Supplementary Materials

A scalable, robust and high-sensitivity fiber sensor for real-time body temperature monitoring

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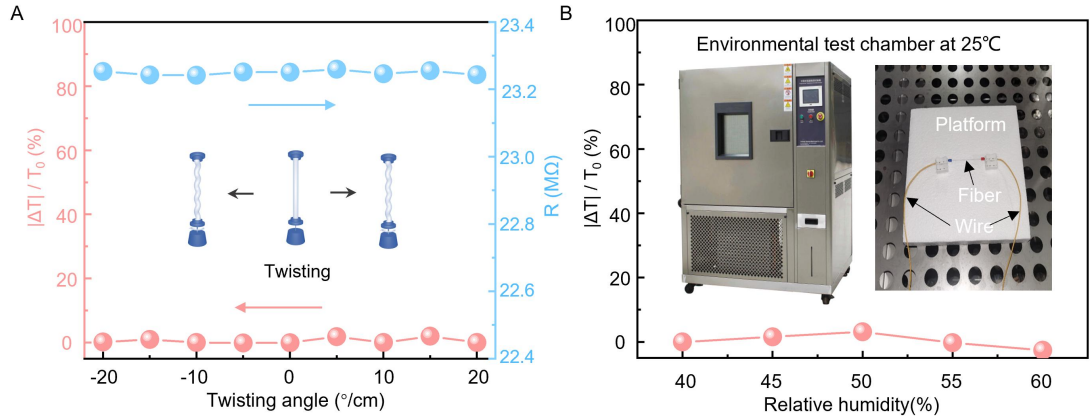
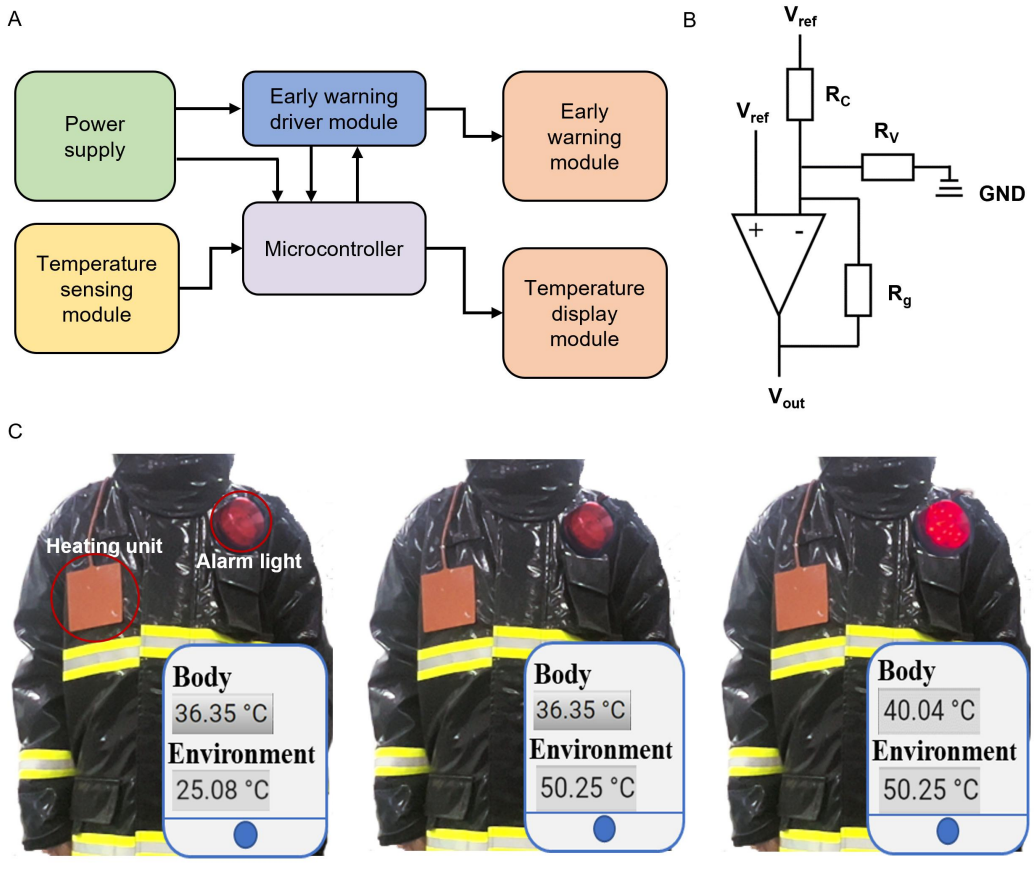
Supplementary Table 1. Comparison between this work and existing temperature sensors

Fibrous temperature sensors	Sample 1[1]	Sample 2[2]	Sample 3[3]	Sample 4[4]	Sample 5[5]	Sample 6[6]	**This work**
Materials	CNT/Ionic liquid/Silk/ PET	rGO	PEDOT/TPU	PEDOT: PSS/SWCNT/ PU	PANI/PAA	PEDOT/Silk	**Ionic liquid/Cotton yarn**
Fabrication	Dip-coating	Wet spinning	Situ polymerization	Dip-coating	Two-step method	In-situ chemical polymerization	**Dip-coating**
Detection range	30-65 ℃	30-80 ℃	20-40 ℃	20-120 ℃	40-110 ℃	20-50 ℃	**25-40 ℃**
Sensitivity	1.23 %/℃	0.64 %/℃	0.95 %/℃	0.93 %/℃	0.016 %/℃	0.47 %/℃	**2.61 %/℃**
Resistance to stress	N/A	N/A	N/A	N/A	N/A	N/A	**√**
Resistance to bending	N/A	N/A	N/A	N/A	N/A	N/A	**√**
Resistance to twisting	N/A	N/A	N/A	N/A	N/A	N/A	**√**
Resistance to humidity	N/A	N/A	N/A	N/A	N/A	N/A	**√**
Working in extreme environments (pH)	N/A	N/A	N/A	N/A	N/A	N/A	**√**



Supplementary Figure 1. Robust performance of the fibrous temperature sensor. (A) Dependence of temperature and resistance response on twisting angle, the twisting angle varied from -20° to 20°. T_0 and T correspond to the temperature measurement before and after twisting respectively, $|\Delta T|=|T-T_0|$. (B) Dependence of temperature response on relative humidity, T_0 correspond to the temperature measurement at 25 °C on 40% relative humidity, and T correspond to the temperature measurement at 25 °C on different relative humidity, $|\Delta T|=|T-T_0|$.



Supplementary Figure 2. Performance of the fibrous temperature sensor. (A) System-level block diagram of the temperature monitoring system. (B) Signal amplification circuit schematic. (C) Firefighting suit alarm process.

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