

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 are sought for further development of the system and patent licensing.

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.

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 metal handles, we only need the subject to stand on a platform with bare feet and at the same time hold 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. 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 be on 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-leads systems based on watches or single-lead hand-held devices.
- The electrode system is compatible with existing electrocardiographs.

Current stage of development

Laboratory prototype available.

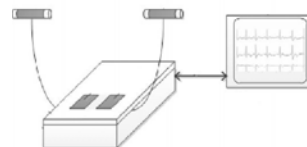
Applications and Target Market

Home health care, retirement and nursing homes, sport medicine, fitness centers, labor medicine, groups screening, primary care centers, community health centers.

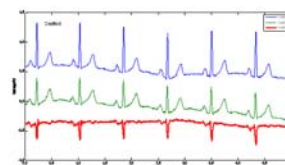
Reference number

MKT2011/0086_H

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



Only need the subject stand on a platform with bare feet 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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