Electronic supplementary information (ESI)

Wearable piezoelectric device assembled by one-step continuous electrospinning

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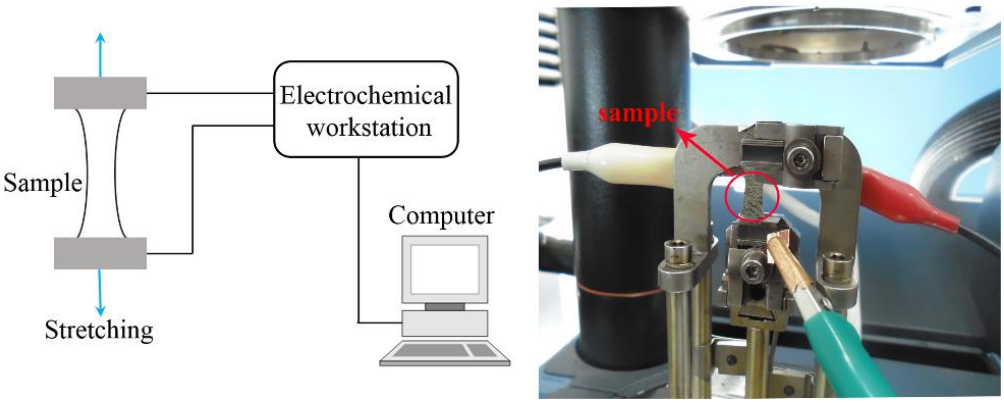

Fig. S1 Schamatic and photograph of the setup for testing the conductivity of the electrode membrane with uniaxial stretch.

The setup in Fig. S1 was used to test the resistance of electrode membrane. We caculated the conductivity using the following functions.

$$\sigma = 1/\rho, \qquad (1)$$

$$R = \rho l/A, \qquad (2)$$

$$\sigma = l/(RA). \qquad (3)$$

Where ρ is the resistivity, σ is the conductiviity of electrode membrane, R is the resistance, l is the length of the sample, A is the cross-section area of the sample.

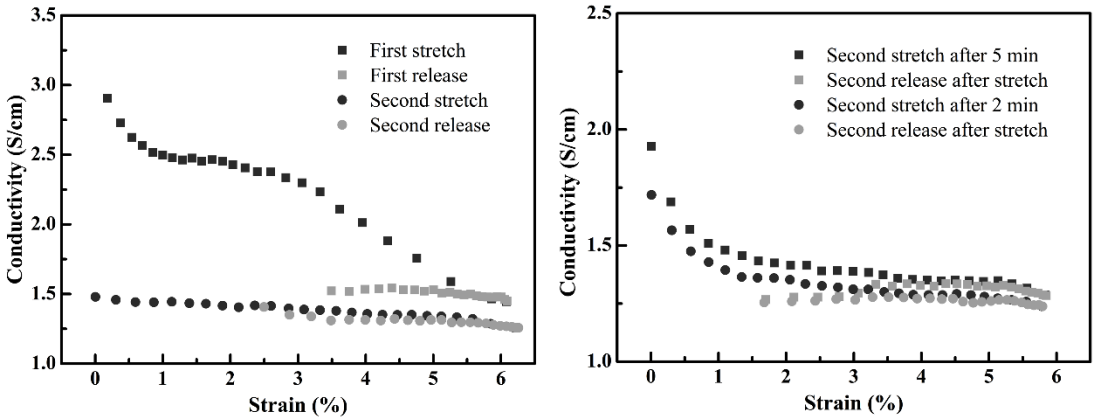

Fig. S2 The conductivity-strain curves of the membrane with strech and release processes.

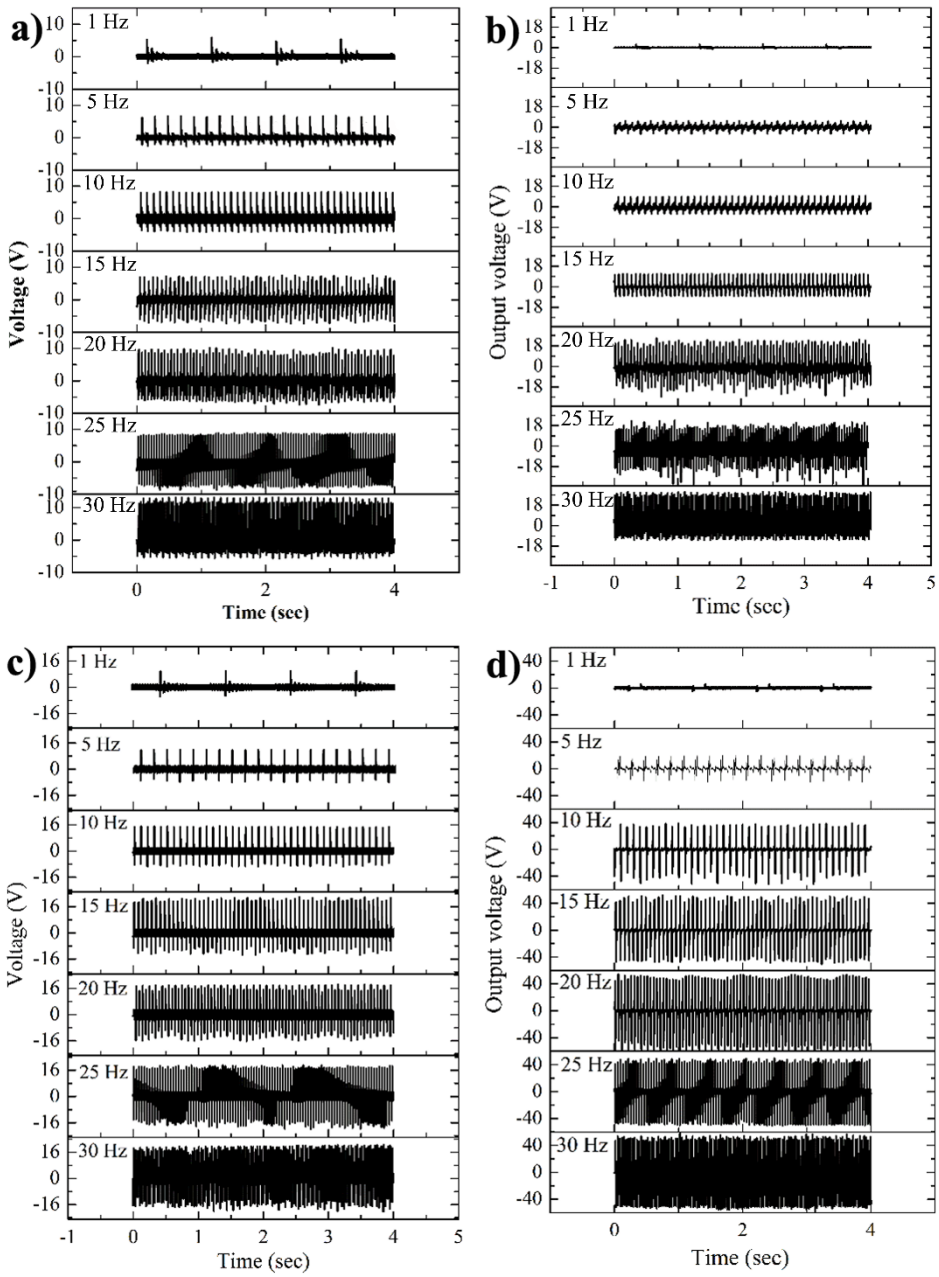

Fig. S3 The output voltage of the device with exerted different excitation force.

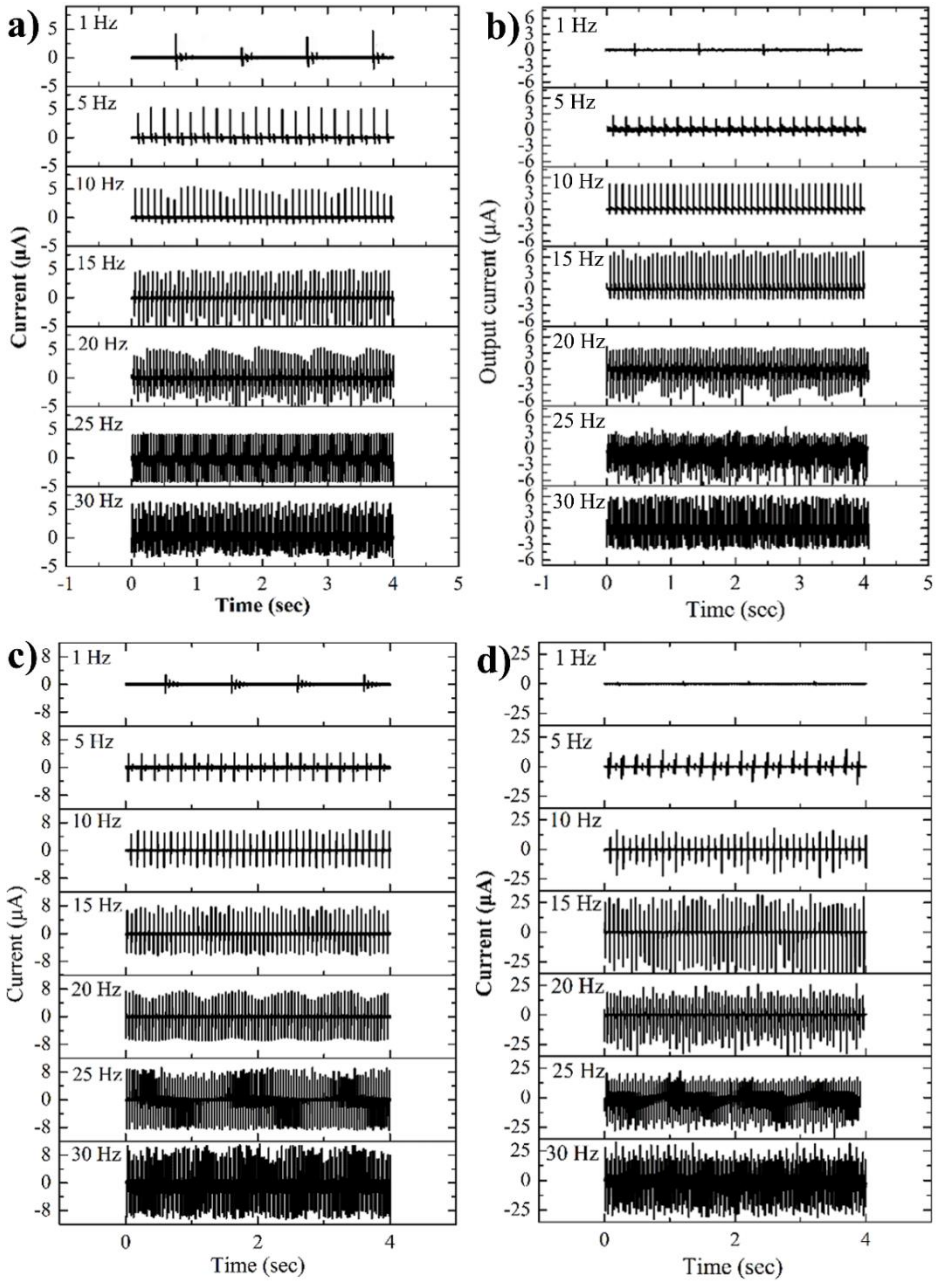

Fig. S4 The output current of the device with exerted different excitation force.

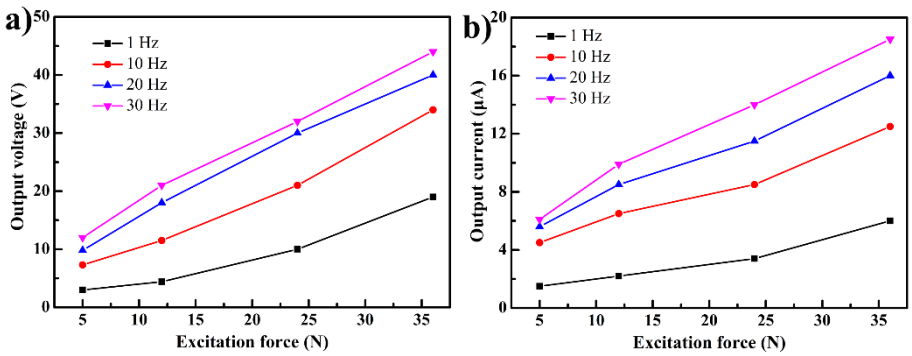

Fig. S5. Plotting lines of electric output versus excitation force.

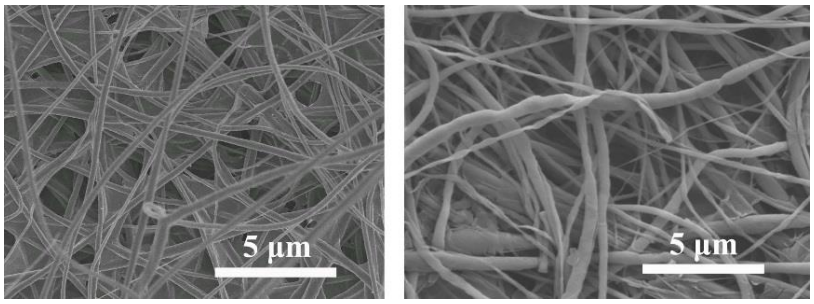

Fig. S6 The surface morphologies of membrane device before and after test.

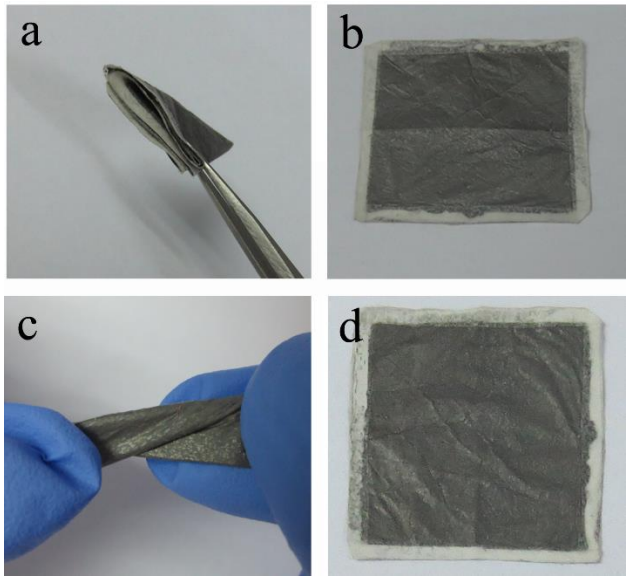

Fig. S7 Flexibility test of the membrane device. a and b presents the images of membrane device before folded and unfolded. c and d presents the images of membrane device before twisted and untwisted.

Movie S1 and S1 display that LEDs are lighted by using the piezoelectric membrane device with a size of 4 cm×3 cm. The excitation force of 35 N with different frequency (5 Hz and 10 Hz) is involved.