

ECG and sEMG Conditioning and Wireless Transmission with a Biosignal Acquisition Board

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The market for wearable vital signs monitoring systems (WHMS) has grown together with the demand for devices that offer greater medical reliability and lower cost. This study introduces a wearable system comprising conditioning blocks for electrocardiogram and surface electromyogram signals, an analog-to-digital converter, and wireless data transmission capabilities. These features have been implemented reliably in accordance with the specific requirements of these signals, as well as complying with patient safety directives and ensuring the quality of the resulting signal, allowing it to be used as a data collector for subsequent software implementation. To evaluate its performance, this system is compared against commercially available wearable devices, and the expected outcomes are examined. The obtained results are then presented, showcasing the system's capabilities and leading to a positive conclusion. As future work, there is a focus on enhancing the user interface and implement digital processing in the result for use in pathology recognition software with greater accuracy.

Keywords: Electrocardiogram · Surface Electromyogram · Signal Conditioning