



A reliable signal conditioning circuit to acquire human biopotentials

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Abstract— It is well known that every human being is a complex system made up of cells, tissues, organs and organ systems that function together to maintain its health. The coordinated physiological processes maintain most of the steady states in an organism, not at a fixed value, but within a narrow, relatively constant range, known as homeostasis [1]. Recently, a non-invasive measurement of human biopotentials has been proposed in order to provide information about the condition of the human system as a whole [2]. In this work, the development of two identical signal conditioning circuits that facilitate the acquisition of the human biopotentials simultaneously from both the hands has been presented. The objective of developing these circuits is to enhance the signal levels of both the measured biopotentials uniformly and faithfully, without distortion. This is expected to enable a more reliable and detailed analysis of the acquired signals in future.

Keywords- human system, bioelectric signals, signal conditioning circuit, static and dynamic calibration, statistical analysis