micromachines

Supplementary Materials

Health monitoring system from pyralux copper-clad laminate film and random forest algorithm

Chi Cuong Vu [1], Jooyong Kim [2], and Thanh-Hai Nguyen [1]*

1 Faculty of Electrical and Electronics Engineering, Ho Chi Minh City University of Technology and Education, 01 Vo Van Ngan Street, Linh Chieu Ward, Ho Chi Minh City 700000, Viet Nam; cuongvc@hcmute.edu.vn, nthai@hcmute.edu.vn
2 Department of Materials Science and Engineering, Soongsil University, Seoul 156-743, Republic of Korea; jykim@ssu.ac.kr
* Correspondence: nthai@hcmute.edu.vn (Dr. Thanh-Hai Nguyen)

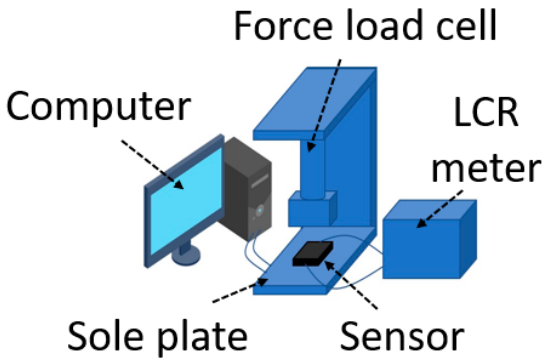

Figure S1. Universal testing machine (UTM), consisting of a computer, a force load cell, a LCR meter, and a sole plate.

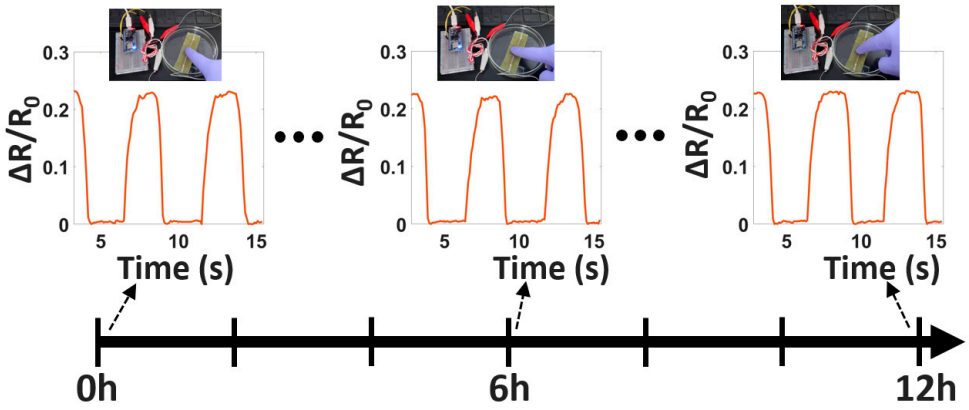

Figure S2. Signal of the sensor when immersed in the water at different times (0 - 6 - 12 hours).

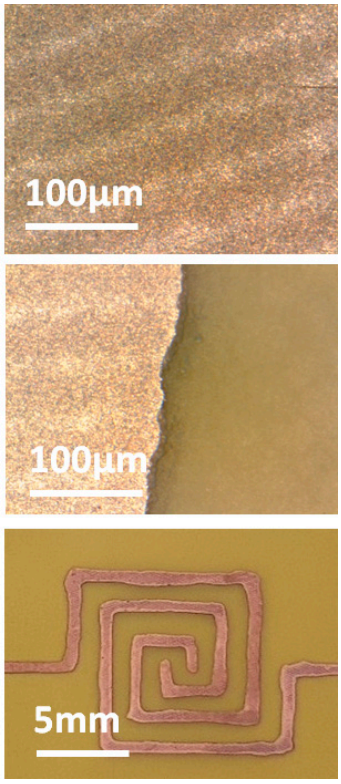

Figure S3. SEM picture of the pyralux film after etching-solution.

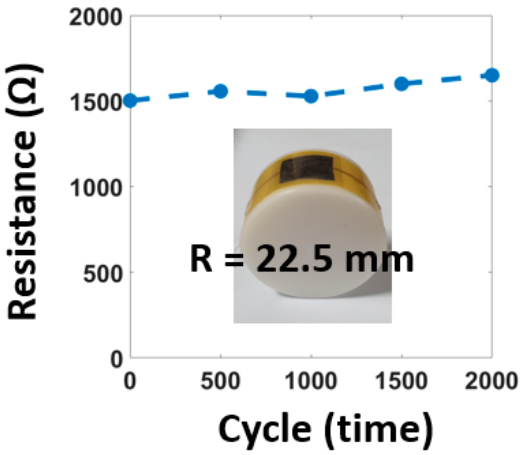

Figure S4. Durability of the sensor (in the bending state with R = 22.5 mm) after 2000 cycles.

The durability of the sensor (in the bending state with R = 22.5 mm) is described in Figure S4. The maximum resistance was recorded every 500 cycles. The results show that the change is about 10 % after 2000 loading/unloading cycles.

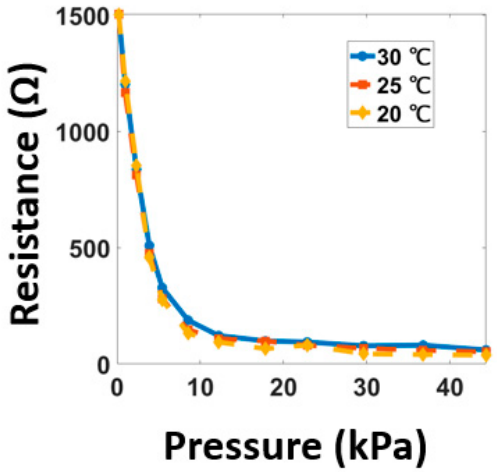

Figure S5. The resistance change of the sensor at different temperature.

Figure S5 shows the good stability of the sensor with different working temperatures (20 - 25 - 30 °C). The water-resistant construction (polyimide layer and 3M adhesive layer) is to ensure that the sensor's operation is less affected by warmth (in breath) when monitoring human respiration.