Supporting Information

Functional Kevlar-based triboelectric nanogenerator with impact energy-harvesting property for power source and personal safeguard

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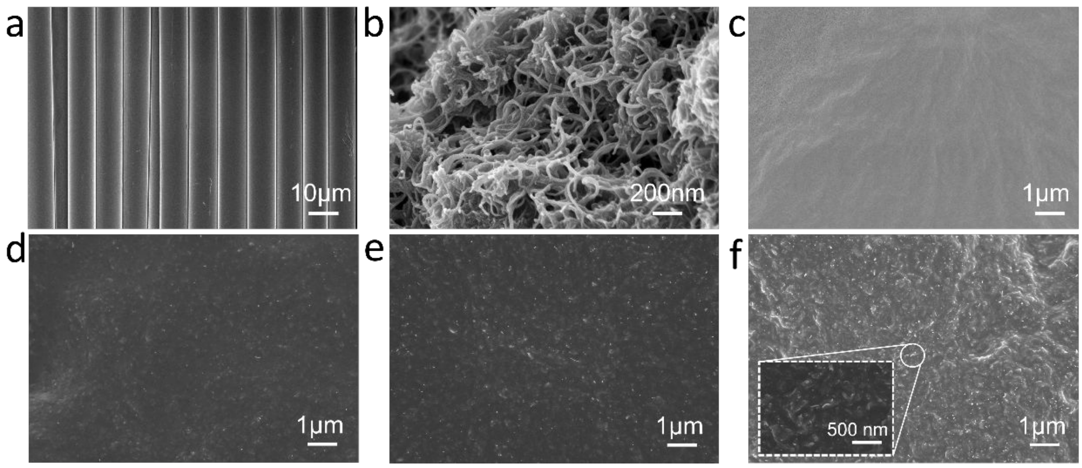

Figure S1. SEM micrographs of (a) neat Kevlar, (b) CNT, (c) pure SSG, c-SSG with (d) 1%, (e) 2% and (f) 3% of CNTs.

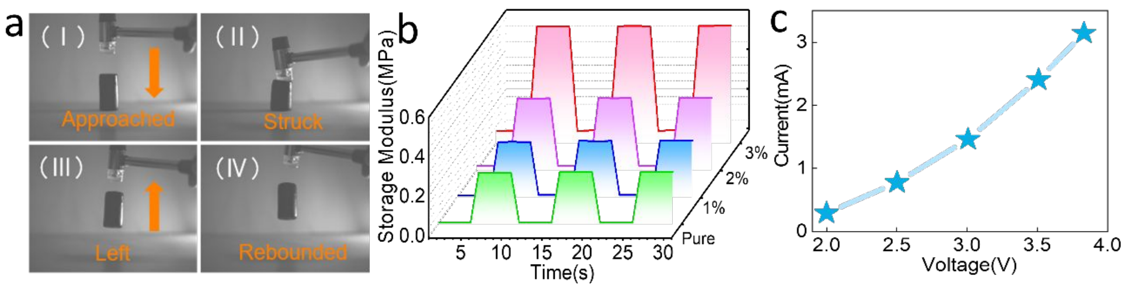

Figure S2. The c-SSG (a) became stiffer under impact; (b) cyclic stability of c-SSG under shear loading; (c) current-voltage curve of c-SSG (3 wt%).

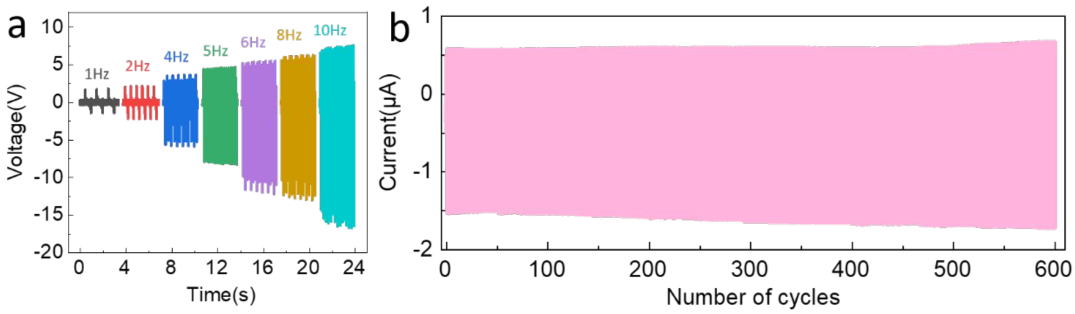

Figure S3. (a) Frequency dependent voltage of TENG subjected to the force of 60 N under 9 M Ω loading resistance. (b) current cyclic stability of TENG at 9 M Ω.

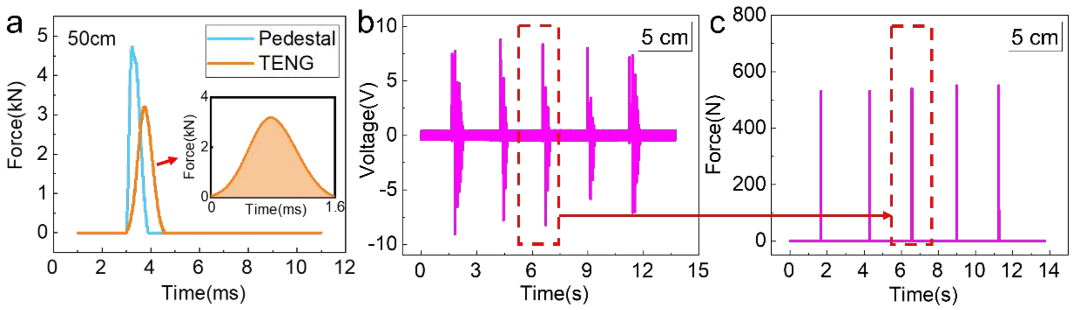

Figure S4. Typical force–time curves loaded on SS-TENG and force sensor by impactor falling from (a) 50 cm, (d) voltage and (e) impact force cyclic stability of SS-TENG loaded from 5 cm.

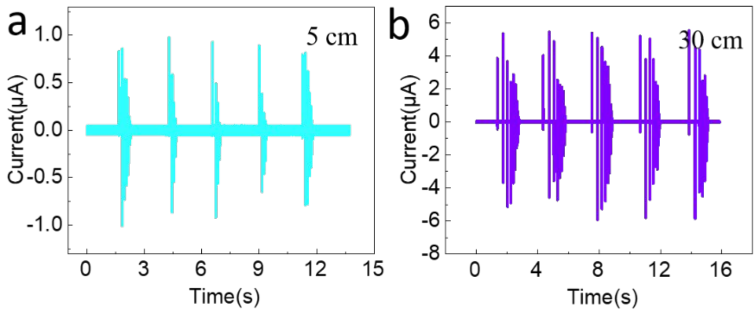

Figure S5. The current signals cyclic stability of TENG loaded from (a) 5 cm and (b) 30 cm, respectively.

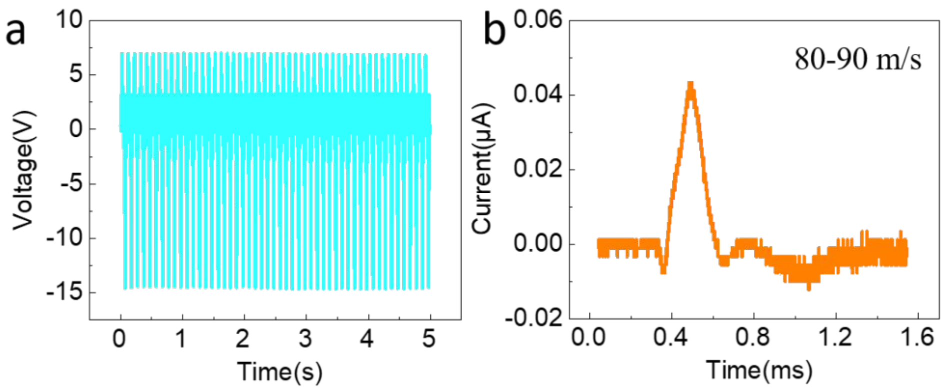

Figure S6. (a) SS-TENG harvested mechanical energy after being penetrated. (b) Current signal of TENG generated by the bullet impact with 80-90 m/s at 1 M Ω.

Video S1: TENG-based device could be used to detect human motions.