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Abstract
From past literature known, the measurement of skin impedance on acupuncture point could reflect the conditions of viscera. Therefore, the electrical impedance measurement and analysis of acupuncture point, nowadays in regard to biomedicine basic research and clinical practice is a term value results in the attempt the diagnosis method.
This main goal of this research is to design and implement a bioimpedance measurement system with multi-frequency band using LabVIEW for acupuncture point verification, provides the electrical impedance measurement and analysis data of acupuncture point, extrapolates various internal organs the activity and its disease in. This system consists of a power unit, a four-electrode probe, a constant current drive unit, pre-amplifier and filter units, a signal generator unit, and data acquisition and control units, where the signal generator unit, and the data acquisition and control units are carried out utilizing DAQ card (PCI-6024E) which is mounded inside a PC. Its working principle is first to send out a constant-amplitude sinusoidal voltage signal from the analog out (A/O) of the DAQ card to the modified Howland constant current drive unit, then this unit injects current into surface skin to produce voltage difference between any two points. Meanwhile, this detected voltage difference is amplified and filtered, and finally the processed signal is transmitted to the analog input (A/I) of the DAQ card for further software operation, display, and storage. This system was verified by measuring the bioimpedance of Quze acupuncture points (PC3) of skin, frequency ranging from 100 Hz to 1KHz. After comparing these results with that of measuring non-acupuncture points and referring to related clinical data, it conforms that this system is suitable for fundamental studies on acupuncture points.
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