

Visual Electrocardiogram Monitor Based on Multicolor Light Emitting Diodes Indicator

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Information visualization and displaying has become increasingly prominent for wearable health monitoring equipment. Multicolor electroluminescent devices have attracted considerable attention as signal indicators owing to their simple and easy-to-observe properties. Here, we demonstrate a visual electrocardiogram (ECG) monitor using the perovskite multicolor light-emitting diodes as the ECG signal indicator. The fabricated flexible multicolor light-emitting diodes exhibit good color-tunable stability and high bending resistance, which can be conformally integrated on human skin. By converting the small ECG signal to a voltage scheme to drive the multicolor light-emitting diodes with dynamic sequential color change, we realized the function of real-time visualization of ECG information through a facile and low-cost way. The ECG visualization design may provide opportunities for the development of healthcare products with real-time bio-signal monitoring.

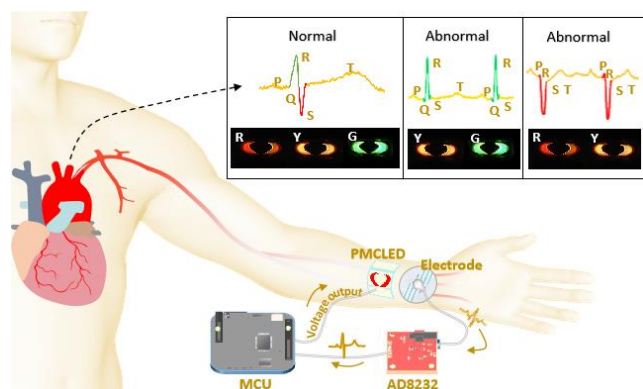


Fig. 1. Schematic illustration of the real-time and visual ECG synchronization monitor

References

- [1] B. T. Ren, G. C. Yuen, L. Jiang, D. J. Zhou, P. Xu, G. J. Li. *Adv. Funct. Mater.*, 29(17), 1807894 (2019).
- [2] J. F. Zhang, B. T. Ren, S. B. Deng, J. C. Huang, P. Xu,
- [3] L. Jiang, X. Luo, Z. M. Luo, D. J. Zhou, B. X. Liu, J. C. Huang, J. F. Zhang, P. Xu, G. J. Li. *Chin. Opt. Lett.*, 19(3), 030001(2021).
- [4] X. Luo, T. Zheng, Z. M. Luo, J. Liu, S. B. Deng, R. S. Chen, M. Zhang, J. F. Zhang, G. J. Li. *ACS. Photonics*, 8, 3337-3345(2021).