

Simple, comfortable system for fast multi-lead ECG measurements

A method to simultaneously obtain six standard ECG leads that is fast, comfortable, does not need auxiliary personnel for electrode placement, works for standing and for seated people, and is compatible with existing electrocardiographs. Partners to further develop the system and/or to establish commercial

The Challenge

Conventional methods to obtain the ECG require the placement of up to ten electrodes on the body and their attachment to an ECG machine using long leads. The procedure needs the involvement of an assistant to clean or prepare the skin, place the electrodes and connect the wires to the machine. For the patient, it requires him/her to expose the skin areas where electrodes are to be placed, and usually to lie down on an examination bed, which is particularly uncomfortable for elders. Overall, the procedure is cumbersome and unnecessarily expensive for a cursory examination or follow-up program.

The Technology

Current electronic circuits can obtain high-quality ECG signals from dry electrodes that don't need any skin preparation. For fast measurements, a means must be provided for the subject to easily establish contact with a plurality of electrodes without any previous training. By using two metal electrodes on a flat surface and two spherical metal handles, we only need the subject to stand on a platform with their bare feet or wearing socks and at the same time holding the two metal handles to get access to the four points needed to obtain the three basic ECG leads from which the three augmented limb leads can be derived. This kind of access to the measurement points ensures high immunity to electrical interferences coming from the power lines. The platform can be that of a bathroom weighing scale, for example intended for bioimpedance measurement, and the ECG signals are communicated to an external device for display. Alternatively, the feet electrodes can stick to a flexible material placed on the floor and connected, together with the handles, to an electrical connector and from this to a conventional ECG machine.

Innovative advantages

- The method is as fast as standing on a spot and grasping two handles.
- The subject does not need to expose any body part other than feet and hands.
- The subject can be standing or seated.
- No need for any auxiliary personnel to help the subject or place the electrodes.
- No exploratory bed needed.
- Six standard ECG leads are simultaneously obtained, as opposed to multi-lead systems based on watches or single-lead hand-held devices.
- The electrode system is compatible with existing electrocardiographs.
- Unbiased results

Current stage of development

Laboratory prototype is available that has been successfully used in a small-scale clinical

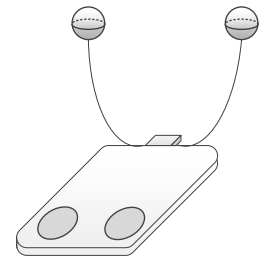
Applications and Target Market

Cardiac centers, home health care, retirement and nursing homes, sports medicine, fitness centers, labor medicine, groups screening, primary care centers, community health centers.

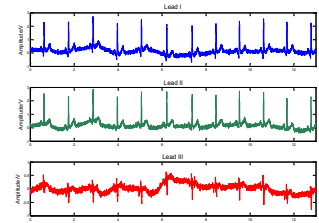
Reference number

MKTXXXXXX_H

New device for fast ECG measurements useful for home health care and fitness centers.



Only needs the subject stand on a platform with bare feet or wearing socks and hold two metal handles



Six standard ECG leads are simultaneously obtained

Business Opportunity

Technology available for licensing with technical cooperation

Patent Status

PCT application

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