Flexible Generator for Mobile Medication and Human Interactive System

Jun Zhou
Huazhong University of Science and Technology

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Abstract:

Wearable electronics for monitoring physiological and biomechanical signals of human body are key sensors for personalized healthcare. To make the wearable electronics work independently and sustainably, a wearable power source is indispensable. Thus, smart energy harvester that can extract energy from human body motions to run body-worn healthcare sensors is particularly desirable. We demonstrated a flexible generator (FG) for converting tiny-scale mechanical energy into electricity. The FG relies on the electrostatic effect, and the electrostatic charges on the electrets ware generated by the corona method. The FGs can convert biomechanical motions/vibration energy into electricity with an average output power density of ~ 0.1 $\mu W/cm^2$, and have been identified as an effective building element for power shirt to trigger a wireless body temperature sensor system. Furthermore, the FGs ware demonstrated as a self-powered active sensor for human Interactive system.