

# A Near-Zero Power Triboelectric Wake-Up System for Autonomous Beaufort Scale of Wind Force Monitoring

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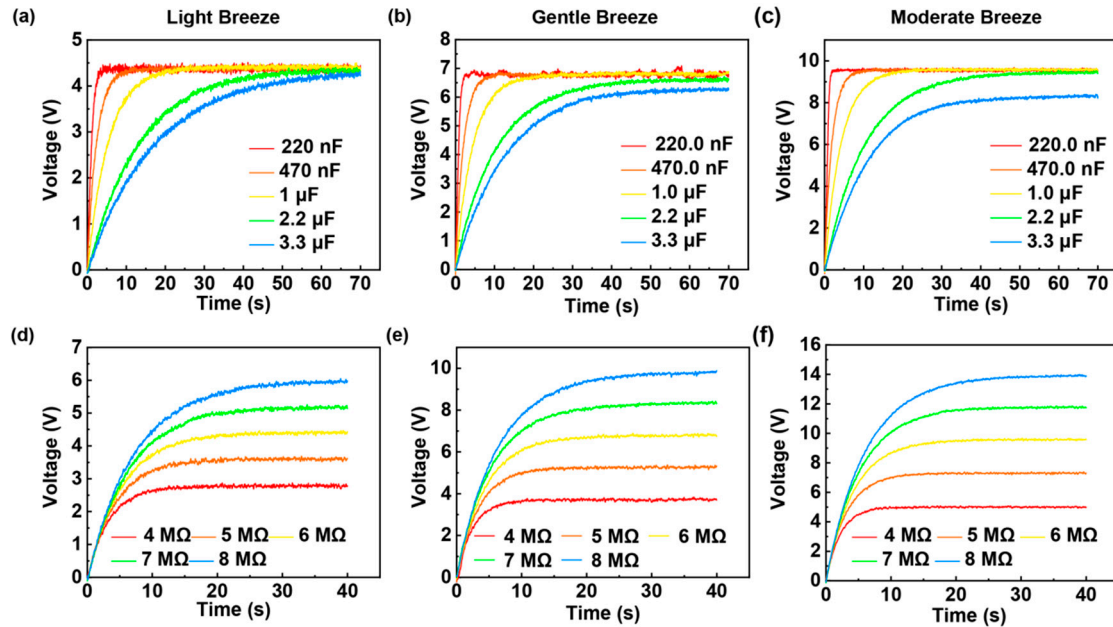
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Beaufort Scale of Wind Force	Calm	Light Air	Light Breeze	Gentle Breeze	Moderate Breeze
Wind Speed Ranges (m/s)	0-0.2	0.3-1.5	1.6-3.3	3.4-5.4	5.5-7.9

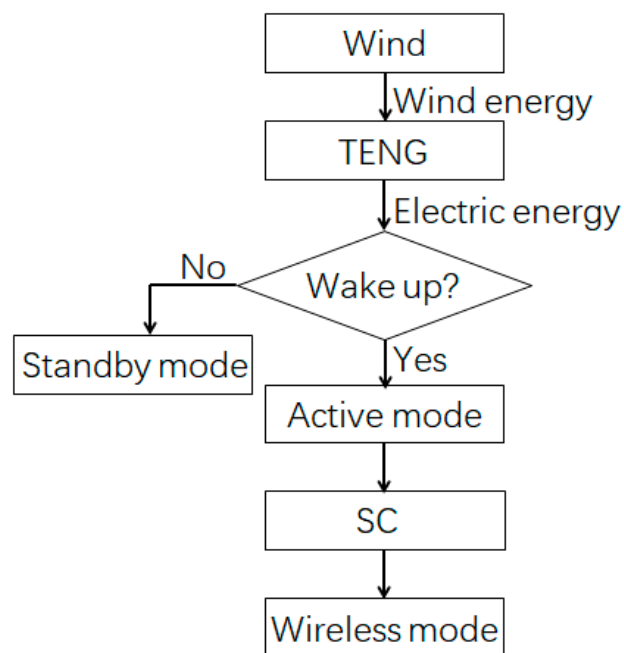
**Figure S1.** The wind speed ranges corresponding to the Beaufort scale of wind force at grade 1-4.



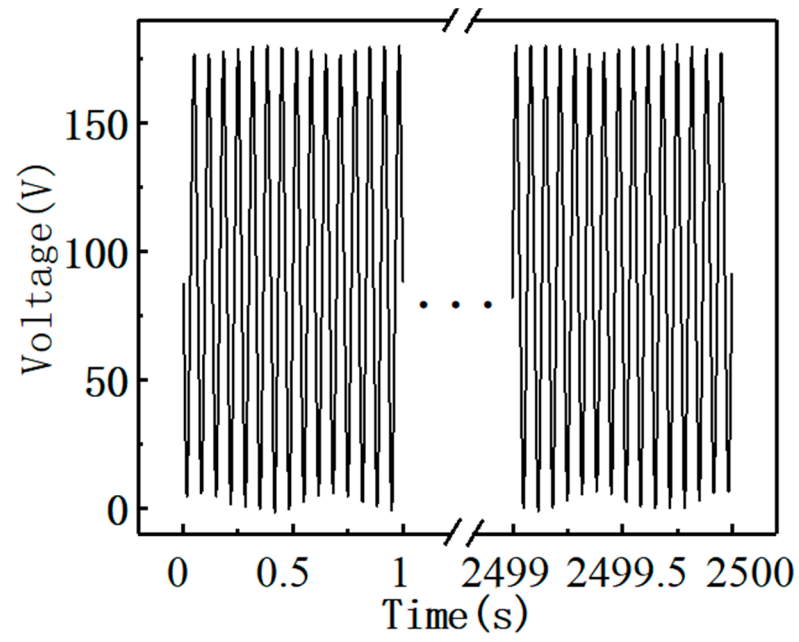
**Figure S2.** The voltage of the C1 with different capacitance in light breeze (a), gentle breeze (b), and moderate breeze (c). The voltage of the C1 with different resistance in light breeze (d), gentle breeze (e), and moderate breeze (f).

Calm ( $V_{C1} < 2\text{ V}$ )			
0	0	0	0
Light Air ( $2\text{ V} \leq V_{C1} < 4\text{ V}$ )			
1	0	0	0
Light Breeze ( $4\text{ V} \leq V_{C1} < 6\text{ V}$ )			
1	1	0	0
Gentle Breeze ( $6\text{ V} \leq V_{C1} < 8\text{ V}$ )			
1	1	1	0
Moderate Breeze ( $V_{C1} \geq 8\text{ V}$ )			
1	1	1	1

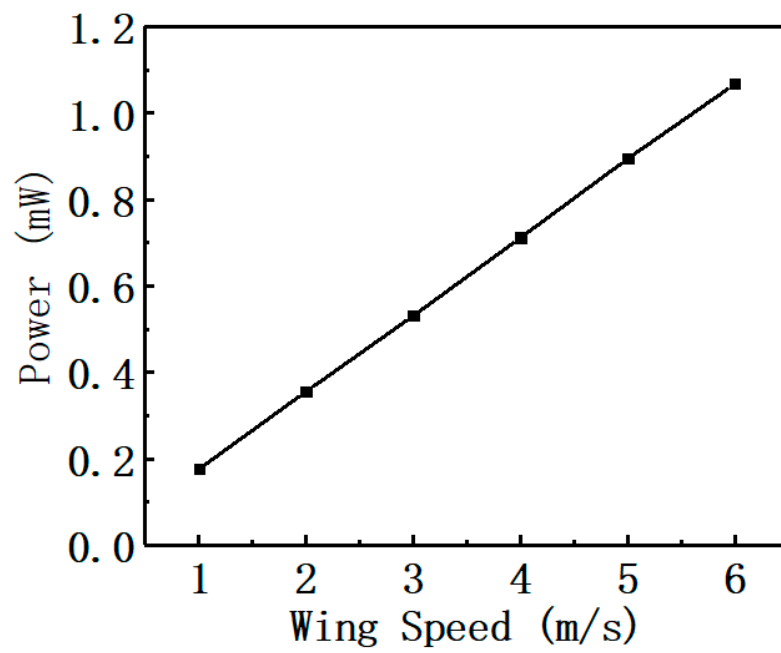
**Figure S3.** The output of the comparator with the Beaufort scale of wind force at grade 1-4.



**Figure S4.** The flow chart of the NP-TWS.



**Figure S5.** Durability test of TENG result.



**Figure S6.** The output power of TENG.

**Video S1.** The dynamic display of Beaufort scale of wind force monitoring.