Supplementary information

A fabric-based hydrovoltaic electricity generator with multi-component carbon black for sustainable energy output

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Supplementary Videos

Supplementary video 1. Four FWEGs in series to drive an LED for 3 hours.

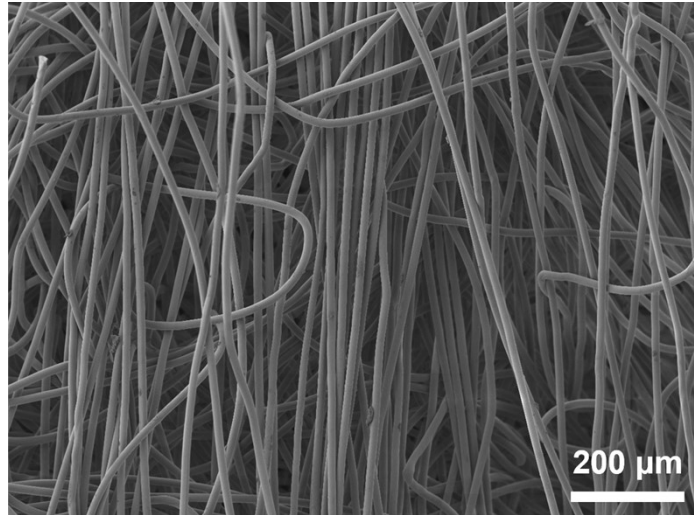*Supplementary video 2. Demonstration of four generators in series to power the calculator.*

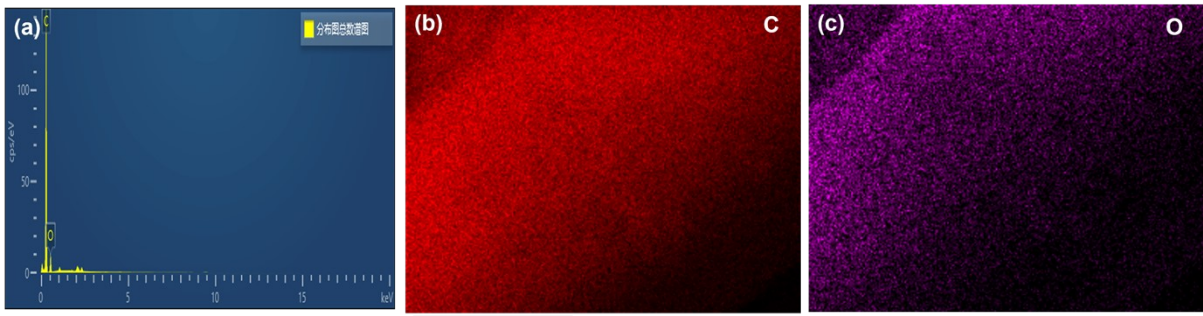*Fig. S1: SEM images of the original commercially available non-woven fabric.*

Fig S2: EDS image of ***FWEG******. (a) Total spectrum of distribution map. (b) Carbon element distribution. (c) Oxygen distribution.***
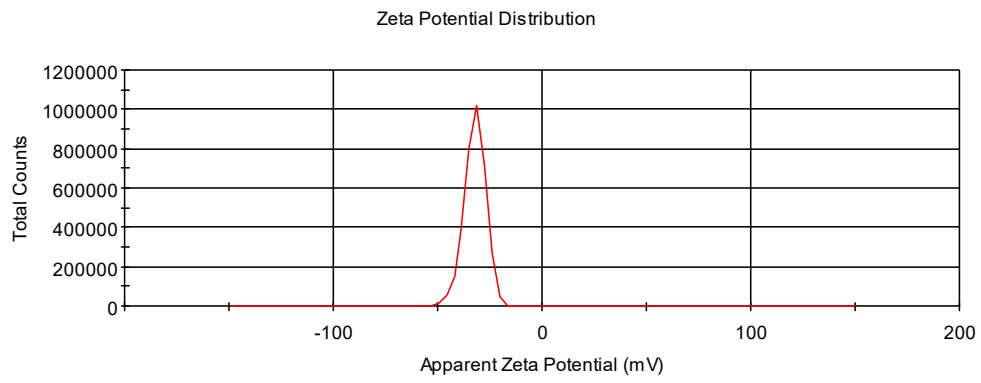
Zeta Potential Distribution

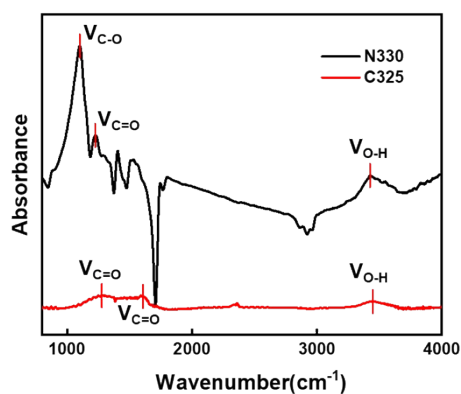*Fig S3: Zeta potential of N3C7 Carbon black.*

Fig S4: Fourier transform infrared spectrum (FTIR) of carbon black. N330 carbon black produces characteristic peaks of infrared spectrum at 1098 cm⁻¹, 1220 cm⁻¹ and 3421 cm⁻¹, and C325 carbon black produces characteristic peaks of infrared spectrum at 1278 cm⁻¹, 1597 cm⁻¹ and 3438 cm⁻¹, which proved that Carbon black was rich in oxygen-containing functional groups (-OH, -COOH).
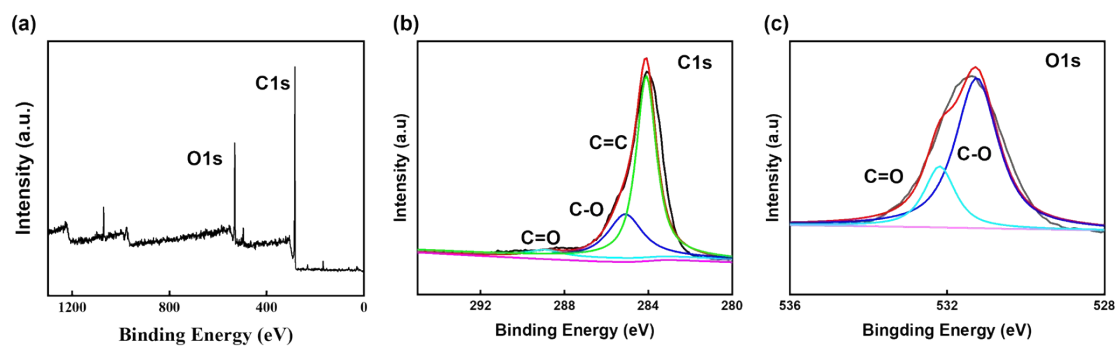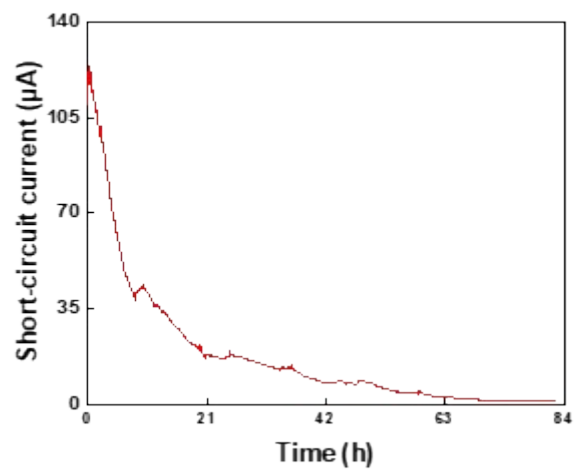
Fig S5: XPS spectra of N3C7 Carbon black.

Fig S6. Short-circuit current testing for long-term electric generation.

Table 1. Comparation of the performances and cost of relevant researches

Materials	Current density ($\mu A/cm^2$)	Cost (RMB/g)	Ref.
Al_2O_3	0.01111	1.764	1
MoS_2	0.01389	12.43219	2
TiO_2	0.01511	1615.735	3
$AlCl_3$	0.049	5.7204	4
Wood	0.02067	0.04	5
PAN	0.92125	19.143	6
MWCNT	1.51111	333.022	7
Graphite	0.02967	0.49173	8
SiO_2	0.0381	0.48	9
PPy	2.66667	199.9	10
Carbon black	8.54444	0.0208	This work

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