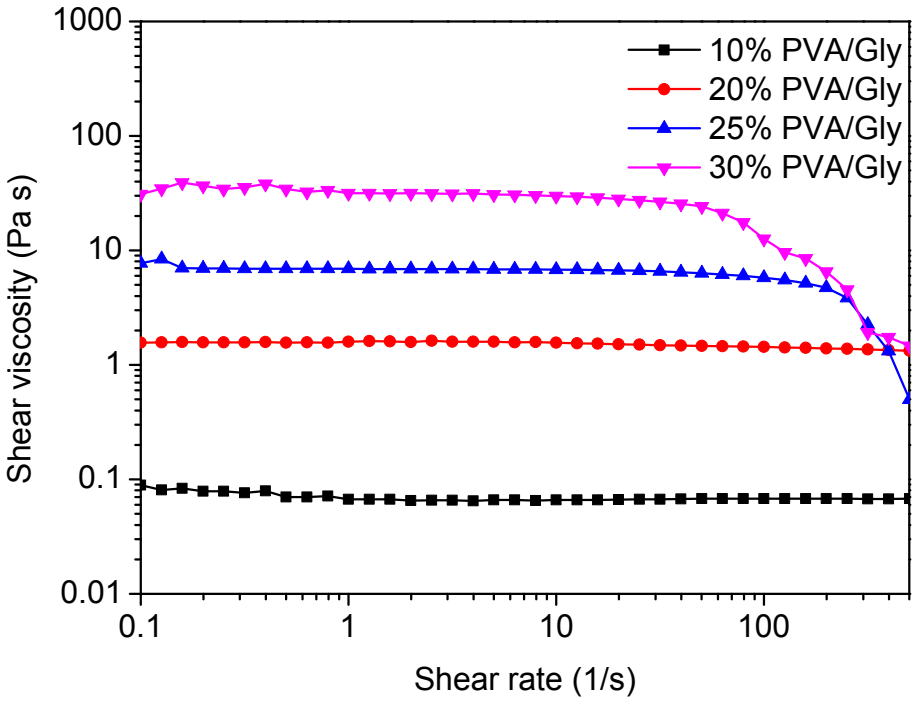

Figure S8. Shear viscosity of PVA solutions with the concentration of 10, 20, 25, 30 wt % of PVA as a function of shear rate.

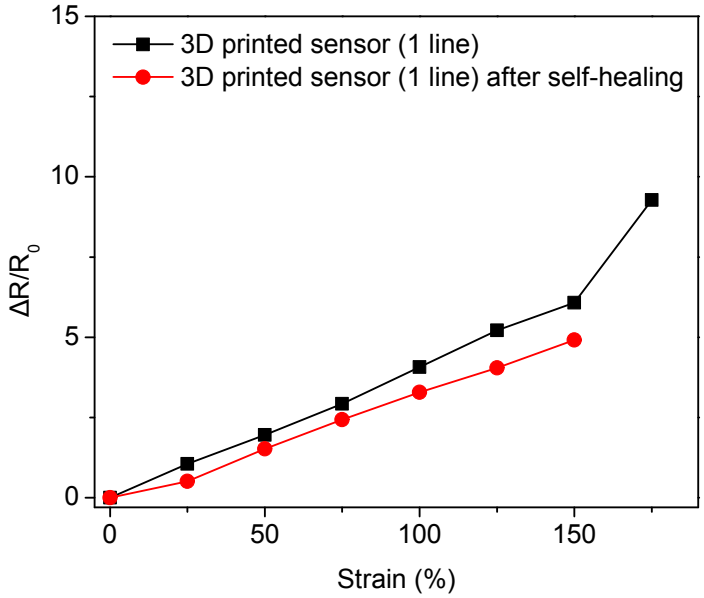

Figure S9. Relative resistance responses of 3D printed single-line patterned sensors.

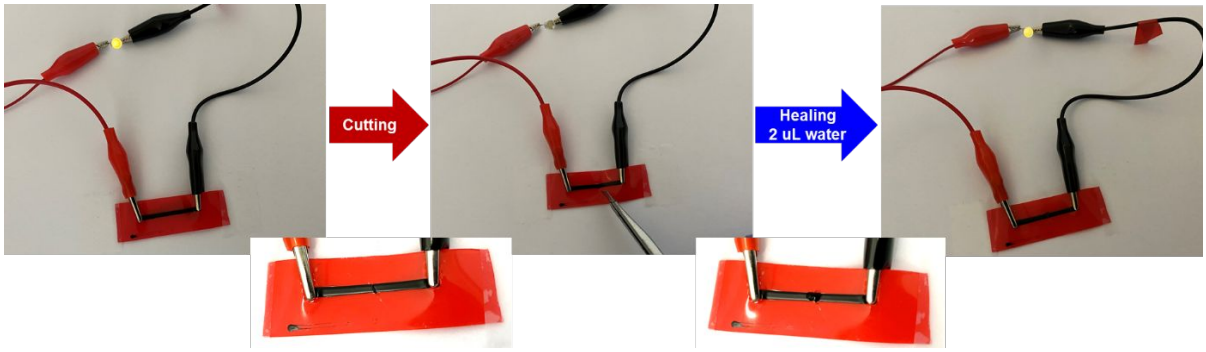

Figure S10. The illuminance changes of an LED bulb over cutting/healing process of printed pattern.